Paradigm Shift in the Management of Agricultural Cooperatives in Asia

Daman Prakash & G.C. Shrotriya

International Cooperative Alliance
n Farmers' Fertiliser Cooperative Limited

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This publication has been made possible by the financial contribution so generously and kindly made available by the Indian Farmers' Fertiliser Cooperative Limited, New Delhi, a member-organisation of the International Cooperative Alliance.

Cover design by : **Daman Prakash**

June 1999. [1100 copies]

ISBN : 92-9054-056-7

PRINTED IN INDIA at Document Press, HS-14 Kailash Colony Market, New Delhi 110048.
Telephone: [91-11]643-2836. TeleFax: [91-11]646-3593

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Acknowledgements

This modest publication grew out of the technical papers presented by senior officers of the IFFCO at the 13th ICA-Japan International Training Course on Strengthening Management of Agricultural Cooperatives in Asia-Pacific, a part of which was held at the IFFCO's FMDI [Fertiliser Marketing Development Institute], Gurgaon, during January-February 1999. 15 senior level managers of agricultural cooperatives attended the 6-month long training course from 11 countries i.e., Bangladesh, China, India, Malaysia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand and Vietnam. The main theme of the training course was "value-addition through agro-processing" with an aim of increasing the income of the basic farmer-member. India happens to provide some good examples of agro-processing, especially in dairying and sugar cooperative sectors. Also, organisations like the IFFCO have contributed significantly towards increasing food production through production, distribution and proper application of fertiliser through extensive farm extension programmes. It was, therefore, considered appropriate to document the material presented during the training course for the information and use of field officers and cooperative scholars. In the organisation of the training course, most willing support and assistance was extended by Dr Virendra Kumar, Marketing Director of the IFFCO and his colleagues, and Dr Robby Tulus, ICA Regional Director for Asia and the Pacific and his colleagues. The IFFCO has kindly provided the training and residential facilities of the FMDI to the participants including supporting the publication of this material.

The organisers are grateful for their technical papers and presentations to: Mr U.S. Awasthi, Managing Director; Dr Virendra Kumar, Marketing Director; Dr Gopal N. Saxena, Joint General Manager-Cooperative Services; Mr R.C. Gupta, Joint General Manager-Marketing; Dr D.K. Shukla, Executive Director-Transportation; Dr Bhu Dev Singh, Joint General Manager-Marketing; Dr C.S. Rao, Senior Manager-HRD; Dr G.C. Shrotriya, Senior Manager-Bio Sciences; all of IFFCO; Dr O.P. Gaur, Chief Executive and Dr K.G. Wankhade, Training Coordinator of the Indian Farm Forestry Development Cooperative-IFFDC; and Dr Daman Prakash of the ICA Regional Office for contributing two papers besides his handling the manuscript of this publication. The organisers are also grateful to Mr Ram Bir Singh, Manager in-charge of the FMDI of IFFCO for facilitating the conduct of the training programme and for most willingly providing all the needed logistic support to the participants and the programme.

Foreword

It is indeed our pleasure to put this valuable publication in the hands of our field workers, managers of agricultural cooperatives, and cooperative research scholars with the hope that they would get an insight into the achievements of agricultural cooperatives, their problems and their valuable contributions in addressing the food security issues in the world. Institutions like the Indian Farmers' Fertiliser Cooperative Limited [IFFCO] and the International Cooperative Alliance [ICA] have a lot to offer in the form of experiences, networking and literature for the cooperative managers and field workers to be able to lead their cooperatives in the wake of open market economy pressures. This material is one such example.

We are confident that the learned papers included in this material and so ably edited, processed and summarised would be a valuable addition to the cooperative literature. Our friends and colleagues, Dr Daman Prakash, Director of the Agricultural Cooperative Management Training Project from the ICA Regional Office, and Dr G.C. Shrotriya, Senior Manager (Bio-Sciences) from the IFFCO's Marketing Division have done an excellent job in running the 13th ICA-Japan International Training Course on Strengthening Management of Agricultural Cooperatives in Asia and also on consolidating and presenting the technical papers which were used during Part-I component of the course held at IFFCO's FMDI during January-February 1999.

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Paradigm Shift in the Management of Agricultural Cooperatives in Asia -An Overview

Daman Prakash & G.C. Shrotriya

The most remarkable aspect of Indian agriculture is its diversified nature; thanks to varied climatic and soil conditions and abundant availability of sunshine. Vastness of the country affords availability of various crops and other resources round the year. India has foodgrain crops, commercial crops, aquaculture, floriculture, sericulture, horticulture, viticulture, poultry, animal husbandry, dairy sector, pisciculture, forestry and a manufacturing sector based on agricultural commodities.

The Indian Agriculture -its Strengths

Over the last 50 years, Indian agriculture acquired great strength and resilience. The Green Revolution, which occurred in the late '60s and early '70s, and the White Revolution, which gained momentum in the '70s, are a standing testimony to the capabilities of Indian agriculture. Development and application of high yielding seed technologies, use of fertilisers and pest control measures, spread of irrigation, the mechanism of minimum support prices to farm output, increase in cropping areas and farming intensity, improved cultivation practices, application of pre-and post-harvest technologies, strengthening of extension services all contributed significantly in augmenting production.

India has a natural comparative advantage in agricultural exports because of the lower import needs of inputs, reasonable labour costs and natural resources. This advantage has to be maximised by exporting agricultural products and by giving a special thrust to the exports of fruits, flowers, vegetables, poultry and livestock products.

Indian economy is presently going through the process of reformation. A reformation to remove the obstacles and to create conditions for the growth of the economy. The priorities of the economy are to achieve the basic goals of growth, equity, self-reliance and

modernisation. The national endeavour is to bring about a sustained improvement in the living standards of the people of India, especially the poor. Rapid and sustained growth of output and employment opportunities is the surest antidote to the problem of poverty.

The private trade, by and large, undertakes marketing of agricultural commodities. The Central and State Governments, however, endeavour to protect and promote the interests of both producers and consumers through institutional mechanism that has a bearing on functions such as production, pricing and marketing.

The National Agricultural Cooperative Marketing Federation of India Limited (NAFED) is engaged in procurement, processing, distribution, export and import of selected agricultural commodities. The National Cooperative Tobacco Growers' Federation Ltd., the National Consumers' Cooperative Federation and the Tribal Cooperative Marketing Development Federation of India Limited (TRIFED) are a few other organisations in the cooperative sector. The share of cooperatives in the total marketing of agricultural commodities, however, is rather small. The two major fertiliser cooperatives i.e., the IFFCO [the Indian Farmers' Fertiliser Cooperative Limited] and the KRIBHCO [the Krishak Bharti Cooperative Limited], have also been engaged in the production and marketing of high quality fertilisers, adequately supported by extension services to the farmer-members.

Weaknesses in Agricultural Sector

Agriculture suffered from many ailments. Some of these are: Low Growth Rate; Low Productivity; Dependence on Monsoon; Low Investment; Inadequate Credit and Low Fertiliser Consumption

Strategy for Development

It is high time that the Government creates necessary conditions to give a boost to Indian agriculture through new investments, greater availability of credit and development of infrastructure for production, internal marketing and exports. The driving force behind Indian agriculture is its poverty alleviation potential.

Fertiliser consumption has to be promoted to increase production to meet the increasing domestic requirements and exports. Profitability of farming operations could be increased only through higher productivity. Use of bio-fertilisers, bio-pesticides, organic manures and micro-nutrients has to be promoted vigorously.

Agricultural Cooperatives

Agricultural cooperatives play a very important role touching almost every aspect of the human life. When the agricultural cooperatives deal with the credit, they are concerned with the household incomes and its expenditure by the farmers. When the agricultural cooperatives deal with the supply of agricultural inputs, their main concern remains the nutrition for the population through food grain production. When the agricultural cooperatives deal

with the plant protection, their concern remains for the health of the plant, health of the consumer i.e., the population. Even the animal health aspect is taken care since fodder is another important ingredient in crop production. Since the agricultural cooperatives deal with the chemicals in the form of fertilisers and pesticides, they are also concerned with the environmental and ecological problems. Cooperatives in general are concerned with the education and training of their members; thus not only upgrading their skills but also educating them on various facets of life including Cooperation. As the cooperatives deal with the common needs, through mutual efforts, cooperatives also help in knitting the fabric of the society.

Agricultural Cooperatives and the Problems They Face

Some of the problems faced by agricultural cooperatives have been, among others, poor management, lack of capital resources, inadequate training/education system, lack of communication/participation among members, feudalistic characteristics of society, unclear and inadequate policy on the development of agricultural cooperatives, and weak linkages among the activities of the cooperatives e.g., production, credit, marketing etc. To overcome such problems, some of the measures taken by the governments and movements have been: re-assessment and improvement of farm policies, human resource development through formal and informal training of members, development of commercial partnership and joint ventures with private enterprises, development of marketing and agro-processing, implementation of self-reliance projects, diversification of agricultural products including the development of export-oriented crops through contract farming, promotion of universal membership, strengthening of legal framework of cooperatives and accelerating land reforms and land consolidation programmes..

Agricultural cooperatives provide all types of economic and social services to their members. They demand effective, enlightened and skilled leaders. They needs initiatives and services to sustain the interests of their members through the provision of education, training, guidance, extension and farm inputs, farm credit and marketing opportunities. They have to be run on democratic lines. They operate within the framework of national guidelines, but at the same time fulfil the demands of domestic and international markets. Agricultural cooperatives, to be effective and acceptable, must take the members' views and their felt-needs into consideration. An active communication has to be established and sustained between the management and the members, and between the leadership and the management. Agricultural cooperatives have no reason to be afraid of the open market pressures if their members remain united and respond to the needs of the market. The unity of members is the outstanding strength of the cooperative business.

In the similar context, it is pertinent to take note of the characteristics of the Agricultural Cooperatives of Japan. The evolution of the present-day agricultural cooperatives in Japan has been through a difficult, painful and consistent process. They have a lot of expe-

riences to share with their counterparts elsewhere in the Region. The pillars of strength of the Japanese agricultural cooperatives consist of, among others: amalgamation of primary cooperatives; restructuring of JA [JA stands for Japanese Agricultural Cooperatives] organisation from three tiers to two-tiers to generate greater efficiency in management and provision of services; efficient provision of marketing, supply and credit services; farm guidance to ensure higher productivity with due consideration for environment; better-living activities in association with the women's associations; continuous policy dialogue with the government; acceptance and application of farm technology; and dissemination of information and technology among farmers in Japan and abroad. Agro-processing leading to value-addition and higher economic returns to farmer-members is the key to the success of agricultural cooperatives because through the application of this concept members get more economic returns. Agricultural cooperatives strive hard to help their members to increase and sustain their income levels through a variety of innovations and services. Economic returns are the key to sustain the relationship between the members and their cooperatives. JAs have, through their actions, given ample proof of it. We, in the Region, only need to have a more closer look at the dynamism of these institutions, respectfully, of course! It is worth a while to pick up some of the experiences to enrich our own agricultural cooperatives, especially their technical and management practices and innovations.

Food Security Issues

Food security has now become an important issue which is before the international community. Well over 800 million people are food insecure; almost 40,000 people die every day due to malnutrition. Food security is a fundamental prerequisite for maintaining the international order and socio-economic stability. Stable food availability at the national, regional and household level is a cornerstone of nutritional well being. Strengthening food production base is necessary for improving nutrition in most low-income and food-deficit countries. In addition, agriculture, including fisheries and forestry and related rural industries, provides income for the landless and their families, who are often among the most nutritionally vulnerable groups. Some of the most urgent problems to be addressed today are: the need to increase the productivity and living standards of small-scale producers and the disadvantaged; the need to maintain returns to producers that will enable them to adopt productivity-enhancing and labour-optimising technologies and the need to give adequate support to agriculture within development budgets which are already strained.

Essentially, food security, means that all people at all times have access to safe and nutritious food to maintain a healthy and active life. This definition implies three dimensions to food security, namely, availability, access and stability and various levels of aggregation i.e., global, national, household and individual. It thus becomes obvious that achievement of universal food security at the individual level, which implies achievement at the more aggregate levels, is constrained or facilitated by a combination of social, political and economic conditions. And, it is clear that the relevance of these conditions to food security at one level

of aggregation is not restricted to the state of conditions at the same level of aggregation. That is, for example, the ability to achieve food security in one country can be affected by conditions (economic, political and social etc.) in other countries. As the world economy becomes more integrated it becomes more difficult for a country to insulate itself from the decisions and actions of others. At the same time, this same integration offers the potential for spreading the effects of production shortfalls in one country over the world and thus greatly reducing the negative impact on food security in any one country.

The slow down in agricultural output is due to several factors. Some of these are: limited availability of new farmland; reduced water resources; increased consumption of food-grains due to increase in population; depletion of world food stocks; pressure on food consumption among developing countries; adverse effects of environmental changes; lack of appropriate technologies in crop protection and inadequate post-harvest systems and facilities; unfair trading practices in international markets, and unfavourable international practices and regulations. World food production is also known to have declined due to unfavourable lending practices adopted by international lending institutions, which often resort to arm-twisting of governments to adopt certain methods and strategies as a precondition to qualify for loans. Some other factors which also influence food security are: shifting or unclear political decisions of various governments especially in developing countries; inadequate agricultural research and facilities; lack of access to farm technology, improved seeds and other farm inputs; economic crisis; political instability; lack of incentives and proper planning for self-help and voluntary groups among farmers; shortage of farming population due to old age or due to lack of interest among the younger generation in agriculture; inadequate farm extension and guidance services; persisting poverty in developing countries; and slow progress in the implementation of land reform programmes.

Food security issues concern all - governments, farmers' organisations including agricultural cooperatives, business enterprises and the individual farmers. It is a national issue as much as international. Governments are obliged to review and redefine their current food security-related policies and arrangements. Farmers' organisations or governments alone cannot take decisions without the support and collaboration of individual farmers. Producers need to be educated and explained the importance of falling in line with the international trends in trading in food-grains without compromising on national interests and security. It becomes, therefore, the duty of the national or secondary federations of farmers or of the agricultural cooperatives to explain to their constituents what are the implications of WTO agreements on agriculture and how they could safeguard their own and national interests. In the era of globalisation, vigilance, quality, quantity and flow of information are of great importance. Any slippage would spell disaster for the farmers and farming.

It is often assumed that world food shortages can be eliminated by increasing food and agricultural production through the application of modern technology. It is also argued that supplying modern inputs such as large-scale irrigation, chemical fertilisers, farm machinery

and pesticides can improve the productive capacity of the land. New agricultural technology supported by other factors like land, finance resources, creditworthiness and political influence make a lot of difference.

The big jump in population in the second half of this century has created much greater demand for food. But supply has increased even faster than demand, and the price of staple food has fallen dramtically. Over the past 40 years the price of wheat, in constant dollars, has declined by 61 percent; the price of corn has dropped 58%. To produce more food, humans expanded the amount of land under cultivation and found ways to increase the yield from existing fields. For the most part this has been a success story. But each breakthrough has had undesirable by-products.

About 20% of the developing world's population are chronically undernourished. 30 years ago the percentage was twice that high, so we are making progress. But why must anyone go hungry? The problem is not production but distribution. Local food supply often has little to do with natural conditions. Some of the best-fed people live in countries - Japan, for example - that don't have enough land to grow their own food. Some people who live in green meadows washed by regular rainfall are hungry. A major reason for the disparity between haves and have-nots is politics. Most of the world's governments have the political will to assure their people the basic elements of a reliable food supply. But some don't.

Contributions made by Cooperatives

-the Role of the IFFCO

The cooperative sector has come to play a significant role in the Indian fertiliser industry. In terms of nutrients, the share of cooperative sector in the installed capacity is 19.7% for nitrogen and 10.2% for phosphate. Indian Farmers' Fertiliser Cooperative Limited (IFFCO) alone accounts for 64% of the installed capacity of Nitrogen and the total of the Phosphate capacity in the cooperative sector.

The Origin of IFFCO

The cooperative sector in India during mid-sixties was distributing 70% of the chemical fertilisers consumed in the country. This sector had adequate infrastructure to distribute fertilisers but had no production facilities. With the introduction of multi-agency approach by the Government of India in the distribution of fertilisers during 1967, the private trade also entered the field of fertiliser distribution. The private sector production units provided more opportunities to the distribution network of private trade and gave secondary preference to the cooperatives in the matter of supplies. Due to this development, the cooperatives started getting less supplies of the fertilisers. To overcome this limitation and also to bridge the growing demand for the fertilisers in the country, a new cooperative was conceived. In the year 1964, the Cooperative League of USA proposed to the Government of India that the American cooperatives were interested to collaborate with Indian cooperatives in setting up

fertiliser production capacity. The idea appealed to the Government of India and eminent cooperators of the country. As a result, the Indian Farmers' Fertiliser Cooperative Limited (IFFCO) was conceived and registered on November 3, 1967 as a multi-unit cooperative society with the primary objective of production and distribution of fertilisers. The U.S. cooperatives through the Cooperative Fertiliser International (CFI) provided a million dollar aid besides technical know-how to the newly-born IFFCO.

IFFCO's experience has clearly demonstrated that cooperative sector can succeed even in high investment and high technology areas like fertiliser production. The entire production can be marketed through the member-cooperative societies. The large-scale extension activities and cooperative development programmes have strengthened the bond between IFFCO and the Indian farmers who are the consumers as well as members of the village-level cooperative societies. The confidence generated by this success has paved the way for a vigorous growth programme to expand its existing units as well as establish new units. This will enable IFFCO to emerge as a global leader in production and marketing of chemical fertilisers located in a single country.

The basic philosophy of Cooperation, particularly the principles of democratic member control and concern for the community, has been the soul of decision-making of IFFCO. The Board of Directors has followed these principles and IFFCO grew from strength to strength because of its firm, consistent and genuine commitment to these Principles of Cooperation. There is no wonder when Mr U.S. Awasthi, Managing Director of IFFCO affirmed without any hesitation to say: "I must say that IFFCO is proud to be a cooperative and is dedicated to the service of millions of its constituent farmers".

Quality Policy and Quality Objectives -ISO 9002 Certification

The IFFCO has established for itself excellence in industrial production and marketing of its produce. It has qualified itself as a path-breaker in the sense that a cooperative organisation can also operate an industrial venture on international standards. It has obtained ISO 9002 Certification. Its quality policy and quality objectives are as follows:

Quality Policy

- Continue to provide quality fertilisers, marketing support to the cooperatives and extension services to the farmers and bring about quality improvements.
- Educate the farmers in maintaining soil health and to enhance the crop productivity through balanced and efficient fertiliser use;
- Bring about continuous improvements in all marketing operations;
- Maintain and develop "Organisation Culture" based on teamwork, harmonious relationships and collective decision-making.
- Upgrade the human resources with the latest technical and managerial skills through regular training; and

- Establish and maintain market leadership through quality.

Quality Objectives

- To educate employees on quality policy so that it is implemented and maintained;
- Achieving customer satisfaction by supplying quality fertilisers;
- Promoting Environmental friendly sustainable agriculture;
- Become leader by marketing highest quantity of quality fertilisers and services to cooperatives and farmers.

Through the globalisation, in which the 'consumerism', get increased focus, it is feared that in the constant pursuit for materialistic things and money will generate power struggle at all levels. In this process, ethics like morality, social equity, honesty, transparency and justice will be relegated to the back seat.

Enhancing Productivity Through Farmers' Organisations

If the cooperative instituitions have to effectively function, they will have to equip themselves for successfully negotiating the following points: meet the Identity Crisis effectively; education of members to achieve a higher level of participation in organisationsal and business affairs; ensure autonomy of their institutions; resource mobilisation for capital formation; bringing about reforms in cooperative legislation and policies through lobbying; reforming management practices; expansion and diversification of business activities; and undertaking HRD programmes and strengthening leadership.

The vital role of fertiliser in increasing agricultural production is well recognised. Since, the land-man ratio is declining due to increasing population, the additional food grain production has to come by increasing the productivity of land under cultivation. Adoption of modern agricultural practices is the only way for increasing agricultural productivity. This calls for application of inputs like chemical fertilisers, high-yielding seeds and pesticides besides use of mechanical equipment like seed-cum-fertiliser drills, sprayers, pump sets etc. Chemical fertilisers are very costly, particularly the phosphatic and potassic ones which have been decontrolled effective 25th August, 1992. Urea, of course, is relatively low-priced due to grant of subsidy by the Government of India. However, unless balanced nutrients are applied, the productivity cannot be sustained.

The process of economic liberalisation is affecting all sectors of our national economy, which are simultaneously undergoing vital transformation. It is in this situation of flux that we are trying to mark out the future trends. It is like trying to study the interaction of two simultaneously dynamic systems - the fertiliser system and the transportation and logistics system. A commodity caters to a primary demand and, in turn, generates a 'derived' demand for transportation and logistics. Thus the primary demand of food grains leads to a second-

ary demand of fertiliser and both, in turn, lead to the demand of transportation for making these commodities available in the consumption areas. Due to the interplay of a large number of variables, the assessment of quantification of the demand of transportation remains a difficult exercise.

Agricultural cooperatives in India are the backbone of the cooperative system and involved in a variety of functions and serving the rural masses by providing credit, fertilisers, seeds, agro-chemicals, agriculture implements etc. Their role has been commendable. These have helped in making essential inputs available to the rural masses. These need and deserve to be further strengthened.

Professionalisation in Cooperatives

The globalisation and liberalisation have brought in their wake new opportunities, which await exploitation. In this context, we need to explore new policy options and take new initiatives in this regard. The task before manpower development including training is to provide new understanding of cooperative values and ethos and to impart and indicate new skills and knowledge to equip the cooperative staff at all levels to face these new challenges by adopting an institutionalised modern management practices for upgrading the quality of both management and the staff. While thinking of human resource development in the cooperative sector we have to aim at development of an enlightened dynamic and forward looking leadership along with responsive membership. In the training programme, emphasis has to be laid on promotion of cooperation among various types of cooperatives as well inculcation of cooperative values and ethos among the cooperative personnel.

In the face of these emerging challenges, up-gradation of their management systems is now, more than ever before, the most vital need of the cooperatives. The significance of professionalisation of management in cooperatives, indeed, transcends mere management considerations.

HRM Needs of Agricultural Cooperatives

Manpower development in agricultural cooperatives is aimed to inculcate sensitivity on the following themes amongst different cadres of employees:

1. Concept of profitability and making a cooperative as a profit centre;
2. Mind-set change - marketing instead of sales;
3. Inter-personal relations with peers and net-working with supporting institutions;
4. Manage the change, competitive marketing strategy and micro-planning;
5. Customer satisfaction/farmer contact;
6. Entrepreneurial skills;
7. Coordination and leadership skills;

8. Member education programmes;
9. Computer culture in cooperatives;
10. Access to market information and management systems.

Role of Agricultural Cooperatives In Natural Resource Management

Land, water, air, climate, flora and fauna are the nature's gift to human beings. Enhancing and maintaining the production potential of these resources has to be continuing professional and societal concern for achieving sustainability in agriculture. Conservative estimate shows that 1/5th of the world agriculture land, permanent pastures and forest and woodland have been hopelessly degraded over the last 50 years. Over-grazing, deforestation and inappropriate agricultural practices account for most of the damage. Per capita water availability has declined drastically during the past 50 years and Asia is worst affected. It is predicted that an estimated 15% of the world's plant and animal species could become extinct by the year 2020. The loss of bio-diversity in the farmers' field is rather rampant. If we continue to deplete these resources, we shall be depriving overselves of the option and solutions towards sustainable agricultural development. In this context we cannot ignore what Mahatma Gandhi had once said: "Nature provides for everybody's Needs but not for everybody's Greed."

The local communities long before the emergence of State power and market forces have managed common property resources of land, vegetation, water and minerals. These included the village pasture, community forests, common threshing grounds, upper catchment areas, drainage, village ponds, tanks, rivers, rivulets and riverbeds. Experience has taught that only a holistic approach, which involves the local communities, whose basis of survival is at stake, in the management of their common resources will make development truly sustainable. Such an approach will be central to all future development efforts. Cooperatives, which are public institutions, can play dual role in creating awareness and undertaking resource management activities. Activities to be undertaken by different agricultural cooperatives may differ slightly depending upon the nature of the cooperative. However, these activities may broadly include the following programmes:

- **Create Awareness About Natural Resource Management-NRM**
- **Developing Education and Training Programmes**
- **Monitor land, Water and Air Degradation**
- **Adopt and Promote NRM**
- **Encourage Recycling**
- **Assist in Conservation of Natural Resources**
- **Publicity to Successful Cooperative Efforts**
- **Exchange of Information, Technology and Expertise with Other Cooperatives**

A beginning has to be made by each and every cooperative towards this effort of restoring natural resource so that the entire developmental efforts are made in a sustainable manner.

Due to population pressure and food security problem it is not possible to bring additional cultivable area under tree cover. The national policy envisaged importance to increase substantially the forest cover in the country through massive afforestation and social forestry programmes especially on degraded and wastelands through people's participation. In recent times, the formation of National Wasteland Development Board by Government of India to deal with the growing concern of deforestation attracted wide support and interest among Non-governmental organisations and other institution. Community involvement has been found to be of great significance in implementation and monitoring of forest activities particularly on non-forest revenue lands, village panchayat and other degraded land. In India the wasteland, estimated to be around 175 million ha, are the potential areas for afforestation. Role played by institutions like the IFFDC, the NTGCF and the Agro-Forestry Federation are of great importance and relevance. Their activities not only help generate green cover but also enhance employment potentials among women and rural poor. External assistance provided by donor agencies goes a long way in strengthening social forestry activities in the country.

Management of Agricultural Cooperatives
In the International Context

It cannot be denied that agro-processing is a critical sector that deals with the most basic need of people i.e., food. And we also know that modern consumers of today are very particular about food items they choose and pick from shelves of their stores or supermarkets. It is thus incumbent on the Cooperative Movement to enhance their involvement in this important sector. It is so because it happens at a time when the Asia crisis continues to linger here in our Asia Pacific region, but has also spilled to countries such as Brazil that is now being inflicted with the economic flu. Just imagine that over the last 30 years, Asia achieved the single greatest spurt of economic growth in the history of mankind. But overnight, the gloss has worn off the miracle.

Notwithstanding, cooperative activity and the cooperative way of doing business have stood the test of time. There have been tremendous successes and best practices that can be showcased, although one must admit that these successes came at the cost of painful learning from past failures too. Cooperative enterprises, all over the world, have once again proved that services to members and its impact on local communities could be far reaching if leaders managed to balance the advocacy as well as the service provider roles of the cooperative enterprises. Cooperatives can do business as effectively as any private or public company, but have the advantage of providing the ultimate benefits to members and its communities, not just to a handful of shareholders. While private enterprises may been seen as being more dynamic and flashy, they lack something which the cooperative enterprises

cherish most - service to members, and thereby, benefit to the local community. The philosophy of doing business based on the Principles of Cooperation is essentially what allows ordinary people to enter mainstream business with a human face. It does not pursue the maximization of profit by always try to satisfy the social and economic needs of the members and their immediate community first and foremost.

So, the challenges before cooperatives are enormous because cooperatives must be better than ordinary business enterprises. These challenges can only be met when we have dedicated leaders, well-informed leaders, well-trained leaders - not only politically motivated leaders - but leaders who can manage the co-operative business in a professional and efficient way. There is, as such, a strong need for the development of management leaders in all sectors - consumer sector, agricultural sectors and all other sectors. There is need for creating facilities and programmes for management leadership development in the Region so that cooperative business can perform and overcome the challenges emanating from profit oriented private enterprises.

The ICA is fortunate that in India alone it has cooperative members and from different sectors that are strong and well entrenched within the communities they are called to serve.

Management of Agricultural Cooperatives

The major concerns for an agricultural cooperative, therefore, cover two aspects, i.e., economic activities and managerial efficiency. The management of the functions of the society vests in the management bodies and offers at different levels of the organisation structure. These include, among others, the following: The General Body of Members which includes the Annual Members' Meeting and other general meetings; the Managing Committee or the Board of Directors; Specialised committees; the Chairman and the Vice-Chairman, the General Manager and other business managers. While the general meeting frames the general policies, the managing committee implements them through the general manager and other employees of the cooperative.

Managers play a vital role in fulfilling the wishes of the general meeting. Some of the key functions of a manager, among others, are the following:

- Establishing purposeful directions in the light of the overall policies of the cooperative;
- Ensuring the continued growth and survival of the cooperative enterprise;
- Ensuring efficiency to generate business and surplus;
- Preparing for meeting competition;
- Introducing innovations through work efficiency, value-addition, employment of new technology, improved work methods and techniques;
- Strengthening and sustaining human resources within the organisation by providing development opportunities and creating better work environment;

- Demonstrating effective managerial leadership by developing the capacities and capabilities of other employees;
- Establishing effective communication between himself and the managing committee and between the cooperative and its members, and among other managers and employees of the cooperative;
- Adopting management skills in Planning, Controlling, Organising, Communicating and Decision-making; and
- Following self-appraisal and evaluation practices.

Managers, to be effective, must acquire special knowledge and leadership skills and use the knowledge of many branches of science, as, for example, economics, sociology, social psychology, pedagogy, organisational science, jurisprudence, mathematics, statistics and special fields of the technical sciences for their managerial activity. Managers, being professionals within the cooperative management system, play an important role in an all-round development of a cooperative institution. Professionalisation of management in cooperatives explicitly implies that in the management of cooperatives, even when it is duly professionalised, it is the elected management which lays down the policy frame and procedural guidelines at the planning stage and regulates the performance of management towards achievement of its objectives at the control stage. In this sense, therefore, elected management performs crucial role in providing sense of purpose and direction to the process and system of cooperative management. It is, however, painful to see that the elected leaders manage the day-to-day activities instead of the manager. Both of them, the elected leaders and the professional managers, have to work as a well-knit team to realise the policy frame established by the general body. Both should respect the role of each other.

Managers are organisation builders and more so when the organisation belongs to small and marginal farmer-members. In this situation a manager has to have:

a) A thorough understanding of and good experience of working with small farmers;
b) A capacity to interpret technological changes in their socio-cultural context;
c) The patience and the capacity for research and study;
d) Commitment and readiness to take up issues with the vested interest groups who will fight back for status quo; and
e) Capacity to learn from failures, of which he may have many, because organisation building is a difficult task.

In contrast to general thinking, a manager of a small farmers' integrated cooperative has to have a greater degree of sophistication in vision and technical and managerial knowledge and skills. He must be viewed as a "development entrepreneur".

Cooperatives are often blamed for non-performance mainly due to lack of participation on the part of their members. In agricultural cooperatives the entire business moves around

the economic benefits which the members expect and derive from their cooperative. Farmer-members are eager to sell their produce and obtain timely and sufficient funds to increase their produce. A manager is, therefore, confronted with several problems e.g., identification of markets, methods and techniques of handling members' produce, ensuring adequate returns to the member-farmers and maintaining their loyalty and relationship with the cooperative. Managers with experience, capacity, capability, tact, clarity of business ethics, and professional competence can overcome such problems.

The Indian Farmers' Fertiliser Cooperative Limited - Some Experiences

U.S. Awasthi

IFFCO's experience has clearly demonstrated that cooperative sector can succeed even in high investment and high technology areas like fertiliser production. The entire production can be marketed through the member-cooperative societies. The large-scale extension activities and cooperative development programmes have strengthened the bond between IFFCO and the Indian farmers who are the consumers as well as members of the village level cooperative societies. The confidence generated by this success has paved the way for a vigorous growth programme to expand its existing units as well as establish new units. This will enable IFFCO to emerge as a global leader in production and marketing of chemical fertilisers located in a single country.

The basic philosophy of Cooperation, particularly the principles of democratic member control and concern for the community, has been the soul of decision-making of IFFCO. The Board of Directors has followed these principles and IFFCO grew because of its commitment to these principles. The IFFCO is proud to be a cooperative and is dedicated to millions of its constituent farmers. {Mr U.S. Awasthi is the Managing Director of the IFFCO.}

Introduction

The Indian fertiliser industry has been supplying a substantial portion of the growing demand of fertiliser within the country. The installed capacity has reached a level of around 9.97 million tons of nitrogen and 3.0 million tons of phosphate nutrients as on March 31, 1998. India is the third largest fertiliser producer in the world. There are 60 large-size fertiliser plants in the country, manufacturing a wide range of nitrogenous, phosphatic and complex fertilisers. Besides, there are 81 medium and small-scale single super-phosphate units.

The cooperative sector has come to play a significant role in the Indian fertiliser industry. In terms of nutrients, the share of cooperative sector in the installed capacity is 19.7%

for nitrogen and 10.2% for phosphate. The Indian Farmers' Fertiliser Cooperative Limited (IFFCO) alone accounts for 64% of the installed capacity of Nitrogen and the total of the Phosphate capacity in the cooperative sector.

The Origin of IFFCO

The cooperative sector in India during mid-sixties was distributing 70% of the chemical fertilisers consumed in the country. This sector had adequate infrastructure to distribute fertilisers but had no production facilities. With the introduction of multi-agency approach by the Government of India in the distribution of fertilisers during 1967, the private trade also entered the field of fertiliser distribution. The private sector production units provided more opportunities to the distribution network of private trade and gave secondary preference to the cooperatives in the matter of supplies. Due to this development, the cooperatives started getting fewer supplies of the fertilisers. To overcome this limitation and also to bridge the growing demand for the fertilisers in the country, a new cooperative was conceived. In the year 1964, the Cooperative League of USA proposed to the Government of India that the American cooperatives were interested to collaborate with Indian cooperatives in setting up fertiliser production capacity. The idea appealed to the Government of India and eminent cooperators of the country. As a result, the Indian Farmers' Fertiliser Cooperative Limited (IFFCO) was conceived and registered on November 3, 1967 as a multi-unit cooperative society with the primary objective of production and distribution of fertilisers. The U.S. cooperatives through the Cooperative Fertiliser International (CFI) provided a million-dollar aid besides technical know-how to the newly born IFFCO.

Growth of IFFCO

Over the years, the IFFCO has grown in strength from a modest membership of 57 societies in 1967-68 to 34,421 as on March 31, 1998. Table-I presents the growth in the membership of IFFCO during the last three decades. These cooperative societies participate in the governance of IFFCO through their contribution to its share capital and ensure that the activities of IFFCO contribute to strengthening of the Indian Cooperative Movement and the welfare of the Indian farmers.

The IFFCO started with an equity capital of Rs. 0.6 million contributed by the cooperatives in 1967-68. The share capital grew to Rs. 3.739 billion by 1997-98. It comprises a contribution of Rs. 2.896 billion by the Government of India and Rs.0.792 billion by member-cooperative societies of the country. The IFFCO has always ensured that these funds are carefully deployed to meet the aspirations of thousands of farmers who own it through cooperative societies. IFFCO's financial performance has always been commendable. Its networth has increased from Rs.6.84 billion in 1989-90 to Rs.18.17 billion in 1997-98. The profit before tax grew from Rs. 560 million in 1989-90 to Rs. 4.745 billion in 1997-98. Similarly, the turnover of the Society increased from Rs.9.97 billion during 1989-90 to Rs. 34.13 billion in 1997-98. The capital employed grew from Rs.12.52 billion in 1989-90 to Rs. 37.68 billion in 1997-98.

Table-I : Growth of Member-Societies and Share Capital of IFFCO

Year	Number of Member-Societies	Paid-up Share Capital (Rs. Million)
1969-70	5,000	23.729
1970-71	10,000	97.533
1971-72	20,000	175.315
1974-75	25,000	286.873
1990-91	30,000	3,578.750
1996-97	33,260	3,620.906
1997-98	34,421	3,739.200

Governance of IFFCO

The cooperatives are running on the cardinal principle of being owned, controlled and used by the members. In accordance with the same, the activities of IFFCO are governed by the elected body/bodies through democratically expressed popular will of the member-societies. The existing Multi-State Cooperative Societies' Act, 1984 and the Bylaws framed by the General Body of IFFCO form the main framework to guide the IFFCO activities. In accordance with the existing law, IFFCO has a Representative General Body (RGB); which is the main policy-making body. The RGB is the supreme body, which lays down the policies to achieve the objectives of the Society.

The Representative General Body-RGB: Member-Societies holding shares of the value of Rs. 100,000 and above, send their representative directly on the Representative General Body of IFFCO. These are mostly Chairmen of their respective societies elected by the members of that society. Member-Societies having shares of lower denominations, the total value of which is not exceeding Rs.100,000, are grouped into a constituency of 200 societies. The Chairmen of respective societies in this group of 200 societies form the electoral college; out of which one representative is elected as a delegate for the RGB of IFFCO. The maximum number of such delegates from any State/Union Territory does not exceed 25.

Board of Directors: The IFFCO Board of Directors, comprising of 30 members, is responsible for direction and control of management affairs of the Society within the broad policies laid down by the General Body of IFFCO. The Board interprets the organisational objectives and sets up specific goal to be achieved by the group of professional managers headed by the Chief Executive. The Board of IFFCO consists of 12 representatives from the State federations, 5 directors nominated by the Government of India, 8 directors elected by the General Body, Chairman of National Cooperative Union of India-NCUI, Managing Director of National Cooperative Development Corporation-NCDC and three functional directors, including the Chief Executive/Managing Director; who are appointed by the Board.

The representatives of the State Federations are generally Chairmen who are democratically elected by the smaller constituent societies of the federations. Besides, the Representative General Body of IFFCO directly elects eight directors, essentially by the representatives of smaller societies mostly at village level. Therefore, there is a strong representation from lower level cooperatives on the Board of IFFCO. The presence of Chairman of NCUI and the Managing Director of NCDC on the Board of IFFCO gives an added strength in directing the policies within the cooperative framework. The Chairman and Vice-Chairman are elected from amongst the Board of Directors. The process of election of cooperatives provides equal opportunity to all village-level and state-level cooperatives to head the Board of a multi-state cooperative society.

The present Chairman of the IFFCO represents a small village level cooperative society having a share capital equivalent to Rs. 1,000 only. Similarly, the present Vice-Chairman has also come from village level cooperative society having share capital with IFFCO equivalent to Rs. 100,000 only. All the decisions of the Board are taken by majority opinion.

Seeding Programme

IFFCO started its Seeding Programme of marketing fertilisers through cooperatives and educating their member-farmers on efficient use of fertilisers in the year 1970-71 in ten states of India viz., Punjab, Haryana, Uttar Pradesh, Rajasthan, Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu. The main objectives of Seeding Programme were to create brand identity, develop market for the fertilisers to be produced by IFFCO's plants and put up the marketing systems in place.

Fertiliser Production

The IFFCO commissioned an ammonia-urea complex at Kalol and an NPK/DAP plant at Kandla in Gujarat in 1975. Another ammonia-urea complex was set up at Phulpur in Uttar Pradesh in 1981. The ammonia-urea unit at Aonla (in Uttar Pradesh-UP) was first commissioned in 1989 and then expanded in 1996. The installed capacity of all the plants in terms of the nutrient is 1.2 million tons of nitrogen and 309,000 tons of phosphates. All the units of IFFCO have consistently shown good performance and have received national and international recognition.

During the year 1997-98, IFFCO produced a total of 4.16 million tons of fertilisers in its plants at an overall average capacity utilisation of 112%. The production consisted of 2.88 million tons of urea and 1.272 million tons of NPK/DAP.

IFFCO's Marketing Setup

The IFFCO supplies its fertiliser material mostly through cooperative channels. However, the cooperative societies have no obligation to purchase the material from IFFCO. This necessitates a competitive approach to nurture brand loyalty. The marketing strategy of

IFFCO is designed to ensure timely availability of reasonably priced quality products right at the doorstep of the farmers through the nationwide cooperative network. The fertiliser is distributed through apex cooperative marketing federations in many states of the country. Direct supplies to the village level cooperative societies are also undertaken in some states. Small quantities are provided to other institutional agencies like Agro-Industries Corporation in some states. IFFCO-NCDC societies and IFFCO's Farmers' Services Centres (FSCs) are also used as outlets for retail sale of fertilisers.

The marketing field setup of IFFCO comprises 5 Zonal Offices, 14 State Offices, 2 State-cum-Area Offices and 62 Area Offices. Each Area Office covers 4 to 6 districts. There are 8 to 10 Field Officers in each Area Office. They are posted in district and taluka level towns. The field officers work with the farmers and facilitate the transfer of modern agricultural technology. The total marketing field force of IFFCO is about 500 persons who are basically agriculture graduates. Besides performing marketing functions, they also carry out extension education programmes for the benefit of farmers.

Sales Performance

IFFCO's sales have always been high in the Indian market and have kept pace with production augmentations. The sales during 1997-98 were 4.049 million tons as compared to 2.64 million tons during 1989-90. The sales during 1997-98 consist of 2.756 million tons of urea and 1.292 million tons of NPK/DAP. IFFCO's marketing force is gearing up to the challenge of marketing about 6 million tons of fertiliser by the turn of the century.

Farmers' Service Centres (FSCs)

To provide all agricultural inputs to the farmers under one roof, the IFFCO has established its own Farmers' Service Centres (FSCs). These FSCs sell IFFCO fertilisers directly to the farmers in addition to providing technical know-how and services like supply of agricultural implements on custom hire basis and sale of seeds and agro-chemicals. At present, there are 168 FSCs spread throughout the country.

IFFCO-NCDC Societies

The IFFCO, in collaboration with the NCDC, had taken up the task of developing 2,500 village-level societies on the pattern of IFFCO'S Farmers' Service Centres. Under the Scheme, IFFCO provided a subsidy of Rs.12,000 to each society for furniture and fixtures and agricultural implements. Under the Scheme, finally 1,450 societies were adopted and an amount of Rs. 42.82 million was released to these societies as margin money. The NCDC provided margin money loan through IFFCO ranging between Rs.30,000 to Rs.40,000 for each society. Subsequently the scheme was revised and the respective State Governments disbursed the margin money to the remaining societies. At present the loan limit has been revised up to Rs. 100,000 and it is routed through the State Governments in the form of equity.

Service to the Farmers' Extension and Education Programmes

Keeping in view the specific requirement of an area, the IFFCO has devised various programmes for the benefit of the farmers. By and large, these include demonstrations on farmers' fields, field days, farmers' meetings, crop seminars, various agricultural campaigns, distribution of agricultural implements and plant protection equipment etc. Along with the agricultural development, the IFFCO has also undertaken some work on social development in rural areas through its village adoption programme. The IFFCO also undertook specific programmes like farmers' integration, training and visit and farmers' visit to research institutes and agricultural universities. The IFFCO has also pressed into service two mobile soil-testing vans to cater to the need of the farmers for soil testing. These vans are also screening films on crop production and crop protection in the villages.

Each year, about a million farmers, from all over the country, participate in the various extension and education programmes organised by IFFCO and take the benefit of technology transfer or services offered by IFFCO for adoption of new technologies. Intensive training programmes are also organised for its own staff to keep them abreast with the recent developments in agriculture and fertiliser use. IFFCO also seeks the support of electronic and print media for disseminating the crop production technology. To assist agricultural research, the IFFCO has established Professorial Chairs in the disciplines of Agronomy, Soil Science, Extension and Cooperation, Agricultural Economics and Fertiliser Technology in several universities and institutions.

Seed Multiplication Programme

In order to supplement the availability of quality seeds to the farmers, IFFCO has been taking up the seed multiplication programme in various states. Under this programme, quality seeds of wheat, rice, maize, pigeonpea, pea, moongbean, pearlmillet, seasmum, castor, black gram, groundnut, mustard, sunflower, soyabean and cotton were grown on farmers' fields. During 1997-98, an area of 7,786 ha was covered under this programme. An area of 7,231 ha has been planned for 1997-98.

Special Projects

To facilitate transfer of technology, certain special projects are launched in the areas of dryland agriculture, tribal/backward area development, land reclamation, bio-fertilisers, bio-pesticides plastics in agriculture, farm implements, micro-irrigation system, integrated plant nutrient management (IPNS), wasteland development, watershed management. The FAO-collaborated project on IPNS envisage bringing out an IPNS manual based on IFFCO-IPNS experience for extension workers and others. Pilot work on Integrated Pest Management was also introduced during the year at selected locations.

IFFDC Project on Farm Forestry

The Indian Farm Forestry Development Cooperative Limited (IFFDC) has been promoted by IFFCO and registered as a multi-state cooperative society. The broad objective of IFFDC is to promote afforestation on wastelands through Primary Farm Forestry Cooperative Societies (PFFCS) at the village level. Its area of operation is in 11 states. At present, the IFFDC is maintaining a pilot forestry project of IFFCO, which was started in 1986-87 and also the IFFDC project sponsored by IFFCO and India-Canada Environment Facility (ICEF) for a period of 5 years since April 1, 1995. Both these projects are currently under implementation in Uttar Pradesh, Madhya Pradesh and Rajasthan.

The broad objectives of the Society are to promote farm forestry in 20,000 ha of wastelands in the states of Uttar Pradesh, Madhya Pradesh and Rajasthan on the lines of 'Integrated Farming System' and to promote 90 Primary Farm Forestry Cooperative Societies (PFFCS) at the village level. Till date IFFDC has been able to convert 7,597 ha., which includes 4,040 ha. in Pilot Project Societies and 3,557 ha. in IFFDC project societies, into green belt through afforestation.

Cooperative Rural Development Trust (CORDET)

Cooperative Rural Development Trust (CORDET) was promoted by IFFCO with a view to providing practical training to the farmers to improve their skills in agricultural production, dairy, poultry, fisheries and professional leadership at the village level. The Trust has two establishments - one each at Phulpur (UP) and Kalol (Gujarat) - at IFFCO's fertiliser production sites. Activities of seed production, supply of quality crop seeds and saplings of fruits and ornamental forestry plants are also undertaken by CORDET. In addition, CORDET is involved in soil testing. At both the locations, soil-testing laboratories of 30,000 samples per annum capacity each are operational. Production of bio-fertilisers has also started at CORDET, Phulpur. The bio-fertiliser plant has a capacity of 75 metric tons per annum. One day to two weeks training programmes on various aspects of farming are organised. During 1997-98, 3,090 farmers including 775 farmwomen were trained in various training programmes.

Support to the Cooperative Movement

All along, IFFCO has followed a policy of educating the farmers about the use of fertilisers, through its field staff at the grassroots level. The scheme is for the promotion of cooperatives extending beyond the agriculture sector. Besides strengthening the cooperative fertiliser distribution system, IFFCO is contributing to the improvement in the health of grassroots level cooperative societies by paying regular dividends and patronage rebates.

In addition, a large number of cooperative seminars, training programmes for cooperative personnel, promotional and extension programmes are undertaken to strengthen Indian cooperative sector. The IFFCO is planning to adopt 500 village cooperatives in the golden

jubilee year of India's Independence. These societies will be provided financial, infrastructural and managerial assistance. The IFFCO has promoted IFFCO-NCDC societies and has instituted annual awards for 'Best Cooperator' and 'Sahakarita Bandhu', to honour the individual contributions made for the development of cooperative philosophy in the country.

The IFFCO has made significant contribution towards the cooperative member education programme through the National Cooperative Union of India. Each year a handsome amount is being paid from the profit, and, since 1985-86 a total of almost Rs.104 million has been paid towards the cooperative education fund by IFFCO. This is the highest contribution paid to NCUI by any single organisation. Table-II presents the details of the contributions made to the education fund of the NCUI.

Table-II : Contribution of IFFCO to the Cooperative Education Fund of NCUI

Year	Amount (in Million Rs.)
1985-86	2.055
1986-87	1.000
1987-89	2.061
1989-90	5.600
1990-91	10.812
1991-92	10.091
1992-93	11.326
1993-94	11.954
1994-95	20.909
1995-96	12.445
1996-97	15.600
1997-98	40.500
Total	**144.383**

"Vision 2000" Programmes

The IFFCO has visualised a long-term comprehensive plan titled "Vision 2000" for making a significant contribution to the process of nation building. This plan envisages the expansion of existing units, establishment of new fertiliser production facilities inside and outside the country, production of agro-chemicals and augmentation of the acreage under seed production. In addition, de-bottlenecking and productivity enhancement schemes have also been undertaken at the existing units to further improve the production performance.

The project for the doubling of the production capacity at the existing unit at Aonla has

already been completed. The expansion project at Kalol is nearing completion. The Phulpur expansion project has already commenced production. A grassroots project at Nellore in Andhra Pradesh is starting this year. Once all the envisaged projects are completed under Vision 2000, the IFFCO may well achieve the distinction of being the global leader in fertiliser production. Some of the major development activities being taken up under this programme are given in Table-III.

Table-III : Major IFFCO Projects under "Vision 2000"

Project	Objective	Cost (Rs. Bn)
Aonla Expansion Project	To double the capacity of existing unit to 1,452,000 tons of urea per annum.	9.550
Phulpur Expansion Project	To increase the capacity of the existing unit by 726,000 tons of urea per annum.	11.900
Kalol Expansion Project	Augmenting the capacity of the existing unit by about 15,000 tons of urea per annum	1.500
Kandla Expansion Project	Providing two additional trains with a pipe-reactor technology to increase the capacity by 211,000 tons in terms of P205 per annum	2.120
Nellore Project	To set up Ammonia-Urea Complex	15.700
Qeshm Island, Iran	To set up a Nitrogenous Fertiliser Plant	US $ 350 million
Expansion of ICS, Senegal	To expand Phosphoric Acid and Fertiliser Capacity	US $ 250 million
Eastern/Northern	To set up Ammonia-Urea Complex	Studies being Conducted

Investment outside IFFCO

In addition to its own growth, the IFFCO has contributed to the equity of many other organisations particularly related to the fertiliser industry. Each of these organisations has, in turn, achieved good performance standards. The IFFCO holds 21.07% of Krishak Bharati Cooperative Limited (KRIBHCO) which is another major urea producer in the Indian cooperative sector. KRIBHCO's plant at Hajira has a production capacity of 1.45 million tons of urea per annum. Godavari Fertilisers and Chemicals Limited (GFCL), in which IFFCO holds about 25% of equity, has a DAP plant in Kakinada. IFFCO is a joint venture partner in Industries Chimiques du Senegal (ICS), Senegal which produces phosphoric acid and NPK

fertilisers. In addition, IFFCO has also contributed to the equity of Indian Potash Limited, the Maharashtra State Cooperative Bank Limited, Indian Tourism Cooperative Limited (COOPTOUR) and National Films and Fine Arts Cooperative Limited (NAFFAC). IFFCO has participated in the revival of an ailing sugar factory in cooperative sector by extending managerial and financial assistance.

Recognitions and Awards

IFFCO's overall performance has been recognised by various Indian and international bodies. A number of awards have been bestowed on it for its commitment to excellence in the areas of production performance, safety, innovation, energy conservation, project implementation, contribution to the Indian Cooperative Movement, etc. Various agencies of the Government of India (GOI), National Safety Council (USA), Fertiliser Association of India (FAI), National Productivity Council of India (NPC) and Federation of Indian Chamber of Commerce are the major bodies from which IFFCO has received major recognition and awards.

A list of the prestigious awards received by individual plants and the Corporate Office is as follows:

Kalol Unit

- Seven FAI Awards for Overall Performance
- Two GOI Awards for Industrial Safety
- FAI Award for Technical Innovation
- Two Raj Bhasha Shields for Promoting Hindi
- Award for Safety from National Safety Council, Chicago

Phulpur Unit

- Four NPC Awards for Productivity
- Five GOI National Safety Awards
- Two FAI Awards for Overall Performance
- Two FAI Awards for Technical Innovation
- Three National Energy Conservation Awards

Aonla Unit

- GOI Award for Best Implemented Project (Second Prize)
- GOI Award for Conservation of Energy

Kandla Unit

- Seven GOI Awards for Industrial Safety
- Thirteen Awards for Safety from National Safety Council, USA
- Two FAI Awards for Overall Performance
- Raj Bhasha Award for promoting Hindi

Other Awards

- "Best Cooperative Award" from National Cooperative Union of India
- Three Awards for Best Display in FAI Exhibitions
- Two Awards for Highly Commendable Accounts
- Award in Appreciation of Initiative in Family Planning
- Award for Best House Journal

Celebration by IFFCO of Golden Jubilee Year of India's Independence

India celebrated its 50th birthday during the year 1997-98. As a part of the celebration of the Golden Jubilee Year of India's Independence, IFFCO has launched an ambitious programme of:

- Farmers' education and Balanced Fertilisation
- Grassroots Cooperative Development
- Overall Rural Development
- Dedication of Expansion Project and Foundation Laying of
- Grassroots Ammonia-Urea Complex.

The field staff of IFFCO marketing conducted a variety of educational and promotional programmes benefiting 450,000 farmers and 55,000 cooperative societies. IFFCO also adopted 500 village level cooperative societies to enhance their financial, infrastructural and managerial capabilities. Storage-cum-community centres, 50 in number were set up to provide information on agricultural technology to the farmers and also to serve as centres for organising social and agricultural extension activities. These centres are also linked with agro-input supplies. Other programmes related to rural development are also proposed to be launched which include activities like provision of drinking water facilities in villages, schools, bus stops, renovations of school buildings, supply of books and equipment, medical check-up, eye camps. The Phulpur and Kalol expansion projects were dedicated to the nation.

Conclusion

IFFCO's experience has clearly demonstrated that cooperative sector can succeed even in high investment and high technology areas like fertiliser production. The entire production can be marketed through the member-cooperative societies. The large-scale extension activities and cooperative development programmes have strengthened the bond between IFFCO and the Indian farmers who are the consumers as well as members of the village level cooperative societies. The confidence generated by this success has paved the way for a vigorous growth programme to expand its existing units as well as establish new units. This will enable IFFCO to emerge as a global leader in production and marketing of chemical fertilisers located in a single country.

The basic philosophy of Cooperation, particularly the principles of democratic member control and concern for the community, has been the soul of decision-making of IFFCO. The Board of Directors has followed these principles and IFFCO grew because of its commitment to these principles. At the end, I must say that IFFCO is proud to be a cooperative and is dedicated to millions of its constituent farmers.

Global Food Security: a Case Study of Cooperative Development - ICA-IFFCO Collaboration

Virendra Kumar

IFFCO - a cooperative sector giant and a premier organisation is relentlessly engaged in strengthening the cooperative systems and services to the rural community in particular. Though IFFCO is engaged in manufacturing and promotion of fertilizers throughout the country, the extension and educational programmes organised by the Society centered on scientific agriculture and with emphasis on promoting balanced use of fertiliser. Such efforts have benefited the farmers and the cooperatives immensely. IFFCO's strong foundation is grounded on principles and philosophy of Cooperation translated into practice. IFFCO's growth is largely because of its firm, consistent and genuine commitment to these universally-accepted Principles of Cooperation.

A multi-faceted and multi-pronged approach, envisioning, professionalism, corporate planning and commitment to achieve customer satisfaction are some of the guiding principles. These are helping IFFCO to maintain and sustain holistic organisational culture based on teamwork, harmonious relationships and collective decision-making. {Dr Virendra Kumar is Marketing Director on the Board of Directors of the IFFCO. He is also the current Chairperson of the ICA Regional Committee on Agriculture for Asia and the Pacific.}

Global Food Security

The world today is facing many challenges; prominent among these are sustainable development, environmental degradation, and food security for growing population. The United Nations population projections indicate that world population will increase to 8.3 billion in 2025 and 10 billion in 2050 from the present level of 5.8 billion. Such unprecedented growth in population necessitates food production to be almost doubled by 2050. The UN

estimates also indicate that almost 800 million people in developing countries today face chronic under-nutrition, and some 200 million children under the age of five suffer from protein and energy deficiencies. At present, as many as 88 nations fall into the category of low-income food deficit countries: 42 in sub-Saharan Africa, 19 in Asia and the Pacific, 9 in Latin America and the Caribbean, 6 in North East/North Africa and 12 in Europe/Commonwealth of Independent States.

Decreasing per capita availability of arable land is further complicating the slowing pace of growth in agricultural output. Thus, the need to intensify agricultural production from the infinite natural resources has assumed greater significance. In meeting this challenge, fertilisers have an important role for two reasons. First, they facilitate the adoption of yield-increasing technologies and thereby promote sustainable growth of food production on limited cultivable land. Second, they help to replenish nutrients removed by crops and, therefore, prevent soil degradation and preserve the resource base.

World Cereal Production

FAO's latest forecast on cereal production for the year 1998 stands at 1,892 million tons only. The situation is not at all that favourable if we take as a yardstick of the cereal stocks available in the world. Indeed, cereal stocks declined from 456 million tons in 1986 to 330 million tons in 1998. The FAO considers that a range of 17 to 18% is the minimum necessary to safeguard world food security. Food grain prices are gaining new height, causing serious implications for low-income food deficit countries.

A larger increase in cereal production would be needed if stocks were to be satisfactorily replenished. In the developing countries of South and South-East Asia, Latin America and Africa the situation is much more critical. Their population is increasing very rapidly straining their capacity to produce enough food. Per capita food grain production has actually declined in the past 20 years. The Asian and Pacific region contributes about 44% of the world's food production against the population of 58%. The per capita availability of arable land, however, will continue to decline fast and it is estimated that it will be around 0.20 ha per person by the year 2025.

Rice and wheat are the major cereal crops. World average yield of rice has increased from 2.77 t/ha in 1980 to 3.65 t/ha in 1994. Productivity gains are noticed in almost all countries listed but the USA and China made rapid stride whereas it declined in Russia. In Australia, Egypt, Japan, USA, Morocco, Republic of Korea, Spain, China and Italy, the rice yield is above the world average yield level. Other countries, namely, Russian Federation, India, Bangladesh, South Africa etc. are below the world average. China and Japan have achieved very high productivity both before and after green revolution. Prior to 1950, rice yield in China was only 1.5 tons/ha, which touched 5.9 t/ha in 1994.

World wheat productivity jumped from 1.9 t/ha in 1980 to 2.45 t/ha in 1994. The highest productivity of wheat is 8.0 t/ha in the Netherlands, followed by 7.2 t/ha in U.K., 6.9 t/ha in

Belgium, 6.7 t/ha in Germany and France, 4.2 to 5.2 t/ha in Mexico, Egypt and New Zealand. Wheat yield of 8.0 t/ha obtained in the Netherlands is nearly three and half times of the world average. In the past 15 years, both China and India increased wheat productivity significantly. However, productivity of wheat had decreased in Russia.

Crop Productivity and Fertiliser Use in the Asian Region

Fertiliser consumption per unit of land in Asia varies considerably ranging from below 40 to over 400 kg per ha. Similarly, the productivity of crops also varies considerably from less than 2 to over 6 tons per hectare (see table). Countries like Bangladesh, India, Nepal, Pakistan, Thailand are below the world average productivity of cereal crops. The productivity of pulse crops in the region is also below the world average. There is sufficient scope to increase the crop productivity through adoption of improved agricultural practices.

Table showing Fertiliser Consumption per hectare and Average Yield of Cereals and Pulses in selected Countries in Asia

Country	Per Hectare Fertiliser Consumption (kg/ha.)	Average Yield			
		Cereals (kg/ha.)		Pulses (kg/ha.)	
	1996	1996	1997	1996	1997
Bangladesh	142,8	2,599	2,706	751	759
China	266,4	4,903	4,844	1,610	1,478
India	84,3	2,180	2,232	537	587
Indonesia	139,0	3,998	4,030	1,614	1,614
Japan	360,5	6,155	6,064	1,833	1,833
Korea, Rep	479,4	6,507	6,452	1,180	1,098
Malaysia	-	2,888	2,959	-	-
Nepal	34,7	1,956	1,973	688	701
Pakistan	111,5	2,039	2,033	617	567
Philippines	67,9	2,392	2,375	786	786
Sri Lanka	108,3	3,015	3,802	738	738
Thailand	-	2,293	2,268	737	753
Vietnam	-	3,657	3,657	671	671
Myanmar	-	2,969	2,938	696	689
Asia	-	3,019	3,027	690	709
World	89,4	2,901	2,971	772	806

Source: Fertiliser Statistics (1997-98), FAI, India.

IFFCO : A Case Study in Cooperative Development

IFFCO - a cooperative sector giant and a premier organisation is relentlessly engaged in strengthening the cooperative systems and services to the rural community in particular. Though IFFCO is engaged in manufacturing and promotion of fertilizers throughout the country, the extension and educational programmes organised by the Society centered on scientific agriculture and with emphasis on promoting balanced use of fertiliser. Such efforts have benefited the farmers and the cooperatives immensely. IFFCO's strong foundation is grounded on principles and philosophy of Cooperation translated into practice. IFFCO's growth is largely because of its firm, consistent and genuine commitment to these universally-accepted principles.

A multi-faceted and multi-pronged approach, envisioning, professionalism, corporate planning and commitment to achieve customer satisfaction are some of the guiding principles. These are helping IFFCO to maintain and sustain holistic organisational culture based on team work, harmonious relationships and collective decision-making. By virtue of dedicated service to the community, the Cooperative has established an image of efficiency and services in Asia and more as an ideal cooperative model.

The Indian Farmers' Fertiliser Cooperative Limited. (IFFCO) is unique example of the world's greatest demonstration of cooperative-to-cooperative initiative of cooperative institutions of India and the United States of America. The American cooperatives, influenced by the fact that the cooperatives in India which had been controlling over 70% of the total fertiliser sales in the country, and yet had no control on fertiliser production, decided to extend help to the Indian cooperatives in setting up their own production facilities. The Cooperative League of USA through Cooperative Fertiliser International, a consortium of cooperative fertiliser units, suggested to the Government of India for the establishment of fertiliser manufacturing facilities in the cooperative sector. Accordingly, the IFFCO came into being, and was registered as a cooperative society on November 3, 1967. IFFCO, is thus, the result of cooperation between the Cooperative Movements in the two countries.

IFFCO established four manufacturing units, viz., Kalol and Kandla in Gujarat and Phulpur and Aonla in UP with a total production capacity of 2.6 million tons of urea and complex fertiliser. As on 1st April, 1998, the urea capacity of IFFCO stood at 3.2 million tons. The year 1998 has been a year of great achievements for IFFCO. During the year, India celebrated its 50th year of Independence with gaiety and vigour. The Society had also completed 31 years in the service of the farmers. In order to make the country self-reliant in food grain production, the Society contributed its share by attaining highest-ever capacity utilisation. During the period April-November 1998, IFFCO achieved an overall capacity utilization of 114% in the case of Nitrogen, and 154% in case of P205. IFFCO has sold 2.8 million tons of fertilisers material during April-November 1998 and has earned a pre-tax profit of Rs. 2,547 million during this period.

The Phulpur plant bagged the FAI Award for the 1997-98 on Environmental Protection. The Kandla Unit won FAI Award 1997-98 for Best Overall Performance of an operating fertiliser plant for P205. Marketing Division received ISO-9002 International Certificate in June 1998 on Quality Assurance and Marketing activities. IFFCO markets its products exclusively through the cooperative network and its sales performance has all along been commendable from the beginning of commercial production. The thrust of marketing philosophy is to strengthen the cooperative distribution system at the primary agricultural societies level so that they emerge strong to face the competition in the open market. The Society has achieved a sales turnover of Rs. 33,290 million with a net profit of Rs. 4,150 million during 1997-98.

Principles of Cooperation put into Practice - the IFFCO Model

The image of a "true cooperative" depends on the extent it faithfully translates the Cooperative Principles into practice. Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity.

The universally-accepted Principles of Cooperation are:-

1.	First Principle	:	Voluntary and Open Membership
2.	Second Principle	:	Democratic Member Control
3.	Third Principle	:	Member Economic Participation
4.	Fourth Principle	:	Autonomy and Independence
5.	Fifth Principle	:	Education, Training and Information
6.	Sixth Principle	:	Cooperation among Cooperatives
7.	Seventh Principle	:	Concern for the Community

The Society has tried to blend its business operations with cooperative methods and techniques. Some instances of this operating philosophy are given below:

a. The membership of IFFCO is open to all cooperative societies from primary level in the village to district, state or national cooperative federations of agricultural, credit, marketing, processing, supply and other agricultural cooperative societies. These societies chose to become members of IFFCO voluntarily without being subjected to any economic pressure or government regulations. They have contributed willingly to the share capital of IFFCO. Over the years, IFFCO has grown from strength to strength from a membership of mere 57 societies in 1967 to 34,421 in 1998.

b. The affairs of the Society are governed and supervised by a democratically-elected body which guides the management of IFFCO. IFFCO Board is a mix of elected and nominated members, which manages the organisational affairs and adminis-

tration through the Chief Executive i.e., Managing Director, Marketing Director and the Finance Director who are appointed by the Board of Directors with the approval of Appointments Committee of Cabinet of the Government of India.

c. The member-cooperatives have been participating in the share capital of IFFCO and contributed an amount of Rs. 788 million in 1998.

d. The 30-member Board of Directors of IFFCO is responsible for direction and management affairs of the Society within the broad policies laid down by the Representative General Body. The Board consists of 12 representatives from the state federations, 5 directors nominated by the Government of India, 8 directors elected by the Representative General Body, Chairman of National Cooperative Union of India, Managing Director of National Cooperative Development Corporation, and three Functional Directors which include the Chief Executive/Managing Director, Finance Director and the Marketing Director.

e. Keeping in view the specific requirement of an area, IFFCO has evolved various programmes for the benefit of farmer-members. These generally include demonstrations on farmers' fields, field days, farmers' meetings, crop seminars, various agricultural campaigns, distribution of agricultural implements and plant protection equipment etc.

To assist agricultural research, the Society has established 15 Professorial Chairs in several universities and institutions of higher learning in India in the disciplines of Agronomy, Soil Science, Extension, Cooperation, Agricultural Economics and Fertiliser Technology including a Professorial Chair at NCUI's Vaikunth Mehta National Institute of Cooperative Management (VAMNICOM), Pune, India.

IFFCO organises training programmes for cooperative personnel at grassroots level who are actively in contact with the farming community. The cooperative personnel are trained about the package of practices for various crops, balanced fertilisation programme, efficient fertiliser use, fertiliser logistics and also rural marketing techniques. IFFCO also organises seminars on "Fertiliser Marketing through Cooperatives" at its Fertiliser Marketing Development Institute (FMDI), Gurgaon, for cooperative personnel and field workers.

IFFCO has made significant contribution towards the cooperative education programme through National Cooperative Union of India. Each year a handsome amount is being paid from the profit and since 1985-86 a total of almost Rs. 104 million has been paid towards the cooperative education fund by IFFCO, the highest contribution paid to NCUI by any single organisation in the country.

f. IFFCO has promoted a sister-organisation, Krishak Bharti Cooperative Limited (KRIBHCO) with an investment of Rs. 970 million to its share capital. It has also invested Rs. 100,000 in the Indian Tourism Cooperative Limited (COOPTOUR)

and National Films and Fine Arts Cooperative Limited (NAFFAC). The Society has also made investment of Rs. 100,000 in Maharashtra State Cooperative Bank Limited. It has also promoted "The Cooperative Rural Development Trust" (CORDET) which provides practical training to the farmers to improve their skills in agricultural production, dairy, horticulture, poultry, fisheries. The Trust also inculcates professional leadership at village level.

IFFCO is an active member of the International Cooperative Alliance (ICA), National Cooperative Business Association of the United States (NCBA) and Agriculture Cooperative Development International (ACDI). The Marketing Director is currently (1998) the Chairman of the ICA Regional Committee on Agriculture for Asia-Pacific.

g. Cooperatives, as organisations, exist for the benefit of their members. Cooperatives have special responsibility to ensure the development of their community economically, socially and culturally. As an organisation that is keenly interested in the development of farming community, the IFFCO initiated the Village Adoption Programme in order to bring about an overall improvement in the quality of life of the farming community through integrated rural development.

Special Features of IFFCO's Strength

The organisation is basically an industrial house. The distinctive feature is that this organisation is run as a cooperative enterprise and which is owned by the farmers. In its operations the basic strengths are the highest technological and professional methods and techniques employed and an active collaboration with its constituents established i.e., the cooperative members. Since the organisation touches the most critical segments of life of farmer-members, special attention is paid to the ambient areas. These include, cooperative development strategies, members' development and that of their institutions, member participation, research and development, inter-action with industrial partners, staff development, concern for the community and participation in national and international activities, institutions and programmes. A brief description follows:

IFFDC Project: The Indian Farm Forestry Development Cooperative Limited (IFFDC) has been promoted by IFFCO and registered as a multi-state cooperative society. At present, the IFFDC is maintaining a pilot forestry project of IFFCO started in 1986-87 and also the IFFDC project sponsored by IFFCO and India-Canada Environment Facility (ICEF) for a period of 5 years since April 1995. As in March 1998, 16,000 ha of land has been afforested through the formation of 120 primary farm forestry cooperatives.

Special Projects: To facilitate transfer of technology, certain special projects have been launched in the areas of dry land agriculture, tribal/backward area development, land reclamation, bio-fertilisers, bio-pesticides, plastics in agriculture, farm implements, micro-irrigation system, Integrated Plant Nutrient Management System (IPNS), wasteland develop-

ment, watershed management. The FAO-collaborated project on IPNS envisage bringing out an IPNS manual based on IFFCO-IPNS experience for extension workers and others. Pilot work on Integrated Pest Management (IPM) was also introduced at selected locations.

Transfer of Technology: IFFCO has engaged more than 600 graduates and post graduates in agriculture to propagate balanced fertilisation and help disseminate the latest agriculture technology to the farming community.

Corporate Planning: In order to meet emerging challenges and retain its status as the largest producer and distributor of chemical fertilisers in the country, a comprehensive medium-term plan entitled "Vision 2000" has been prepared which envisages expansion of the existing units, setting up of grassroots urea production units inside and outside India. It is also contemplating to launch "Vision 2005" which will focus on strengthening the cooperative system and infrastructure.

Total Quality Management (TQM): IFFCO from its very beginning, has been emphasising on quality in every aspect of organisation which has become its thrust area. New quality systems are being implemented and the coveted ISO-9002 Certification has been received by its Kalol Plant for quality assurance in production, installation and services. The Marketing Division has acquired ISO-9002 Certificate from BVQI in June 1998 on the scope of "Marketing Fertilisers, Strengthening Cooperatives and Providing Services to the Farmers and Rural Community".

Human Resource Development: With a view to meeting challenges and harnessing new opportunities arising consequent to the economic liberalisation, IFFCO's HRD policies aim at a holistic approach to improving all aspects of the organisation. IFFCO, as a foresighted employer, is conscious about the welfare of its employees and their families. To achieve this objective, IFFCO has promoted inter-unit sports festivals, quiz contests, cultural programmes, etc. which have been very successfully organised in different locations and at regular intervals.

Collaboration with the ICA and its Regional Office for Asia-Pacific

The IFFCO was admitted to membership of the International Cooperative Alliance (ICA) in the year 1979. Since then the relationship between ICA and IFFCO has grown stronger. Our participation in ICA Congresses, technical seminars, workshops and training programmes has always been acknowledged and recognised positively. IFFCO officials have contributed in crystallising several basic issues for the development of cooperatives particularly in the Asia and Pacific Region.

IFFCO had participated in a project study on "Cooperative and Environment for Sustainable Development" jointly with ICA ROAP in 1992. The Study included analysing the role of cooperatives in environment management in five nations namely India, Indonesia, the Philippines, Thailand and Japan. As a result of this field study, a publication entitled "Coop-

eratives and Environment" written by Dr. G.C. Shrotriya of IFFCO and Dr. Daman Prakash of ICA was issued. The Gender Advisor from the ICA Regional Office serves on the Technical Steering Committee of the IFFDC. A senior officer of the Marketing Division has served as a Consultant-cum-Coordinator for the 13th ICA-Japan International Training Course on "Strengthening Management of Agricultural Cooperatives in Asia-Pacific" part of which was held at FMDI, Gurgaon, in January-February 1999. The IFFCO Managing Director had participated and initiated topical discussions at the International Cooperative Agricultural Organisation of the ICA. The Marketing Director had actively led the ICA Regional Committee on Agriculture for Asia and the Pacific as its Vice-Chairperson, and since 1998, has been its Chairperson.

Being a fertiliser producing and marketing cooperative, IFFCO is always interested in agricultural development activities of the cooperatives in India. We have shared this experience with other cooperatives of developing nations. Most of the delegations coming from Asia-Pacific and other Regions have paid visit to our agricultural extension activities. The IFFCO had all along played an active role in the Agricultural Committee Meetings and technical discussions.

Challenges to Cooperatives in Liberalised Economy

Gopal N. Saxena

Cooperatives, over a period of time, have proved to be important instruments of economy as they have played a significant role in bringing about distinct economic advantages to the weaker sections of our society. Small and marginal farmers, landless labourers and artisans have particularly gained from the Cooperative Movement. Initially, co-operatives were expected to supply essential goods and services at fair prices to members, on one hand, and credit at no-profit-no-loss basis, on the other. Cooperatives were conceived also as social agents to educate the people in economic management and spread a sense of togetherness among members and generate loyalty to the Cooperative Movement. In India, in all the Five-Year Plans, considerable emphasis has been given to promote, develop and strengthen cooperative institutions as a medium through which planned economic development could be achieved. {Dr Gopal N. Saxena is the Joint General Manager in-charge of Cooperative Services with the IFFCO.}

Introduction

Over a period of time, cooperatives have emerged as an important instrument in Indian economy for bringing about socio-economic development of farmers and the rural poor. Presently, there are 453,000 cooperative societies with a membership of over 204 million covering 67% of the rural households. Their share capital stands at Rs. 69,050 million (approx. US$ 1,625 million) with a working capital of over Rs. 862,867 million (approx. US$ 20,303 million). Cooperatives have been providing comprehensive services for strengthening the agricultural economy in the country by meeting all round needs of farmers from production to marketing. The diversified activities undertaken by cooperatives include credit, banking, input distribution, agro-processing, fish production, milk production etc.

The uniqueness of the Indian Cooperative Movement can be seen in the contribution made in various fields of economic activity in the country as shown in the table overleaf:

Agricultural Cooperatives

Agricultural cooperatives play a very important role touching almost every aspect of the human life. When the agricultural cooperatives deal with credit functions, they are concerned with the household incomes and its expenditure by the farmers. When the agricultural cooperatives deal with the supply of agricultural inputs, their main concern remains the nutrition for the population through food grain production. When the agricultural cooperatives deal with the plant protection, their concern remains for the health of the plant, health of the consumer i.e., the population. Even the animal health aspect is taken care since fodder is another important ingredient in crop production.

Table showing Features of the Indian Cooperative Movement

General Status and Figures	
Number of cooperative societies	0.453 million
Total combined cooperative membership	204 million
Share capital	Rs. 69,050 million
Working capital	Rs. 86,2867 million
Total households covered	67%
Total villages covered	100%
Number of national cooperative federations	20
Number of state-level cooperative federations	262
Number of district-level cooperative federations	2,267
Cooperatives in National Economy	
Extent of agricultural credit disbursed	44%
Fertiliser distributed	32%
Production of Fertilisers	(Nitrogen-22.9% and Phosphates-15.6%)
Sugar produced by the Cooperative Sector	58%
Handlooms	58%
Wheat Procurement by Cooperatives for National Foodstock ...	30%
Jute Procurement	21%
Fishermen's Cooperatives (of the total cooperatives) ...	11%
Number of Cooperative Godowns	64,646
Total Storage Capacity (Million tons)	13.64
Number of Retail Outlets operated by cooperatives ...	70,648

Special Features of the Indian Cooperative Movement

-Cooperation is a State subject. Multi-State cooperatives operate through federal system.
-NABARD is the main agency for agricultural cooperative financing
-National Cooperative Union of India is the national apex of the Cooperative Movement
-First Cooperative Societies' Act was introduced in 1904.

Important Segments of the Indian Cooperative Movement

-Rural Credit through primary cooperatives and a network of cooperative banks
-Dairy Cooperatives - World's largest milk producer (1998) through Operation Flood
-Fertiliser Cooperatives - World's largest urea producer (1999)
-Sugar Cooperatives - high level integrated cooperative development approach
-Oilseeds Cooperatives - moving fast towards self-sufficiency
-Cooperative Education, Training and Development-World's largest and extensive network.

Since the agricultural cooperatives deal with the chemicals in the form of fertilisers and pesticides, they are also concerned with the environmental and ecological problems. Cooperatives in general are concerned with the education and training of their members; thus not only upgrading their skills but also educating them on various facets of life including Cooperation. As the cooperatives deal with the common needs, through mutual efforts, cooperatives also help in knitting closely the fabric of the society. Therefore, it is inconceivable that without agricultural cooperatives the concern for the humans would have been that great. In a way, the agricultural cooperatives in particular can be termed as the 'life-caring cooperative institutions'.

Liberalisation of Economic Policies

In order to become the part of the growing economy all over the world and also to be able to take advantage from the schemes of the World Bank and International Monetary Fund, it has become essential to introduce certain economic measures to upgrade the economy in the country. The main emphasis of the new economic policy of liberalisation and deregulation has been:

i. to shift from administratively-controlled prices to free market prices, determined by the market forces, namely, demand and supply;

ii. to shift from administered quantities to market-determined quantities;

iii. withdrawal of government patronage in the form of curtailing subsidies, concessions etc. and encourage the industry to become self-reliant and professionally-managed;

iv. withdrawing restrictions on interest/lending rates by banks and allow them to be determined by market forces, and

v. to reduce the domination of bureaucracy in decision-making and full freedom and autonomy to producers, suppliers and consumers in decision-making, working and management.

Under the new market economy, the preferential treatment, especially the patronage by the Government, the cooperatives are enjoying at present, is being withdrawn slowly. It is expected that they will become self-reliant. Whereas liberalisation and deregulation have opened up growth opportunities for cooperatives on one hand, the cooperatives have to accept competition as a challenge, and have to provide for their deficiencies on the other. To undertake necessary reforms both at business activity as well as institutional levels, cooperatives have to reorient and readapt themselves to emerge as autonomous business enterprises to successfully meet the fast-changing situation at the market place.

Globalisation and the Society

Through the globalisation, in which the 'consumerism', get increased focus, it is feared

that in the constant pursuit for materialistic things and money will generate power struggle at all levels. In this process, ethics like morality, social equity, honesty, transparency and justice will be relegated to the back seat. It is feared that this race may lead to:

a. Exploitation of local resources for the benefit of the rich;

b. The process of exploitation of the natural resources has been on a faster course leading to serious ecological imbalances;

c. The pursuit is for power and larger profits. This has lead to fierce competition for "dominance" leading to "acquisitions" and "mergers" rather than co-existence and cooperation;

d. The values have regressed towards 'self-centredness' than the society at large;

e. The effect of all these imbalances and changes in the society have been more on the common people than on the affluent ones;

f. Increased disparities between the classes of people in the same society;

g. Quality of life has been compromised;

h. Created habitat imbalances. More and more people are attracted towards the life of big cities leading to many complications of housing, law and order, health in the society;

i. The advent of multi-nationals have not only imposed the "goods" in the name of modernisation, without really caring for the needs of the local masses. This has saddled the society with great stress among whole plethora of choice and the 'b rands' fighting for their dominance at the cost of the consumers;

j. Th e introduction of various goods and articles, only a limited section of the society has been benefited, and, in general it has lead to change in the food habits, clothing, film-viewing, general upbringing. In a way, this is virtually an invasion on the local culture and values;

k. The women folk have distinctly lost their place they earlier had in the society: especially in Indian society. When the economy was society-based at local level, women were the centres of households. Women, as they were responsible for the health-care, crafts, animal husbandry and agriculture, possessed the requisite skills and, therefore, used to contribute meaningfully to the decision-making. With the rapid industrialisation and rat race for profiteering, the knowledge with the women folk have been declared `traditional', unscientific and, therefore, redundant. The introduction of cash crops meant that mostly the women folk toiled and the sales were effected by the men folk and the cash collected by them. Therefore, more and more cash remained in the hands of the man; and women were relegated to the back stage. Men not only squandered away the hard-earned moneys on non-essentials for family but also spent them on so-called more profitable enterprises rather than family requirements. This generated additional stress on the women

for the security of her family on account of social, educational and developmental needs besides struggle to acquire her status as the part of the modern society.

Cooperative Identity

The International Cooperative Alliance at its Manchester Conference in September, 1995 adopted a statement on cooperative identity; according to which the cooperative is defined as:

"An autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise".

Cooperatives are based on the values of self-help, democracy, equality, equity, solidarity, honesty, openness, social responsibility and caring for others. These cooperative values are inherent in the seven Cooperative Principles around which all cooperatives function. Therefore, in the emerging scenario where the fears loom large for dilution in social values, culture, erosion of local resources, less advantage to weaker sections, the 'cooperatives' with their true identity seem to be the only answer at present to rebuild the society for a better quality of life.

Present Status of Cooperative System

Though cooperatives have made a considerable all-round progress, certain deficiencies in the system have adversely affected the health and functioning of the cooperatives; particularly in India. Initially, the cooperatives in India were formed at the initiative of the Government, and have been getting constant patronage from Government of India/ State Governments. In the process, the government considered it as their right to exercise control over the working, decision-making and even management of cooperatives. Some of the cooperatives which did not even have any Government assistance or equity were interfered with at the pretense that as cooperatives have funds pooled in by the weaker section, the government was duty-bound to protect their interest. Instead of monitoring and friendly advising, government brought controls which, with the passage of time increased. Excessive participation by the government in the functioning of cooperatives led to lesser interest by members resulting into gradual decline in autonomy and "member participation" in management of cooperatives.

The performance of cooperatives in general, with a very few exceptions, was not up to the mark. In the major field of agricultural credit, commercial banks and regional rural banks were introduced to bridge the gap between the requirement of agricultural credit and its supply by cooperatives. Despite this, the performance of cooperatives fell short of expectations and the share of cooperatives in the supply of agricultural credit began to decline.

Other important symptoms diagnosed for the declining trend of cooperatives are: poor financial resource base, poor recovery of crop loans, heavy overdue from the members,

poor decision-making leading to loss of business operations, poor management coupled with lack of professionalism, inadequate professional training opportunities and facilities, high cost of operations due to locational disadvantages etc.

The status of Cooperative Movement, by and large, in other countries has also undergone similar experience. Our neighbouring countries such as Bangladesh, Pakistan, Myanmar, Sri Lanka, also have the same experience on the growth of Cooperative Movement. In Bangladesh, the agriculture sector contributes more than 30% to the GDP; and about 45% of the total farmers are in the cooperative fold. The participation of the government in the share capital of the cooperatives is more than 50%, therefore the government directs most cooperative policies. The need has been felt to incorporate reforms in management of the cooperatives as well as emphasis on HRD practices. Because of the prevailing conditions, the Cooperative Movement in Bangladesh has not come up to the desired level.

In China, the All-China Federation of Supply and Marketing Federation is, by and large, directs the Cooperative Movement; supported by 28 incorporated cooperative unions at the county level and more than 33,600 grassroots supply and marketing societies throughout the nation. Recently, the steps taken by China to bring cooperatives and the small-scale industry together, have produced significant results in agro-processing and benefits to the farmers. Due to the nature of the governance in the country, the activities of All-China Federation are mainly through the representatives from the various departments. The experience of China shows that the cooperatives have vast potential that is yet to be realised.

In Indonesia, the agricultural sector contributes about 20% to the national economy. The Cooperative Movement is yet to make its due presence felt. Agricultural cooperatives in Indonesia are identified as Village Unit Cooperatives (KUDs), numbering about 10,000. The total number of cooperatives in Indonesia is about 45,000 with a membership of 26 million of which about 50% are KUD members. As per their existing law, the cooperatives are going in partnership with private companies, joint ventures for setting up new companies, joint business for trading and supplies etc.

In Myanmar, the cooperative law was amended to help cooperatives become self-reliant and true economic enterprises. The Central Cooperative Society is the apex cooperative organisation. The Cooperative Movement in Myanmar is, by and large, also government regulated thus far. There are quite a large number of cooperative societies in Myanmar with the membership of about 3 million. The main emphasis in Myanmar besides promoting agriculture, cooperatives and enterprises, is on promoting tourism (hotel and taxi services).

Cooperatives in Pakistan also happen to be the legacy of the inherited colonial cooperative law. As the government has also mainly directed the Movement in Pakistan, the true leadership in the cooperatives is yet to emerge. The members also feel the need for enlightened leadership, education to the members, structural reforms and drive.

In the Philippines, there are about 39,500 cooperative societies of which about 25,000

are agricultural-based. Out of the total membership of about 6 million, 2.5 million are women. In 1991, this membership was merely 1.16 million households, which has presently gone up to 6 million. The contribution of cooperatives to GDP is 9%. The cooperative sector has now established 44 cooperative banks. The cooperative workers at present are estimated to be about 36 million. Due to the typical terrain of the country, agricultural cooperatives have not come up to the desired extent. The need for agro-processing, capacity building and harmonious relationship between various tiers of cooperatives has been felt.

In Sri Lanka, the agriculture and allied sectors account for 27% of the gross national product. The National Milk Producers' Cooperative Societies' Union Limited, is a successful example of cooperation. It is felt that building managerial capability in cooperatives through training and education to members and employees with enlightened leadership for resource mobilisation will be quite helpful in giving a good holding ground to the Cooperative Movement in Sri Lanka.

In Vietnam, the Cooperative Movement is, by and large, government directed though the cooperative enterprise engaged in agriculture are reported to be 16,500. The Central Committee of Vietnam in its Conference held in 1993 has laid down policy on rural economic and social reforms to be followed till the year 2000. The need exists for promoting professionalised management and better marketing network.

In Nepal, agriculture has assumed a greater importance as 70% holdings are less than 1 hectare and account for more than 30% of the total cropped area. The agriculture is basically rainfed and contributes to more than 40% to GDP. The dairy cooperatives have also made their place in the Cooperative Movement in Nepal. The need is also felt for professional management, promoting member participation, resource mobilisation and promoting agro-processing business.

The future strategy, and the line of action, cooperatives have to address themselves mainly comprises of:

i. Member participation and autonomy to strengthen the organisation;
ii. Reform in cooperative laws including pronouncement of cooperative policies;
iii. Resource mobilisation towards capital formation;
iv. Managerial reforms to meet competition in business;
v. Structural reforms to serve members efficiently;
vi. Cooperation among cooperatives for sharing existing cooperative resources;
vii. Human resource development including information sharing;
viii. Cooperative identity through adhering to the principles and values;
ix. Agro-processing to achieving higher levels of value-addition.

Challenges to Cooperatives

In the scenario emerging as above, if the cooperatives have to effectively function, they will have to equip themselves for successfully negotiating the points discussed below:

Identity Crisis: If the possible fears as discussed above vis-a-vis the Statement on Cooperative Identity is examined, it can be easily seen that in the projected scenario it is the "Cooperative Identity" itself which is most threatened. The inherent cooperative values such as democracy, equality, solidarity, honesty, openness, social responsibility and caring for others, are under serious threat.

Education to Members for Increased Member Participation: This is inherent as a cardinal Cooperative Principle that cooperatives have to be 'member-driven' enterprises. Due to some reason or the other it is observed that the participation of the members is not to the desired extent. The attendance in the General Body is mostly around 30% to 40%. Therefore, a greater emphasis is required to spread and multiply the cooperative education for increased member participation in management as well as in the economic stake in the cooperative.

Autonomy: Since the cooperatives are to cater to the needs of the members, it needs to be ensured that the cooperatives are insulated against outside pressures. By democratic control and governance by the members the cooperatives have to take independent decisions concerning their management and business policies within the overall frame-work of the law of the land.

Resource Mobilisation and Capital Building: Competitive strength of an economic enterprise is influenced to a great extent by its resource strength. Cooperatives will have to take suitable measures on capital formation process so that their dependence on government financial support is reduced. They should mobilise their internal resources to strengthen themselves financially. One way to build financial strength is to withdraw restrictions on the rate of dividend paid to the members on the equity capital to attract more and more members to widen the share capital base. The cooperative financial institutions like the PACs, the DCCBs and SCBs should be allowed to decide their own interest rates both for deposits and lending under the overall frame-work of the apex banks. Some innovative systems need to be evolved to enable cooperatives to mobilise resources from capital market.

Cooperatives should also provide maximum benefit to the members in terms of remunerative prices for the goods they procure from them and charge minimum prices to the services they render so that cooperatives may elicit more support from their members. Federations must also consider passing appropriate sales margin to lower tier societies for the various services they render.

Reforms in Cooperative Laws: In most countries the cooperative laws are very old, outdated and highly authoritarian. In order to accept the challenges emerging out through the competition in the market, it is necessary that these cooperative laws be adequately equipped to make cooperatives self-reliant and autonomous to carry out their business in the market place. This will provide to the cooperatives a proper 'Level Playing Field' to withstand the growing stiff competition.

Managerial Reforms: Emerging intense competition at market place requires

professionalisation of management to acquire business acumen, management skills and identifying business opportunities. Cooperatives need to make all out efforts to evolve and adopt a pattern of professionalisation suiting to their needs and ideology to improve upon their operational efficiency. Cooperatives should be given liberty to take decisions by adopting scientific management techniques in terms of identifying, planning and implementing economically viable marketing activities, adoption of cost optimisation techniques, increasing productivity of the personnel by re-structuring the organisation, strengthening their infrastructural facilities including transportation and storage facilities etc.

Professional management also calls for instituting and operating a strong Market Information System (MIS) comprising of data on trends of production, demand potential, and price trends of various commodities. Initiative will have to be taken by state and national level cooperative federations in building up data banks to secure, process, store and provide relevant information to cooperative societies at all levels so that they can take timely and effective decisions in implementing diversified marketing activities.

Expansion of Existing Activities: In the new economic policy environment, emphasis will continue to be laid on the growth of agriculture. Efforts will have to be made to involve cooperatives in intensifying cultivation of more food crops as well as commercial crops and their processing. Cotton, oilseeds, sugarcane, fruits and vegetables, spices, plantation crops etc. will have to be given more importance along with the development of fisheries, animal husbandry and dairies.

Diversification of Activities: With the continued emphasis on the growth of agriculture sector agro-processing would generate surplus for exports. Cooperatives will have, therefore, to take up agro-processing on a large-scale and examine the market specific products for exporting purposes. Irrigation and power are the two critical inputs contributing to agricultural growth. Cooperatives should also enter into the fields of distribution of water and electricity in the rural areas, particularly collection of dues, and help reduction in the thefts of electricity and transmission losses. Cooperatives may also be encouraged to participate in the installation and distribution of tele-communication facilities in the rural areas. With the Government of India thinking of opening up the insurance sector cooperatives will have a vast field before them to enter into this business.

Structural Reforms: Structural reforms or reorganisation has become the most significant aspect of market-oriented economy. There is a need to take up comprehensive structural reforms in cooperative sector particularly, the creation of strong primaries, the backbone of cooperative system; and self-reliant and competitive federal structure which will be responsive to the opportunities of the emerging market economy. Federations are for primaries and have the responsibility and accountability to strengthen their basic structure. At the institutional level, reforms in cooperative legislation are to be expedited to provide opportunities to cooperatives at par with private sector. Over-control and over-regulation by government should be discouraged so that the cooperative system restores cooperative identity and tends

to stand on its own to gain benefits from the new policy of liberalisation. The role of Registrar of Cooperative Societies is to be redefined as a promoter of cooperative system rather than the administrator and controller of the cooperatives.

Human Resource Development Policies: The success of any organisation depends on the people who man it. The emerging increasingly competitive scenario calls for professional manpower in the management of cooperatives to attain operational efficiency. Well-defined personnel policies supported by professional training for employees and efficient cooperative education for members as well as the cooperative leadership are essential. Member cooperative training programmes have to lay emphasis on skill formulation for a particular trade. The existing training programmes should be extended to chairmen/board members of cooperatives particularly to develop entrepreneurship among them. The personnel policy of cooperatives has to put more stress on gainful employment but not on guarantee to continue inefficient and unproductive employment. Confident and dedicated personnel are an essential precondition of cooperative identity and values. Every cooperative organisation, should, therefore, take appropriate steps to motivate and build up its personnel through a continuous management development programme. The cooperative institutions should evolve workable reward structure for employees so that they work with full zeal and dedication.

Strengthening of Leadership: The role of cooperative leadership in preserving and protecting the cooperative identity, and practicing the Cooperative Principles and Cooperative Values in their letter and spirit, is crucial. It is the need of the hour to evolve and practice a code of conduct for elected representatives of cooperatives, at all levels, including presidents and board members, to develop an enlightened and responsible leadership. There will have to be a clear cut demarcation of the functions and the responsibilities among the chairman and the elected board on one hand and the chief executive on the other, to ensure harmonious relationship and smooth functioning of the cooperative. The "Sevabhav", that is, the spirit of "Self-Help and Mutual-Help" should be not only for the employees alone, but be inculcated in the members of cooperatives at all levels including among the leadership.

Conclusions

It is often expressed in many quarters that the private trade and the multinationals have many operational advantages and have the ability to take quick business decisions in the competitive market; and their presence in the market is a threat to cooperatives to maintain their identity. It is true to a certain extent. However, cooperatives too have many advantages. Their distinctive identity is their greatest strength and advantage. Their vast membership from village to national level is an asset of the cooperative system. They have the abilities, potentialities and experience to accept the challenges thrown open by the competition in the market place. The liberalised market economic policy should not be considered as a threat for the survival of cooperatives but as an opportunity to liberate themselves from the fetters of the State support and control and take independent business decisions. This would help cooperatives to emerge as autonomous, efficient, strong, and member responsive enterprises.

05

Agro-Inputs Distribution in Agricultural Cooperatives

R.C. Gupta

Agricultural cooperatives in India are very actively and intimately involved in several agriculture-related activities. The most important activities are the disbursement of production credit and distribution of fertilisers and other inputs viz., seeds, pesticides and agricultural implements. Agricultural cooperatives are also involved in the procurement of farm produce, processing and marketing of oilseeds, cotton, sugar, milk and milk products, distribution of essential commodities, clothes, kerosene oil and merchandise etc. {Mr R.C. Gupta is the Joint General Manager-Marketing of IFFCO.}

The Cooperative Movement in India started way back in 1905. Till 1939, the agricultural cooperatives in India were distributing only the credit to the farmers. Their activities got diversified to distribution of essential consumer articles and also some agricultural inputs in the rural areas over a period of time. Subsequently, based on the suggestions made by different committees and commissions, the cooperatives were given a significant role in the distribution of fertilisers. Currently, cooperatives are playing a significant role both in production and marketing of fertilisers.

Role of Cooperatives in Agricultural Credit Disbursement

Cooperatives play a very important role in disbursement of agricultural credit. Credit is needed both by the distribution channel as well as by the farmers. The distribution channel needs it to finance the fertiliser business, and, farmers need it for meeting various needs for agricultural production including purchasing fertilisers. The credit needed by the farmers for purchase of fertilisers and other inputs is called 'short-term' credit or 'production credit' whereas credit needed by the distribution channel is called 'distribution credit'. Cooperatives also play a very important role in disbursement of 'medium-term' and 'long-term' credit needed by the farmers for purchasing agricultural equipment viz., tractors, harvestors, installation of tube-wells and land development works etc.

In India, 78% of the farmers belong to the category of small and marginal farmers. They depend heavily on credit for their agricultural operations. These farmers will not be able to adopt the modern agricultural practices unless they are supported by a system which ensures adequate and timely availability of credit on reasonable terms and conditions. Credit in India is made available to the farmers through a multi-agency network consisting of cooperatives, commercial banks and regional rural banks (RRBs). However, cooperatives account for a large proportion of the agricultural credit made available to the farmers.

The National Bank for Agriculture and Rural Development (NABARD) was established in the year 1982 by an Act of Parliament and was entrusted with all matters concerning policy, planning and operation in the field of credit for agriculture and other economic activities in the rural areas. Before that, this job was being done by Reserve Bank of India itself. The NABARD works for progressive institutionalisation of the rural credit and ensures that the demands for credit from agriculture including the new and upcoming areas like floriculture, tissue culture, bio-fertilisers, sprinkler irrigation, drip irrigation etc. are met. The medium and long-term loans are disbursed to the farmers through primary land development banks (757) which draw their finances from the central land development banks (20), which in turn, draw their finances from the NABARD. As for the short-term credit, this is disbursed to the farmers through Primary Agricultural Credit Societies (PACS 66,200) which draw their finances from central cooperative banks (363), and which in turn, draw their finances from the state cooperative banks (29). The state cooperative banks draw their finances from the NABARD.

Role of Coopertives in Fertiliser Distribution

Agriculture continues to be the mainstay of India's national economy. Its contribution to India's Gross Domestic Product (GDP) is about 30%. Nearly two-thirds of the population still depends on this sector directly or indirectly. Self-sufficiency in food grains has been the basic objective of India's policy on agriculture. Food grain production has increased from the level of 52,000 tons in 1951-52 to 199 million tons in 1996-97. However, the food grains production declined to 193 million tons in 1997-98. The present population of the country is about 960 million and is likely to touch 1000 million by the turn of this century. To feed this level of population, India has to produce 208 million tons of food grains from the present level of 193 million tons which, no doubt, is a gigantic task

The vital role of fertiliser in increasing agricultural production is well recognised. Since, the land-man ratio is declining due to increasing population, the additional food grain production has to come by increasing the productivity of land under cultivation. Adoption of modern agricultural practices is the only way for increasing agricultural productivity. This calls for application of inputs like chemical fertilisers, high-yielding seeds and pesticides besides use of mechanical equipment like seed-cum-fertiliser drills, sprayers, pump sets etc. Chemical fertilisers are very costly, particularly the phosphatic and potassic ones which have been decontrolled effective 25th August 1992. Urea, of course, is relatively low-priced due to

grant of subsidy by the Government of India. However, unless balanced nutrients are applied, the productivity cannot be sustained.

Fertiliser Distribution Channels: Fertilisers are produced or imported at about 200 locations in the country and distributed among the farmers scattered through the length and breadth of the country in about 600,000 villages through a network comprising of private and institutional channels. Some quantities are also made available through manufacturers' own outlets. Private trade accounts for about 60% of the total fertilisers distributed in the country, followed by institutional agencies at 35%, and, remaining 5% through the manufacturers' own outlets. Among the institutional agencies, cooperatives happen to be the main distribution agencies which alone account for nearly 30% of the total fertiliser business. The total number of fertiliser sale points in the country is 262,000, out of which about 71,000 (27%) are institutional agencies' sale points (mainly cooperatives) and the remaining 191,000 (73 %) are controlled by the private trade.

Cooperative Channels: Cooperatives are the main institutional agency in the country handling fertilisers. Cooperative network, at present, comprises of 29 state level marketing federations, 171 district level marketing societies and about 66,200 village level cooperative societies. These village level cooperative societies are generally called Primary Agricultural Credit Societies (PACS). These societies are the backbone of the cooperative marketing system. These societies are well spread in the entire country covering 97 % of the 0.6 million villages and 95 % of the farming families.

The other main institutional agencies engaged in the distribution of fertilisers are State Agro-Industries Development Corporations, Commodity Federations and State Departments of Agriculture etc. They operate both through their own sale depots as well as through the private dealers' network. However, their share is only marginal.

The cooperative structure differs from state to state, and societies at different levels viz., district, taluka, village perform different functions in different states. Generally, the cooperative network operates through a 3-tier system. However, in some states such as Haryana; the cooperative marketing system operates on 2-tier basis, while in some others like Gujarat a 4-tier system exists. At the state level, apex cooperative marketing federations act as wholesalers; marketing societies at district/taluka level as sub-wholesalers while PACS, PAMS (Primary Agricultural Marketing Societies) at grassroots level act as retailers.

The function of state level apex cooperative marketing federations differs from state to state. In some states, the federations are actively involved in fertiliser business like Gujarat, Haryana, West Bengal, Madhya Pradesh etc. and they act as the wholesalers for the entire State. In some States like Uttar Pradesh (U.P.), they are not directly involved in the fertiliser business, and only do the job of liaison and coordination for which they receive service charges from the fertiliser suppliers. In U.P., the state federation is also doing warehousing as well as transportation job both for IFFCO and KRIBHCO - the only manufacturers in the cooperative sectors. In the states where federation is not involved in fertiliser business, the

manufacturers are supplying fertilisers directly to the lower societies at the district/village level. These societies get full or near full distribution margin which has improved the financial health of these societies.

Current Cooperative Fertiliser Distribution Status: Presently, in Gujarat, Haryana, Madhya Pradesh, West Bengal, Tamil Nadu, Jammu & Kashmir, Himachal Pradesh, and Assam, in the cooperative sector, fertiliser supplies are made to the apex cooperative marketing federations only, and they act as wholesalers. Direct supplies are not there at all. Only small quantities under the special scheme like IFFCO-NCDC scheme in Haryana and IFFCO societies adoption programme in M.P. are supplied directly to the societies. In these states district level societies operate as sub-wholesalers. In the states like Punjab, Karnataka, Maharashtra, Orissa, Andhra Pradesh and Kerala, both the systems i.e., supply through federation as well as direct supply to the societies are prevalent. As a result, some of the societies at the lower levels are getting supplies directly from the manufacturers while others are getting from the federations. However, in the states of U.P. and Bihar, supplies of fertilisers are made to the village level societies directly by the manufacturers.

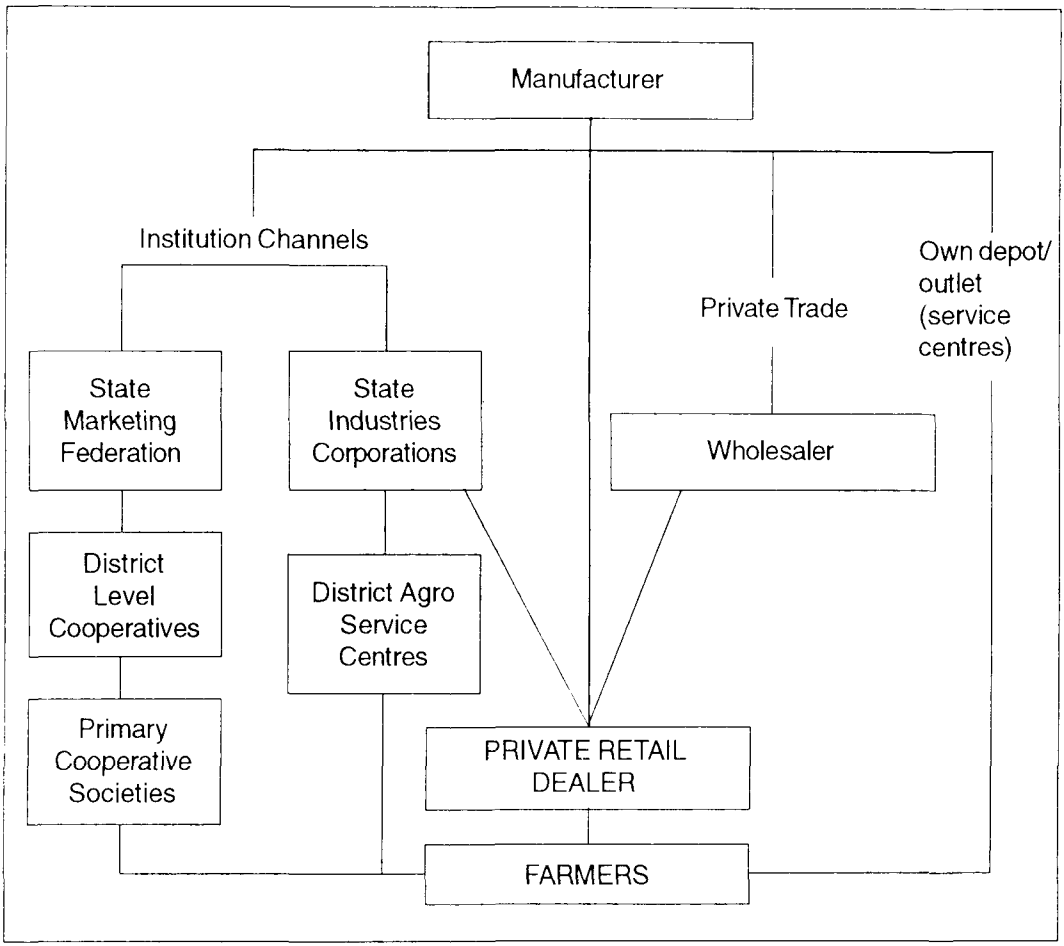
In states where state-level federations act as wholesalers, the manufacturer has to deal with only one agency. Consequently, the job of sales planning, movement and stocks planning, realisation of sales proceeds etc. becomes very easy. In states where manufacturer deals with the lower tier cooperatives directly, the volume of work increases many folds and it becomes much more complex. The material has to be released to individual societies and the sales proceeds realisation has also to be done at that level only. This requires deployment of a larger field force. Decentralised release system leads to establishing larger number of warehouses and correspondingly larger inventory. This all increases the operating cost.

Manufacturers' Own Outlets: Some manufacturers viz., IFFCO, KRIBHCO, GSFC, GNFC and NFL have their own retail outlets called Farmers' Service Centres or Service Centres or Farm Information Centres etc. In these outlets, agricultural inputs like fertilisers, seeds, agro-chemicals and agricultural implements etc. are made available to the farmers under one roof along with agricultural production technology literature.

The main motto of these service centres is not only to provide all quality agro-inputs to the farmers but also educating them on scientific agriculture by providing technical know-how in the field of agriculture. This helps the farmers in increasing their agricultural productivity and profitability. Promotion activities are also carried out in the villages located around these centres (within a radius of 8-10 kms) which includes demonstrations, farmers' meetings, soil-test campaigns, crop seminars etc. In addition, social campaigns like tree plantations, medical check-up, veterinary check up etc. are also organised. They also serve the purpose of additional or alternative distribution channel for the organisation.

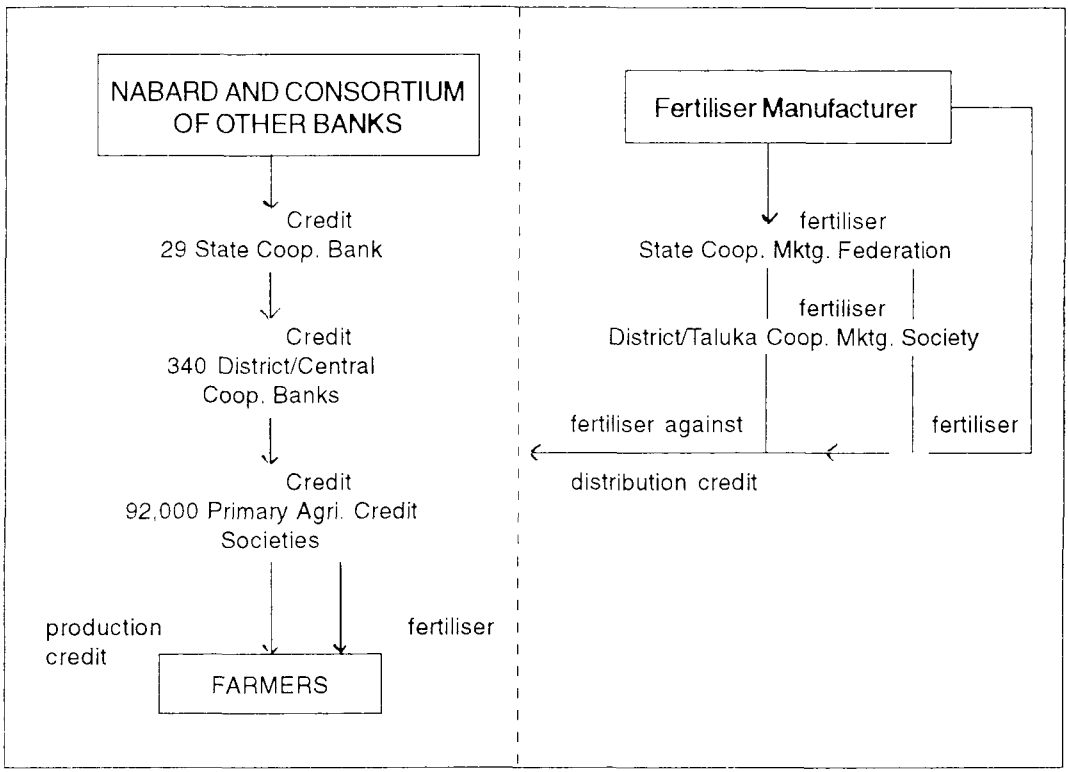
A graphical presentation of fertiliser distribution channels in India - the cooperatives and the private trade is explained in the figure overleaf.

Fertiliser Distribution Channels in India



Linkage in Disbursement of Production Credit and Agro-Input Distribution

As already mentioned elsewhere in this paper, a large number of farmers in India particularly the small and marginal farmers depend upon credit for purchase of fertilisers and other inputs. A very strong point with the cooperative is that the Primary Agricultural Credit Societies (PACS) which are involved in disbursement of agro-inputs also extend production credit to the member-farmers for purchasing these inputs. Moreover, in many states, a part of the credit is disbursed in the kind form mainly in the form of fertilisers and also other agro-inputs. The greatest advantage of this arrangement is that farmers are saved from the hassles of getting different inputs from different places. This has been explained in the following diagram:



Conclusions

Agricultural Cooperatives in India are the backbone of the cooperative system and involved in a variety of functions and serving the rural masses by providing credit, fertilisers, seeds, agro-chemicals, agriculture implements etc. Their role has been commendable. These have helped in making essential inputs available to the rural masses. These deserve and need to be further strengthened.

The Fertiliser Logistics: A Systems Approach

D.K. Shukla

The process of economic liberalization is affecting all sectors of our national economy which are simultaneously undergoing vital transformation. It is in this situation of flux that we are trying to mark out the future trends. It is like trying to study the interaction of two simultaneously dynamic systems - the fertilizer system and the transportation or logistics system. A commodity caters to a primary demand and, in turn, generates a 'derived' demand for transportation and logistics. Thus the primary demand of food grains leads to a secondary demand of fertilizer and both, in turn, lead to the demand of transportation for making these commodities available in the consumption areas. Due to the interplay of a large number of variables, the assessment of quantification of the demand of transportation remains a difficult exercise. {Dr D.K. Shukla is the Executive Director incharge of Transportation with the IFFCO.}

Introduction

The objective of this paper is to explore the dynamics of interaction between the fertilizer and the transportation systems and to present a broad outline of the changes that may take place in the field of the fertilizer logistics in the wake of a probable decontrol of the distribution and movement of urea in near future. The cost of transportation alone constitutes almost half of the cost of marketing operations of the fertilizer companies. The contribution of other components of logistics such as handling, local cartage and warehousing, etc. towards the marketing costs is also quite significant. This clearly illustrates the critical role played by transportation and logistics in making this vital agricultural input available to the farmers in right quantities, at right time and at affordable price.

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The System of ECA Allocations and Controls

Fertilizer is a vital input for agricultural production and food security. As a result it was brought under the Essential Commodities Act (ECA) and its movement is subject to regulation by the Government. The government so as to make it available to the farmers at affordable price has also controlled the price of the fertilizer. Under the Retention Pricing Scheme, a fair ex-factory price (Retention Price) is permitted to the manufacturers based on prescribed efficiency norms. The excess of Retention Price over net realization from selling at controlled price is reimbursed as subsidy by the government. The cost of transporting the fertilizer from the manufacturing units to the consumption points is also reimbursed on a normative basis. However, in order to cut down the burden of subsidy, which had swelled enormously, the government decontrolled phosphatic and potassic fertilizers in 1992. At present urea continues to remain under the control as per the provisions of the ECA. So far as the transportation is concerned, the controlled fertilizers such as urea form more than 70% of the total bulk of fertilizer material to be moved.

Plant-wise and state-wise allocations are made on six monthly basis, separately for both the crop seasons of Kharif and Rabi. The existing system of ECA allocations provides for a network of plant - state linkages. Each state has been linked with a multiple number of manufacturing plants. Likewise, each plant has been linked with a number of states where it has to supply its product. This arrangement provides a safety net and a fallback arrangement. Thus, during the periods of crop failure in a state, a plant has areas open in other states where it can dispatch its product. Similarly in case of breakdown in a plant, the state continues to get its supply from other plants.

The projections for demand of urea are worked out for each state and estimates of likely production are obtained from each plant. The ground stocks left over from the earlier season are also assessed for each state. Planning for import of urea bridges the gap between the total demand and the estimated availability of indigenous urea. Each plant is allocated a quota for each state with which it has been linked for ECA purposes. A company can not sell urea more than its share of quota for a given state. The movement of urea is monitored very closely by the Department of Fertilizers which issues monthly state wise movement plans for each plant. This system has helped in rapid growth of fertilizer consumption, and has avoided recurring shortages and regional imbalances in availability of the fertilizer. Sometimes the system of ECA allocation appears to give an impression that a lot of criss-cross movement of fertilizer is involved due to the aforesaid system of plant-state linkages.

This impression is not founded on facts. In fact, the lead of fertilizer moved on railway network has continuously declined during the ECA regime (Table I).

Table-I: Average leads of fertiliser moved by Rail

Year	Average Lead (km)
1980-81	1,100
1990-91	940
1995-96	894
1996-97	860
1997-98	850

The Transport System

The commodities select their modal-mix of transportation largely on the basis of their transportation characteristics. Some of the parameters which go into making of these characteristics are as follows:

a. The spatial distribution of production centres;
b. The spatial distribution of demand areas;
c. Distances between the production centres and the demand areas;
d. Whether the production and demand are perennial or seasonal;
e. Quantities to be moved;
f. The inherent strength of the commodity to withstand the transit hazards etc.

The following matrix indicates the relationship between transport characteristics and modal choice of transportation in case of some of the major commodities (Table-II).

Table-II: Transportation Characteristics & Preferred Modal-Mix

Commodity	Production	Demand	Lead	Volume	Modal-Mix
Coal, POL Ores, Iron & Steel	Perennial	Perennial	Long	Bulk	Rail
Fertiliser	Perennial	Seasonal	Long and Short	Bulk	Rail-cum-Road
Food grains	Seasonal	Perennial	Long	Bulk	Rail
Fruits and Vegetable	Seasonal	Seasonal	Short	Piecemeal	Road
Textiles Electronics etc	Perennial	Perennial	Long	Piecemeal and Short	Road

The transportation characteristics of fertiliser are such that it has to be transported throughout the year and has to be stored in warehouses situated at strategic locations throughout the country. The fertilizer movement is like a complex web of 'one-point to many-point movements'. The demand of fertilizer by the end-user is highly seasonal. The peak seasons of the demand vary from region to region and crop to crop.

Whereas fertilizer is moved in bulk from the production centers to the warehouses, its consumption is in smaller quantities due to predominance of smaller and marginal land-holdings. As a result fertilizer can not be moved in loose-bulk conditions. It has to be bagged in bags of 50 Kgs/25 kgs for movement and distribution.

The various legs of fertilizer movement from plant-to-farm-gate can be described as follows:

a. Primary movement from plant to the rail head destinations on long leads (called Rake points) - by rail.

b. Secondary movement from Rake-point warehouses to the feeder or to the block level warehouses - by road.

c. Door delivery from rake point warehouses or intermediate warehouses to the user's door - by road.

d. Primary movement from plant to warehouses or user's door within a radius of 150-200 kms from the plant - by road.

The following table (Table-III) illustrates the inter-modal mix of rail-cum-road transport of fertiliser during the last few years:

Table-III: Inter Modal Mix of Fertilizer Transportation

Year	% Share of Railways	% Share of Road
1971-72	94	6
1980-81	67	33
1990-91	68	32
1994-95	71	29
1996-97	70	30

In India, the fertiliser logistics has patronized only two modes of transportation - the Rail and the Road, with a very marginal role played by coastal or inland waterways. Railways have been sharing the main burden of fertiliser movement and almost all the important fertiliser manufacturers have private railway sidings inside their plants. Some fertiliser companies have also acquired wagon fleets under the Own-Your-Wagon Scheme of the Indian Railways. Fertiliser contributes significantly towards freight traffic of the Indian Railways as illustrated by Table-IV, given overleaf:

Table-IV: Share of Fertiliser in Total Freight Traffic of Indian Railways

Year	Volume of Fertiliser Moved (Million Tons)	% of the total freight traffic of Indian Railways
1960-61	1.4	1.1
1970-71	4.7	2.8
1980-81	8.1	4.1
1990-91	18.4	5.8
1995-96	23.7	6.1
1996-97	21.2	5.2
1997-98	26.6	6.5

India is the third largest consumer and second largest importer of fertiliser in the world. About 35 million tons of fertiliser was moved last year from various plants/ports to more than 0.6 million villages spread over the length and breadth of the country. There are nearly 32 large and 115 medium/small size fertiliser manufacturing units in the country. The imported fertiliser has 29 entre-pots at various ports of major and minor categories. Most of the fertiliser plants are located in clusters or along the coastal areas. There are more than 600 full and half rake points where fertiliser rakes are unloaded and material is dispatched onwards to warehouses or to consumption areas by road.

The effective demand of food grain is estimated to rise to 208 millions tons by the year 2000. The country shall need more than 40 million tons of fertilizer by the year 2000 so as to meet the above target of food grain production. It is hoped that 30 million tons of this will be moved by rail and 10 million tons by road.

Warehousing

Because of the continuous production and seasonality of the demand, the role of warehousing becomes critical in fertiliser-logistics. It allows continuous production in the plants and strategic pre-positioning of the fertiliser for ready availability. The fertiliser industry uses the warehousing facility provided by the Central and State Warehousing Corporations (CWC & SWC) and cooperatives as well as the private agencies. They also act as handling agents for the rake unloading, local cartage and sometimes also as road transporters for secondary movements. By a rough estimate there are more than 66,000 godowns having a total storage capacity of more than 32 million tons. Not more than 40% of the above space is available for storage of fertiliser products at present. Thus a net space of only 12 million tons is available for the fertilisers. It is hoped that a turnover of three would necessitate a requirement of 15 to 16 million tons of warehousing space by the end of this century for annual handling of 45 million tons of fertiliser.

The Effects of Liberalisation on Fertilizer and Transportation Sectors

As already mentioned, the production and transportation cost of urea is partly subsidized by the government with a view to making urea available at affordable prices. However, the fundamental changes ushered by the decade old process of liberalization militate against the very concepts of regulation, control and subsidy etc. The Hanumantha Rao Committee has already recommended deregulation of fertiliser industry. The Committee which submitted its report to the government in April 1998, has recommended to remove the ECA regulations from movement and distribution of the urea excepting for the notified scarcity areas. The Committee has recommended widespread changes in the existing Retention Pricing Scheme. It has also recommended that the subsidy-NRP plus freight and distribution margin minus selling price - will be paid on "sale" of the fertiliser as against the existing procedure facilitating payment on "dispatch".

The sweeping forces of economic liberalisation equally affect both the fertiliser and the transportation sectors. As a part of the Government, the Indian Railways have been providing certain services even below the cost of operation to meet their social service obligations. Such obligations include transport of essential commodities carried at low rate below cost. Railways have been exercising maximum restraint in revision of freight rates of the commodities of mass consumption like food grains, fertilizers, organic manures, kerosene oil etc. The extent of net Social Service Obligations in 1996-97 was assessed to have crossed Rs. 18,000 million. Whereas budgetary support from general revenue has been reducing drastically since the onset of economic reforms, the Railways are being called upon to generate their own funds by reducing such social burdens. Fertiliser will be one of the first commodities to face the hike in railway freight. The freight rates and classification of urea may be subject to upward revision by the forces of free market economy. However, changes will also be there in the positive direction. For example, Railways have already started giving freight rebates in the empty flow direction.

The Indian Railways have already completed an exercise to liberalize the provisions of the Indian Railways Act and other rules and regulations so as to make them more market-friendly. The road transport system will also undergo many changes. There could be, for instance, the removal of entry taxes such as octroi and pathkar etc., amendments in Motor Vehicle Act 1988 to simplify procedures; steps taken to facilitate entry of private capital in building and development of roads; fixing a cap on the toll rates to be introduced on various segments of the newly upgraded national highways etc. These steps are bound to bring about improvement in road transport. However, the ever-increasing prices of petrol and diesel, high-energy consumption and pollution will continue to pose as negative features of the road transport.

Not only liberalisation and free market forces but also the "green issues" like pollution control and energy conservation form the core of the new economic order. Whereas Rail-

ways have already electrified most of their trunk routes carrying more than 80% of its freight traffic, the energy efficiency and (therefore) pollution records of other modes of transportation continue to remain the cause of concern. The comparative energy efficiency of the three modes of transportation is given below:

Transport Mode	Energy Consumption/BTU/Ton-km)*
Road	1587.3
Waterways	182.0
Railways (Electric Traction)	84.6

** British Thermal Units required for carrying one ton of material to a distance of one km.*

Decontrol and Dismantling System of ECA Allocation for Urea

The removal of the controls and dismantling of the system of ECA allocation of urea may give rise to some of the scenarios mentioned below:

- The first reaction of the manufacturers would be to concentrate more in areas around the location of their plant. This will cut down the costs of transportation by reducing the leads and fixing of sale prices at lower levels. The direct fallout of this will be serious imbalances in availability of fertiliser from region to region. There will eventually be some surplus areas and some scarcity areas in the country.
- The most of the fertilizer plants in our country are located in clusters. Thus the primary markets of many plants overlap with each other. For example, the three huge plants in western U.P. are located very near to each other at Aonla, Babrala and Shahjahanpur in a narrow cluster. Similarly, plants in Gujarat and Maharashtra have overlapping primary markets. In the first rush all the manufactures will enter into the primary market. But some will outdo the others in a cut-throat competition by offering more liberal terms and conditions and reduced prices. There may be more pressure on the demand of road transport. Short lead movement on Railways will also be resorted to. The Railways may have to offer reduced station-to-station rates in order to stop diversion of their traditional traffic to road sector.
- The decontrol of phosphatic and potassic fertilsers in the year 1992 disturbed the balanced use of fertiliser in the country. This has adversely affected the health of the soil. After decontrol of urea, the nitrogenous fertilisers will be placed at par with the phosphatic and potassic fertilisers. Thus the decontrol of urea may restore the balanced use of the NPK fertilisers. This may give further spurt to greater movement of phosphatic and potassic fertilisers.
- Some of the more inaccessible areas having lesser transport infrastructure will

suffer shortages in supply of fertiliser. At present there are several areas which do not have adequate number of rake points such as in M.P., Orissa and Rajasthan. Also these areas are deficient in adequate road infrastructure entailing higher costs of transportation by road. In a decontrolled scenario, such areas will be deprived of their due share of fertiliser supply.

- Some new movement patterns are also likely to emerge in the wake of removal of the ECA allocation. Companies where costs of production are lower due to various reasons may go beyond their primary market and enter the primary market area of other companies which have higher production costs. In fact, the companies with lower production costs may be able to sell urea in distant locations at prices lower than those offered by their more costly local competitors even after paying extra cost of transportation.
- There will be sudden and frequent shifts and diversions in the movement of fertiliser depending upon such unpredictable factors as crop failures caused by drought or floods. This will lead to congestion or idling of railway routes and rake points depending upon the vagaries of not only the market but also on those of the weather. Under such conditions some of the rake points will become very popular. This may lead to frequent operating restrictions by railways to ward off the congestion of its line and terminal capacities. In the long run railways may have to open more rake points in some of the regions to off-load the conventional destinations.
- Fertiliser, both imported and indigenous, in train loads from fertilizer factories when sponsored and programmed by Union Ministry of Agriculture/ Department of Fertilisers and approved by Railway Board gets a higher priority in allotment of wagons (priority cooperative under the Preferential Traffic Schedule). In the decontrolled scenario, the urea will loose such sponsorship and consequently may loose its higher status in allotment of wagons.
- Under the decontrolled scenario the government may remove the restriction for packaging of 50% of fertiliser in jute bags. The companies may also have more incentive in adding value to their products by introducing zincated, neem-coated and anti-caking urea.
- The development of buffer godowns will provide vital support in a decontrolled regime. A company with better pre-positioning strategy will have edge over the other companies keeping in view the seasonal nature of the demand of fertiliser. Such buffer godowns may be located near well-developed rake points situated in high demand areas like Punjab, Haryana, Uttar Pradesh and West Bengal etc. Coordination with handling agencies such as CWC and SWC will become more relevant in order to cut down the transit losses to keep the prices at competitive levels. In fact such a situation may also give fillip to development of quality transportation by introduction of containerization, palletisation etc. The Ministry of

Railways has already taken up a study to introduce palletisation in fertiliser and cement sectors.

- Until now the role of inland and coastal water transportation has been non- existent or very marginal in movement of fertilizer. Suddenly there has been a spurt in the interest shown by various companies in transport of fertilizer by inland water transport as well as by coastal water transportation system. It is felt that these systems have enormous potential provided these are made more cost effective. In fact, offering more and more traffic to them can bring down their costs. This may lead to the development of an integrated close circuit movement. For example, a company producing fertiliser at a port location may move its product via coastal shipping up to a convenient location and then link it up with the inland water transport system and reach out to upstream areas. The vessels in return direction may carry urea from upcountry urea plants and distribute the same in down stream states or coastal areas. The working groups have already been set up by the Department of Fertilisers to explore the possibility of transport of fertiliser by coastal and inland waterways.
- The decontrolled scenario may also provide an opportunity for improving the rake loading facilities in the plant. This will reduce rake detention and shall reduce expenditure on demurrage. The faster clearance of stock from the silos will bring down the inventory carrying costs. Railways have already come out with a scheme called "Engine-on-Load" where Railways will share costs of construction of improved siding infrastructure provided the companies are able to load rakes within four hours. The freight rebates will be given to such companies to compensate towards the costs of construction of the mechanized loading infrastructure at the railway siding in the plants.
- A strong infrastructure exists for marketing of fertiliser throughout the country operated by one or the other company depending upon their area of operation. In the context of deregulation and decontrol by the Government, a self regulatory approach by the industry will become essential in order to ensure that interests of all the fertiliser manufacturers and distributors are given due consideration. The companies will have to evolve some sort of working arrangements for distribution of fertiliser in view of the above objective. The exchange of product may acquire new relevance. In fact the companies like IFFCO and KRIBHCO having the same cooperative channel of distribution may find this strategy to their mutual benefit and also to the benefit of the farmers in general. This will avoid a lot of unnecessary criss-cross movement of material.
- There is a comparative shortage of DAP and NPK in the country when compared with the availability of urea. In fact a company would increase the sale of its urea if it also makes adequate quantity of complex fertilizer available to the farmers well in time. Thus the sale of urea may ride piggyback on the sale of

complex fertilizer. In a decontrolled scenario the companies will plan their movement in such a manner that urea availability has a solid support of DAP/NPK availability in the same area. This may witness simultaneous movement of urea and complex fertilizer rakes to the same destination rake-points leading to route and terminal congestion. The movements of urea and complex fertilizer shall require a fine-tuning in order to avoid such congestion.

- The movement of the imported product will become more constrained from ports to the hinterland destinations. The imported material will find its market in such areas which are either inaccessible and difficult to reach for the domestic producers or have been vacated by the domestic players as the uneconomic zones. The other options will be for such importers to confine themselves to the coastal areas.
- With the disappearance of formal controls, the need for informal coordination will increase and shall acquire more importance. The role of such bodies as Fertiliser Association of India (FAI) and Fertiliser Rail Movement Coordination Committee (FRMCCs) will become more relevant so as to avoid unnecessary cut-throat competitions.

Summary of Fertiliser Logistics

Some broad Conclusions emerging from the above discussion on fertiliser logistics may be summarized as follows:

- In the first phase, share of road transport will increase and the leads of movement will drop;
- However once the markets redefine themselves and various companies settle down to their respective areas the situation may come back to same rail-road modal mix, as at present;
- Companies with less production costs will expand their area of operation and may fan out to secondary and tertiary markets in a big way;
- There will be areas of glut and scarcity;
- Some rake points and railway routes as well as roads may become more popular than others leading to traffic congestion. On the other hand, some of the rake points may go out of use;
- New modes of transport such as inland and coastal water transport may enter the fertiliser transport market;
- Development of buffer godowns at nodal rake points will become a critical part of the fertiliser logistics;
- Development of quality transport to provide better quality of bags;
- Industry and Railway will have to rely more on informal channels of coordination;
- Cooperatives are the essential partners in the process of distribution of fertiliser in the country.

07

Human Resource Management in Agricultural Cooperatives

C.S. Rao

Marketing scenario is changing at a rapid pace and calling upon its constituents to change too. Changes in the marketing environment are radical and far-reaching and the capacity to learn faster is the only true source of sustainable competitive advantage. Managers need to continuously upgrade their knowledge and skills in technical environmental and leadership areas. At all levels they need to examine their values, style and typical behaviours and assess the extent to which these are helping them. The dictum, 'know thyself, own thyself and change thyself' has become the corner stone of managerial effectiveness. Learning implies awareness of the job, of one's current position, personal strengths and limitations and development needs. Knowing oneself is not enough. Learning about oneself must be translated into action for change. Consequently, change in self leads to change in external reality and organizational effectiveness. HRD must aim to enable employees to gain insight into them, realize their potential and develop action for enhancing their ability to cope up with the changing demands. Different programmes must aim at enhancing managerial and inter-personal effectiveness through better management of self. Thus, Human Resource Management is the development of the people, for the people, by the people and to create an enabling environment for the fullest expression of human capabilities. In the face of these emerging challenges, up-gradation of their management systems is now, more than ever before, the most vital need of the cooperatives. The significance of professionalisation of management in cooperatives, indeed, transcends mere management considerations. {Dr C.S. Rao is the Senior Manager of Human Resources Development of IFFCO.}

Introduction

The globalisation and liberalisation have brought in their wake new opportunities which await exploitation. In this context, we need to explore new policy options and take new

initiatives in this regard. The task before manpower development including training is to provide new understanding of cooperative values and ethos and to impart and indicate new skills and knowledge to equip the cooperative staff at all levels to face these new challenges by adopting an institutionalised modern management practices for upgrading the quality of both management and the staff. While thinking of human resource development in the cooperative sector we have to aim at development of an enlightened dynamic and forward looking leadership along with responsive membership. In the training programme, emphasis has to be laid on promotion of cooperation among various types of cooperatives as well inculcation of cooperative values and ethos among the cooperative personnel. Human resource Management in the context of agricultural cooperatives has been conceptualised thus:

Marketing scenario is changing at a rapid pace and calling upon its constituents to change too. Changes in the marketing environment are radical and far-reaching and the capacity to learn faster is the only true source of sustainable competitive advantage. Managers need to continuously upgrade their knowledge and skills in technical environmental and leadership areas. At all levels they need to examine their values, style and typical behaviours and assess the extent to which these are helping them. The dictum, 'know thyself, own thyself and change thyself' has become the corner stone of managerial effectiveness. Learning implies awareness of the job, of one's current position, personal strengths and limitations and development needs. Knowing oneself is not enough. Learning about oneself must be translated into action for change. Consequently, change in self leads to change in external reality and organizational effectiveness. HRD must aim to enable employees to gain insight into them, realize their potential and develop action for enhancing their ability to cope up with the changing demands. Different programmes must aim at enhancing managerial and interpersonal effectiveness through better management of self. Thus, Human Resource Management is the development of the people, for the people, by the people and to create an enabling environment for the fullest expression of human capabilities.

"The concept of HRD in cooperatives means all the planned information, education, training, modernisation and manpower development activities undertaken by cooperatives so as to create economically efficient organisations capable of providing services required by their members." Thus, HRD has to be looked at as a continuous process to enable the cooperatives to acquire organisational capabilities to manage their operations efficiently and to cope with the challenges of a liberalised economy. In fact, HRD has to be conceived as a broad concept which encompasses within its ambit not only employees but also members, office-bearers, board of directors of cooperatives. HRD has to be looked at as an investment in human resources for overall cooperative growth. It aims at humanisation of organisational life and inculcation of human values in the cooperative organisations.

In the face of these emerging challenges, up-gradation of their management systems is now, more than ever before, the most vital need of the cooperatives. The significance of professionalisation of management in cooperatives, indeed, transcends mere management

considerations. It influences their very identity and autonomy. It has been seen that cooperative institutions which have developed good management culture of their own are interfered with much less by the government than those who have failed to develop a satisfactory managerial infrastructure. Cooperatives as a form of organisation enjoy such natural advantages that if they were only to function with a reasonable degree of efficiency they can get the better of any competition. That has been the experience in the countries of Europe and North America, in Japan and in South Korea. Cooperatives with their comparatively lower cost operations could have a distinct edge over their competitors if their services are delivered to their members and other clientele with reasonable efficiency. In other words, there is a need for creating fuller awareness and acceptance of the importance of appropriate Human Resource Management Systems in cooperatives and taking concrete action in that direction.

The basic elements of a well-conceived HRM system will be:

a. A clear enunciation of corporate goals which must necessarily be achieved, in terms of business activities and overall volume of business as well as member service and satisfaction;

b. An objective analysis of the existing capabilities and short-comings of the organisation and evolving practical and clearly conceived action plans to remove these short-comings and enhancing the capabilities, with a view to achieving within a determined time frame the goals set for the organisation;

c. Manpower planning;

d. Human resource development, which will include:
   - Recruitment and placement of personnel
   - Personnel development and career planning
   - Systems of individual performance measurement
   - Training and skills up-gradation

e. Clarity in functional roles of and inter-relationship between the elected and paid functionaries.

The main objectives of manpower development include: improving the effectiveness and efficiency of the organisation; building up necessary knowledge, skills and attitudes among the personnel so that they are competent enough to take up the jobs assigned to them; motivating the workers in the interest of the organisation and to attract right-type of personnel to the organisation. There are three important methods which have been recognised by the management experts for manpower development: (a) On-the-job training; (b) Group instructions within the organisation and; (c) Institutional training.

Training for Manpower Development

The purpose of employees' training and development in cooperatives is to make avail-

able professionals competent managerial and other personnel with appropriate knowledge, skills and abilities to a cooperative system so that it can function in an effective manner. Training and development of cooperative personnel should become an integral part of the primary functions of management of each cooperative enterprise, especially of the larger ones. Such cooperatives should respond in a positive manner to the repeated demands of their employees for creating opportunities for growth through training and development. Training input is going to be more important in the total strategy for growth and development of cooperatives. Inevitably the demand for training will rise to enable the cooperatives to meet the challenges emerging before them and to function as effective instruments to protect and promote the vital interests of cooperative community. Training can, however, prove effective only if the trainees perceive training as an instrument for personnel development and growth. If such a perception does not exist and other actions of the management do not reinforce this perception, training will loose much of its relevance as well as its effectiveness. Cooperative environment, therefore, becomes essential for meaningful training programmes to meet the training needs of the cooperative employees. An efficient system of cooperative training must be seen as a part of comprehensive personnel management policy. The formulation and implementation of such a policy is of vital importance for the success of the Cooperative Movement.

The emerging market scenario compounded by competition is a matter of concern and it needs to be addressed with consummate by dexterity and maturity. The challenges of the new millennium cannot be faced effectively unless we develop our manpower. We will need to rapidly develop our own perspective of manpower development that is rooted in our cultural psyche, but which can handle the global perspective. In a knowledge-based economy, we need the human resources to be competitive.

The focus of manpower development in marketing must be on development of capabilities of all individual employees through maximum improvement of their job-related knowledge, skills creativity, positive attitude, work culture and motivation for more effective performance. Human development is the development of the people, for the people, by the people to create an enabling environment for the fullest use of human capabilities.

Effective implementation of development plans requires large resources of managerial and technological skills with a positive attitude. Thus the performance of a cooperative is critically dependent on the techno-managerial skills of employees at different levels. In order to achieve corporate excellence, organisations have been making heavy investments on developing human resources. Systematic and well-planned training and development endeavours help the organisation in overcoming managerial obsolescence and in acquisition of new management concepts, skills and techniques. Hence, manpower development in cooperatives stands on a very basic premise of development. 'Every thing can be better; every thing can be bettered'.

In this fast, competitive and dynamic world then what are the mantras for success?

What does separate the best from the average? How does a cooperative take a lead over its competitors? Why do some cooperatives generate more profits, possess a respectable corporate image, foster an enviable organisation culture and are compatible to change in the environment?

Answers to them contain the success story of the world class cooperative organisations - the ones which have made their mark on the corporate world; which have stood their ground amidst all upheavals; which have translated change and challenge into an advantage and land mark.

Why Manpower Development?

Manpower development in agriculture cooperatives assumes a significant role in the emerging scenario in view of the following reasons:

* The overwhelming presence of professional technocrats on one side and poor, illiterate farmers on the other side solicits a well-designed HRD system that is capable of motivating and maximising their potential in reaching each other;
* The fiercely competitive environment demands a basic attitude to change and learn on continuous basis in the organisations. Therefore, a sound HRD climate that provides a learning environment and encourages proaction and experimentation becomes a pre-requisite;
* The inter-disciplinary collaboration to capture market potential calls for a great team-work, collaborative effort and participative culture;
* A formidable amount of energy is to be spent on organisation development (OD) with an objective to create a learning organisation.

Issues in Manpower Management

Different approaches in manpower development are aimed to address the following issues:

* Develop greater confidence and self-esteem among employees;
* Develop the ability to communicate in different forums;
* Have the jobs more enjoyable and satisfying;
* Employees be more comfortable and at ease in trying situations;
* Have more fund in life;
* Employees be original and creative in performing their tasks;
* Develop better relationships with co-workers and organise productive teams;
* Overcome fear, anxiety, stress etc. at different profiles in the organisation;
* To bring about a fundamental shift or transformation in what is possible in the lives of employees.

HRM Practices

1. **Selecting the Best and Placement:** Selecting right people for jobs and placing them in the right roles is the key in determining their optimum contribution and service to the organisation. Organisations with foresight and vision recruit individuals with high potential to perform, possessing greater degree of zeal, enthusiasm and entrepreneurial qualities. Such organisations win when they skillfully deployed their human resources to respond to the demands of change management organisational effectiveness, information technology, creativity, problem solving, decision-making and other emerging expectations.

2. **Quest for Technology:** It is an established fact that well-renowned organisations are proactive. These organisations have an appetite for incorporating the latest and most sophisticated technology. The skilled manpower enables the organisation to willingly opt for the latest and the best. Another main feature of technically superior organisations is their training and development process, which are most effective and responsive to the needs of the employees and the organisation. The result of all these inputs is a synergy between the man and machine, giving technology a human face.

3. **Belief In System Culture:** Every big organisation has an identity. It has a history and a tradition. when we talk of system culture, we mean to design a system keeping in view several broad organisational aspects. All well-developed organisations tend to function in accordance with specifically designed systems but their uniqueness lies in using the system as a guideline rather than being slaves of the system.

4. **Faster Response Time:** The basis of Total Quality Management (TQM) is formed by the principle of 'Customer Satisfaction'. Customer satisfaction is more than often derived by responding timely and precisely to the customer's needs and requirements. Most of the recognised organisations have a reputation of being "High Speed" i.e., their performance could be measured by the minimal response time they take to serve their customers. This is what separates a quality organisation from an average one.

5. **Emphasis on Core Competencies:** It aims at enhancing the competencies of existing manpower by training and developing it rather than opting for trained and skilled external manpower. The advantages are many, such as competence, multi-role efficacy, loyalty, job satisfaction, job enrichment, better compensation and overall improved organisational management. All these contribute towards organisational development.

6. **Investment in People:** Training and development is the most important function that directly contributes towards enhancing the competencies of individuals. Training and development is essential because systems and practices tend to get outdated soon due to new discoveries in technology including technical, managerial and behavioural aspects. Developing individuals in the organisation can contribute to its effectiveness.

It has been an endeavour of every major organisation to initiate and implement training and development programmes. A question may crop up here, why is so much emphasis being placed? The answer follows:

- Human beings are those organisational assets which can be developed to an unlimited extent;
- If taken due care of, employees come up with unrelenting commitment to their work and organisation;
- Human beings have in them that unique trait of innovativeness and creativity, which machines are devoid of;

Organisations of these days are ready to make heavy investments in training and development, as they expect to realise the desired goals and objectives through trained and competent people. Besides, vast untapped potential that lies dormant in the employees could be channelled for appropriate utilisation in the organisation.

7. **Inceasing Accountability:** The decision-making has to be made decentralized, individuals have to be empowered and autonomy be enhanced, in order to facilitate the faster growth of the organisation. No organisation can afford to delay in decision- making on account of prevalent hierarchies. To check the pitfalls of decentralization, empowerment and autonomy, the element of accountability has been reinforced effectively in such organisation. Being accountable, the greater degree of empowerment and enhanced autonomy are made use of in a mature and responsible manner.

8. **Culture of Learning and Adaptability:** As mentioned earlier, cooperative institutions that have made a mark on the corporate world are considerably proactive. Such organisations are open to new ideas and practices. Organisations have learnt and adapted significantly from the Japanese as well as American styles of management. Some of the Indian organisations have judiciously made international management styles conform to the Indian managerial ethos, creating in the process, a new work culture.

9. **Interface Between Organisation and Academic Institutions:** Leading organisations in business, have a definite policy to seek out the best of talent from amongst the premier professional institutions. To give a shape to their policy, such organisations initiate an interface between the industry and the professional institutes by instituting Professorial Chairs. As a part of the interface, presentations, seminars, lectures, conferences etc. are frequently organised.

10. **Optimum Utilisation of Resources:** One of the important priorities of successful cooperatives is the optimum utilisation of resources, structure and the human talent. These factors could be organised in a way that they complement each other, then the road to prosperity may be well within the sight.

HRM Needs of Agricultural Cooperatives

Manpower development in agricultural cooperatives is aimed to inculcate sensitivity on the following themes amongst different cadres of employees:

1. Concept of profitability and making a cooperative as a profit centre;

2. Mind-set change - marketing instead of sales;
3. Inter-personal relations with peers and net-working with supporting institutions;
4. Manage the change, competitive marketing strategy and micro-planning;
5. Customer satisfaction/farmer contact;
6. Entrepreneurial skills;
7. Coordination and leadership skills;
8. Member education programmes;
9. Computer culture in cooperatives.

Human resources development has been a matter of concern to cooperatives in India. The National Council has dealt with this subject in various ramifications for Cooperative Training (NCCT) at various conferences, seminars and workshops. Based on their result and experience gathered at these seminars, the following components of HRD strategy in cooperatives come up into prominence. These are:

- Preparation of enterprise development plan comprising of all business activities including human resources by all cooperatives at all levels. The cooperative federations may offer guidance in this area to their affiliated cooperative institutions;
- Undertaking pragmatic manpower planning for short and long-term duration by business cooperative organisations in all sectors at all levels. The federations may offer consultancy services to their affiliated institutions;
- Creation of pool of key personnel who are professionals and believe in cooperative philosophy, principles and value at the level of cooperative business federations to provide management guidance to the affiliated cooperative institutions;
- Streamlining the recruitment policies, procedures on scientific basis;
- Adopting performance linked salary wages and incentives payments;
- Designing a suitable career development plan for employees of cooperatives;
- Including a provision of HRD in the budget of all cooperative institutions;
- Evolving and implementing cooperative member education and leadership development programmes by cooperative enterprises in collaboration with the cooperative unions and training institutions;
- Strengthening the resource base of National Cooperative Union of India and the State Cooperative Unions so as to gradually minimise their dependence on government funding;
- Creating a conducive organisational environment in cooperatives to enable leaders, staff members and unions to work as a team to achieve the agreed goals;
- Introducing suitable appraisal systems viz., performance appraisal, potential appraisal and performance counseling;
- Influencing government to assist cooperatives in the development of their own HRD strategies without impairing the autonomy of the cooperatives;

- Integrating cooperative training and education at all levels and strengthening the grass root level cooperative training structure;
- Setting up HRD division in all cooperative enterprises;
- Introducing modern HRD techniques such as work system studies, self-renewal systems and performance appraisal system to face competition in the liberalised business environment.

HRM Accomplishments in Cooperatives at National and State Level

The manpower planning calls for systematic and comprehensive inventory of existing human resources and aims at forecasting personnel needs for future. In the cooperative sector broad details of personnel employed category-wise and sector-wise might be available. The estimates of manpower requirements in terms of anticipated growth of each sector under Cooperative Movement for future years is not readily available. It is admitted that in view of large number of cooperative units undertaking diversified activities and operations at different levels of viability it may be difficult to work out accurate manpower requirements at the micro level. However, it could be possible to arrive at micro level estimates in respect of identified cooperative sectors at state level or at the national level.

NCCT/NCUI: A Comprehensive Staff Training Structure

The National Council for Cooperative Training (NCCT), set up under the National Cooperative Union of India, is responsible for formulating policies and managing cooperative training programmes in the country. Its main objectives are: to organise need-based training programmes; to strengthen and professional management cadres in cooperative sector to establish and manage cooperative training institutions; to identify problem areas of cooperative activity requiring research and arranging consultancy services for cooperatives etc.

The cooperative training programmes are being implemented by the NCCT through its training units i.e., the Vaikunth Mehta National Institute of Cooperative Management (VAMNICOM) at Pune for senior level personnel, and 19 Institutes of Cooperative Management (ICMs), located in different states for intermediate level personnel. Besides, the NCCT provides academic guidance and technical support to 95 Junior Cooperative Training Centres located in various States and Union Territories which cater to the training needs of junior level personnel. This training structure happens to be the most extensive and largest owned and operated by any Cooperative Movement anywhere in the world.

The training facilities have been diversified and every year the VAMNICOM offers as many as 70 programmes with an overall annual capacity to train more than 1400 persons. The ICMs also organise 570 programmes including 60 sessions of diploma courses in 11 disciplines and provide training to about 12,000 middle-level executives of cooperative sector every year.

For conducting cooperative training programmes, the NCCT gets 100% grant from the Government of India in the Ministry of Agriculture as also from the Ministry of Industry and Ministry of Textiles. Over a period of time, the focus of training offered under the aegis of NCCT has been switched over to equip executives operating in the cooperative enterprises. A system approach to training management has been adopted which comprises the identification of training needs, setting objectives of each training programme, development of suitable training modules in consultation with the user organisations, adoption of participatory approach and modern training methods and aids. The curricula for different training programmes have been re-designed and given due weightage to skill and management development.

NCUI's Cooperative Member Education Programmes

The cooperative education of members and leadership development has been the major thrust areas of NCUI. The overall objective of the cooperative education programme is to bring about improvement in the working and management of cooperative societies through motivation of membership and leadership at grass-roots level besides creation of awareness among masses about cooperation. Two approaches viz., Peripatetic approach and intensive approach project have been adopted in the implementation of cooperative education programmes. The Member Education Programme for Industrial Cooperatives, Education-cum-Development Programme for Handloom Cooperatives and Member Education Programme for Handicrafts are other thrust areas.

Presently, the Leadership Development Programmes for Cooperatives are conducted by the NCUI's National Centre for Cooperative Education and also the state cooperative unions. These programmes have been useful in creating awareness among the cooperative leaders about their duties, responsibilities and trends in the Cooperative Movement which remains to be done in inculcating the entrepreneurial skills among cooperative leaders. It is proposed to lay more emphasis on this aspect of the leadership programme during the Ninth Plan period.

Manpower Development priorities: Survival and further Development of HRM in Fertiliser Industry

The fertiliser industry in India is passing through a vital and critical phase of adversity and uncertainty. The viability of the industry would, therefore, largely depends upon the marketing strategy and manpower development. Human resource is the most valuable asset of any organisation which can squarely face the challenges and take the organisation on to the roads of excellence. We need to invest regularly through different manpower development programmes into this most valuable asset i.e., people. Different manpower development programmes should aim, therefore, to bring about transformation in the mindset, knowledge level and behaviour pattern with an orientation on developing capabilities of individuals

to know, manage and improve themselves continuously.

The programmes are expected to improve the participants' knowledge of the marketing functions and enhance their analytical, planning and decision-making abilities in a dynamic market place. Among several areas for manpower development, the following are the ones which need focus:

1. Reducing marketing costs, micro planning & profitability concept;
2. Mindset change and value transformation;
3. Team building - involving all functions in different programmes;
4. Consumer/Farmer contact and customer satisfaction (through Suggestion Schemes etc);
5. Quality management systems and quality circles, employee suggestion Schemes etc.;
6. Coordination and leadership skills, through self-development
7. Strategic use of IT and MIS for decision-making, networking and in evolving systems culture as marketing strategy;
8. Interface between the organisation - academicians and research institutions;
9. National management conferences and seminars in the industry to share experiences and problems faced by different functions.

Thus, it is evident from the experiences we have drawn through globalisation and liberalisation in the country, the agricultural cooperatives dealing with fertilisers have to inevitably strengthen their database and relationships to emerge successfully in the present scenario.

How the IFFCO Tries to Meet these HRM Needs?

From the very inception, IFFCO believes in Human Resource Management, and thus it is given a strategic location in the organisation. The following are some of the initiatives:

a. All its four fertiliser units and Marketing Division are having exclusive training centres for imparting all types of need based training programmes. Faculty is drawn from both internal resource and from external professional institutions. Training programmes are organised round the year to keep the manpower updated;

b. Employees working all over IFFCO are also sponsored to various need-based Workshops and Seminars, training and technical meetings organised within the country and abroad to different prestigious training institutions;

c. Cooperative society personnel are exclusively invited from all over the country to participate in specially designed training programmes by IFFCO viz.,

   i. Sale Point personnel training programmes organised at every state level;
   ii. Seminars on fertiliser marketing at every state level;
   iii. Leadership development programmes for member-cooperatives;

iv. Specialised training programmes organised at Cooperative Rural Development Trust (CORDET) at Allahabad (UP) and Kalol (Gujarat);

v. Cooperative Conferences in respective states organised in collaboration with local federations, NCUI, NCCT etc., at their training centres and institutions;

vi. Workshops on enhancing cooperative share in fertiliser marketing of different states organized at IFFCO's Fertiliser Marketing Development Institute, (FMDI), Gurgaon.

d. IFFCO organises need-based programmes for its employees all over the country in collaboration with different management schools, agriculture universities, research institutes, cooperative societies etc. besides its own training centre, FMDI-Gurgaon; and

e. IFFCO utilises its own computer centres and professional information technology centres for imparting computer training packages to its employees on a continuous ongoing basis.

Conclusion

As all manpower development strategy has to eventually emanate from marketing strategy which, in turn, is conceived from environmental turbulence, it is liable to periodic changes to sustain organisation responsiveness. The above discussion centres on the fact, that world class cooperatives have the power to think and implement. Right from recruitment to utilisation of resources, every little aspect of organisation's working is appropriately planned, well thought of and properly executed. These are institutionalized as on-going management development practices and amalgamated into organisations culture at different levels for continuous development and growth of employees' capacity and capability to meet current and future organisations needs. A careful scanning of the environment leaves no dearth of manpower development opportunities to such organisations. Their positive approach enables them to think ahead of the times, foresee the future and plan accordingly, thereby paving the path to success. It will establish a link between the employees' vision and that of the organisation, so that they grow towards the same direction, supporting each other and deriving deeper satisfaction from their partnership.

To summarize, it may be said that nurturing and harnessing the capacities of human resources is to the success of any cooperative institution. Manpower development enables people to have a conducive environment, individually and collectively to develop their full potential and to have a chance of leading productive and creative lives.

The cooperative sector needs to believe in the words of Peter F. Drucker, who says: *'Knowledge is the only meaningful resource today'*. This can only be achieved through the systematic development of human resources. Besides the focus on developing competence at different levels through acquisition of specialised knowledge and skills, HRM emphasizes the importance of total personality with right attitudes with appropriate values of honesty, dedication and commitment.

Natural Resource Management and the Role of Agricultural Cooperatives

G.C. Shrotriya

Land, water, air, climate, flora and fauna are the nature's gift to human beings. Enhancing and maintaining the production potential of these resources has to be continuing professional and societal concern for achieving sustainability in agriculture. Conservative estimates show that 1/5th of the world agriculture land, permanent pastures and forest and woodland have been hopelessly degraded over the last 50 years. Over-grazing, deforestation and inappropriate agricultural practices account for most of the damage. Per capita water availability has declined drastically during the past 50 years and Asia is worst affected. It is predicted that an estimated 15% of the world's plant and animal species could become extinct by the year 2020. The loss of biodiversity in the farmers' field is rather rampant. If we continue to deplete these resources, we shall be depriving overselves of the option and solutions towards sustainable agricultural development. {Dr G.C. Shrotriya is Senior Manager-Bio Sciences with the IFFCO.}

Population and Food Grain Requirement

All achievements in food production are neutralised due to increasing population pressure. It is estimated that world's population that is presently 5.8 billion will reach 8 billion mark by 2020. Over 90% of this increase will take place in developing countries. Nearly half of the world's poor live in South Asia and more than 50% of the poor of this region live in India. There are about 800 million malnourished people in the world, India alone have 200 million. Nutritional security involving physical and economic access to balanced diet and safe drinking water is their urgent need. The poor are the first victims in environmental break down.

With consistent efforts of the government a gradual decline in population growth is expected to be around 1.9% between 1995-2000, 1.8% between 2000-2010 and 1.6% between 2010-2020. Nevertheless, with these growth trends the country will have to feed

about 1.3 billion mouths by the year 2020, requiring production of 5-6 million tons of additional food grains per year. The food grain requirement of the country is estimated at 220.5 and 243.2 million tons by the year 2001-02 and 2006-07, respectively. The breakup of above estimated food demand would be 94 and 103.5 million tons of rice, 75.7 and 84.3 million tons of wheat, 32.6 and 34.4 million tons of coarse grains, and 18.4 and 21.5 million tonnes of pulses for the two periods. While the demand for edible oils is projected to be 7.6 and 9.5 million tons, for milk 93.1 and 119.5 million tons, for vegetable 93.6 and 110.7 million tons and for fruits 53.7 and 70.5 million tons by 2001-02, and 2006-07, respectively.

Sustainable Agriculture

The Technical Advisory Committee of Consultative Group for International Agricultural Research (CGIAR) defined sustainable agriculture as "the successful management of resources for agriculture to satisfy the changing human needs, while maintaining or enhancing the quality of environment and conserving natural resources". Thus, sustainable agriculture encompasses:

i) Changing needs of today and tomorrow;
ii) Economic viability at enhanced productivity level;
iii) Successful management of resources, internal/external, renewable/non-renewable;
iv) Maintenance, preferably enhancement of quality of environment;
v) Conservation of natural resources.

A system should be considered sustainable if it uses the inputs, both those produced on the farm and purchased externally, in most efficient manner to maximize productivity and profitability while minimizing their adverse effect on the environment.

Climate Change and Agriculture

Global warming owing to emission of green house gases has emerged as an important issue in last two decades. The six major gases responsible for global warming are Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (NO_2), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexafluorides (HSFs). There is no ambiguity in the data that since 1860, concentration of carbon dioxide in the atmosphere has risen 30% i.e., from 280 ppm to 365 ppm. It is now projected that South Asia might have an increase in temperature from 0.1 to 0.3 C. by 2010 and 0.4 to 2.4 C. by 2070. The sea levels are also expected to rise between 15 to 94 cm over the next century, thus increasing the vulnerability of coastal low-lying areas. Similarly, decrease in stratospheric ozone has been observed for winter months between 1969 and 1988 in the range of 3.4 to 5.1 % between 30 N and 64 N. Ozone depletion may lead to increased UV radiation with adverse impact an earth's environment and mankind.

In the context of global climate change following questions need to be answered:

Does our agriculture contribute towards green house gases?

- If so, what is the emission level of these gases?
- Do we have quantified date on CO2, CH4 and NO2 emission?
- How could these gases be reduced from the agricultural system?
- What is the likely effect of global warming on agricultural production?

Agro-climatic Regions

Each agro-climatic region because of differential crop, land and water situation may pose different problem of natural resource management and contribute differently to climate change. India has been divided into the following major agro-climatic regions:

1. Humid Western Himalayan Region
2. Humid Bengal Assam Basin
3. Humid Eastern Himalayan Region and Bay Islands
4. Sub-Humid Sutlej-Ganga Alluvial Plains
5. Sub-Humid to Humid Eastern and South-Eastern Uplands
6. Arid Western Plains
7. Semi-Arid Lava Plateau and Central Highlands
8. Humid to Semi-Arid Western Ghats and Karnataka Plateau

Land Availability and Soil Condition

The per capita availability of agricultural land in India has decreased from 0.46 ha in 1951 to 0.26 ha in 1981 with likelihood of a further decrease to 0.15 ha in 2000 AD as against the average of 0.6 ha at global level. Number of persons per hectare of net cropped area has increased from about 3 in 1951 to 5 in 1990, which is estimated to increase to 6.5 in 2000 and 8 persons in 2025. The situation of rapidly declining land to man ratio is likely to further worsen owing to competitive demands for food, fibber, fuel, fodder, timber and developmental activities such as, urbanization and industrialization, mining, brick kilns, road construction, reservoirs, etc.

The soil resource of India is occurring in four distinct geographical regions, namely, the Himalayan Mountain ranges in the north, the alluvial plains of the Indus, Ganges and Brahmaputra rivers, the central Deccan plateau, and the southern Peninsula dissected by Eastern and Western Ghats. For macro-level planning and other forms of land use, maps and reports delineating the country into 12 agro-ecological regions and 60 agro-ecological sub-regions have been produced by the National Bureau of Soil Survey and Land Use Planning.

Land Use

About 43 per cent of the total geographical area the country is under plough. There is no scope of increasing the net cultivated area. The increase in crop production has to come

largely by enhancing the crop productivity per unit of land area. For maintaining ecological balance at least one-third of the geographical area should be under forest cover. However, India's forest cover is only 21% of the geographical area (Table-I). Density of the forest cover is also an issue to be considered. The degradation in land resource has to be checked.

Table-I: Land Use in India

Particulars	Area in million ha	% of the Total
Total Geographical area	328.7	-
Forest	68.4	20.8
Net Area Sown	142.8	43.4
Pastures	11.2	3.4
Misc. Trees	3.6	1.1
Culturable Waste	14.2	4.3
Fallow	9.7	2.9
Not available for Cultivation	41.3	12.5

Soil Degradation

Soil degradation is the decline in the productive capacity of land due to processes induced mainly by human activities. Out of a total geographical area of 329 m/ha of the country, 187 m/ha (representing 57%) is suffering from different soil degradation problems. Water erosion is the major problem causing loss of top soil (in 132 m/ha) and terrain deformation (in 16.4 m/ha). Wind erosion is dominant in western region causing loss top soil and terrain deformation in 13 m/ha. The human induced chemical deterioration is observed in 10 m/ha, causes salinization in 10 m/ha and nutrient and organic matter loss in about 4 m/ha (Table-II).

Table-II: Extent of Degraded Land in India

Particulars	Area in m ha
Area subject to water and wind erosion	141.23
Water-logged area	8.53
Alkali soils	3.58
Acid soils	4.50
Saline including coastal sandy area	5.50
Ravines and gullies	3.39
Area subject to shifting cultivation	4.91
Riverine and torrent	2.73
Total Problem Area	174.94

Soil Fertility Depletion

There has been a big gap between annual drain of nutrients from soil due to crop removals and soil erosion and the nutrient input from external sources. Present estimates show a deficit of 10 m/t of N, P and K, which is likely to grow with further increase in cropping intensity. The country will need to produce at least 300 million tons of food grain by the year 2020, which will necessitate the use of 30.35 m/t of N, P and K from various sources. The gap between sulphur removal and its addition to the crops is estimated to be 0.5 m/t and likely to go beyond 2 m/ t by the year 2025. Widespread deficiency of micronutrients such as zinc followed by those of iron, manganese, copper and boron have been observed. A part of these requirements has to be met through the use of organic manures, residue recycling and mobilisation of residual effects, where as a major share is expected to come from inorganic fertilisers.

Average addition of major nutrients per hectare of cropped area through fertilizers is presently only 87 kg. Compared to some other countries it is still very low (Table-III).

Table -III. A Comparative Consumption of Fertiliser Nutrients in various countries (kg/ha) 1996-97

Country	Nutrient Consumption
Bangladesh	142.6
China	266.4
Nepal	34.7
Pakistan	111.5
Philippines	67.9
Sri Lanka	108.3
Japan	360.5
Korea, Rep of	479.4
Netherlands	547.9
India	84.3

Progressive soil fertility depletion will assume the serious limitation to the sustainable agricultural production. The depletion of soil fertility in 13 year of intensive cropping in long-term fertilizer experiments has shown that due to imbalanced fertilizer use there will be a negative depletion of P and K in all situations (Table-IV). The strategy for nutrient management should involve integrated nutrient supply and management of balanced use of fertilizer through intensive soil testing, monitoring and correcting emerging secondary and micro nutrient deficiencies, adopting all improved nutrient and water management practices that will

enhance fertilizer use efficiency, reduce nutrient losses and increase crop response ratio, and minimizing the present skewed nature of fertiliser use between crops, regions and seasons.

Table-IV: Change in Soil Fertility (Soil Test Value kg/ha after 13 years of Intensive Cropping in various parts in India receiving 100% N

Centre	Soil Type	N	P	K
Barrackpore	Alluvial Soil	85	-18	-47
Ludhiana	-do-	12	-6	-13
New Delhi	-do-	43	-8	-13
Coimbatore	Medium Black	19	-6	-118
Hyderabad	Red Loam	-110	-7	-138
Palampur	Sub-Montane	77	-10	-97

Reclamation of Salt-Affected and Coastal Saline Soils

Reclamation technologies including use of soil amendments along with other management practices are being adopted by the farmers and land development corporations to reclaim sodic soils back to productive capacity for cultivation of crops, grasses and afforestation. The technology for management of coastal saline soils include: provision of embankments with one-way sluice gates to prevent the ingress of sea water into the land; at the same time draining the excess rain water from inland in to the sea; provision of storage of rain water from late monsoon rains for reuse for irrigation in winter season; and, provision for surface and sub surface open drains with pumps, wherever necessary. The acid sulphate soils, which occur along the coast, can also be reclaimed by the above-mentioned measures along with liming.

Soil and Water Conservation

It has been estimated that about 5334 m/t of soil are lost every year through erosion from agricultural lands. Along with this nearly 8.4 m/t of nutrients are also carried away and lost. As a result of loss of top soils the land turns unproductive. It is essential to check such losses by adopting proper soil and water conservation measures. Soil and water conservation practices for the agricultural lands include contour farming, agronomic, cultural and biotic measures such as contour bunding, graded bunding, contour ditches and bench terracing on slops ranging from 6-30%. Non-agricultural lands falling under land capability classes V, VI, VII and VIII have limitation of slope, stoniness, rockiness, shallow soils, erosion, flooding etc. Alternate land use systems have been developed to rehabilitate these lands to pastures, fuel, fodder, timber plantations and forestry etc. Promotion of integrated watershed management through National Watershed Development Project for Rain-fed Areas, integrated development of waste lands, soil conservation in the catchment of river valley

projects and flood-prone rivers are Government's massive area development programmes which aim at the holistic development of watershed with technical back- up from the National Research System and large-scale involvement of the local people and voluntary agencies in their implementation.

Water Harvesting for Agriculture

The country is endowed with fairly rich rainwater resource (above 115 cm per annum). However, the same is not adequately harvested for agricultural purposes. A critical appraisal of existing rainwater availability indicates that:

- India receives 400 million/ha m rain water annually;
- Nearly 160 million ha/m falls on agricultural land;
- Around 24 million ha m equivalent rain water is available for harvesting in small-scale water harvesting structures;
- Nearly 186 million ha/m goes to rivers as run off.

About one-fourth of the total annual rainfall is received before or after the cropping season. Therefore, future success to attain the sustainability goals will depend upon the effective rainwater harvesting and management including that received during pre-or post monsoon season.

Expansion of irrigation had been a key strategy in the development of agriculture in the country and large irrigation potential of above 90 m/ha has been created by the year 1995-96 as against 22.5 m/ha in 1950-51. The ultimate irrigation potential of the country has been estimated to 136.15 m/ha, comprising 58.5 m/ha from major and medium schemes, 15 m/ha from minor irrigation schemes and 66 m/ha from ground water exploitation. At 1993-94 estimates, net irrigated area in the country is about 51 m/ha, which comes to be 36% of net cultivated area. It is estimated that despite achieving full irrigation potential, nearly 50% of the total area will remain rain-fed.

Bio-diversity and Natural Resources

India is one of the twelve mega bio-diversity areas of the world with over 45,000 wild species of plants and 77,000 wild species of animals recorded, together comprising about 6.5 % of the world's known wildlife. It has been estimated that at least 10% of the country's recorded wild flora, and possibly its wild fauna, are on the threatened list, many of them on the verge of extinction. This is not surprising considering the fact that in the last few decades, at least 50% of its forests have been felled and 70% of its water bodies have been polluted, its grasslands, common land resource and its coasts have been degraded. In addition, hunting, over exploitation poisoning by pesticides excessive botanical and zoological collection, displacement by exotic varieties and host of other activities have taken toll of biodiversity.

The primary custodians of the common genetic heritage are farmers. Women, in particular have a profound knowledge of plants and animals in their environment. They have been users of a variety of indigenous plants, trees, herbs and animals have a direct stake in their preservation. Bio-diversity needs to be protected unconditionally because the loss of species is irreversible.

India's efforts at countering the rapid erosion of bio-diversity have been significant and multi-dimensional, especially in the last three decades. India has one of the world's largest networks of protected area (533 national parks and sanctuaries) providing in situ conservation. Equally significant are the efforts in ex-situ preservation through institutional structures like the National Bureaus of Plant, Animal and Fish Genetic Resources of the Indian Council of Agriculture Research. At the same time, community efforts in the conservation of our biological wealth are growing. Forest departments and communities living adjacent to forests are increasingly coming together for joint forest management programmes.

Diversification of Indian Agriculture

The present agricultural scenario - especially in irrigated areas, is dominated by mono-culture of certain crops, as more than 80% of our food comes from about 10 crop species. Crop diversification may prove to be of paramount importance in mitigating the problems arising on account of mono-culture e.g., diversifying rice-wheat system with crops such as berseem, mustard, sugarcane etc. has been found to effectively minimize Phalaris minor infestation, while inclusion of legumes for grain, fodder or green manure improves the fertility and soil physical health. In the existing rice-wheat system, replacement of either crop for overcoming the problem of weeds or incorporation of legumes crop such as mungbean to ensure less dependence on chemical fertilisers or incorporation of a green manure crop for organic recycling are some of the distinct advantages.

Natural Resource Management Practices

Various natural resource management practices and approaches which can be undertaken to restore the degraded resources are listed below:

1. **Soil and Water Conservation**
   - -Contour Bunding and Cultivation
   - -Terracing
   - -Land Levelling
   - -Scattered Trenches
   - -Cully Plugs
   - -Check Dams
   - -Spill Ways
   - -Anicuts

2. **Afforestation**
   -Plantation [Vegetative Cover]
   -Pasture Development
   -Wind Breakers
   -Embankments
3. **Watershed Approach**
4. **Soil Fertility Management**
5. **Integrated Pest Management**
6. **Integrated Farming System**
7. **Crop Diversification**
8. **Reclamation of Problematic Soils**
9. **Controlled/Rotationational Grazing**
10. **Rehabilitation of Mined Areas**
11. **Recycling of Crop Residues/Wastes**
12. **Drought Prone Strategy**
13. **Flood Control**
14. **Creation of Common Property Resource**
15. **Provision of Operational Inputs**
16. **Provision of Extension Services**

Role of Agricultural Cooperatives in Natural Resource Management

The local communities long before the emergence of State power and market forces have managed common property resources of land, vegetation, water and minerals. These included the village pasture, community forests, common threshing grounds, upper catchment areas, drainage, village ponds, tanks, rivers, rivulets and riverbeds. Experience has taught that only a holistic approach, which involves the local communities, whose basis of survival is at stake, in the management of their common resources will make development truly sustainable. Such an approach will be central to all future development efforts. Cooperatives which are public institutions can play dual role in creating awareness and undertaking resource management activities. Activities to be undertaken by different agricultural cooperatives may differ slightly depending upon the nature of the cooperative. However, these activities may broadly include the following programmes:

- CREATE AWARENESS ABOUT NATURAL RESOURCE MANAGEMENT
- DEVELOPING EDUCATION & TRAINING PROGRAMMES
- MONITOR LAND, WATER AND AIR DEGRADATION
- ADOPT AND PROMOTE NATURAL RESOURCES
- ENCOURAGE RECYCLING

- ASSIST IN CONSERVATION OF NATURAL RESOURSES
- PUBLICITY TO SUCCESSFUL COOPERATIVE EFFORTS
- EXCHANGE OF INFORMATION, TECHNOLOGY & EXPERTISE WITH OTHER COOPERATIVES

A beginning has to be made by each and every cooperative towards this effort of restoring natural resource so that the entire developmental efforts are made in a sustainable manner.

"Nature provides for everybody's Need but not for everybody's Greed."

-Mahatma Gandhi

"The earth has been ravaged, desecrated, made sterile - perhaps through ignorance in the initial stages but lately driven by greed and arrogance. Today it is not the ignorant but knowing who pose the main danger to human kind's survival."

-Indira Gandhi

Development and Management of Forestry Cooperatives

O.P. Gaur
K.G. Wankhade

Due to population pressure and food security problem it is not possible to bring additional cultivable area under tree cover. The national policy envisaged importance to increase substantially the forest cover in the country through massive afforestation and social forestry programmes especially on degraded and wastelands through people's participation. In recent times, the formation of National Wasteland Development Board by Government of India to deal with the growing concern of deforestation attracted wide support and interest among Non-governmental organisations (NGOs) and other institution. Community involvement has been found to be of great significance in implementation and monitoring of forest activities particularly on non-forest revenue lands, village panchayat and other degraded land. In India the wasteland, estimated to be around 175 million ha, are the potential areas for afforestation. {Dr O.P. Gaur is the Chief Executive and Dr K.G. Wankhade is the Training Coordinator of the IFFDC.}

Introduction

Forests are the mainstay of rural communities in India since long. Their dependence on forests for fuel, fodder, small timber and fruits cannot be separated. Similarly the forest cover is beneficial for protecting environment as well as for enhancing economic status of the rural people.

In India, of the total geographical area only 19.27% (FSI, 1997) is reported under forest cover. Remote sensing data shows that only 11% forest cover is dense forest. The degradation of forests is still continuing primarily because of the lack of alternative means for forest produces. In India annual deforestation rate has been estimated to 0.6% of the forest area. The National Forest Policy finalised by Government of India in 1988 focuses attention on preservation, conservation, maintenance and sustainable use of forest resources for favourable

environment. The policy highlights that national goal should be to have a minimum 1/3rd of total area of the country under forest cover.

Due to population pressure and food security problem it is not possible to bring additional cultivable area under tree cover. The national policy envisaged importance to increase substantially the forest cover in the country through massive afforestation and social forestry programmes especially on degraded and wastelands through people's participation. In recent times, the formation of National Wasteland Development Board by Government of India to deal with the growing concern of deforestation attracted wide support and interest among Non-governmental organisations (NGOs) and other institution. Community involvement has been found to be of great significance in implementation and monitoring of forest activities particularly on non-forest revenue lands, village panchayat and other degraded land. In India the wasteland, estimated to be around 175 million ha, are the potential areas for afforestation.

Development of Forestry Cooperatives in India

The cooperative development in forestry is not an old concept. The first cooperative in forestry was organised by forest labour for harvesting of trees in an organised way. However, in plantation field few organisations like Indian Farmers' Fertiliser Cooperatives Ltd., (IFFCO) National Tree Growers' Cooperative Federation Limited (NTGCF) and recently, the Indian Farm Forestry Development Cooperative Ltd., (IFFDC) have taken initiative to promote forestry through cooperative at village level. Few examples of forestry cooperatives in India are presented below:

I. The Nasik District Eucalyptus Growers' Cooperative Society Limited: The first cooperative in the forestry sector was formed as Nashik District Eucalyptus Growers' Cooperative Society registered on June 20, 1983 under Maharashtra Cooperative Societies Act, 1960. The idea of organising such an agro-forestry venture, first of its kind in India, emerged out of the felt-needs of the farmers. Accordingly, the farmers of the area organised themselves to form the Cooperative to: Stimulate cultivation of eucalyptus as an alternative agro-forestry crop on scientific lines and also organise marketing and processing of produce on cooperative basis to ensure maximum economic returns to the farmers-members.

The area of operation of the Society is Nasik district. The authorised share capital is Rs. 41.0 millions with each share being of Rs.1,000. Any farmer ready to take agro-forestry as a substitute cropping pattern in Nasik district can become a member by paying Rs.1,000 per acre, as share. As in 1998, 2,413 members of the cooperatives have planted an area of 4,115.60 ha.

Management of the Cooperative: The society is managed through its Annual General Meeting, the highest body which approves accounts, appoints sub-committees, and approves programme for the following years. The Managing Director under the overall supervision of the Board of Directors manages the day-to-day working of the Society. The Board consists

of 15 members (11 elected & 3 nominated), and, the Managing Director as its ex-officio member. The Board of Directors meets once a month to transact the business of the Society.

The Society provides the following main services to the members: Sapling to the members with the help of State Forest Department & National Chemical Laboratory, Pune; Loans from District Central Cooperative Bank for which the Society acts as guarantor; Plantation on members farm; Harvesting of 5-7 years old eucalyptus trees by the Society by a specially-trained team of farm workers; and Sale of members' produce through its sale depot by classifying the lots of different quality.

Along with eucalyptus cultivation, the Society has started to promote cultivation of 'Jatropha curces'. It is expected that about 40,000 ha will be covered under their crop. The society has initiated research and development activities in collaboration with universities and other agencies to explore the possibilities of using Jatropha Curces as alternative resource of energy for fuel and diesel machine. The Society has standardised the system of retail sale and has paid Rs. 2,200 per ton against the price of Rs. 700 which the members would have obtained if their produce were sold directly by themselves in the open market. An All-India Federation of Agro-forestry has been established with its headquarter at Nasik. The World Bank has included the name of Federation for grants- in-aid purposes.

Problems faced: The Nasik District Central Cooperative Bank has stopped the financing of activities. As per the plan, the Society could not establish its processing unit, and consequently continues to face marketing problems. The membership and area of cultivation has been declining indicating that the members have been losing interest.

II. The Indian Farm Forestry Development Cooperative Limited [IFFDC]: The Indian Farmers' Fertiliser Cooperative Ltd (IFFCO), has promoted the afforestation work. By managing of wasteland development through cooperatives and having considerable experience in the field of Farm Forestry, IFFCO thought to institutionalise the Farm Forestry Programme by giving a separate entity to take up the forestry activities exclusively, and thus promoted Indian Farm Forestry Development Cooperative Ltd (IFFDC), as a multi-state cooperative society. It was registered on October 22, 1993, with its area of operation in 11 states.

The broad objectives of the IFFDC are: to promote farm forestry on large scale on wastelands and also to develop forestry programmes under integrated forestry system for maximum economic gain; to promote PFFCS at village level and SFFDC at State level; to provide financial, technical and extension service to the members of PFFCS & SFFDC. The Management comprises of a General Body, a Board of Directors and a Managing Director. A brief description of the implementation of its field project is as follows:

Farm Forestry Pilot Project: The IFFCO had implemented farm forestry projects since 1986-87 in the states of Uttar Pradesh, Madhya Pradesh and Rajasthan. The project's de-

velopmental and follow-up activities are now being implemented under IFFDC. The idea behind the project was: to rejuvenate wastelands by encouraging peoples' participation through Primary Farm Forestry Cooperative Societies (PFFCS); to generate income and sustainable employment among the rural poor; afforestation through the formation of village-level farm forestry cooperatives; and to develop a model to promote afforestation on the lines of the integrated sustainable farming system. The Project emphasised on the socio-economic development of rural communities through integrated farm forestry management on wastelands.

Area covered and tree species planted: A total of 4,609 ha. wasteland has been afforested in three states - (2,611 ha. in U.P., 1,850 ha in Rajasthan, and 148 ha in M.P.); a total of about 6.0 million trees are standing, which are being managed by the 32 PFFCS in three States (3.8 million in U.P., 0.2 million in M.P. and 2.0 million in Rajasthan). Employment Generation: Since 1986-87, employment opportunities on activities like pit-digging, maintenance etc. have been provided to the members of PFFCS and in this process 1.88 million work-days were created. Of these 1.10 million workdays (58.90%) were contributed by men and 0.77 million (41.10%) by women.

Recognition: 4 PFFCS viz., PFFCS Sangwa, Rakhyawal (Rajasthan), Karraya (M.P.) and PFFCS Katari (U.P.) promoted during the IFFCO's Pilot Project have been awarded the prestigious Indira Priyadarshani Vriksha Mitra Award by the Government of India in recognition of their outstanding contribution towards wasteland development through farm forestry.

In addition to the plantation activity, various allied income-generating activities were initiated. These were raising nurseries, pisciculture, and durrie-making. Fish ponds have also been created and aqua-culture has shown encouraging results. The total income generated by these PFFCS as on 31st of March 1998 was Rs. 17.65 million.

IFFDC-ICEF Project: Looking to the success of IFFCO's Farm Forestry Project, the Canadian International Development Agency (CIDA) showed interest in supporting the farm forestry project through India-Canada Environment Facility (ICEF). Accordingly, a project was approved by the Joint Project Steering Committee in July, 1994. The project activities were initiated in April 1995. The financial support sought from ICEF & IFFCO will help to rejuvenate another 20,000 hectares of wasteland by forming 90 additional cooperative societies through peoples' participation and involvement of women. The total financial outlay of the Project is Rs. 350 millions of which Rs. 315 million is grant-in-aid from ICEF and Rs. 35 millions from the IFFCO. The Project has been divided in the following major components for smooth functioning and effective monitoring:

- Promote/establish national, state and village level farm forestry cooperative;
- Integrated farm forestry and natural resource management;
- Training and education;
- Socio-economic activities;

- Research and development;
- Project finance; and
- Project management.

Since April 1995 considerable progress has been made in the IFFDC projects where 16,722 ha of wasteland has been afforestated by establishing 109 PFFCS. A total of 15.46 millions seedlings have been planted which include fruit, fuel, fodder, timber species. In addition, the improved grass seeds have been obtained from Central Arid Zone Research Institute, Jodhpur, India. Out of the total membership of more than 14,000 in these PFFCS women membership is to the extent of 37%. To encourage the habit of saving and enable access to credit in the village itself 294 Women Savings Groups (WSG) have been formed which are functioning with the active interest of the women members. Similarly 520 literacy groups are functioning where illiterate members are taught to put their signatures as well as to read and write. Emphasis on training programmes for the secretaries, Board of Directors and members of PFFCS were given. Services of outside experts are also taken to organise training programmes to develop motivation and leadership. Gender Integration Programmes (GIP) are organised regularly. Community exposure tours are undertaken to show the members the good work being done in other areas - 143 such tours have so far been organised. The IFFDC project has created 2.2 million workdays of which men contributed 53.65% and 46.35% by women.

Key Issues Addressed: The key issues which have effectively been addressed by the organisation include, among others Institutional Development and Capacity Building (PFFCS and members); People's Participation; Gender Equity; Sustainable Development.

III. The National Tree Growers' Cooperative Federation Limited [NTGCF]: In view of its success with milk production and distribution based on the work of the Kaira District Milk Producers' Cooperative Union, commonly known as Amul Dairy, the National Dairy Development Board (NDDB) started the project with the support of the National Wastelands Development Board (NWDB).

A pilot project of the National Tree Growers' Cooperative Federation (NTGCF) was initiated in 1986. The mission of NTGF is: 'Restoration security and protection of the ecological security of the village community by creating self-sustaining village cooperatives that will work for the improvement of marginally productive and unproductive degraded lands, and establish fuel-wood and fodder plantations primarily to meet the villager's needs'. As a subsidiary objective, it will also endeavour to cater to the demand for fuel-wood, timber and tree-based production.

The perception of NTGCF, as expressed in its vision, will integrate the following elements: The creation of common property forest that diverse, ecologically sound and that cater to survival needs; that these forests be sustained by string governance mechanism that provide all inter-link of community life; that there is socially concentrated which would constitute ecological security of marginalised communities.

So far, the NTGCF has organised primary level Tree Growers' Cooperative Societies and other village institutions in 451 villages involving 36,296 members. These institutions have re-vegetated 7,371 ha of the 14,146 ha of the common land, made available to them, and planted 10 million trees on common, as well as on their private lands. This work has generated about 10.8 million workdays of employment in these villages The members of the Tree Growers' Cooperatives have undertaken ecological restoration through water and soil conservation, planting and protecting trees and grasses and by encouraging the process of natural bio-mass regeneration on degraded and private lands.

Energy conservation is done through popularizing improved, fuel-efficient and smoke-less ovens which economise on energy and promote healthy living in rural communities, especially, among women. The Project strongly emphasizes conservation and sustainable use of natural resources. Plantation of trees on private marginal lands is promoted to ensure income to member-tree-growers. Some of the supplementary programmes are: the promotion of apiculture, and propagation and procurement of medicinal plants for rural health for providing additional income to cooperative members.

The Tree Growers' Cooperative Societies have been active also in the procurement, processing and marketing of tree produce. Tree products such as seeds, medicinal plants, pods and timber are gathered and marketed at remunerative prices. Small income-generating activities such as wood-working, bamboo craft, collection of seeds for oil extraction, are initiated by cooperatives. These open new economic opportunities for members. In course of time, it is planned to develop small industries in the covered rural areas to generate additional income and employment opportunities. In NTGCF, women constituted 30.8% of the total membership of TGCS, 42% of the entire work like land development and planting work, pit digging, fencing, plantation, maintenance and soil and water conservation on the common land leased to the cooperatives had been done by women.

The present organizational structure consists of the head office of the Federation at Anand and field units, called Spear Head Teams (SHTs) in each of the six project areas. These Teams are responsible for assisting villagers in organising cooperative societies, having them registered, launching their activities and ensuring coordination. The head office helps in project monitoring and coordination between the teams.

Problems faced: Some of the operational problems faced by the tree-growers' cooperatives have been, among others: encroachment on revenue wastelands; Government restriction on harvesting the produce; declining village common lands; social conflicts and difficult term and conditions of the lease.

Organising Forestry Cooperatives

Organising cooperatives at any level involves certain basic steps to follow. Some of the main ones are the following:

Organising People: Bringing people together and organising them for one particular cause

is not easy. The first step involved in the process of organising a cooperative is the identification of areas for afforestation of potential members and seeking their consent. This is generally done through using Participatory Rural Appraisal (PRA) method and introductory meetings.

Cooperative Bye-Laws: Preparation and formulation of bye-laws or rules for the institution (cooperative) is another most important step involved at the early stage. Bye-laws are prepared with the approval and assistance of the competent authority of state government i.e., Registrar of Cooperative Societies in accordance with the prevailing State cooperative laws and policies

Registration: In order to legalise the institution, its registration is done under the State Cooperative Societies' Act. It generally takes four to six months to register a cooperative.

Members' Education: Keeping in mind the experiences of the cooperative sector and its performance this step has been considered very important in order to build the capacity of the members, and, especially of the managing committee. Training and education activities on motivation leadership, management of cooperatives and other related aspects are frequently organised. Exposure visits to the different successful cooperatives and NGOs are also considered one of the means which are adopted in this regard.

Community-based Resource Management: Sense of ownership is one of the important factors behind the success of any institution. To deal with this, members are imparted training and provided other information to manage the common property resources (forest land resources) independently. This helps in developing the sense of belonging as well as feeling of collective action.

Gender Equity: One of the major problems of Cooperative Movement in India is that it has failed to enlist the participation of women to a desirable extent. Through taking various affirmative actions women are given due consideration in all activities of the forestry cooperatives, and both members are sensitized in this regard. A minimum of 33% representation of women at every level helps to give them an opportunity in decision-making process.

Empowerment of Local People: People's control over the decision-making process is the biggest challenge, which the cooperative sector is trying to achieve. It is quite possible that the organisation control comes in the hands of a few, specially those who are economically well of, thus denying the needy and the poor to reap the benefits and avail of the opportunities. To deal with this, special attention has been given to the poor. Concepts like Micro-level Planning are implemented, which enable the local people, specially women and lower class, to have an opportunity to share their views. This approach also is instrumental in encouraging local people to share their responsibilities. Participatory approaches like PRA exercise is also one avenue where local people are asked to put forward their opinion. These approaches not only helped in seeking the participation of local people but also boost their confidence.

Linkages: To further strengthen the activities of the society, linkages with government agencies and the NGOs are developed by involving them in various activities.

Role of Primary and Apex Organisation: The role of village level cooperative is very important in farm forestry project. It is visualised that, the institution will play a role of a nodal agency in village development. It will also provide an opportunity to local people especially disadvantaged group to come forward and play a decisive role in the process of planning, management and implementation of all activities run by the PFFSC for socio-economic development of the members in particular and village in general.

The role of apex organisation is also felt very crucial. It is perceived that the IFFDC, as an apex body, will provide all types of services like marketing, extension as well as technical support to these village level cooperatives. It will also help in preparing guidelines for the grassroots level institutions as a promotional organisation. In the activities of village level institution its role will be that of a facilitator.

Constraints Affecting Sustainability of Forestry Cooperatives in India

The forestry cooperatives, so far managed in India, have been facing some problems which need to be taken care of in order to enable them to sustain the interests of their members and business. Some of these problems have been:

- Accessing of revenue/panchayat land for tree-growing cooperatives;
- Security of land tenure;
- Lack of inter-departmental coordination;
- Departmental complicated procedures and unrealistic terms and conditions;
- Lack of interest of members due to long gestation period for forestry produce
- Inadequate and unclear profit-sharing mechanism; and
- Lack of people's participation.

The IFFDC at a Glance - An Experiment in Farm Forestry

Background

In India more than 70% population lives in rural areas and depends on farm-based activities. There is a vast land resource that is still unexploited and lying as wasteland. Due to lack of resources and development initiatives the wasteland has neither been opened nor put to any use. The exploitation of 175 m/ha of wastelands can improve the socio-economic condition of rural masses and ecological status as well. Keeping in mind the above perspective, the Indian Farm Forestry Development Cooperative Limited (IFFDC) was promoted by the Indian Farmers' Fertiliser Co-operative Ltd (IFFCO) on October 22, 1993.

IFFDC's Mission: The mandate of the Cooperative is to undertake afforestation of wastelands, environmental improvement and enhancement in the quality of life of the rural poor through integrated farming systems approach.

IFFDC Goal: To promote farm forestry on degraded lands by organising primary farm forestry cooperative societies at the village level for overall development through integrated farming system approach.

Purpose: To reclaim wasteland and marginal agricultural lands by establishing sustainable profit-oriented village-based cooperatives.

Objectives: To promote farm forestry on wastelands as an "Integrated Farming System" for maximum economic gains to its members who are small, and marginal farmers, landless including women, in particular; to strengthen cooperative system by organising primary farm forestry cooperative societies at village level and state farm forestry cooperative societies at the state level; and to promote financial, technical, marketing and extension services support to members, PFFCS and SFFCS.

Registration: The IFFDC was registered under the Multi-State Cooperative Societies' Act 1984 on October 22, 1993. Its registered office is located at 53-54, Goverdhan, Nehru Place, New Delhi-110019.

Membership: The IFFDC membership is open to Indian Farmers' Fertiliser Cooperative Ltd. (IFFCO), National Cooperative Development Corporation (NCDC), Primary Farm Forestry Cooperative Societies (PFFCS), State Farm Forestry Cooperative Societies (SFFCS), State Governments, Government of India and any other cooperative Institution having interest in the promotion of farm forestry activities.

The area of IFFDC operation is in eleven states of India viz., Uttar Pradesh, Madhya Pradesh, Rajasthan, Andhra Pradesh, Karnataka, Tamil Nadu, West Bengal, Orissa, Gujarat, Maharashtra and Bihar. As on March 31, 1998 besides the NCDC, 85 PFFCS were members of IFFDC. These constitute the General Body of IFFDC. IFFCO is among the promoter-members.

Share Capital: Against the authorised share capital of Rs.1000 million, the present subscribed and paid-up share-capital as on March 31st of 1998 was Rs. 1.03million.

Projects under Implementation

IFFCO's Pilot Project: The Indian Farmers' Fertiliser Cooperative Ltd. (IFFCO) had launched its pilot project based on wastelands farm forestry in 1986-87 with the objective of improving degraded land, generate employment and providing fuel and fodder to the rural community. The project emphasises the socio-economic development of rural communities through integrated farm forestry management systems on wastelands. This project is financially supported by IFFCO and other government agencies like NWDB, DNES and respective state government schemes.

Member-PFFCS: In IFFCO's Farm Forestry Pilot Project, 32 primary farm forestry cooperative societies have been organised. Of these, 17 are in U.P., 10 in Rajasthan and 5 in MP. These PFFCS have 4,986 members of which 4,502 are male and 484 female. The Pilot Project has been in existence since 1986-87 in Sultanpur, Rae-Bareli, Pratapgarh and Allahabad districts of U.P., Udaipur in Rajasthan and Sagar in M.P. The wasteland has been acquired on lease from individual member farmers of PFFCS, Village Panchayats and or State Government revenue department.

Afforestation: A total of 4,609 ha. wasteland has been afforestated in three states of which 2,611 ha. is in U.P. 1,850 ha. in Rajasthan and 148 ha. in M.P.

Inventory of Tree Species: A total of about 6.06 million standing tree are being managed by the 32 PFFCS in three States of which 3.8 million is in U.P., 0.2 million is in M.P. and 2.0 million is in Rajasthan. The tree species planted include timber [Shisham (Dalbergia Sissoo), Arjun (Terminalia Arjuna), Siris (Albizia Procera), Sagon (Tectona Grandis)]; fuel [babool (Acacia Species), Eucalyptus (Eucalyptus Species), Subabul (Leuceana Leucocephala)]; fodder (Subabul, Babul, Prosopis) and fruit [Ber (Ziziphus Maritiana), Jamun (Syzizium Cummnii)] trees to meet the needs of member-farmers. Of the total tree in three states, 26.6 % are Prosopis, 20% Shisham, and 11.8 % are Subabu.

Trees Ready to Harvest: A total of 0.60 million trees have been identified which are ready for harvesting in various PFFCS. They will be sold in due course by the respective PFFCS. In some PFFCS sales have already started of Eucalyptus trees, Prosopis in UP and bamboo in Rajasthan. Of the total trees ready for harvest are 61.23% Prosopis, 20.51% Eucalyptus, 11.93% Subabul, 2.33 % Desibabul, 3.42% Kumtha and 0.53% Bamboo. The IFFDC is helping these PFFCS to fetch better returns from the trees whenever they want to harvest by coordinating their efforts and establishing linkages at various levels.

Employment Generation: Since 1986-87, employment opportunities on activities like pit digging and maintenance work have been provided to the members of PFFCS. In this process, 1.88 million work-days were created. Of these, 1.10 million workdays (58.90%) were contributed by men and 0.77 million (41.10%) by women.

The ICEF- IFFDC Project

Project Profile: Since April 1995, IFFDC Project came into existence through an agreement between India-Canada Environment Facility (ICEF) and IFFCO. The ICEF contributes 90%, and IFFCO puts in 10% to the project funds. The IFFDC is managing the project.

Goal and Purpose: The ICEF-IFFDC Project's goal is to build capacity of IFFDC to improve productivity of degraded lands, extend benefits to rural poor, develop an integrated farm forestry, water management and energy conserving systems through PFFCS. The Project aims for rural prosperity, environmental improvement in the operational area in partnership with Canadian and Indian organisations. The purpose is to reclaim wastelands and marginal agricultural lands by establishing a sustainable profit-oriented village-based cooperative structure. The Project is for a period of five years. It commenced on April 1, 1995 and will be completed by March 31, 2000.

Project Area and Target Groups: The Project will organise 90 PFFCS and undertake afforestation activities on 20,000 ha wastelands. The Project is being implemented in Sultanpur, Rae-Bareli, Pratapgarh and Allahabad districts of Uttar Pradesh; Udaipur, Rajsamand and Chittorgarh districts of Rajasthan and Sagar, Chattarpur and Tikamgarh districts of Madhya Pradesh. The target groups are small, marginal and landless farmers and farmwomen who will be organised under PFFCS.

Project Finance: Total project cost is Rs.350 million of which Rs.315 million is a grant from India-Canada Environment Facility (ICEF) and Rs.35 million is being contributed by IFFCO.

Project Components: For effective implementation the project activities have been grouped into various heads such as: Institution Building, Promotion of Cooperatives, Farm Forestry Management, Training & Human Resource Development, Socio-economic Activities, Integrated Natural Resource Management (INRM) and Research and Development programmes.

Project Management: To manage the project effectively a Project Management Committee (PMC) at national level, Project Technical Committees (PTC) at state level and Project

Implementation Committees (PIC) at PFFC level have been formed to provide guidance to the project staff at various levels. The Chief Executive implements the project at national level supported by a group of senior staff members. Similarly, at State level Project Executive is supported by technical, administrative and extension staff.

Since April 1995 significant progress has been made in terms of qualitative and quantitative achievement. The component-wise progress is summarised as under.

Progress as on September 1998: Since April 1995, the Project has made significant progress in terms of quantitative and qualitative achievements of planned activities. The Project has also achieved the participation of members particularly women and gender equity through capacity building through implementation of various training and educational programmes.

Promotion of Cooperative: Up to September 1998 a total 107 PFFCS have been formed with a total membership of 13,723. Women constitute 37.4% of the total membership.

Farm Forestry Management: So far 16,514 ha of land has been brought under various farm forestry and afforestation activities in which 15.15 million saplings have already been planted. Major species are Shisham, Arjun and Siris. Other species have been included to meet the fuel and fodder requirement of the local populace.

Socio-Economic Activities: 399 literacy groups and 161 thrift and credit groups have been formed to improve socio-economic conditions of the rural poor. As an income-generating activity, 141 nursery groups have been formed for raising quality-planting material.

Training and Education: Various training & education programmes have been organised for IFFDC staff, PFFCS office-bearers and PFFCS members with special emphasis on training of women members.

Food Security Issues, WTO and Agricultural Cooperatives in Asia

Daman Prakash

The slow down in agricultural output is due to several factors. Some of these are: Limited availability of new farmland; reduced water resources; increased consumption of food-grains due to increase in population; depletion of world food stocks; pressure on food consumption among developing countries; adverse effects of environmental changes; lack of appropriate technologies in crop protection and inadequate post-harvest systems and facilities; unfair trading practices in international markets, and unfavourable international practices and regulations. World food production is also known to have declined due to unfavourable lending practices adopted by international lending institutions that often resort to arm-twisting of governments to adopt certain methods and strategies as a precondition to qualify for loans. Some other factors which also influence food security are: shifting or unclear political decisions of various governments especially in developing countries; inadequate agricultural research and facilities; lack of access to farm technology, improved seeds and other farm inputs; economic crisis; political instability; lack of incentives and proper planning for self-help and voluntary groups among farmers; shortage of farming population due to old age or due to lack of interest among the younger generation in agriculture; inadequate farm extension and guidance services; persisting poverty in developing countries; and slow progress in the implementation of land reform programmes. {Dr Daman Prakash is working with the International Cooperative Alliance Regional Office for Asia and the Pacific as Director of ICA-Japan Agricoops Management Training Project for Asia-Pacific.}

Introduction

Essentially, food security, means that all people at all times have access to safe and nutritious food to maintain a healthy and active life. This definition implies three dimensions

to food security, namely, availability, access and stability and various levels of aggregation i.e., global, national, household and individual. It thus becomes obvious that achievement of universal food security at the individual level, which implies achievement at the more aggregate levels, is constrained or facilitated by a combination of social, political and economic conditions. And, it is clear that the relevance of these conditions to food security at one level of aggregation is not restricted to the state of conditions at the same level of aggregation. That is, for example, the ability to achieve food security in one country can be affected by conditions economic, political and social etc.) in other countries. As the world economy becomes more integrated it becomes more difficult for a country to insulate itself from the decisions and actions of others. At the same time, this same integration offers the potential for spreading the effects of production shortfalls in one country over the world and thus greatly reducing the negative impact on food security in any one country.

"Because they affect agriculture, global, national, and local shifts in national political and economic relations and structures have implications for food security. First, how food is to be produced and distributed are fundamental concerns of national economies and contribute to ongoing policy debates about how to restructure economic and political systems." (Food and Agriculture Organisation of the UN WFS-96/Tech.5).

Population growth, poverty, deforestation, environmental degradation, over-fishing, refugees, climatic changes, concentrated resource ownership and/or management, and disease also affect food security. Nations increasingly understand that one country or a group cannot resolve most of these problems; they transcend national borders, spreading instability and suffering throughout the region and around the world. Population growth is probably the single most important global trend influencing food security.

Food security has now become an important issue that is before the international community. Well over 800 million people are food insecure; almost 40,000 people die every day due to malnutrition. Food security is a fundamental prerequisite for maintaining the international order and socio-economic stability. Stable food availability at the national, regional and household level is a cornerstone of nutritional well-being. Strengthening food production base is necessary for improving nutrition in most low-income and food-deficit countries. In addition, agriculture, including fisheries and forestry and related rural industries, provides income for the landless and their families, who are often among the most nutritionally vulnerable groups. Some of the most urgent problems to be addressed today are: the need to increase the productivity and living standards of small-scale producers and the disadvantaged; the need to maintain returns to producers that will enable them to adopt productivity-enhancing and labour-optimising technologies and the need to give adequate support to agriculture within development budgets which are already strained.

Food Production and Marketing
-Some Problem Areas

In developing countries of this Region, crops and animal production, fisheries and forestry are direct sources of food and provide income with which to buy food. Virtually all communities in the world however remote, rely on markets to some degree. Therefore, the terms of trade, the efficiency of marketing systems, the existence of fair prices for producers and consumers, the status of a household as net food buyers or sellers and the assets the family owns, including the amount and quality of land available to it, are all important determinants of nutritional status. Landless labourers and their families, who obtain food with wages that are often irregular and uncertain, are among those most threatened by food security. In countries where necessary land reforms have not been implemented the tenants on small farms form another highly vulnerable group. In urban areas where people purchase most of their food, the poor are vulnerable to food price fluctuations, and to changes in employment conditions and in the level of their earnings.

In the year 2000 for an expected population of 3,144 million in the Asia-Pacific Region, the demand for food-grains is estimated at 830 million tons. As against this, the anticipated production is 811 million tons leaving a deficit of 19 million tons. In 2010 the population of the developing countries of Asia is expected to be around 3,729 million. The demand for food-grains is placed at 959 million tons and the production is estimated at 927 million tons leaving a gap of 32 million tons. Even though the Region is expected to generate enough supply of food-gains to meet the demand without significant imports by 2010, it is estimated that still over 200 million people will suffer from chronic under-nutrition.

The slow down in agricultural output is due to several factors. Some of these are: Limited availability of new farmland; reduced water resources; increased consumption of food-grains due to increase in population; depletion of world food stocks; pressure on food consumption among developing countries; adverse effects of environmental changes; lack of appropriate technologies in crop protection and inadequate post-harvest systems and facilities; unfair trading practices in international markets, and unfavourable international practices and regulations. World food production is also known to have declined due to unfavourable lending practices adopted by international lending institutions which often resort to arm-twisting of governments to adopt certain methods and strategies as a precondition to qualify for loans. Some other factors which also influence food security are: shifting or unclear political decisions of various governments especially in developing countries; inadequate agricultural research and facilities; lack of access to farm technology, improved seeds and other farm inputs; economic crisis; political instability; lack of incentives and proper planning for self-help and voluntary groups among farmers; shortage of farming population due to old age or due to lack of interest among the younger generation in agriculture; inadequate farm extension and guidance services; persisting poverty in developing countries; and slow progress in the implementation of land reform programmes.

World Trade Organisation-WTO

The agreement establishing the World Trading Organisation (WTO) came into force on January 01 1995. In many ways, the WTO is different from its predecessor, the General Agreement on Trade and Tariff (GATT). WTO members have to accept all obligations of GATT and other relevant agreements. The agreements constituting the WTO are multilateral in character and involve commitments for the entire membership. The WTO also incorporates the mechanisms of consultations, safeguards, fair-trading, disputes settlement and enforcement of settlements. Countries cannot veto judgements against them. It has also been found that until now most of the settlements reached under the banner of the WTO have gone in favour of developing countries. But still the powerful partners have been having their way. It is also assumed that the WTO agreements would serve the interests of developing countries. Agriculture has been the main interest of the developing countries, and, therefore, in the near future trading in agricultural products will come under a sharper focus. It rests with the developing countries to watch their interests more carefully while entering into international trading agreements. It is also likely that questions like subsidies and patents will continue to persist and politicians might try to confuse the issue to gain some short-time advantages.

The World Trade Organisation (WTO) provides a permanent forum for consolidation and negotiation on an ever-broadening agenda affecting global trade and investment in goods and services. The stakes in international trade are high. It has been estimated that by 2000 world trade in merchandise goods and commercial services will exceed US$8 trillion - or $2 trillion more than in 1995. By then the WTO may have more than 130 member-countries, accounting for about 95% of the world trade.

The general impression among many in developing countries is that the WTO is a power block with the leadership of the United States, European Union and G-8 Group. It is feared that the developed countries would withdraw the existing preferential treatment and would expect greater access to markets in developing countries. Many developing countries hoped that the WTO would provide them with greater security in their negotiations and disputes, but the developed countries often resorted to unilateral action to settle disputes, thus leaving the developing countries to fend for themselves.

World Trade Organisation and Farmers' Organisations

All countries in the world today are trying hard to gain access to market, some to bring advantages to their farmers and some others to feed their populations. It is expected that through the globalisation of trade in food-grains process there will be a fair distribution of food. Farmers' organisations including agricultural cooperatives consider that dumping of imported food-grains would result into certain difficulties for the local farmers - imported commodities would be cheaper and would consequently usher disaster to the local products.

Some countries feel that globalisation would result into spread of farm technology and contribute to higher production of food in other countries. From the foregoing discussions, the following main points have emerged:

1. Cooperative institutions and farmers' organisations have been deeply involved in the chain of food production, its processing and marketing, and their activities relating directly to the consumers as well as the producers
2. The means of production, quality of farm inputs, quantum of farm credit, provision of education, training and extension, have not only been traditional but also grossly inadequate and antiquated;
3. The level of farm technology in crop protection (through crop insurance, farm extension etc.) and post-harvest (through application of appropriate technology etc.) needs extensive improvement to be self-sufficient in food production;
4. Although the governments have promoted a variety of farmers' organisations (cooperatives, farmers' organisations, farmer companies) their continuity of existence and sense of purpose has not been sustained enough. Such institutions are the closest to the farmer-producers and can play an important role in growing more food for the people. Instead, they appear to have been used for achieving short-term political advantages (loan waivers etc.);
5. There is a virtual absence of 'agro-processing for value-addition' in the agricultural cooperative sector, which invariably has attracted private enterprises of all types (national and multi-national) to enter the food processing sector;
6. Almost all farmers' organisations and agricultural cooperatives have been unanimous on the following points:
   - Establishment of infrastructure for enhanced food production has to be done by the government. Farmers, as individuals or their respective organisations, do not have the required capability and capacity. This infrastructure includes: farm roads, irrigation, grading, warehousing, shipment, electricity etc. Joint ventures are, however, a good possibility;
   - With the opening of the market, as a part of WTO agricultural agreements, local farm production and local farmers would suffer if adequate safety-nets were not installed. In the absence of such safeguards, the developing countries might consequently turn into dumping grounds for the surplus products of developed countries at cheaper prices resulting into the collapse of domestic farming structures and farmers suffering losses;
   - In order to effectively participate in the "consensus" exercise, farmers of developing countries need adequate and realistic empowerment through effectiveness and efficiency of their own organisations duly supported by the respective governments. There cannot be any 'consensus' among the unequal;
   - For developing countries in the Asian Region international agricultural trade agreements are not on a priority agenda. Increase in domestic agricultural production to cater to the home requirements, its processing and marketing within the Region is

considered to be on high priority to sustain the interest of farmers in agriculture and to avoid possible social and political conflicts;

- Farmers' organisations should have greater access to farm input supplies in sufficient quantities and at reasonable prices (e.g., fertilisers, farm chemicals, improved seeds) through their local increased manufacture. A certain amount of subsidies are essential (developed countries also give incentives, concessions and provide subsidies to their farmers).

7. Food security cannot be ensured through imports alone. Self-sufficiency in domestic production is a security for itself. There is an urgent need for the international organisations e.g., the WTO and the FAO, and the national governments to earnestly review the implications of free trade in agricultural products and incorporate necessary changes in their policies and programmes to the advantage of food-importing and developing countries.

8. The Region has a positive potential to produce food for others provided there are firm requests and agreements which are transparent, just and fair. Such arrangements should improve local technology, expand agricultural research opportunities, farm extension and develop professionalism in agriculture.

9. There is a strong need to initiate an intimate and sustained dialogue between the respective governments and a variety of farmers' organisations on one hand, and among the farmers' organisations themselves on the other, to discuss and understand the implications of WTO agricultural trade negotiations with a view to overcome the anticipated problems which might arise out of such negotiations.

10. Countries which are prone to food deficiency either due to shortage of land but having farm experience and advanced farm technology (e.g., Japan and Korea), increased population or other reasons should discuss food security issues with other countries in the Region (e.g., India, the Philippines, Thailand and Sri Lanka) which have potentials to increase food production but possessing limited means.

Challenges before Farmers' Organisations

The present day agricultural cooperatives in the Region, particularly in the developing countries, are now faced with several challenges vis-à-vis the multinational companies.

The membership of a majority of these cooperatives consists of small, marginal and resource-poor farmers. They have no bargaining power as individual units. Their sole objective is to produce more and market more to meet their consumption and production requirements. They cannot invest in high-tech farming. In this endeavour they expect: timely supply of fertilisers, farm chemicals, farm extension, farm credit, irrigation facilities and marketing intelligence. In increasing farm production chemical fertiliser alone is a contributory factor up to 40-50%. India happens to be self-sufficient in chemical fertiliser to the extent of 80%, and is the third largest producer and user after the United States and China. Farm production level is, however, among the lowest in the world. The Indian Farmers' Fertiliser Cooperative Limited (IFFCO) holds 13% market share and cooperatives as distributors of the material is

around 31% as compared with other outlets. Primary agricultural cooperatives in the country satisfy almost 50-60% of farm credit requirements, although farm extension services are grossly inadequate. In other countries of the Region chemical fertiliser production rests in the hands of either the State or private enterprises. Agricultural cooperatives have generally been used as distribution points.

The challenges faced by agricultural cooperatives in developing countries in the face of globalisation and open market systems can be classified as under:

- Need to improve professional management skills of those who provide advisory or guidance services to cooperatives and of the managers and some key members of primary level cooperatives;
- Establishment of a marketing intelligence system within the Cooperative Movement to enable the farmer-producers follow market trends and plan their production and marketing strategies;
- Assured supply of farm inputs (quality seeds, chemical fertiliser, farm chemicals, credit and extension services);
- Establishment of business federations through cooperative clusters to undertake primary agro-processing, marketing of local products and to cover financial requirements;
- Be aware of quality controls and standardisation of farm products to be able to compete effectively in the open market;
- Participate in efforts to conserve natural resources, which directly and indirectly, positively influence farm production and rural employment.
- Need for providing information to the farmers and farmers' organisation on the implications of restructuring, globalisation and WTO agreements.

Conclusions

Food security issues concern all - governments, farmers' organisations including agricultural cooperatives, business enterprises and the individual farmers. It is a national issue as much as international. Governments are obliged to review and redefine their current food security-related policies and arrangements. Farmers' organisations or governments alone cannot take decisions without the support and collaboration of individual farmers. Producers need to be educated and explained the importance of falling in line with the international trends in trading in food-grains without compromising on national interests and security. It becomes, therefore, the duty of the national or secondary federations of farmers or of the agricultural cooperatives to explain to their constituents what are the implications of WTO agreements on agriculture and how they could safeguard their own and national interests. In the era of globalisation, vigilance, quality, quantity and flow of information are of great importance. Any slippage would spell disaster for the farmers and farming.

Strengths of Agricultural Cooperatives -Some Interesting Features of the Japanese Agricultural Cooperative Movement

Daman Prakash

The pillars of strength of the Japanese agricultural cooperatives consist of, among others: amalgamation of primary cooperatives; restructuring of JA organisation from three tiers to two-tiers to generate greater efficiency in management and provision of services; efficient provision of marketing, supply and credit services; farm guidance to ensure higher productivity with due consideration for environment; better-living activities in association with the women's associations; continuous policy dialogue with the government; acceptance and application of farm technology; and dissemination of information and technology among farmers in Japan and abroad. Agro-processing leading to value-addition and higher economic returns to farmer-members is the key to the success of agricultural cooperatives because through the application of this concept members get more economic returns. Agricultural cooperatives strive hard to help their members to increase and sustain their income levels through a variety of innovations and services. Economic returns are the key to sustain the relationship between the members and their cooperatives. JAs have, through their actions, given ample proof of it. We, in the Region, only need to have a more closer look at the dynamism of these institutions, respectfully, of course!

Introduction

Nearly 65-75% of the population in Asia-Pacific countries depends on agriculture. Farm income has been the main source of livelihood. Farm practices and means are traditional. Application of methods and technology for farm management, crop protection, post-harvest, diversification of cropping patterns, use of farm inputs, mechanisation of farming, farm guidance, farm production planning, have not yet been used extensively. Pressures on

agricultural lands due to ever-increasing population, urbanisation and development of other non-farm infrastructures have been heavy. Organisation and management of farmers' groups or associations has been weak. In the rural areas, agricultural cooperatives have been playing significant roles by way of disbursement of farm credit, farm supplies, marketing and agro-processing.

Although there are a large number of such cooperatives, their main functions largely remain confined to the distribution of credit, fertilisers and procurement of farm products for national food stocks. Marketing, agro-processing, warehousing activities are still weak. Their services to the members are inadequate. Many of the agricultural cooperatives largely remain blissfully content with implementing some of the government-sponsored programmes. Income by way of commissions and service charges received by the cooperatives often form a major portion of their working capital.

It is often assumed that world food shortages can be eliminated by increasing food and agricultural production through the application of modern technology. It is also argued that supplying modern inputs such as large-scale irrigation, chemical fertilisers, farm machinery and pesticides can improve the productive capacity of the land. New agricultural technology supported by other factors like land, finance resources, creditworthiness and political influence make a lot of difference.

Agricultural Cooperatives and the Problems They Face

Some of the problems faced by agricultural cooperatives have been, among others, poor management, lack of capital resources, inadequate training/education system, lack of communication/participation among members, feudalistic characteristics of society, unclear and inadequate policy on the development of agricultural cooperatives, and weak linkages among the activities of the cooperatives e.g., production, credit, marketing etc. To overcome such problems, some of the measures taken by the governments and movements have been: re-assessment and improvement of farm policies, human resource development through formal and informal training of members, development of commercial partnership and joint ventures with private enterprises, development of marketing and agro-processing, implementation of self-reliance projects, diversification of agricultural products including the development of export-oriented crops through contract farming, promotion of universal membership, and strengthening of legal framework of cooperatives.

Agricultural Cooperatives of Japan -Their Phenomenal Rise and Contributions

The phenomenal rise of Japanese post-War economy can safely be attributed to the hard and systematic work done by these agricultural cooperatives in consolidating people, land resources and producing the needed food and providing the needed services to the community. These services range from 'the cradle to the grave' [This slogan has presently

and gradually been pushed into the background mainly due to the economic capabilities and capacities already achieved by the agricultural cooperatives. The fact, however, remains alive because the organisational structure and the system still firmly exists and has been integrated in the services provided]. The Japanese agricultural cooperatives stand committed to '3-H Agriculture - Healthy, High Quality and High Technology'.

The Japanese Agricultural Cooperative Movement had successfully introduced a number of innovations which are of great relevance to the Movements in the Region. Some of the interesting features of the agricultural cooperatives have been:

Sustained and progressive amalgamation of cooperatives to make them more economically-viable and service-oriented; Farm guidance and better-living services to achieve a high degree of communication with the members and to enrich their social life; Protection of interests of farmer-members through mutual insurance, health-care; Carefully planned and well-executed marketing and supply functions through specially-created and cooperative-owned holding companies; Production of quality consumer goods and services; Successfully interacting with the government through a process of policy dialogue and lobbying inside and outside legislature; Education and training of farmer-members through a network of cooperative training institutions; Ensuring higher economic returns to the farmer-members through a process of 'value addition'; Encouraging women and youth to form associations to compliment and supplement the work of agricultural cooperatives especially in taking care of and sustaining the interest of the young and the aged in the honoured profession of farming; Encouraging the farmer-members in controlling pollution to produce and market the healthy and nourishing agricultural products to safeguard the interests of consumers; and, Extending technical collaboration with the developing movements.

In the light of the experiences of Japan, potential factors that would influence the operation of cooperatives are: Customs of mutual help and assistance in rural areas; Introduction of new crops and technology to increase productivity; Active participation of women members through women's associations; Employment of capable and professional managers; Acquisition of operating facilities and linking credit with marketing; Guidance and education for improving production technology and, above all, the cooperative being a member-centred institution rather than the cooperative being a "cooperative-centred" institution. Based on the above factors, some general requisites for an effective operation of an agricultural cooperative could be derived. These include: Promoting members participation - economic and organisational; Increasing membership by encouraging non-members, women and young people to join agricultural cooperatives; and, Promoting the utilisation of cooperative business by members.

The Period of Transition

The Japanese economy and society are in the midst of transition. Respect for social and economic ethics, customs, values, traditions, cultural heritage and rule of law have con-

tributed significantly to the rich values of Japan. Belief in individuals, groups and institutions has been another factor for the economic and social progress of Japan. However, due to the higher levels of economic achievements some of the social values have begun to erode. There are new pressures which have been generated by the global competitiveness which is forcing the country to undertake some structural reforms. Agricultural cooperatives have also taken steps to implement new strategies to enter the 21st century.

There are six major reforms that are being undertaken by the Government:

- Government expenditure reforms;
- Administrative reforms;
- Financial reforms;
- Economic structural reforms;
- Welfare reforms; and
- Educational reforms.

JAs Prepare for the 21st Century

Agricultural cooperatives have also taken steps to implement new strategies to enter the 21st century. The JA-Zenchu (the Central Union of Agricultural Cooperatives of Japan) which serves and represents the agricultural cooperatives nationally and internationally, takes active interest in responding to their needs. Some of the strategies adopted by JA-Zenchu include: general public opinion formulation in favour of agricultural cooperatives, policy dialogues with the government and interacting with the Movement through national Congresses and regional meetings.

Some of the measures being pushed by JA-Zenchu are as follows:

[i] Empowering and participation of members;
[ii] Mobilising member-group movements in cooperative enterprises;
[iii] Dynamic and efficient restructuring of cooperative business practices;
[iv] Cooperative marketing business practices;
[v] Cooperative supply business practices;
[vi] Cooperative credit business practices; and
[vii] Other cooperative business practices.
[viii] Collection and dessimination of business and other information.

Elements of JA Agricultural Policy

The principal elements of JA Agricultural Policy are, among others: Involving all countries in food security efforts; Maintaining productive capacities; Maintaining food stocks; Promoting food aid; Strengthening international aid; Promoting technical assistance; Promoting educational programmes on world food security; Increasing support for an active role of women; Strengthening support for family planning and welfare; Supporting interna-

tional agricultural research; and, Establishing a new agricultural trade system.

Services to the Community
-Methods and Services

Already within the organisational structure of the agricultural cooperative sector of Japan (commonly known as JA-Group/JA-System) a number of business organisations, fully owned by cooperatives, have been operating, trying to fulfil the marketing, supply and credit needs of members (producers and consumers). However, due to the open market situation, a greater number of ageing farmers, inability to recruit or interest young people to enter farming profession, and the growing needs of farmer-members to market their products fast and with some economic advantage, the JAs appear to be facing problems. The consequences have been: members prefer to have direct access to the market; members converting their farm lands into non-farm purposes; members do not have excess funds for savings; and, the cooperatives prefer to invest their funds in non-farm investments to earn higher incomes etc.

Amalgamation of JAs is high on the agenda. The process is viewed as very difficult, nerve-wrecking, highly diplomatic and time-consuming. This involves the satisfaction of ego-power of local leaders through a process of persuation and continuous dialogue, division of assets and liabilities and displacement of employees. From 12,000 in 1960 the number went down to 2,300 in 1995 and it is expected that the number of amalgamated cooperatives would be 550 by the end of the year 2000. The three-tier system is being steadily converted into a two-tier system to improve efficiency in management and services. The 5,402,000 farm households in 1970 went down to 3,438,000 in 1995. The farming population of 8,110,000 in 1970 decreased to 3,280,000 in 1995 and the farmers above 65 years who were 12.1% in 1970 rose to 39.6% in 1995. During 1995 there were almost 50% of the farmers of 65 years and above still working on their farms. Similarly there were nearly 61.2% of women engaged in farming. In the JAs they represent only 13.0% of regular membership, and as little as 0.2% of directors. On an average there were 3,046 members, 104 employees and 9 branch offices per JA - the largest one being JA-Topia Hamamatsu in Shizuoka Prefecture with 27,000 members.

Some of the key services provided by JAs include marketing, supply, credit, farm guidance and better-living activities. The strength of JAs lies in the agro-processing by making an extensive use of high technology, locally available resources and strong linkages with wholesale and retail markets. Another factor which binds these institutions in the community fold are the women's associations, which act as, a bridge between the cooperative business and the community needs. Institutions like the Ie-No-Hikari Association, National Press and Information Federation, JA-Zenchu and the IDACA also provide a lot of information, through print and visual media, on the achievements and problems of JAs for domestic and foreign audience. Young Japanese who have their roots in rural Japan are being encouraged to take up farming as an honourable profession. Some of the well-known and honoured names in the

agricultural cooperative business in Japan are, among others, Zen-Noh (the marketing and supply federation), Zenkyoren (insurance federation), Norinchukin Bank, UnicoopJapan, "A-Coops", etc.

Conditions Necessary for Success of Agricultural Cooperatives

Experiences of agricultural cooperatives and the results of various studies have identified several factors which are responsible for the success of agricultural cooperatives. These are:

- Cooperatives are member-driven, member-controlled and member-responsive organisations;
- Cooperatives are efficiently managed by trained and professionally-qualified staff under the supervision and control of democratically elected boards of directors;
- Cooperatives have integrated their operations with the needs of their member-households;
- Well-integrated vertical structures of cooperatives exist and these provide support in order to enable the base level cooperatives to effectively and efficiently service their individual members; the federal cooperatives provide advisory services, technical know-how and back-up support services;
- Cooperatives undertake comprehensive programmes for member education in order to facilitate the process of members' participation, members' involvement and empowerment; and for training of staff and members of boards of directors;
- Cooperatives undertake value-added operations; choose, assess and employ appropriate but advanced technologies; and forge forward integration in order to gain competitive advantage in the market-place;
- Cooperatives establish viable and strong linkages with external research and development/extension agencies in the field of agriculture and technology;
- Cooperatives strive to become self-reliant, accumulate capital and develop other resources in order to remain free from all external controls and directions; and
- Cooperatives are open, ethical, caring, and socially-aware institutions. They display social concern in their business operations and in their relations with customers, employees and members, and the community at large.

The integration of cooperative activities in the Cooperative Movement could enhance economy of scale. However, this is only possible if the primary cooperatives are strong. The experiences in the Asian countries show that Cooperative Movements, which have resorted to merger, consolidation and amalgamation at all levels, have become more stable and self-reliant. In some countries, the cooperatives shifted from the three-tier to the two-tier cooperative structure and at the same time they merged and consolidated their primary cooperatives. In other countries, they merged and consolidated at the primary and secondary levels where both receive vertical support from the national level. In this structure, the integrated

activities are not overlapping as the primary, secondary and tertiary cooperatives have their own defined role. The problem arises when this discipline is not respected, and when the secondary level cooperatives begin to compete with their own affiliates. Instead of competing with the affiliates, the principle of collaboration and mutual economic benefit should be adopted.

Value-Addition through Agro-Processing

It should, however, be noted that value-addition does not take place through undertaking processing activities alone. Marketing plays an important role as well. Marketing of graded, properly packed semi or fully processed products still adds some more value than the marketing of basic material. The JAs have been able to establish 'on-line' contacts with farmers, farmers' groups, financing agencies, wholesale markets, major bulk buyers and consumer groups. For that matter, no agricultural cooperative can survive and bring benefits and services to its members if it is unable to market the produce of its members. Members want to sell their produce as fast as possible, and take the money home. It thus becomes the responsibility of the cooperative to assist the farmers in not only selling the members' produce but also selling it with advantage. In India, no milk cooperative refuses any type of milk that is delivered to the cooperative by the members. In Japan, also the agricultural cooperatives do not refuse the products of farmers.

Cooperatives have, therefore to be on an alert look out for markets and means of marketing the products of their members. The development of value-added agro-processing industry motivates the farmers for improving productivity and further opens up possibilities of industrial development. The basic requirements are sound marketing, modern technology and quality control. Based on the integrated agricultural cooperative marketing network, agriculture can work as the biggest safety net in the process of adjustment by softening the rigors of inflation as well as by raising income and employment for weaker sections of the society in the Region.

Cooperatives and Members' Expectations

The main point is that the members should not run after their cooperatives to provide them with services and facilities -it should be the cooperative which should, on its own, be keen to offer a variety of services and facilities to its members. Member is a radiant factor from which the power of agricultural cooperatives emanates. Member is the key and the main source of economic strength of the cooperative. Member should not feel that he is dependent on the cooperative. He has several other options which may not be economically attractive for him. It is the cooperative which should be dependent on the member. It is often heard that cooperatives do not do enough for their members - it should be the members who should, in fact, complain that their cooperatives do not do enough for them. For the cooperative, the focus should be on the member and his business potentials, rather than on itself.

Farmers need money and that money has to be a reasonably good return for the investments made. To secure returns, two factors are very important: value-addition and marketing. The process of marketing is more difficult than that of production. It requires an intimate knowledge of market trends. It should be scientific and well-organised, otherwise the farmer runs the risk of not getting the full value of his produce and the investment made. In cases where cooperatives are not able to respond to the marketing needs of the members, middlemen thrive and the farmer-members get sucked into the vicious circle which the cooperatives are supposed to eliminate.

As has been amply demonstrated by the JAs, the basic constituents of integrated rural (including cooperative) development are:

- Agriculture proper - cultivation of wet, dry and commercial crops including development and shaping of land;
- Agro-services including supply of inputs, credit, storage and marketing;
- Agro-industrialisation - rice milling, flour mills, oil mills, cotton ginning and processing units, sugarcane factories, fruit preservation units, agencies to produce and service agricultural implements, blending of fertiliser for local use for special local crops, plant protection, insecticides etc.;
- Allied agricultural activities including horticulture, dairy development, dairy/beef-cattle development, sericulture, sheep breeding, poultry, piggery and fish culture;
- Economic overheads for agricultural development e.g., irrigation, rural electrification and rural communication;
- Social overheads including school, adult literacy centres, health centres, veterinary centres, and vocational training institutions for women and youth, etc.;
- Land reforms and agrarian relationships;
- Village industry including handicrafts, handlooms, basket making and other traditional industries;
- Distribution of consumer goods through cooperative-owned retail shops, delivery trucks, members' groups etc.;
- Revitalisation of rural institutions like cooperatives, youth clubs and women's associations to expand and support better-living activities.

Cooperatives are often blamed for non-performance mainly due to lack of participation on the part of their members. In agricultural cooperatives the entire business moves around the economic benefits which the members expect from their cooperative. Farmer-members are eager to sell their produce and obtain timely and sufficient funds to increase their produce. A manager is, therefore, confronted with several problems e.g., identification of markets, methods and techniques of handling members' produce, ensuring adequate returns to the member-farmers and maintaining their loyalty and relationship with the cooperative. Managers with experience, capacity, capability, tact, clarity of business ethics, and professional competence can overcome such problems.

Lessons from the Field

Based on the experiences of agricultural cooperatives at the primary, secondary and national levels in various countries of the Region, including Japan, the following lessons can be derived:

- Government should give more importance and provide greater support to agriculture if agricultural cooperatives are to perform satisfactorily;
- Cooperatives would function well with least government intervention;
- Discipline contributes much to the efficient operation of cooperatives;
- Cooperatives should be non-political and self-reliant organisations;
- Complete trust and confidence is necessary for cooperatives to succeed;
- Cooperatives should be managed in a more business-like manner;
- Cooperative's guidance and active participation is valuable in the formulation and execution of farm production plans;
- Knowledge of scientific farming, provision of high quality inputs such as seeds, and mechanisation are important factors for enhancing productivity;
- Technological innovations that are pertinent to the changing needs of agriculture and the environment should be promoted;
- Introduction of new technology and methods of production are needed to develop agriculture;
- Cooperative should provide advice to farmers on crops to plant which earn them higher income;
- Regular dialogues among farmers, cooperatives and market authorities should be undertaken to resolve problems;
- Organisation should be led and managed by energetic, professional and dynamic persons;
- Improved packaging and marketing are important to enhancing the business operations of cooperatives;
- For success the farmers' orientation should be on improving productivity and quality;
- Business should be conducted in accordance with modern management principles;
- Agricultural cooperatives could be encouraged to participate as wholesalers in the market and hence, enhance the benefits of their members; and
- Good grading and packaging add to the final price of the product and enable efficient handling and distribution.

These lessons can very well form the basic guidelines for the leadership of agricultural cooperatives elsewhere.

Conclusion

Agricultural cooperatives provide all types of economic and social services to their members. They demand effective, enlightened and skilled leaders. They needs initiatives

and services to sustain the interests of their members through the provision of education, training, guidance, extension and farm inputs, farm credit and marketing opportunities. They have to be run on democratic lines. They operate within the framework of national guidelines, but at the same time fulfil the demands of domestic and international markets. Agricultural cooperatives, to be effective and acceptable, must take the members' views and their felt-needs into consideration. An active communication has to be established and sustained between the management and the members, and between the leadership and the management. Agricultural cooperatives have no reason to be afraid of the open market pressures if their members remain united and respond to the needs of the market. The unity of members is the strength of the cooperative business.

The pillars of strength of the Japanese agricultural cooperatives consist of, among others: amalgamation of primary cooperatives; restructuring of JA organisation from three tiers to two-tiers to generate greater efficiency in management and provision of services; efficient provision of marketing, supply and credit services; farm guidance to ensure higher productivity with due consideration for environment; better-living activities in association with the women's associations; continuous policy dialogue with the government; acceptance and application of farm technology; and dissemination of information and technology among farmers in Japan and abroad. Agro-processing leading to value-addition and higher economic returns to farmer-members is the key to the success of agricultural cooperatives because through the application of this concept members get more economic returns. Agricultural cooperatives strive hard to help their members to increase and sustain their income levels through a variety of innovations and services. Economic returns are the key to sustain the relationship between the members and their cooperatives. JAs have, through their actions, given ample proof of it. We, in the Region, only need to have a more closer look at the dynamism of these institutions, respectfully, of course!

Some Important Cooperative Publications...

Paradigm Shift in the Management of Agricultural Cooperatives in Asia by Daman Prakash and G.C. Shrotriya. ICA-IFFCO joint publication;

Environment and Cooperatives by G.C. Shrotriya and Daman Prakash. ICA-IFFCO joint publication;

A Place to Live - An Awareness Extension Material on the Role of Cooperatives in Environment Protection by Daman Prakash. Published by ICA Regional Office for Asia-Pacific (ICA ROAP), New Delhi;

Sustaining Environment through Cooperative Action by Daman Prakash. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Management Leadership Development in Agricultural Cooperative Business by Daman Prakash. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Our Civil Society and Cooperatives by Daman Prakash. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Social Objectives of Cooperatives by Daman Prakash. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Cooperative Democracy vis-à-vis Members' Education by Daman Prakash. Published by The Coop Times, New Delhi;

Agricultural Cooperatives in Japan - The Dynamics of their Development by M.V. Madane. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Agricultural Cooperatives in South Korea - The Unitary Approach by M.V. Madane. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Agricultural Cooperative Business Development with special reference to Korean Experiences-1996. Published by ICA Regional Office for Asia-Pacific, New Delhi;

Managerial Decision-Making in Agricultural Cooperatives - Some Selected Cases. Published jointly by ICA ROAP and the IRMA (Institute of Rural Management-Anand);

Perspective Planning for Agricultural Development by Agricultural Cooperatives in Asia-1994. Published by ICA Regional Office for Asia-Pacific, New Delhi.

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The IFFCO has a strong farm extension programme which consists of demonstration farms, field days, farmers' meetings, crop seminars, social development activities in adopted villages, and extensive education and training programmes. It operates its Fertiliser Marketing Development Institute {FMDI} besides several farmers' training centres and establishment of specialised Chairs in Universities and institutions of higher learning. It has been responsible for the creation of other organisations e.g., Krishak Bharti Cooperative Ltd {KRIBHCO}, Cooperative Rural Development Trust {CORDET}, Indian Farm Forestry Development Cooperative Ltd. {IFFDC} etc.

ISBN : 92-9054-056-7