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## List of Abbreviations

AMUL	Anand Milk-Producers Union Limited
CAS	Controlled Atmosphere Storage
FFT	Fresh Food Technology
FPO	Farmer Producer Organisation
GDP	Gross Domestic Product
ICT	Information and Commutation Technology
IFPRI	International Food Policy Research Institute
GVT	Gramin Vikas Trust
ISCICS	Irulas Snake Catchers Industrial Cooperative Society Limited
NABARD	National Bank for Agricultural and Rural Development
NAFSCOB	National Federation of State Cooperative Banks Ltd
NGO	Non-Government Organisation
NHM	National Horticulture Mission
NMMI	National Mission on Micro Irrigation
NSSO	National Sample Survey Organisation
PACS	Primary Agricultural Credit Societies
SGHW	StichtingHet Groene Woudt
SHG	Self Help Group
SJS	Shri Jagdamba Samiti
WTO	World Trade Organization

## EXECUTIVE SUMMARY

A conference on the subject 'Farmers as Owners' was held on 17 May, 2013 at the India Habitat Centre, New Delhi. It was an experience-sharing event to showcase the success of a model jointly initiated by apple growing farmer organisations (farmer's trusts), Shri Jagdamba Samiti (Development NGO), SHGW (social investor) and FFT (a technology solution provider) in partnership with Delhi-based company Image Makers and knowledge partner OneWorld Foundation India to deliberate upon how the Uttarakhand initiative could be replicated to provide impetus to reforms in the Indian agriculture sector in general and small and marginal growers in particular. The conference facilitated an open dialogue bringing forth the exigency for innovative models in making agriculture a sustainable and gainful livelihood for small and marginal farmers in India by facilitating and partnering with them to empower their collectives for gradually owning the product value chain in a market-led economy.

Key challenges addressed during the conference have been detailed in the thematic sections laid out in the report, viz. organising farmers as partners in agri-business; organising agricultural finance; Making agriculture sustainable; Managing post-production activities; and, Agricultural education and research.

The section on 'organising farmers as partners in agri-business' looks at three main models of farmers' organisations – cooperatives, self-help groups, producer organisations and joint venture companies. The limiting factors in the application of these models in some cases and success in others, with a special emphasis on the joint venture companies of apple farmers in Uttarakhand, are discussed in order to fully understand the rationale behind forming farmers' organisations.

The next section on 'organising agricultural finance' assesses two main modes of finance from the private sector and the government sector, and takes into account the challenges cited by farmers, corporate representatives and government stakeholders in the conference. The participants and speakers at the conference raised many salient issues that must be taken into consideration for a more holistic investment in agriculture.

The section on 'Making agriculture sustainable' fleshed out issues in the arenas of natural resource management and promotion of organic farming. Issues relating to water, land and soil are common across the country with the rise in wasteful practices and excessive use of chemicals. Natural resource management has been coupled with the practice of organic farming in order to jointly address sustainable practices in agriculture.

'Managing post-production activities' was a topic that was repeatedly flagged during the conference owing to its crucial status in the proposed range of farming activities after organisation, finance and sustainability. The section looks at this issue in two respects – existing post-production facilities such as a Controlled Atmosphere Storage facility, and market linkages between the farmer and retail. Post-production in India has been a point of downfall in both these respects as the lack of adequate facilities places the farmer in an exploitative position in the marketing chain.

The next section on 'Agricultural education and research' was raised as a foundational necessity for harmonising improvements in the agricultural sector. There exists a gap between academicians and farmers that needs to be tackled in order to implement solutions engineered by parties on both sides.

The final section lists out 'key recommendations' made by the panelists of the conference. The foremost recommendation, in acknowledgement of the success of the joint venture companies formed by the apple farmers in Uttarakhand, is to create an agglomeration of small and marginal farmers for overcoming paucity in resources and skills. The recommendations are a synthesis of the interactions of the different stakeholders who spoke from their domain of expertise and laid forth their opinions and experience in the agricultural sector in India.

## BACKGROUND

Agriculture is a source of livelihood for more than 58 per cent of the rural population in India. It is a matter of grave concern that its contribution to Gross Domestic Product (GDP) has declined in the past decade. In 2004-05, agriculture and allied sectors contributed up to 19 percent to the GDP but in 2011-12, this figure had declined to 14 percent according to statistics released by the Ministry of Agriculture, Department of Agriculture and Cooperation (2011-12). The numbers reflect the low rate of growth in agriculture and the need to improve and reform current agricultural practices. It is to be taken into account that the population of farmers has declined by 9 million in the last decade, as reported by the Census of India. It may, in part, be attributed to the fact that farmers are moving towards alternative options of earning livelihood due to the low rate of growth in the sector.

As per the latest agriculture census of India (2010-11), more than 80 percent of the farmers in the country have an average land holding size of less than one acre. They form a part of the farming community that does not possess adequate resources for agricultural operations whether land, water, credit facility, quality agricultural inputs or market linkages. In an agriculture system that is heavily dependent on the rains, unpredictable monsoon and natural calamities increases risk and vulnerability. Further, farmers have limited access to information on varied issues related to farming practices causing a hindrance in growth and production. Post-harvest facilities are understood to be a crucial aspect in sustaining agricultural productivity before the marketing stage. In India, there is a severe shortage of post-harvest facilities such as cold storage, food processing etc.

Hence, agriculture on small land holdings is characterised by high operational costs and low financial returns for small and marginal farmers. This has become a cause for worry in agricultural circles due to the ripple effect it has on productivity, ability to garner financial and physical resources, long-term financial sustenance and capacity to bear high risks that are features of Indian agriculture.

India's agricultural scenario might appear bleak in light of these issues. Yet, the several innovative practices that have been engineered across the country to resolve these issues seem to provide reason for hope and encouragement.

Shri Jagdamba Samiti's joint venture company's model in Uttarakhand is one such initiative. In this case, small and marginal apple farmers in Uttarakhand were organised into a collective of formal farmer trusts with the help of the Shri Jagdamba Samiti, StichtingHet Groene Woudt (SGHW) and Fresh Food Technology (FFT), Netherlands. The organisation of apple farmers into a joint venture company of farmer trusts and SHGW had a huge impact. Resources that were inadequate in the past were now pooled together for coordination, a cold storage was funded and technically supported by an experienced partner, farmers were empowered to become owners, and skills were provided as training was imparted for streamlining their efforts efficiently.

Thus, it became essential to discuss issues in agriculture on a common forum with the participation of all the different stakeholders in the context of successful models in order to identify solutions. With this purpose in mind, a conference was organized by Shri Jagdamba Samiti in collaboration with OneWorld Foundation India and Image Makers as media partners on 17 May, 2013 at the Indian Habitat Centre, New Delhi. Shri Jagdamba Samiti's success in organising apple farmers in the Uttarakhand region provided the backdrop for each of these stakeholders to analyse existing models of organisation and investment, and pinpoint the issues relating to each stakeholder's role. Rehashing the details of endeavours struggling for success and discussing them in light of more successful models helped in garnering interest towards emulation of similar practices by farmers and other stakeholders present at the conference.

**The main objectives of the conference were as follows –**

- To review the current challenges faced by the farming community in India with a special focus on small and marginal farmers
- To understand the rationale for organising farmers in agglomerations to address the issues concerned
- Enabling a knowledge-sharing platform among stakeholders in the agricultural sector detailing challenges faced by each stakeholder in their domain
- Connecting various stakeholders with each other to discuss existing models of organisation and investment in agriculture
- Showcasing successful models for replication such as the model instituted with the help of Shri Jagadamba Samiti and SHGW
- Providing a platform for sharing and debating the recommendations suggested by various stakeholders
- To deliberate the significance of agricultural credit facilities and improve existing options in agricultural finance
- To analyze the role of post-production and supply chain management facilities in reducing post-harvest losses
- To identify the role of natural resource management and organic farming for making agriculture sustainable
- To introspect on the existing policy level initiatives and legislative measures with regard to pre-production, production and post-production stages

## Agenda of the Conference

The inaugural session was presided over by Shri Harish Rawat, Hon'ble Union Minister for Water Resources.

The event started with a welcome address by Pramod Singh (Director, Image Makers). A brief background of the issues pertaining to the agricultural sector was presented by L. P. Semwal (Director, Shri Jagdamba Samiti). There was a special address by Sanjeev Chopra (Mission Director and Joint Secretary, NHM & NMMI) and Alok Jain (Chairman, Jal Vidyut Nigam Limited and Chief Investment Commissioner, Uttarakhand). This was followed by an inaugural address by Union Minister for Water Resources, Shri Harish Rawat and lastly, with a vote of thanks by Rajiv Tikoo (Director, OneWorld Foundation India). The conference comprised participants from various fields, ranging from policy makers to community-based organisation functionaries, agriculture scientists, corporate leaders, media persons and farmers. The main organisers of the event, viz. Shri Jagdamba Samiti, OneWorld Foundation India and Image Makers, gave a brief background of the issues pertaining to the agricultural sector in the inaugural session.

### **The conference had four sessions:**

Session I focused on the organisational capacity of farmers in forming an agri-business model capable of boosting their present agricultural activities and remunerations. The rationale for organising farmers into a collective was discussed in detail while drawing upon the experiential knowledge of SJS's joint venture company model as a successful case-in-example.

Session II consisted of a panel of speakers from the corporate sector who had ventured into the agricultural arena. The discussion was based on both, past failures and successful running models; how value chains were created (and may be created), and how the corporate sector has attempted to align with the unorganised agricultural sector in order to promote agri-business.

Session III raised the issue around the failure of existing investment models in the agricultural sector. The crucial role of investments in ameliorating the financial status of farmers and the advancement of agri-value chains were key topics debated by the stakeholders on the panel.

Session IV dealt with the status of present organisational models such as cooperatives and self-help groups, and related government schemes. The speakers elaborated on how farmers can organise themselves in an efficient manner and undertake innovative practices to overcome the difficulties faced by them.

# FOCUS AREAS IN AGRICULTURE: KEY CHALLENGES

## I. ORGANISING FARMERS AS PARTNERS IN AGRI-BUSINESS

Several models have been instituted in the agricultural sector in India in order to organise farmers and form an agri-business enterprise. During the conference, discussions centered around three primary models for organising farmers – the cooperative model, producer organisations and self-help groups.

Consolidating landholdings and aggregating the produce of small and marginal farmers is necessary in order to make veritable progress in the agricultural sector. More than 80 percent of farmers hold less than one acre of land, thereby, creating difficulties in balancing the required input and marketable output. Agglomeration of small and marginal farmers, therefore, allows for a provision to pool resources and coordinate their efforts in order to overcome this problem.

### Existing models for organising farmers: Challenges and viability

#### **Cooperative model**

The cooperative model facilitates the formation of societies including members of the farming community and State parties under the Cooperative Societies Act, 1912. This model has proven to be highly successful in certain instances. An exemplary case in this regard is Amul (Anand Milk-Producers Union Limited) - a dairy cooperative that was founded in 1946 in Gujarat and today boasts of housing 3.18 million milk producers in Gujarat with revenue of \$2.5 billion USD (2011-2012).

The Irulas Snake Catchers Industrial Cooperative Society Limited (ISCICS), the largest producer of snake venom in the country with an annual turnover of Rs 87.70 lakh, including 345 member families from the Irulas tribe, is another example of a successful cooperative.

The basic foundation of both models is that of a cooperative but their structures have been evolved to accommodate industrial and local needs. Amul consists of a three-tier cooperative structure at the village, district and state levels while ISCICS functions through management boards that include members of the government and the tribe, across Karnataka, Tamil Nadu and Andhra Pradesh.

Cooperatives, therefore, have known to be successful but have been criticised on grounds of excessive political interference, corruption, poor management, over dependency on subsidies for sustainability and limited benefits trickling down to farmers. Financial sustainability is the primary factor in creating agglomerations and, therefore, when the model has been seen to limited success on this aspect due to constraints posed by political interference and internal management, farmers do not see any merit in replicating it.



## **Self-Help Groups (SHGs)**

Promoted by Self-Help Group Institutions including NGOs, government agencies, banks, cooperatives and micro-finance institutions, the primary objective of a self-help group is to enable a mechanism for pooling financial resources of member farmers which, in most cases, is further supplemented by external sources of finance such as banks.

SHGs have seen relative success in the country and are receiving support through government schemes as well. The National Bank for Agriculture and Rural Development (NABARD) has introduced a number of micro-finance initiatives through SHGs. Recently, NABARD issued revised guidelines for SHGs, allowing voluntary savings by members either by opening individual bank accounts or reviving “no frill accounts”, or depositing voluntary savings within SHGs corpus without any additional entitlements. The approach aims to expand the role of SHG from community banking to individual banking. NABARD is also promoting SHG federations and Primary Agriculture Cooperative Society.

The SHG model helps in addressing the financial difficulty faced by small and marginal farmers by offering an array of options that are put forth by the efforts of the farmers themselves as well as banks, NGOs and special government schemes. During the conference, Bharat Ram Semwal (Member, SJS) stated that more than 50 SHGs in Uttarkashi and Tehri Garhwal have flourished and expanded over the past 10 years without any assistance or training from the government, thereby, proving that SHGs are capable of showing potential success even without government support.

So far the SHG concept has succeeded in organising farmers, particularly women, for savings and credits. There are a few SHG federations that have started economic activities and entered in the business/market, which seems a great threat for their long term sustainability.

## **Producer Organisations**

Farmers’ producer organisations are formed under the Companies Act, 1956 and have a regulatory framework similar to that of companies in India. A producer organisation is formed by farmers/producers who carry out their agricultural activities collectively and contribute their resources, financial and otherwise, towards production as a single entity. At the initial stages, the collection of resources onto a common platform would greatly benefit small and marginal farmers who struggle to balance their agricultural input with output. At the marketing stage, this model gives greater bargaining power on a collective level, and based on the success of their endeavor it may also give an opportunity to small and marginal farmers to compete with large-scale producers.

## The SJS example

Shri Jagdamba Samiti (SJS), an NGO functioning in four districts of Uttarakhand, facilitated the collaboration of Fresh Food Technology (FFT), Netherlands and StichtingHet Groene Woudt (SHGW) with the apple farming community in the region. SHGW, Netherlands invested in the set up of six collection-cum-presorting-and-precooling units and a Controlled Atmosphere Storage (CAS) facility that is used by the farmers for storage during harvest and sales in off-season, primarily, their apple produce. An important achievement of this joint venture company is that this cold storage facility is one of the only 10 properly functioning cold storage facilities of its scale in the country. The companies operating and managing these business ventures are jointly owned by the farmer trusts and investors to consider the benefits of SHG/Cooperatives in terms of collective action and operate with business rigour as a company usually in purely marketing principles with any dependency on external (government) aids.

Initially, the farmers were reluctant to join the initiative. However, today, the success of the organisation is seen in its growth from 500 famers in 2007 to more than 3,500 farmers today. Another important feature of this initiative is the deployment of appropriate Information and Communication Technology (ICT) for the exchange of information tracking the yield and quantity right from flowering time to sales in market. The ICT model facilitates the flow of information among different stakeholders of the project such as the individual farmers, farmers' trusts, funding agency etc. The joint venture companies have adopted a model that ensures a continuous cash flow investment on the part of FFT, Netherlands which is essential for the financial sustenance of such projects. Furthermore, the financials have been phased in a manner that allows member farmers to become full equity partners in due course of time.

The storage of apples in the CAS facility enables farmers to consolidate their efforts in marketing, avoid wastages that might occur due to the perishable nature of the produce and also gain technological training so essential for the maintenance of the facility. The women in the farming community have been duly included in the working of this company – the production of apple juice from the produce is entirely run and managed by them. The functioning of this company, therefore, is not disrupted by political interference as has been in the case of many a cooperative model. On the other hand, it has helped in tackling problems that existed in procuring sustainable finance, and delivering managerial and technological expertise.

Variations of the producer organisation model are seen in practice across the country. The success of the model, as is the case for the previous two models as well, would depend on the parameters that have been used to suitably adjust the skeletal framework of the model.

One of the key challenges in terms of replication of this model would lie in finding willing investors from the corporate sector and convincing them of the viability of such a joint venture company. Success of the model is also dependent on the entrepreneurship of the members of the farming communities and how receptive they are to innovative farming methods, latest technological practices, imbibing training and expertise offered by other sectors and coordinating their efforts for the benefit of all.

These organisations, as opposed to cooperatives, face minimal problems in terms of political interference and corruption because they are managed by professional management teams neutral from socio-political influences. Some producer organisation models involve partnerships with the corporate sector. This, on the face of it, may be said to increase its viability in terms of financial sustenance as compared to cooperatives. Issues of inefficient management and lack of entrepreneurship skills among farmers, however remain the hurdles to be overcome for this model to succeed.

Setting up a farmers' organisation requires strict compliance as mentioned under the Companies Act 1956 that serves as a de-motivating factor for farmers. The key to success for any farmer organisation depends upon knowledge and skills available at pre-production, production and post-production stage. In this context, human resources are not available at rural level, and in such a scenario, there is wide scope for the entry of middlemen who take away a major proportion of the profits and the producer is deprived of his/her rights to have equity. In the SHGW-SJS model with apple farmers, farmer trusts are looking at pre-production issues, professional coordination team with SJS on the issues of production and professional business management team on the issues of post-production value chains.

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Societal and political differences, disillusionment with the shift from traditional practices and discouragement by the failure of a model in certain cases were a few issues that were raised by BB Singh (GM, Business Development, Tata Chemicals) in reference to the setting up of a new producer organisation. This does not bode well for the population of small and marginal farmers irrespective of the model that is picked, he stressed. It must be noted that there lies immense potential, especially for small and marginal farmers, in creating such agglomerations.

The dissemination and multiplication of models such as those by SJS, Amul and Irulas, through discursive platforms would also help towards eroding doubts and differences in the minds of farmers. As pointed out by Rajendra Kumar Tiwari (MD, National Horticulture Board), farming communities may choose from the given models or devise a separate model but must do so on a case-by-case basis taking into account the crop, region, financial and technical capacity and all other related factors, and not simply a universal application of successful models.

## II. ORGANISING AGRICULTURAL FINANCE

Agricultural finance is the lifeblood of farming initiatives. Various modes of investment are provided by National Bank for Agricultural and Rural Development (NABARD), Primary Agricultural Credit Societies (PACS), microfinance institutions, commercial banks, private moneylenders and corporate investments. The following sections will briefly discuss these investment options and address related issues that were raised by stakeholders during the course of the conference. The different modes of investment mentioned during the course of the conference have been divided into three main sources – investments from private sources, commercial banks and government sources.

### Existing Modes of Investment

#### a. Investments from private sources

Two main modes of corporate investment were discussed by the speakers – investment made by corporate entities as (i) a partner in an agri-business, and (ii) direct investment as part of a corporate social responsibility programme. In the case of apple farmers in Uttarakhand, a partnership investment through the joint efforts of the NGO (SJS), farmers and the corporate entity produced the desired results. A lesson from the example at hand is that the enterprising and innovative approach adopted by farmers, NGOs or SHGs in acquiring investment from corporate entities plays an important role. This is also evidenced by the level of participation by farmers involved with the Shri Jagdamba Samiti in Uttarakhand.

In certain circumstances, the approach may be made by the corporate entity itself, in the first instance. A similar experience was recounted by BB Singh (GM, Business Development, Tata Chemicals). Though it must be said that in this particular case, the lack of an enterprising and innovative response on the part of farmers turned out to be the prime cause for its failure. Singh's example illustrated the failure of an attempt made to build a producer company in a rural area in India over the space of three years. Seed money was encouraged to be contributed by the farmers themselves in order to retain ownership. Despite the initiative on the part of a corporate body, uniting farmers turned out to be difficult due to farmers' hesitation to join a new venture, deep-set social and political differences, and lack of leadership and managerial skills.

Corporate investments via CSR schemes, on the other hand, tend to limit the involvement of the corporate entity to philanthropic activities, as stated by Alok Jain (Jal Vidyut Nigam Ltd. and Chief Investment Commissioner, Uttarakhand). Corporate entities, in most cases, have the wherewithal to invest in agricultural projects comprehensively, that is to say, in a manner that ensures financial and social returns. This was seen in the apple project model where the investment from the company acted as an assured financial flow while at the same time provided a means of deriving technological, managerial and marketing expertise through training programmes.

As such, while the involvement of a corporate entity is present, an attempt must be made to expand its role and draw in the expertise that it possesses in the form of finance, training and leadership.

Private moneylenders are another source of finance in the agricultural sector. National Sample Survey Organisation's 2003 report stated that 76 per cent of rural households depended on loans from private moneylenders. In this case, the exploitative rates of interest coupled with the high risk factor in agriculture places the farmer in a precarious position, more so should s/he default on the loan. The private finance could be replaced by the commercial bank financing and, up to some extent, this has been demonstrated by the NABARD's initiatives in Kisan Credit Cards, warehouse advances, and such like. However, procedures of getting loan from commercial banks and banks' direct linkages with farmers and their commodities are constraining factors in this area. In the Apple Project model, joint venture companies are playing the role of an intermediary (Business Correspondent) for banks and farmers. Despite financial sanction for business at primary value addition units large investment in CAS still facing problems with bank for getting finance and subsidies. However, farmers are now approaching their own joint venture companies instead of private financiers for their financial needs.

#### **b. Investments from government sources**

The main source of finance handed down by the government in the agricultural sector is via agricultural cooperative banks that have been set up at state and central levels. Investments in cooperative models also suffer from excessive political interference and red tape, as is a recurring problem in cases of government involvement.

Besides government investments in the cooperative model, there are schemes for loans and subsidies which all farmers, individual and collective, may partake under different circumstances.

PV Surya Kumar CGM, NABARD, confirmed that farmers are entitled to loans at subsidised rates of interest and that the subsidy may be claimed through schemes available at the central and state levels, on timely repayment of loans.

Satya Chakrapani (MD/CEO, Shikhar Micro-finance), on the contrary, categorically stated that models which are subsidy-reliant must be avoided at all costs. His experience in the rural areas around Delhi showed that it was possible to turn around a situation without excessive reliance on government subsidies. These rural areas, where barely a litre of milk was produced in households that had 3-5 animals, now have a producer company that comprises 300-500 farmers. Under this company, cattle are sourced externally and production of milk is successfully owned and managed by the producers themselves.

Short and medium term credit is available on a cooperative basis through Primary Agricultural Credit Societies (PACS). These societies are managed and financed by members of the farming community and the state. This institutional model also suffers from political interference. It has not sufficiently reached out to small and marginal farmers, and is found to be structurally dysfunctional in a number of cases.

## Key Issues in Agricultural Finance

There is a strong argument to revisit the investment models in agriculture. The existing government schemes for subsidies have been useful for farmers but government loans such as those offered by NABARD have fallen short of their mark. A crucial flaw in the NABARD loan scheme, raised by DSK Rao (Director, Agri-business Knowledge Exchange) during the conference, was that the loans sanctioned for such schemes for the entire agricultural sector in the country was stated to be only Rs 70 crore which is insubstantial, considering the approximate investment that is sought for setting up one farmers' organisation. The inadequacy in the loan figures, therefore, poses a problem of these investments having only a superficial effect on the overall financials of farmers.

Of the Rs. 70 crore available, only Rs. 30 crore has been utilised thus far. Surya Kumar (CGM-in-charge, NABARD, New Delhi) explained that the low utilisation of funds was primarily due to the lukewarm outcome that was seen in the functioning of farmers' organisations despite a reduction in the collateral for the loan. He stated that loans are more easily available for collectives than individual farmers in consideration of how large amounts of loan may be used more effectively by a collective of farmers. He also indicated that the failure of some producer organisations may be attributed to the disharmony between the business plan and equity ownership.

The difficulty in procuring a government loan at subsidised interest rates could push the farmer towards private moneylenders who charge exorbitant interest rates, thereby, deepening the financial problem.

The viability of PACS has also been raised since 31% of such credit societies are not fully viable yet, dormant or defunct, according to the statistics released by the National Federation of State Cooperative Banks Ltd (NAFSCOB) in 2010-2011.

In models that encourage loans, money-lending or credit, the farmer remains the sole risk bearer, creating a tendency to be over-dependent on subsidies and credits. This often pushes him/her into a debt cycle owing to the high risks involved. Hence, the opinion in the house was that financial schemes must seek a path that relieves these risks. Private investment models, based on the case at hand, would spread out these risks and also allow for a profit-centered approach that would contribute to the growth of farmers as owners.



Another important point, raised by Gurvinder Singh Bhatia (Head, Skill Development, Gramin Vikas Trust (GVT)) and Ajay Tripathi (Associate Director, Kheti Virasat Mission), was that investments must not be looked at purely from a financial aspect but should also take into consideration social returns on such investment. Hence, the potential social impact that investments could have in agriculture must be factored into the overall investment plans of private and government sources.

### III. MAKING AGRICULTURE SUSTAINABLE

Making agriculture sustainable was raised as an important issue, particularly in the context of small and marginal farmers. An eco-friendly approach to agriculture, with an emphasis on natural resource management and organic farming, were identified as factors that are crucial in strengthening the efforts of farmers in the long run.

#### **Natural resource management**

Agriculture production depends on natural resources such as soil, water and land. With increasing pressure of urbanisation and hefty dependence on chemical farming, the quality of our natural resources is reducing. Wasteful practices have had a direct impact on soil health and water availability. Some important issues with respect to natural resources discussed in the conference were:

- a. **Water problem:** Small holding agriculture depends more on rains or groundwater compared to large farmers who have more access to canal water. Krishan Bir Chaudhury (President, Bharatiya Krishak Samaj) pointed out that the depletion of ground water in many areas of India is generating more problems for marginal farmers. Therefore, the exigency for conservation of water resources, deepening of ground water, rain water harvesting, drip irrigation and other micro-irrigation practices was expressed as a crucial element during the conference. NABARD has promoted micro irrigation system in rural areas through micro finance for the welfare of small and marginal farmers, as mentioned by the representative from NABARD.
  
- b. **Soil health and soil testing:** Another important focus in this context was soil health and soil testing. This was pointed out by Shri Harish Rawat, Union Minister for Water Resources, and farmer participants from the Apple Project. Soil testing is an important measure of soil's ability to supply nutrient elements needed for agricultural production. Holding capacity of nutrients vary across different plots of land. Soil testing enables the farmer to decide which nutrient is lacking. There are provisions of soil testing facilities but the major issue lies with how the data is being utilised for the benefit of farmers. Thus, a soil testing facility, coupled with consultation on type of and quantity of fertilizers and soil nutrients, needs to be integrated with farming practices in India to enhance the production of food grains and horticultural products. It will also enable the farmers to maintain soil health. An ICT-enabled farm wise soil database and input application advisory will help the quality production with higher yield.

- c. Land issues: Majority of the farmers have average land holdings of less than one acre. Avinash Kishore (Senior Post-Doctorate Fellow, International Food Policy Research Institute) raised this as a crucial hindrance in the growth and progress of marginal farmers. Smaller the land holdings, higher the operational cost and lower the profits.

The discussion referred to an urgent need for enlarging land size as an alternative strategy for welfare of small and marginal farmers. The current scenario suggests a crucial need for provision of institutional credit on a long term basis, at a low interest rate enabling the farmers to buy land. Another strategy highlighted was to liberalize the land lease markets with favourable credit market conditions as suggested by B.B. Singh (GM, Business Development, Tata Chemicals). It is to be noted that, except few states of India, land leasing is illegal in India but has been carried out nevertheless, exploiting a loophole in the system.

- d. Use of forest and barren land: The speakers also brought attention to appropriate utilization of forest land and barren land for the purpose of horticulture and floriculture. As per Directorate of Economics and Statistics, of the total land available, 21.2 per cent is forest land and 3.9 per cent barren land. Utilizing forest and barren land may enlarge the small land holdings for cultivation.
- e. Diversification of crops: With diversification of Indian diet away from food grains to high value products for example fruits and vegetables, the issue of diversification of crops was also brought into light as one of the most important sources of agricultural growth by Manoj Singh (MD, Chandel Agritech Solutions). It is significant not only for agricultural growth, but also enhances the land fertility and brings in stability in price and production of these high value produce as achieved in the case of basic food grains.

What is needed is a support system for diversification of crops. For example, infrastructure and marketing tools can help small farmers. Participants also exchanged views on climate smart agriculture i.e. agriculture in adaptation with climate change besides prevailing local conditions to bring sustainability in agriculture.

### **Promotion of organic farming**

Organic farming is an alternative means of producing agricultural produce without causing any damage to our ecology, water, soil, air and other natural resources. Organisation of farmers on a common platform may facilitate organic farming in India.

During the conference, two organisations, 'Kheti Virasat Mission' and 'I Say Organic' elaborated on their work in the organic farming sector of India. While mentioning the increasing demand for organic produce, Ashmeet Kapoor (Founder and CEO, 'I Say Organic'), stressed on the need for certification of organic products. Since the process of certification or branding for organic product can be expensive, the farmers company model may serve as a useful forum in the process of certification.



It was specifically stated that in the context of agriculture in hills, farming is organic by default, especially in order to ensure remunerative prices to the farmers for their produce. 'I Say Organic' has been able to transfer upto 50-60 percent of the sales profit to the farmers. Kapoor added that organic farming can be done on a large scale if domestic markets are built up. To this end, the organisation has started a grassroots consumer movement to increase awareness on organic products among buyers.

## IV. MANAGING POST-PRODUCTION ACTIVITIES

There are two parts to post-harvest activities that were addressed during the conference – first, the facilities required for storage of produce immediately after harvest and second, the necessity for adequate market linkage to sell the harvested produce.

### **Post production facilities in India**

In consideration of the fact that 75 percent of the economy is engaged in agricultural activities, the strength of post-production facilities in India is found to be rather abysmal. Controlled Atmospheric Storage (CAS) facilities offer a path-breaking technological addition in sustaining agricultural activities, especially in the case of perishable goods. As stated earlier there are only 12 similar facilities in the entire country, of which merely 10 are functional.

Even in the case of Shri Jagdamba Samiti, as mentioned by Joginder Rana (Director, FFT Himalayan Fresh Produce), the government had planned and sanctioned the set-up of a cold storage at Navgaon but this never materialised. It was not until SHGW, Netherlands had invested and assisted in the set up of the cold storage facility that the apple farmers in the region were able to sustainably manage their apple produce. The low number of CAS facilities is also an indication of the large amount of investment and technological expertise that is necessary in order to carry out such a project on scale.

Having said that, storage facilities for all kinds of harvest are a necessary resource. Not only does this help in preserving perishable goods, it also gives farmers the opportunity to market their goods over a longer stretch of time instead of being pressed into a disadvantaged situation, having to sell whole stocks at lower prices. Facilities for this purpose may be built on a collective contribution from the farming community with additional support from the corporate sector or the government.

### **Market linkages**

The second stage in post-production is marketing. The design of marketing in the field of agriculture at present is a long, protracted chain that leaves very little in the hands of the individual farmer. Vikram Singh (Senior Executive, SJS) explained how their research focused on the need to remove the number of middlemen who were currently exploiting the system to the detriment of the farmer. He also described the “bullwhip effect” in agricultural marketing -- refers to the phenomenon of how a small demand from the consumer's end turns into a large demand at the producer's end after having travelled through all the marketing channels. Meeting these demands, thus, puts immense pressure on small and marginal farmers who wish to sell their produce.

Building upon the marketing skills of farmers is a key feature in getting rid of the middlemen who populate the marketing chain. The lack of transportation facilities or the lack of adequate resources to invest in external transportation further weakens the position of the farmer, speakers felt.

Inflationary struggles in the economy were also raised as a point of concern by the speakers. The exploited farmer is almost browbeaten by the choices left to him in situations like these. It must also be remembered that farmers do not bear only the burden of market risks – they are subject to risks posed by unpredictable weather as well. These two major risks in farming, among others, have driven many a farmer into debt traps and suicide. The large number of farmers who committed suicide in Vidarbha, Maharashtra, comes to mind when one ponders over the risks undertaken by farmers and the price that they pay for the lack of entrepreneurial skills and bargaining power.

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An issue relevant to both parts of post-production activities is that of quantity in market demand. Speakers at the conference pointed out that exploring large supermarket chains like Carrefour, Reliance, FoodWorld, etc. for marketing tie-ups are a worthy option but that small and marginal farmers are unable to meet their demands for large quantities and specific quality requirements. This, again, may be overcome by consolidating the efforts of farmers growing the same kind of crop in a region.

If farmers are more enterprising and seek technical help through self-help groups, government training programs or collaborations with agricultural universities it may be possible to arrive at a solution to tackle issues regarding specific quality requirements. Union Minister, Shri Harish Rawat, also mentioned of the government's intention to provide soil testing facility to farmers in villages. Additionally, if devices for water testing facility and other similar tools are installed at the village level it would become easier for the farmer to enhance the quality of his produce.

## V. AGRICULTURAL EDUCATION AND RESEARCH

Education and skill-building are important for improving farming practices, investment and productivity, especially as the rate of literacy is low among small and marginal farmers. According to the farmers' survey report released by National Sample Survey Organisation (NSSO) in 2003, awareness about bio-fertilizers, Minimum Support Price (MSP) and schemes by the World Trade Organization (WTO) are associated with the level of education that the farmers possess.

There are a number of schemes available for improving farmers' access to credit facilities, market linkages, other agriculture related infrastructure and consultancy on technical issues. A low level of literacy, as mentioned above, is followed by a lack of low level of awareness about schemes available with the state and central government. Farmers' capacity building was equally emphasised to improve the quality and quantity of agricultural produce.

At the same it needs to be mentioned that small and marginal farmers do not all fall under the curriculum of formal agricultural education or agricultural extension system in India. Alternative research models need to be formulated in order to study the case of small and marginal farmers. In this context, need for formal agricultural extension and education and farmers' capacity building were raised as important prerequisites for agricultural growth in India. Currently, farmers are classified as 'unskilled laborers', as mentioned by Shantanu Gupta (Founder, YUVA) – a set up for formal education may help in tackling this issue.

The issue of access to services that can add value to their work will enable these small and marginal farmers to enhance their production with new varieties of crops as per the demands of the market. Specifically, in the context of farmers' organisations, it was suggested to enhance skill development of member farmers for managerial and post-production skills. Water was discussed as an important natural resource, but it was also pointed out that only one-third of the water available is utilized and the remaining two-thirds is wasted. The scenario demands training and awareness on proper use of irrigation water in critical stages of crop growth under varying environmental conditions. It was also stressed to supply knowledge and strengthen farmers' capacity to act on soil and water testing data enabling them to optimise the production.

## KEY RECOMMENDATIONS

### **Agglomerations of farmers**

Bringing farmers together and combining their agricultural efforts may prove to be a crucial resolution for many of the issues cited in the previous sections. Creating an agglomeration not only overcomes the problem of small landholdings but also creates a provision for farmers to pool their resources for production thereby mitigating the problem of balancing their input and output on small landholdings in profitable way. Unity in numbers could also help in preventing exploitation of farmers through achieving market linkages and ensuring that the quality and quantity demands of the market are met with relatively more ease and with greater bargaining power.

Contiguity of land-holdings is a definite necessity. The planner or organiser of such an initiative must be wary of the fact that, in certain cases, it may be necessary to create a cohesive agglomeration in terms of the proximity of the plots of land belonging to farmers. As explained during the conference, Tata's initiative to organise farmers had run into a roadblock since the lands belonging to these farmers were disaggregated plots, thus, making it more difficult to coordinate farming activities on a large scale. Such an initiative hinges upon the compliance of a group of farmers but disseminating the rationale behind organising farmers and strengthening the argument with the help of successful models, as seen at the conference, may prove to be a key motivator.

### **Remodeling agricultural investment, taking into account financial and social returns**

While government subsidies and loans have been helpful to some extent for farmers, it was found that private investments, for instance from companies such as SHGW, Netherlands, is favoured as they ensure continuous cash flow over a longer period of time which is essential for ensuring financial sustenance. Private investments have also been remodeled in such a way as to envisage social returns, and not simply focus on financial returns, which current government policies and schemes do not offer. DSK Rao (Director, Agribusiness Knowledge Exchange) suggested that, as such, investments be drawn specific to the value chain of a crop in order to streamline agriculture with investments.

In the case of the apple farmers in Uttarakhand, the pilot project received continuous cash flow in the first year of its launch; the returns on investment benefitted both the farmers and other partners and, at the same time, the model is phased in a manner that results in the eventual ownership and equity to be transferred to the farmers themselves.

It must also be noted that the subsidised rates of interest on government loans, which may be procured at both Central and state levels, are of immense help to farmers and must be availed by them at given opportunities.

It was suggested by a member of the audience that since NABARD is attempting to create a credit history that would ease the facilitation of loans, perhaps the interest on the initial loan be waived if the debtor makes timely payment. Besides, collateral-free loan would encourage them to use the loan facilities provided by the government more constructively and would also provide more incentive to maintain a good credit history.

### **Promotion of high value agriculture and organic farming**

High value agriculture and horticulture is a more feasible option for small and marginal farmers. There exist small pockets of farmers in India who carry out high value agriculture and reap the benefits of higher yield and better prices.

A note of caution by Krishan Bir Chaudhury (President, Bharatiya Krishak Samaj) was the danger of leaning so heavily on the side of high value agriculture for the sake of short sighted benefits that the country would have to import staple products such as rice and wheat which in turn would have far-reaching effects on the overall balance of the economy.

One must promote high value agriculture keeping this in mind. Alternatively, leave room for traditional crop choices with the possibility of turning towards the more lucrative organic sector. Farmers must be made aware of the advantages of shifting from chemical-based agriculture to organic agriculture and also that based on market demand it is possible to draw much higher income from organic markets than regular markets.

The promotion of organic farming among farmers goes hand-in-hand with creating consumer awareness on organic products. Chemical-based farming has received a lot of flak for being responsible for the occurrence of diseases such as reproductive cancer, especially in states such as Punjab. A switch to organic farming and products, therefore, would help in tackling this issue as well.

### **Facilitating training and capacity building for farmers in managerial skills**

Developing business skills, viz. managerial, leadership, administrative and market skills, is a key component in ensuring the success of a farmer in post-production activities. Cooperative and producer organisation models have been known to fail due to the lack of an effective leader from among the farmers who can manage and sustain the efforts of a group of farmers.

Self Help Groups are said to be an effective platform for training farmers. Training and capacity building programs may be incorporated into models as a requirement arising in the chain of events. For example, SJS trained the farmers for yield promotion and quality harvest with laborers in post-production sorting and grading of apples, maintenance of storage facilities, knowledge to handle ICT tools etc.

These skills were imparted as a consequence of the establishment of the producer company. Persons formally educated in managerial skills may be linked with persons in agriculture via new innovative platforms or existing platforms such as self-help groups, buyer-seller meets or through companies that they have partnered with. Manoj Singh (MD, Chandel Agritech Solutions) cited the example of a buyer-seller meet hosted by Lulu Hypermarkets chain in India which resulted in a tie-up with local farmers for banana produce.

### **Expanding the role for women in agriculture**

The participation of women in agriculture has a huge impact on the overall progress of the farming sector. The inclusion of women in farming practices, if it is not already the case, adds skills and human resources to the existing structure. In the SJS model, the juice made from the apples was done with the exclusive involvement of the women in the farming society. Ajay Tripathi (Associate Director, Kheti Virasat Mission) mentioned in his talk that the farming sector in Punjab is lagging behind, in terms of holistic development, due to the lack of participation of women in agriculture. There was general agreement in the house that women must be involved and brought into the fold in order to reap the benefits of social returns from agricultural practices and to take these initiatives forward in a comprehensive manner.

### **Enabling a common platform to share, discuss and replicate successful farmers' joint venture companies, cooperative and producer companies' models; and sharing innovative practices in agriculture**

Knowledge dissemination is key to expanding the reach of successful agricultural models and encouraging its replication in other parts of the country. This may be achieved through conferences such as this one wherein a replicable model was recommended and a discussion was facilitated among the various stakeholders in the agricultural sector. Online initiatives such as the Agribusiness Knowledge Exchange are also resourceful means for sharing and deliberating upon successful models.

The value of encouraging innovative practices among farmers was emphasised by Ajay Tripathi, Kheti Virasat Mission. His efforts in creating value added finished products from basic raw materials in order to augment income, such as making home-based *haldi*, *achaar* from raw *haldi* etc, sets an inspiring example of how farmers may use simple techniques and resources at hand to improve upon their efforts. Hence, the government and private sector alike must actively use different modes of dissemination to promote a culture of awareness and innovation.

### **Glamorising agriculture to retain younger generations**

The low revenue that agriculture generates in most parts of the sector has disillusioned the younger generations from entering this field. Encompassing the ideas of the younger generation is essential for carrying the agricultural sector forward in the long term. Therefore, it has become necessary to make the sector attractive so as to merit their intellectual investment.

Instituting professional courses, training and degrees in agriculture – not only from a research perspective but also in the practical aspect – could give it a formal distinction that appeals to future generations. Field visits conducted by companies, researchers and other professionals to observe agricultural models may be extended to students as well in order to garner their interest in the field.

### **Linking academic research with farming practices on the ground**

It was suggested that the gap between academicians/researchers in universities and the farmers on the ground be bridged in order to develop the scientific and technical aspects of agriculture progressively. The data that is produced on soil and water testing is often of limited use to farmers since they are unable to convert it into actionable data.

Surya Kumar highlighted the conflict of opinions on organic farming as researchers who are committed to their school of thought might not entirely be supportive of farmers' experiments and successes in this area. Besides, their theoretical knowledge does not find support from farmers/marketers who have practical knowledge. All this points to a disconnect between the two groups therefore linking them would help in expanding the knowledge base on both sides.

Furthermore, even when soil and water testing data is made available, farmers are not aware of how it may be applied and what benefits will be received. In this context, the role of educational institutions and NGOs was emphasised in sensitizing the farmers and creating awareness on schemes available.

### **Revisiting policy initiatives**

#### Legalising land holdings

Besides financing, the issue of legalising the lease of landholdings was also raised during the conference. There is a section of the farming community that leases landholdings illegally in certain states by exploiting loopholes in the existing laws. The government must reconsider legalising such leases in order to increase the consolidation of landholdings as has been done in the states of Kerala, Punjab and Tamil Nadu. This was also important in view of the migration to the cities as migrants are not keen to sell of their land and prefer to lease it.



As organic as ever

At present, there are farmers who produce organic products by default as this was in consonance with their traditional agricultural practices but are unaware or are unable to use the certification of organic produce to add a marketing punch to their products. The government must also formulate policies that would benefit such farmers who haven't been able to tap into the value added organic market due to difficulties in certification.

Revisiting the one size-fits all approach

With respect to the policy framework that the government must support, as mentioned in this paper, it must also be noted that relying heavily on legal and policy tools to transform the sector may prove to be a fallacy. The Cooperative Act, 1912 was passed on a similar line of thought. It must be noted that but for the exception of a few highly successful cooperative models (such as Amul), the institutional design of cooperatives remains problematic.

It is imperative that the government supplement the efforts of farmers and other stakeholders by way of long-term policies and legislation not only in the above-mentioned areas but across the board in the agricultural domain. More importantly, since political interference to the detriment of agriculture, especially post-harvest and post-production, has been cited as a recurring issue, adding legislative strength to farming efforts must be done in a manner such that present inconsistencies in regulations and opportunities for political exploitation are minimised and eventually eliminated.

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