

# **Toward Contract Farming in a Changing Agri-food System**

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## **Introduction**

Changing dietary patterns accelerated by higher economic growth, rising income levels, urbanization, and gradual escalation of female employment have set the stage for the diversification of Indian agriculture. The dietary transition from foodgrains to high value commodities such as fruits, vegetables, livestock and marine products is already observed, and is being followed by rising demand for processed and semi processed food items. Along with these trends there are growing concerns with food quality and the need to adhere with food safety norms. In responding to these evolving demand trends, and to boost export competitiveness, the Indian food system is undergoing structural change. The last few years have witnessed considerable growth in organized food retailing and increased emphasis on enhancing food processing capacities.

While new opportunities are unfurling in food retailing and processing, there is concern about how to establish links between the different segments of production, value addition and marketing in a manner that protects the interests of the various stakeholders. In India, where agriculture is dominated by smallholders, there is concern that the transformation of the agri-food system ensures participation of these farmers and fosters inclusive growth. A key challenge is how to successfully link the farmers, particularly marginal and small farmers, with the emerging markets. In this context, it is worthwhile to look into the nature and progress of contract farming in the agricultural sector. While cooperatives have had a long legacy in India and have, in some cases, been successful in bringing together farmers under one network, there are recent variants of contract farming which are being driven by corporations and producer organizations.

In the backdrop of changing production patterns, from staples to high value commodities, this article identifies some of the key issues, opportunities, and challenges that accompany the transition of the agri-food system. In this context, the role of contract farming in facilitating market linkages and compensating for weaknesses in farm production and marketing is analyzed on the basis of available case studies and research findings. It is quite evident that the results of contract farming have been a mixed bag, with the outcomes explained by missing institutions, skewed incentives, and lack of an enabling environment to encourage private investments. This article concludes with a roadmap on how to step beyond a restrictive regime and embrace a more open-market oriented approach.

## **Agricultural Diversification**

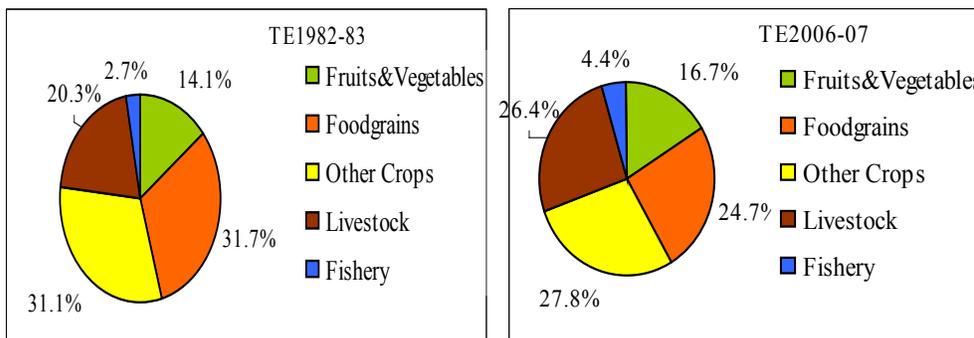
Although concerns with food security led to a traditional policy emphasis on grain sufficiency, the potential returns from re-energizing the traditional crop sector alone are now limited, and prudence lies in identifying and promoting alternative sources of farm income.

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The potential for gains from food grain production are now limited—although more than 60 percent of gross cropped area is under cereals and pulses; their share of the value of total agricultural output is now less than 25 percent (TE 2006-07). High value commodities, particularly horticulture, livestock, and marine products, are highly expenditure elastic compared with grains (Kumar et al. 2007). Given rising incomes and higher expenditure elasticity for these commodities, future growth is likely to come from the high value sector (Gulati and Ganguly, 2008). The share of high value commodities, including horticulture, livestock, and fisheries, in the total value of agricultural output has already increased from 37.2 percent in TE 1982-83 to 47.5 percent in TE 2006-07 (see Figure 1).

**Figure 1: Distribution of Total Value of Agriculture (crop, livestock and fisheries): TE 1982-83 & TE 2006-07**



Note: Fruits and vegetables include floriculture.

Source: National Accounts Statistics 2008, CSO, Government of India, 2008.

The process of production diversification is being driven by changes in the consumption basket. The per capita monthly consumption of cereals has come down from 14.9 kg in 1983 to 12.2 kg in 2004-05 in rural areas, while urban areas have witnessed a decline from 11.6 kg to 9.9 kg during the same period (NSSO, 2006). However, with an average Indian still allocating more than 50 percent of expenditures to food items, and changing lifestyles and income brackets, India, like other Asian countries, is experiencing ‘*westernization of diets*,’ wherein the share of fresh and processed high value food is on the rise (Pingali, 2006).

On the other hand, the organized Indian food and grocery retail market is expanding at a rate of 16 to 50 percent, and the top ten organized food and grocery retailers grew at an average annual rate of about 72 percent during 2002-07 (Reardon and Gulati, 2008; Planet Retail, 2008). By fostering competition and improved supply chain efficiency, the expansion of organized food retailing has the potential to generate economic gains that will be shared by both producers and consumers.<sup>2</sup> Increasing domestic and export demand for processed and value added food has also added a new fillip to the food processing sector, although levels of

<sup>2</sup> International experience shows that consumers have benefited from the growth of organized retailing in terms of competitive price offers and discount pricing (Reardon and Gulati, 2008). Also, recently IFPRI conducted a study comparing prices of 20 basic food items in organized and traditional retail outlets in Delhi. The survey results show that vegetables were 33 percent cheaper in the organized segment compared to the traditional outlets. Other commodities like fruit was 15 percent cheaper; parboiled rice, 14%; atta, 5%; mustard oil, 6%; sunflower oil, 17%; chana dal, 1% (Gulati and Reardon 2008).

processing, particularly for fruits and vegetables, remain low in India compared with other countries.<sup>3</sup>

The recent developments in the processing and retailing sectors have resulted in new marketing and trading opportunities, but the challenge lies in linking farmers with these emerging markets in order to make the process inclusive, competitive, sustainable, and scalable. At present, markets for high value commodities are thin and fragmented. There are very few organized market yards for fresh fruit and vegetables as compared to food grains. Farmers with small marketable surplus, very little price information and located far away from wholesale markets (*mandis*) find it difficult to market their produce. High value commodities are often perishable in nature and lack of coordinated supply chains can result in significant post harvest losses and low net returns to the farmers as well as the firms. Horticultural commodities are vulnerable to both production and price risks, and the lack of risk-mitigating measures such as crop insurance or assured markets compound these risks. The lack of assured prices for horticultural crops, in contrast to support prices for paddy and wheat, serves as a deterrent for farmers to shift from traditional grain crops to the high value segment.

However high value agriculture has the potential to be income augmenting, and to create both farm and off farm employment opportunities. Relative to cereals, horticulture boosts returns to land by 10 times and generates more off-farm jobs in processing, packaging and marketing (World Bank, 2007a). These new jobs typically enhance the employment of women in agriculture, as women are preferred over men for activities such as plucking, sorting, and packing of the products. The case studies discussed below show that farmers who diversify away from the wheat-paddy cycle gain significantly higher returns from vegetables and fruit, although returns are subject to greater price and production risk compared with grains.

Strengthening institutions like contract farming is an option to provide risk-mitigating services, and enable farmers to make the transition from traditional grain crops to higher value commodities. In this prospect, it is necessary to move beyond farming and link production agriculture with the complete agri-food system, including input markets, warehousing, logistics, processing, and retailing. The role of contract farming in facilitating these farm-firm linkages may be important, particularly in an environment where the farming community is fragmenting and the processing and retailing sectors appear to be scaling up quickly.

### **Contract Farming in High Value Agriculture**

Contractual agreements can be of three basic types: 1) contracts under which only sale and purchase conditions are specified; 2) contracts under which a corporate firm supplies the farmer with agricultural inputs and the final produce is bought at a contracted price, and 3) arrangements where a corporate firm invests all capital and technical know-how in the field and the farmer provides land and labor. The significance of the different models of marketing and production contracts varies across commodities and with the nature of markets and regions (Key and Runsten 1999, Singh 2002). Each model is guided by distinct market,

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<sup>3</sup> The processing levels of fruits and vegetables is as meager as 2 percent compared to 78 percent in Philippines, 30 percent in Thailand, 23 percent in China, etc (GoI, 2006a)

resource and management provisions that determine the role and capacity of the firms in linking with the farmers.

In the first two models, the pattern of risk sharing depends on the contract provisions and farmers may have to bear the risk of production or price shocks. In the third model all risks remain with the firm and farmers neither bear any risk nor is party to any profits. Past experiences reveal that in the advent of price volatility either farmers have refused to sell the produce to processors/retailers (when market price exceeded contracted price) or the latter have not procured produce (when the contracted price exceeded the market price). Also, in case of crop failure, farmers may have to bear the loss without any support from processors/retailers. There are also cases when poor quality produce has resulted in firms' refusal to procure produce. These issues need to be addressed in balanced, transparent, quasi-legal provisions in order to protect the interests of both growers and buyers.

### **The Indian Perspective**

Contracting in agriculture in India can be traced back to the sugarcane sector, which was primarily organized under the cooperative structure. Although the sugarcane industry became dependent on state support and a target of political intervention, the dairy sector in India flourished under the cooperative structure and millions of smallholders benefited through Operation Flood beginning in the 1970s. Later, private players in dairying also followed the "*Anand pattern*" of cooperative dairy development and, in a way, have been contracting with dairy farmers for sourcing liquid milk. Contract farming has also been popular and successful in the poultry industry and in basmati rice and potato production, primarily led by corporate firms. Contracting in high value commodities, such as tomato, and chilies, started as early as the 1990s, and contracting in exotic vegetables, such as baby corn and bell peppers has been a more recent phenomenon. Contract farming in fruit, such as mango, citrus, litchis and grapes, has been quite popular.

Punjab has been a pioneering state in introducing contract farming, with the entry of PepsiCo in tomato processing in 1989. This was followed by a local firm, Nijjer Agro Foods Limited in 1991. Andhra Pradesh, Tamil Nadu, and Maharashtra have been in the forefront for contract farming in poultry, with major poultry integrators such as Suguna, Shanthi, Pioneer, Godrej Agrovet, and Ventakeshwara Hatcheries having a wide presence in these states.

Recently, the Bharti Group has started its foray into agricultural markets in Punjab, primarily focusing on the export market, and contracting with the local farmers. Retail ventures led by Reliance, Spencer's, Subhiksha, and others are procuring their daily requirements from all possible sources, from *mandis* to individual farmers, but are not directly tying up with the farmers for significant shares of their requirements. However, ITC Choupal Fresh is engaged in contract farming for fresh fruits and vegetables. And, in the dairy sector, quite a few private players have entered the market following amendment of the Milk and Milk Product Order (MMPO).<sup>4</sup> Nestle has been one of the major private companies in the dairy sector. In the

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<sup>4</sup> The Milk and Milk Product Order (MMPO) was first introduced in 1992 under Section 3 of the Essential Commodities Act, following the economic liberalization policy of the government of India. It was last amended in 2002 when the concept of cowsheds was removed (Dairy India 2007). The MMPO helped improve the supply of quality milk and also increase in the share of organized players in the dairy sector.

cooperative sector, apart from Amul and Mother Dairy, there are a number of state cooperatives now operating in the dairy business.

This section draws upon several studies conducted by the International Food Policy Research Institute (IFPRI) and others over the past few years on contract farming in dairy, fresh fruits and vegetables, and poultry, in particular. While the information gathered is not uniform and the findings are subject to further research, it provides a broad idea of the nature of contract farming in selected commodity chains, the existing limitations, the lessons learned, and the issues involved in moving forward.

**Dairy** – The onus of development of the dairy sector in India has been primarily with the cooperatives. Operation Flood (1970-1996) was a major breakthrough in the Indian dairy sector that rendered dairying a profitable occupation for millions of farmers, resulting in a significant impact on the livelihoods of small and marginal farmers.<sup>5</sup> However with the amendment of the MMPO in March 2002, a number of private companies have entered the dairy market and are scaling up their procurement and processing activities. Nestle India, Limited, which started operations in 1961 in Moga district of Punjab with just 180 farmers, now has more than 98,000 contract farmers to source its daily requirement of liquid milk (Nestle 2006). Recently, Reliance has ventured into dairying, also starting its operations from Punjab, and there are reports of it rapidly expanding procurement volumes of liquid milk and network of contract farmers.

The approach to contracting with farmers is similar in both the cooperative and private sector models. The price of liquid milk is determined by the fat content of the milk. Farmers voluntarily join the cooperative and, even as members have the freedom to sell to anyone they choose. A similar condition holds for farmers contracting with Nestle and other private firms. While there are incidences of irregular milk supply or impurities in milk from the farmers, and of delayed payments, under-pricing, and under-weighting of produce by cooperatives or private firms that can result in termination of contracts, often these conflicts are equitably resolved (IFPRI study by Gupta et.al. 2006). Apart from the direct buying and selling, the farmers receive inputs and extension services. Nestle too provides a number of services – veterinary services, medicines, and feed supplies on a no profit, no loss basis. Nestle follows two types of contracting arrangements. For producers with more than 25 milch animals, it enters into a legal contract. For smaller farmers, milk is procured through agents who have a legal contract with Nestle.

**Poultry** – The poultry sector is highly susceptible to production and marketing risks which periodically affect profitability, particularly of small farms. These risks also threaten the profitability of the industries engaged in breeding of chicks, and manufacturing of feed, vaccines and medicines. In order to minimize the risks to the producers and sustain the growth and profitability of the industry, some large poultry firms (for example, Venkateshawara Hatcheries Ltd., Suguna Poultry Farm Ltd., and Godrej Agrovvet Ltd.) began vertically integrating breeding, hatchery, feed, and veterinary enterprises with broiler production

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<sup>5</sup> As of 2005, the cooperative network covered some 12 million farmer members in over 115,000 village dairy cooperative societies in 170 milksheds spread over 270 districts (Dairy India 2007).

through the institution of contract farming in the late 1980s and early 1990s. In a typical poultry contract, integrators provide day-old chicks, feed, medicines, and expertise to contract growers, who in turn supply land, poultry houses, equipment, labor, and other inputs. At the end of the production cycle, the integrators take responsibility for marketing all of the production, with farmers receiving either a net price (by weight) pegged to an industry price set by a group of integrators (not the retail price) or a growing fee (by weight) adjusted for performance norms such as mortality rate and feed conversion efficiency. These approaches afford more stability to grower returns than market prices, sharply reducing price and marketing risk for growers.

Venkateshwara Hatcheries started its contract broiler operations during the mid 1990s in south and western India. In their model, broiler, prices are fixed by BROMARK<sup>6</sup>, with grower's also receiving a share of any additional profits earned due to rise in market prices, as well as an incentive for better feed-conversion efficiency. Suguna Poultry Farm Ltd. with a turnover of Rs.20.2 billion (\$450 million) in 2007/08, is the largest poultry integrator in India, beginning operations in 1984 in Coimbatore and now operating with more than 15,000 contract growers in 11 states. Suguna's model provides contract growers with quality day-old chicks, feed, medicines, and technical support and guidance. Suguna then markets all output, paying growers an agreed fee per kilogram of weight gain, plus incentives for reducing mortality or improving feed conversion beyond specified norms.

Contract farming in poultry has been successful in India due to the presence of strong backward linkages. The nature of contracting has been instrumental in removing grower risk through buyback guarantee and also provision of coping against production failure. Provision of quality inputs such as chicks, feed and medicine has helped the poultry farmers raise quality chickens. Apparently, balanced contracts that benefit both parties in terms of assured markets, competitive price and guarantee against risk have resulted in the success of poultry contract farming.

***Fruit and Vegetables*** – Contract farming in fruits and vegetables is being led by cooperatives, farmer groups, and private firms, both multinational and domestic. The entry of private firms can be traced back to the operations of PepsiCo in Punjab in 1989 and, in the recent past, quite a few retailers and agro processors have joined the foray. However, Mother Dairy, organized as a cooperative, is one of oldest players in this sector, entering into retailing of fresh fruit and vegetables and some processed items under the 'Safal' brand in Delhi in 1988. Mahagrapes is an example contract farming led by a farmer group in Maharashtra.

In an example of a public-private partnership, the Council for Citrus and Agri Juices in Punjab has ventured into contract farming of citrus orchards to supply "Tropicana" juices, a product of Pepsico. The Council has acquired 5,185 acres of land, of which 2,600 acres have been planted with sweet oranges, with a target to bring an additional 10,000 acres under citrus cultivation in 2008. Sam Agritech is a private company in Andhra Pradesh engaged in contract farming for grapes, pomegranates, mangoes, chikoos, and exotic vegetables. Initially, Sam Agritech contracted with large farmers based on the condition of their orchards and other details, but now is tying up with small farmers as well. Contract farming in gherkins in

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<sup>6</sup> BROMARK stands for All India Broiler Farmers Marketing Cooperative Ltd

Andhra Pradesh by Global Green Company is yet another private model that has helped link the smallholders with the global markets.

Mother Dairy Fruits and Vegetables Limited (MDFVL) procure fresh fruit and vegetables from about 100 producer associations that include more than 18,000 farmers. Most producer associations are informal cooperatives or self-help groups managed by the producers themselves. The associations are educated about the quality of fruit and vegetables that should be grown and farmers—including both members and non-members—deliver produce at their own cost to Mother Dairy collection and processing centers, eliminating local consolidators from the supply chain. Farmers receive prices at par with prevailing *mandi* prices. Payment is made by cheque, with both growers and milk suppliers receiving payment within 10 days. For fruit and vegetable procurement, the producer associations are paid a commission of 1.75 percent to meet the expenses of running the association, such as salaries, electricity, and water costs. While growers benefit from an assured market for produce of acceptable quality, there is no written contract agreement with the farmers to safeguard their vulnerability to production and price risks.

Mahagrapes is the first organization in Maharashtra to have the characteristics of both a cooperative and a private sector marketing partnership. Built upon the existing association of grape grower (Draksha Bagitdar Sangha), Mahagrapes initially had 20,000 farmers and 29 farmer cooperatives as its members. Over the years, membership declined to 16 farmer cooperatives comprising of 2,500 grape growers in the districts of Sangli, Solapur, Latur, Pune, and Nasik, with Mahagrapes as the marketing arm of the collection of cooperatives<sup>7</sup>. Consistent with the objectives of the Maharashtra State Agriculture and Marketing Board (MSAMB) to promote fruit marketing by providing technical financial and marketing support, Mahagrapes enables market access by lowering transaction costs. The MSAMB supported Mahagrapes during its initial years, which were characterized by problems resulting from high rates of consignment rejections in the European markets (Roy and Thorat 2008). The cooperative, with the help of the public sector, was able to upgrade storage facilities, install pre-cooling and cold chain facilities as well as learn about the international food safety standards. As a result, shipment rejections were reduced to less than 10 percent in late 1990s, and to less than 1 percent after 2001 (Roy and Thorat 2008).

FieldFresh Foods (P) Ltd. (FFL) has been contracting with farmers for sourcing high value fruit and vegetables.<sup>8</sup> FFL marketing operations are directed to the export market for fresh produce, such as bitter melon, okra, baby corn, bell peppers, french beans, and snow peas. FFL links with farmers through production contracts and by encouraging state-of-the-art cultivation and handling practices. A 300-acre model farm (the FieldFresh Agriculture Center of Excellence) in Ladhawal, Punjab near Ludhiana has facilities to promote modern farming practices and provide demonstration sessions to farmers, as well as advanced pack house

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<sup>7</sup> It came into existence in 1991 and owes its origins to the Maharashtra State Agriculture and Marketing Board (MSAMB), established on 23<sup>rd</sup> March 1984 under the Section 39-A of the *Maharashtra Agriculture Produce Marketing (Regulation) Act*, 1963. MSAMB was instrumental in the formation of Mahagrapes along with MahaMangoes and MahaBanana were also set up subsequently in mangoes and bananas respectively to follow thereafter.

<sup>8</sup> Earlier a Bharti Rothschild joint venture is now partnering with Del Monte Pacific Limited is a strategic partner with 40 percent equity. Bharti group has 50 percent equity and Rothschild is a minor partner.

facilities. Initially FFL leased in land from farmers in Fatehgarh, Sangrur, and Jalandhar districts in Punjab to undertake cultivation. However this model of acquiring land from the farmers for cultivation of high value commodities was not fully successful.

In 2007, FFL contracted, primarily for baby corn at a fixed price of Rs.9.50 per kg, with nearly 120 contract farmers covering an area of about 400 acres. The contract also offered farmers extension services and seed, the cost of which was adjusted in the final transaction. Although the farmers initially faced losses due to poor quality output that FFL was reluctant purchase, many of the contract farmers were willing to try again in 2008 and FFL had a target of bringing 10,000 acres under baby corn. Bharti Del Monte is trying to develop better contracting provisions that promote their business targets and also safeguard the interests of the farmers. Bharti's tie-up with the US retail giant Wal-Mart is likely to generate resources and infrastructure necessary to make firm-farm linkages more remunerative for the farmers

ITC marked its foray into wholesale and retail operations of fruits and vegetables under the brand names of 'Choupal Saagar' and 'Choupal Fresh'. Unlike their "E-choupal" initiative, which is more of an open access facility, these involve direct buying and selling between the firm and the farm, although there is no written agreement.<sup>9</sup> ITC has been working closely with farmers since 2000 under the E-choupal initiative.<sup>10</sup> Choupal Saagar is a rural hypermarket model providing multiple services that allow farmers to purchase supplies, sell their produce, and get the payments directly. Choupal Fresh stores are urban retail outlets for fruits and vegetables. The stores cater to the wholesale business in the early morning and then are open for retail footfalls. The Choupal Fresh initiative is backed by extension services like demonstration plots and advice on crop calendars and cultivation techniques and practices, as well cold chain support and other services.

Contract farming in gherkins, a non-traditional crop grown mainly for the export market, has been successful in south India. Global Green Company and Capricon Foods are two companies that have been contracting with farmers to supply processed gherkins in the global market.<sup>11</sup> An IFPRI case study (Rao et.al., 2007) shows that higher net returns and assured markets have induced farmers to diversify into gherkin production. Global Green Company

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<sup>9</sup> In 2006-07, ITC made a business of \$400 million through direct buying under the E-choupal initiative (World Bank 2007a).

<sup>10</sup> ITC led E-choupal initiative is claimed to be the single largest information technology based intervention by a corporate in rural India. This model of connecting the smallest of the farmers to remunerative markets through computers started in 2000 covering 6 states (Madhya Pradesh, Karnataka, Andhra Pradesh, Uttar Pradesh, Maharashtra and Rajasthan). Around 3.5 million farmers across 38,500 villages were connected to this initiative, growing a range of crops- soy bean, coffee, wheat, rice, pulses and shrimps. It aims to expand to 15 states, covering 10 million farmers through 20,000 e-choupals by the next decade. This initiative has helped farmers avail input, product, and market related information and obtain competitive prices without any binding to sell to ITC alone ([www.itcportal.com](http://www.itcportal.com)).

<sup>11</sup> Established in 1996, The Global Green Company is today a major supplier of gherkins, jalapenos and other preserved foods to retail and foodservice customers in more than 23 countries around the world and 30 cities in India. It is a private label supplier to some global food retailers in addition to exporting products under its own brand name Eden Garden. In India, the Company retails under the brand name Tify. It has two processing plants in Zaheerabad in Andhra Pradesh (50 tons/day capacity) and another at Bangalore in Karnataka (30 tons/day capacity).

has tied up with about 10,000 farmers in Karnataka, Andhra Pradesh, and Tamil Nadu. Farmers are offered different prices depending on the quality of the produce. In order to sustain the contracting relation, the company also purchases produce that is not fit for export and sell it in the domestic market. Apart from buying the produce, the company provides technical support and agricultural inputs (seed, fertilizer, and pesticides) on credit to farmers, with the cost adjusted in the final purchase transaction. Gherkins are a labor-intensive crop (250-300 labor days per hectare of crop) and lead to more employment opportunities and reduced labor migration by providing wage labor during off season. The sample of farmers studied showed that smallholders are more inclined towards gherkin cultivation than large farmers.

### **The Economics of Contract Farming**

Available studies indicate that contract farming, as an institutional arrangement, has offered higher profits and lower costs to the contract farmers compared with non-contract farmers.<sup>12</sup> In addition to the assured markets and stable prices afforded farmers, the backward linkages help control transaction and marketing costs, yielding higher returns to contract farmers. Although in the case of milk, prices offered by the cooperatives can be less than prevailing open market prices, member farmers earn higher profits because the cooperatives provide low-cost inputs that lower the cost of production. Of the three sectors examined—fruits and vegetables, dairy, and poultry – contract poultry farmers appear to save significantly on production and transaction costs, as most of these costs are borne by the contracting firms.

An IFPRI study (Birthal et.al. 2005) of MDFVL, Nestle, and Venkateshwara Hatcheries also showed that contracting helped farmers reduce costs of cultivation and earn higher profits compared with non-contract farmers (see Annexure Table A1). The results show that net profits for contract farmers were more than double those of non-contract farmers in the case of dairy, 78 percent higher for vegetable (spinach) growing farmers, and 13 percent higher for poultry farmers. Costs of production for contract farmers were lower by approximately 21 percent for milk and 21 percent for vegetables compared with non-contract farmers. The share of transaction and marketing costs in total costs was markedly lower for contract growers. Among non-contract producers, transaction and marketing costs accounted for 20 percent of costs for milk producers and 21 percent of costs for vegetable producers. In contrast, transaction and marketing accounted for just 2 percent of total costs for contract milk and vegetable producers. In the case of poultry, the cost of inputs such as chicks, medicines, and feed that are provided by the integrators account for about 75 percent of total production costs. Also, with the contract firms bearing a mortality risk of 5 percent and acquiring all output, the poultry integrators bear the bulk of both production and marketing risk.

Other studies on dairy cooperatives show that contract farmers earn higher profits compared with non-contract farmers (Gupta, et al. 2006). In the case of milk fed, contract farmers earned 33 percent more net profit per ton of milk sold compared with non-Milkfed farmers.<sup>13</sup>

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<sup>12</sup> The economics of contract farming of fruit, vegetables, milk and poultry in India are summarized in Annexure Table A1. The results are obtained from several studies done by IFPRI and others on contract farming in India.

<sup>13</sup> The Punjab State Cooperative Milk Producers' Federation Limited popularly known as MILKFED Punjab, came into existence in 1973. Presently, there it has a network of nearly 6,000 Milk Producer's Cooperative

Similarly, a study of Mahagrapes showed that profits earned per acre per annum by contract growers were nearly 38 percent higher than that for non-contract growers (Roy and Thorat 2008). Since Mahagrapes serves global markets, prices received are almost three times higher than in the local markets. Also, farmer members benefited from better quality inputs and extension services at cheaper rates. A similar case study of contract grape growers in Andhra Pradesh, also supplying the export market, showed that contract growers received 55 percent higher net returns than supplying to the domestic markets (Rao et.al.2007). Although costs of production were 33 percent higher for contract farmers in this case, higher costs were more than offset by higher output prices. All gherkin production in Andhra Pradesh is under contract farming. According to survey results, the growers earned a net profit of Rs.35, 000 per hectare during 2004/05, and that returns over variable costs were 30 percent higher than for other vegetable crops (Rao et.al. 2007).

Existing research on contract farming shows that contract farmers are better off because they are able to save a considerable proportion of the costs of cultivation and earn higher profits. However, not much attention has been given to measures of risk mitigation against production and price failures, which are important for sustainability and scalability of contracting ventures. Mutual trust and confidence in the farm-firm relationship is a major driver of contract farming arrangements, and there are now a number of examples in India where contracting is expanding and risk is apparently being adequately shared. Are there, however, contracting models or legal institutions that can help strengthen the firm-farm relationship? Legal sanctity of contracts maybe desirable to help control breach of agreements but it is observed that neither the firm nor the farmers are keen to approach the law. Hence there could be provisions for third party intervention that can help resolve disputes without having to resort to courts. This is deemed relevant to smallholders in particular who often find themselves in a weaker bargaining position and have to share an uneven burden of the risks associated. In this context, the role of “clusterization” of smallholder’s gains significance as observed in a cooperative model.

### **Lessons Learned from the Existing Contract Farming Models**

So far the success of contract farming in India has been largely seen from the point of lower transaction costs and higher net returns. While the economics are important, it is observed that the basic framework of contract farming and the provisions therein are not clear. Even though the successful contract agreements discussed above apparently have price, quantity, and quality provisions acceptable to both parties, there is no mechanism in place that addresses the problem of non adherence to these provisions by either party. While most of the contractual agreements are written, and at times on official stamp paper, not many of them are actually registered and can, therefore, be considered legal documents. By and large, it is the mutual faith and word of mouth that is driving many of these contract farming ventures in India. For large farmers, who already have several acres of land devoted to wheat, paddy and other traditional crops, venturing into vegetables through contract farming enables them to add to their incomes. For smaller farmers, while contracting may provide an opportunity to rise above subsistence farming, the risk of diversifying is likely to be higher. Variants involving

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Societies organized at the village level. About 3.60 lakh milk producers are members of these societies ([www.milkfed.nic.in](http://www.milkfed.nic.in))

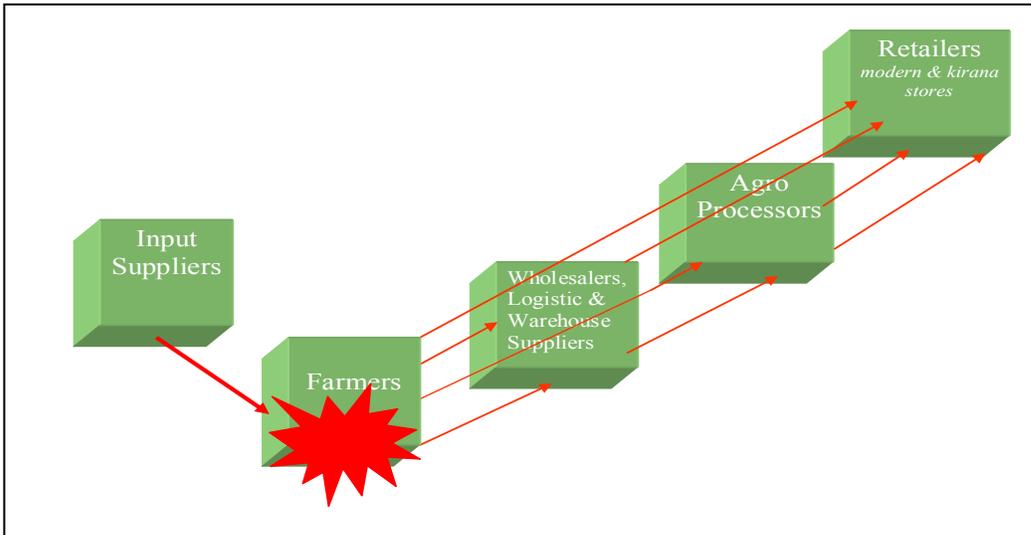
contracting of land and labor in exchange for a fee, such as in the poultry example, provide growers an opportunity to earn from asset utilization without having to undertake any risk. However, small holders are often apprehensive to join hands with the private firms, especially in leasing out their land due to the fear of losing their land. In these cases, identifying contracting models that minimize risk and developing associations or clusters of farmers to increase their bargaining power may help forge better firm-farm linkages.

### **The Way Forward**

Although there is private sector enthusiasm for contract farming and related approaches to forging direct links with farmers—and substantial evidence of the potential for farmers to gain—the policy environment is likely to be key to the pace and extent of change. Broadly, the pace and extent of change are likely to depend on the environment for agricultural diversification and related private agribusiness investment, including public action to develop the institutions needed to support efficient agricultural markets. At the sector level, incentives for agricultural diversification and investment will be shaped by decisions on support price policy and input subsidies that have traditionally focused on achieving food grain self sufficiency goals. Rising incomes and changing consumption patterns suggest that future growth in farm incomes will come from producing a more diverse set of higher-value crop and animal products. To the extent that price policy and public resources remain focused on food grain production – thus reducing both incentives and support for other crop and animal products – the pace of diversification and associated private investment will likely be slowed. Current price policies create incentives for many farmers not to diversify away from wheat and rice and, as other research has shown, the returns to shifting resources from input subsidies to investments can be substantial (Fan, Gulati and Thorat 2007).

The pace of diversification and private investment will likely also hinge on how quickly central and state government regulatory and spending priorities become effective in supporting private investment in developing the entire agri-food system, comprising farming, input supplies, warehousing, logistics, trade, processing, and retailing (Figure2). A system-wide approach is likely to be more supportive of private investment, and can help open up opportunities for substantial gains by producers and consumers. At present, significant physical and income losses can be attributed to poor marketing channels and poor farm-firm linkages. A World Bank (2007b) study shows that, for a typical horticulture product for the export market, farmers receive about 12 to 15 percent of the price paid by the end consumer. Further studies conducted by the World Bank (2007c) on value chains of mango and litchis in Bihar show that a significant amount of the price is lost in transport and wastage and the farmers receive 34 and 42 percent of the consumer price. More efficient supply chains, including more direct linkages between retailers, processors, and growers, can minimize losses and reduce marketing costs, with benefits to farmers and consumers

**Figure2:- Dynamics of the Modern Agri-food Chain**



Source: Gulati and Ganguly (2008)

More specifically, central and state government actions affecting regulation of agricultural markets and the development of weak or missing market institutions are likely to be keys to progress in diversification and private investment. To a major extent, the key policy measures are likely to be regulatory and institutional reforms that facilitate better linkages between the farmers and markets greater private investments, than large public subsidy or infrastructure outlays. In the changing scenario, the government can play the role of facilitator of markets rather than a market participant.

### **Agricultural Marketing Reforms**

The environment for agricultural diversification and related private investment will be influenced by the extent to which central and state governments can remove or ease the zoning, movement, storage, and marketing restrictions imposed on agricultural markets under regulations such as the Essential Commodities Act (ECA) and the Agricultural Produce Marketing Committee (APMC) Act. The threat of government interventions to restrict storage and movement under the ECA, along with prohibitions or restrictions on private marketing of agricultural produce under the APMC Acts are a deterrent to private investment in supply chains and improved farm-firm linkages. To the extent central and state government efforts succeed in relaxing these long-standing regulations, private sector investment and participation in developing regularized markets, logistics and warehousing, is likely to expand. From earlier discussion of economic impacts that farmers, retailers, and processors can be better off bypassing the *mandis* (public regulated markets). The introduction of the Model Act in 2003 was directed at allowing private market yards, direct buying and selling, and promoting closer farm-firm linkages, including contract farming. Drafted by the central government, the Model Act must be formally adopted and implemented by the states. Although many states have adopted the new Model Act, its implementation and impact on private marketing remains unclear.

## **Building Market Institutions**

Many of the public institutions needed to support competitive and efficient private markets – including quality grading and inspection services, food safety standards, and inspections, and objective market information – are either weak or missing in India. The absence of these institutions slows private investment in agricultural markets, including firm-farm linkages such as agricultural contracting, by raising the costs that private firms must incur in compensating for missing public goods. In the context of poor rural road, transport, and marketing infrastructure that agribusinesses must also cope with, missing or poorly functioning institutions represent additional costs to overcome, as well as diminished potential for efficiency gains to pass on to producers and consumers.

*Quality grades, standards, and inspections* – Quality standards and grading that reflect the preferences of end users permit buyers to obtain what they want and growers to maximize returns. Most agricultural contracting involves meeting quality norms specified by buyers and, in the absence of appropriate public standards, the burden of setting and enforcing quality standards lies with individual growers and firms. Stronger public standards and grading systems – which are often operated with extensive public-private cooperation and cost-sharing in more developed markets – would potentially reduce private costs and reduce grower-buyer friction in contracting and other firm-farm linkages.

*Market information* – Accurate, timely and widely accessible market information is a fundamental requirement of competitive and efficient markets. The lack of good, accessible information increases the risks faced by buyers and sellers, and creates the potential for information asymmetry that benefits one party – typically larger buyers. Public investment in providing improved information on market performance and outlook has the potential to reduce the risk faced by both firms and growers, enhance private investment, and build a more competitive market.

*Food safety standards and inspections* – With expanding domestic and, particularly, export markets for fresh and processed commodities, the need to address food safety, as well as quality, standards has gained prominence. Failure to comply or harmonize with international food safety norms and standards stands in the way of exports and can result in export losses. Since 2003, India has raised its domestic and import standards, including introduction of Plant Quarantine (Regulation of Imports into India) Order 2003 (World Bank 2007a). A major challenge in India's diversifying agricultural market is to effectively communicate information, knowledge, and resources in order to adhere to these food safety norms. At present, private sector traders, retailers, and processors have the resources and incentives to learn and implement the standards, in part through their extension efforts with growers, but more public initiative may be needed to lower these private costs and stimulate investment.

## **Land Lease Markets**

Constraints on land leasing that prevent farmers from safely and legally leasing in or leasing out land are a deterrent to achieving productivity and scale economies as agriculture diversifies. Better functioning land rental markets would provide an opportunity for landowners not engaged in agriculture, or who want to withdraw, to use land as an income

earning asset without the fear of losing ownership. At the same time, such a market would afford enterprising growers to legally rent in land and undertake strategic investment plans. Since land and credit markets are closely linked, improved rental markets could enhance the development of formal financial markets and producer access to formal credit sources (Deininger 2003). Progress in registering deeds and computerizing land records to accord greater transparency and reliability, recommendations of the Working Group on Land Relations for the 11<sup>th</sup> Five Year Plan, could be a key to progress in establishing land rental markets (GoI 2006b).

### **Summing Up**

Consumption patterns are changing towards high value agricultural commodities and this is driving the process of agricultural diversification in India. The share of high value agriculture is increasing in the total value of agricultural output and these commodities being highly expenditure elastic are the potential sources of future income. This demand led phenomenon can help achieve many strides for the agricultural sector in India, provided policy can look beyond farming and better integrate production agriculture with other components of the agri-structure. Despite large production volumes, India continues to suffer major bottlenecks in enhancing its export and food processing capacities. This is largely attributed to the lack public and private investment in infrastructure, logistics, information and technology, which have resulted in inefficient and uncompetitive markets.

Hence, it is important to step beyond farming and conceive agriculture as a complete agri-food system that incorporates farming, logistics, wholesaling, warehousing, processing and retailing. In this framework, contract farming can be perceived as an institutional arrangement that can help address many existing market imperfections and facilitate firm-farm linkages, but not as a panacea for all ills. It will likely be important for contract farming to move beyond a limited buyer-seller relationship and to gradually bring in the elements of backward linkage. This could be instrumental in providing the farmers much more than assured markets and fair prices, but also support in the form of risk mitigation, access to information on cultivation, post-harvest technology, and markets, and access to credit and other inputs.

With the growing retail operations in the food and grocery segment in the country, the process of diversification is likely to continue and argue for devising a congenial policy environment that can balance food security concerns with the need for private investment in value added activities in marketing and processing. Readjusting incentives and restructuring the current food security complex to create an enabling environment for greater investments and private sector participation has the potential to yield significant benefits to producers and consumers alike.

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**Annexure Table A1: Some Studies on Contract Farming In India**

Players	Commodities	Type of Ownership	Sample Size		Year of survey	Information relevant to	Economics of CF (Net profits (Rs/ton)/output per acre*)		Area of Study	Studies
			Contract	Non Contract			Contract farmers	Non-contract farmers		
Milkfed-Verka	Milk & Milk Products	Cooperative	117	134	2005	2004	5278	3960	Punjab- Ludhiana and Rupnagar districts	Gupta et.al. 2006
Nestle	Milk & Milk Products	Corporate (Multinational)	152	22	2002-03	2001-02	3651	1821	Punjab-Moga district	Birthal et.al. 2005
Venkateshwara Hatcheries	Poultry	Corporate (Domestic)	25	25	2002-03	2001-02	2255	2003	Andhra Pradesh-Rangareddy, Mehboobnagar and Nalgonda districts	Birthal et.al. 2005
Mother Dairy - Safal	Vegetables (spinach)	Cooperative	100	50	2002-03	2001-02	1791	1007	Delhi and Sonapat district in Haryana	Birthal et.al. 2005
Mahagrapes	Fruits	Farmers' Group	88	95	2005	2004	14980	9390	Maharashtra-Pune, Nashik and Sangli districts	Roy & Thorat. 2008
Global Green Company	Gherkin	Corporate	100	All of it is under CF	2004-05	2002-03	35000 (Rs/ha)		Andhra Pradesh	Rao.et.al.
-	-	-	100	100	-	-	23078*	14338*	Punjab-Ferozpur, Hoshiarpur, Jalandar, Ludhiana, Moga, Patiala, Sangrur	Parmod Kumar 2008

Note: \* indicates output per acre