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Sazzad Parwez

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Indian agriculture is at a crossroads, where fundamental correction is required to correct its current path; this has led to introduction of co-operatives. This paper tries to understand the co-operative model for contract farming in the broadest sense of input supply, information transfer, and improved marketing channels at all levels. It uses the Kaira District Co-operative Milk Producers' Union Ltd. (Amul) as illustrative of an ideal model of dairy co-operative for furthering the concept of co-operative based contract farming. This paper tries to address the subject both conceptually and empirically. The study finds that co-operative led contract farming can be an important instrument in the development and application of best practices and realisation of reasonable prices for farmers.

Introduction

The economic growth and diversification in consumer demand suggest that application of organised agricultural practices and marketing has the potential to enhance market opportunities, productivity, and incomes of farmers — including marginal farmers (Birthal et al., 2008). To achieve these objectives, however, requires the creation of new dynamic institutions, both in private & public spaces, to facilitate and capitalise on linkages between farmers, processors, wholesalers, retailers, and consumers (Prowse, 2012; Parwez, 2014a). These institutions will facilitate development of innovative models for better backward and forward linkages to farmers (Gulati et al., 2010). Backward linkages describe the process of how a company in each sector purchases its goods, products, or supplies from a company in a different sector (inputs). Forward linkages describe the process of how a company in each sector sells its goods, products, or supplies to a company in a different sector (outputs).

The early success of Kaira District Co-operative Milk Producers' Union Ltd (Amul), led to it being considered an ideal model of dairy co-operative; one to be emulated. Amul efficiently integrated both forward and backward marketing channels. Backward linkages were largely dominated by contract farming (with participatory characteristic) to ensure supply of input milk to the processing house (Bellemare, 2012). Furthermore, the 'White Revolution', (Operation Flood) launched in 1970 and considered the world's biggest dairy development programme (Singh, 1999, p. 201) led to the creation of numerous dairy-based co-operatives across India replicating the Amul model. It was launched to help farmers direct their own development, placing control of the resources they create in their own hands. According to the National Dairy Development Board (NDDB) the programme transformed India from a milk-deficient nation to the largest milk producer with about 17 per cent of global output in 2010–11 (NDDB cited in the Hindustan Times, 2011). In 30 years, milk available per person doubled, and made dairy farming India's largest self-sustainable rural employment generator (Kurien, 2007).

This brings us to the concept of contract farming; a form of farming practised by co-operatives or corporate firms to secure availability of agricultural supplies meeting requisite quality, quantity, at particular location and on specified time (Pultrone & da Silva, 2012). The model has the potential to improve availability of agricultural produce and to ensure a better situation for farmers particularly considering the unequal bargaining position (Singh, 2002), where they continue to be paid relatively low prices for produce. Notably, it provides an assurance of a reasonable price for farmers for their agricultural produce.

Additionally, a major problem faced by a farming community and associated stakeholders is decision making at different stages of agribusiness activities, right from farming to marketing (Parwez, 2014b). Efficient and effective flow among various stakeholders of any business

activity is the key to strengthen supply chain efficiency. In the absence of timely availability or non-accessibility of information, farmers cannot realise the potential of indigenous knowledge. To decide what, how, how much, inputs, and technical assistance to produce as per market needs, contract farming can provide a modern, effective, and speedy mode of interaction and communication that conveys new knowledge and information. Contract farming especially in the Indian context, however, is often an agreement between two unequal parties, corporate, government institutions or big entrepreneurs on the one side and marginal, weak farmers on the other side (Parwez, 2015).

This paper provides an overview of co-operative-led contract farming. The present study explores the contract farming model based on secondary literature and empirical data. Several public and private sector contract farming initiatives have been undertaken in India specially to cater for the needs of agricultural or overall rural sector; one such initiative is Amul Dairy. Amul is used as an illustration to further understand and disseminate knowledge about co-operative-led contract farming

Dairy Co-operatives and Contract Farming

India possesses a large livestock population, which contributes significantly to improving the socio-economic situations of rural populations. The livestock sector contributes more than 4.07 per cent of total GDP, while the dairy sector produces 121.8 million tons of milk. About 80 per cent of milk produced in the country is produced by informal economy and the remaining 20 per cent is equally shared by co-operatives and private companies (Ministry of Animal Husbandry, Dairy and Fisheries, 2014). Even with considerable growth in milk production in the last seven decades, the productivity of cattle remains relatively low. Marketing systems are also not updated or developed to an acceptable level. Given the prevailing conditions, contract farming can help in organising and streamlining dairy production and marketing. It can be mutually beneficial for both farmers and firm.

As suggested above, contract farming can provide a guaranteed supply of intermediate inputs, livestock services and market for farmers, in exchange for in-time supply of requisite quantities of milk to the processor (Birthal et al., 2006). Contract farmers receive higher profits per unit than non-contracted farmers. Also, firms facilitate in insuring livestock mortality, beyond the farmers' capacity to bear the risk. This controls moral hazard and provides enough incentives for farmers to put in their best effort.

Still this system is not free from limitations, both dairy farmers and contracting firms face various issues in terms of production and marketing. Vertical contracts between producer groups and dairy co-operatives are no solution for demand and supply imbalances. If not regularised, this system could emerge as a 'contractualised' supply control system (Parwez, 2016). The farmers face oligopsony or even monopsony situations, but also processors might be limited by lack of procurement alternatives. The benefits of contract farming seem to be skewed toward large producers mainly due to economies of scale.

The Amul Co-operative Model

The Kaira District Co-operative Milk Producer's Union was founded in 1946. It started with two village milk producers' societies pasteurising milk product in the Bombay Milk Scheme in 1948. From this start, there are 1,713 village dairy co-operative societies and almost 700,000 producer members. (see www.amuldairy.com). The trade name 'Amul' was developed and used to create a brand name for marketing purposes; now it is a household word in India.

Today, Amul is India's largest food marketing firm with an annual turnover (2016-17) of US\$ 4.1 billion. Its daily milk procurement is approximately 18 million litres per day from 18,549 village milk co-operative societies, 18 member unions covering 33 districts, and 3.6 million milk

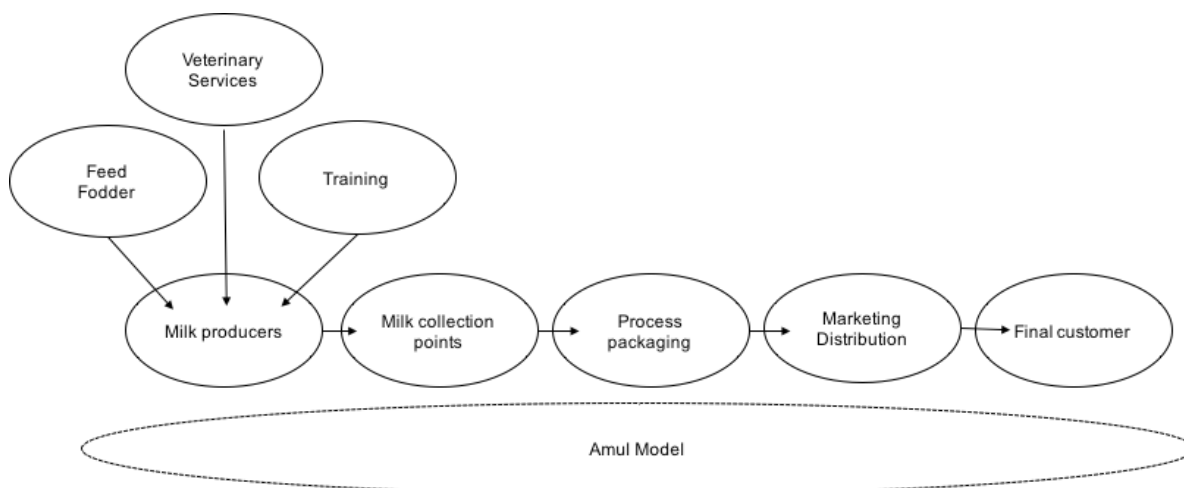
producer members. It operates from 56 sales offices and has a dealer network of 10,000 and 10 lakh retailers, one of the largest such network in India.

Apart from the technical efficiency of its processing units, the union's most striking achievements is its impact on poor farmers' socio-economic condition. By establishing a steady and remunerative market for the milk that is produced throughout the year, Amul has given farmers an incentive to adopt scientific practices to produce more milk at lower cost, thereby to further increase income.

Amul is a co-operative which has an incorporated corporate structure as approach for trade. It takes members as the participative owners of the organisation. It has merged three tiers of dairy co-operative viz., the village society (procurement unit), the union (processing unit) and the federation (marketing unit), each of them being an institution. These institutions at each level have the organic inter-institutional linkages and responsibility with sense of purpose and directions in their approach (Chandra & Tirupati, 2002). Even though Amul has hired professionals as part of its corporate structure, at each level the decision-making lies in the hands of the producers (farmers) only. This creates a sense of ownership among farmers as major stakeholders.

Figure 1 shows that the entire value chain — from procurement, to processing and marketing is guided by the farmers' association at various levels and is reflection of the co-operative approach.

Figure 1: Amul Value Chain Model



Source: Adopted from Chandra & Tirupati, 2002

This model excludes intermediaries from the picture; the co-operative collects the milk directly from the farmer's gate. There is provision of democratic election, every three years, to elect the members of the management. This leads to an environment for active participation of farmers in final decision-making. Membership in the co-operative is open to any farmer who owns at least one cow and can produce a minimum of 700 litres of milk per year. The end price of Amul products are decided by Gujarat Cooperative Milk Marketing Federation (GCMMF) — one of India's largest food product marketing organisations with 18,545 village milk co-operative societies, 18 member unions covering 33 districts, and 3.6 million milk producer members. GCMMF conducts market research and incorporate the cost of milk, manpower, processing, packaging, advertising, transportation, taxes, and other operational activities.

Amul emphasises sustainable trade relationships with farmers. Surplus supplies of milk in season (spring) is a challenge for company (management point of view) as well as farmer. Amul also procures surplus amounts of milk to ensure continuous supply throughout the year.

Amul follows specific quality measures. Technical staff of the company conduct regular monitoring of milk quality and execution of contractual obligations. Amul provides on-field

technical services to farmers, as an extension of best farm practices, through agricultural (veterinary and animal husbandry) scientists. These scientists keep regular track of farming through field visits or cell phone contact. They also keep track of field practices adopted at various stages. Farmers are provided with on spot (collection points) feedback on milk quality. Use of antibiotics by the farmers for milk production leads to punishment (low price of milk). Repeated irregularity leads to breach of contract. This model works in that the co-operative get stable supplies of milk throughout the year at constant price, and farmers get remunerative prices of milk irrespective of market fluctuation.

The functioning of co-operatives is also motivated by the maximisation of returns for stakeholders with value addition in all possible ways in the value chain. The organisation structure allows maximum participation of members and the benefits can be passed on to the stakeholders. Profit-sharing at organisational level is in accordance to the proportion of business contributed by the member. It leads to creation of sense of ownership and well-being for members.

Co-operative-led contract farming as an institutional arrangement, is economically viable in lowering the cost to the contract farmers compared with non-contract farmers. In addition, Amul promises an assured market and stable monetary return; the backward linkages help in controlling transactional and marketing costs thereby yielding higher returns for the farmers.

Discussion

Contracting in agriculture is not a new concept in India; it can be traced back to the sugarcane sector era, which was primarily organised under the co-operative structure. Although the sugarcane sector was heavily dependent on government assistance, the dairy sector evolved during the White Revolution (Operation Flood) and flourished under the co-operative commercial structure whereby millions of farmers benefited. Later, various forms of co-operatives were developed and several private and public companies forayed in the sector following the "Amul model" of co-operative operations.

On the one hand, contract farming can be another form of exploitation of the poor, plagued with limited equity, increasing socio-economic differences, and evidence of some unsuccessful schemes and problems of competitive capitalist economy. Generally, in India, contract farming is suffering from disadvantages like poor extension services, low prices to farmers driven by political economy for the produce, inherent higher risk to cultivators, frequent delays in payment, weak bargaining power of farmers, and sole dependence on companies for inputs and also credit. It has been observed that contract farmers struggle also to meet and sustain requisite quality; there are frequent delays in payment for milk and frequent price fluctuations.

Even though farmers benefit from assured market transactions on acceptable quality of produce, there is no written contract to safeguard farmers interest, which enhances vulnerability (Parwez, 2016). Policies regarding contract farming are largely absent, allowing companies to exploit farmers. Mutual trust and confidence in farm-firm relationship is a major driver for contract farming arrangements. Legal status of contracts is desirable to make agreements enforceable; but neither the companies nor the farmers are keen to approach law enforcing agencies. Hence there could be development of provision for third party intervention to resolve disputes without resorting to the courts. Marginal farmers are most affected in the case of non-compliance; often finding themselves in a 'wrong side of bargaining' position and bearing an uneven burden of the risks. A reasonable scenario for both companies and farmers is that prices are fixed in advance and an associated support system put in place as part of a contract.

On the other hand, contract farming can provide an impetus to much needed extension services, such as marketing with facilitation of information to farmers, better use of technology, building on farmers' knowledge, capacities and skills leading to improvement in farmers' lives. The need to involve farmers in to the extension process is well recognised. Participatory

and facilitation approaches enable the process further and it must be noted that, farmers' participation in contract farming is positively influenced by the effective extension services provided, follow-up visits and type of enterprise. Prowse (2012) observed that co-operative affiliated contract farmers earn higher profits in comparison to non-contract farmers.

Contract farming is not a development model but it is a business model promoted by the large enterprise (public/private or co-operative/corporate). It should not be taken otherwise; contract farming can be a medium of realisation of better income for farmers and formalisation of the agriculture sector. For large farmers, who already have several acres of land contract farming enables them to earn more income. For smaller farmers, contracting may be diversion from the risk of subsistence farming. In prevailing market conditions contract farming may not succeed further, as imbalances and gaps in bargaining power of farmer and firm are massive; to mitigate and realisation of mutual benefits requires a well-coordinated buyer-seller relationship in fair terms.

Concluding Remarks

The function of contract farming in India has been largely observed as a process of lowering transaction costs and ensuring availability of requisite products. The basic framework of contract farming provisions is not clear and exploitative in nature as there is asymmetry of information and low bargaining power. Yet, contract farming may help to overcome prevailing constraints of agriculture.

Co-operative based contract farming engages farmers in participatory approaches; it can lead to mitigation of the major limitations of extension system and dairy production. Contract farming is transforming the dairy sector, and may perform even better if regulations, infrastructure facilities, transfer of technology and target oriented policies are brought into practice. It is therefore timely and appropriate to consider the various approaches available for contractual relationships, with a view to enhance benefits and promote the social and economic development impacts of contracting in the agribusiness sector.

The Author

Dr. Sazzad Parwez is Assistant Professor at the School of Development Studies, Indian Institute of Health Management Research University, Jaipur, Rajasthan, India.

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