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The impact of contract farming on the welfare and livelihoods of farmers: a village case study from West Bengal

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1. Introduction

To help develop their economies in recent years, many state governments (especially in the global south) have been encouraging major investments by large-scale private sector companies into economies traditionally run by small, privately-owned businesses. This has involved both foreign and domestic corporations. A major consequence of the implementation of such economic policies has been the rise of corporatism and the greater involvement of large (global) firms in the production cycle. These policies have often been framed in terms of neoliberalism – a series of policies and governance arrangements which encourage privatisation and the liberalisation of markets (Barnett, 2005; Glassman 2006, Harvey, 2007a; Harvey, 2007b). The impacts of these developments on individual livelihoods have been widely discussed in the literature but often with mixed conclusions. Some argue that such expansion policies can not only provide new consumption landscapes aimed at satisfying the aspirations of a growing middle class, but also enhanced income and welfare prospects for those involved in manufacturing or farming. Other studies are more critical of these policies, discussing new landscapes of economic hardship and the negative impacts on small businesses struggling to compete with the greater economies of scale enjoyed by the larger firms (see section 2).

In view of some of the contradictions in the literature this paper provides a nuanced discussion around the impacts of the expansion of contract farming on farmers in a region of India where small-scale and low-cost livelihoods significantly contribute to the region's GDP. Specifically, we select the regional state of West Bengal (WB) where small-scale entrepreneurship in farming and non-farming sectors was developed under (Communist) government patronage between 1977 and 2011. However, following a steady decline of the industrial sector, WB has gone through a process of encouraging free market capitalism under the rubric of providing a "level playing ground" for all players- (Khasnabis, 2008:114). The redistribution policies of the Communist government in the 1970s were implemented to generate greater socio-economic equity ('Operation Barga': see Dasgupta, 1984, for more details). Within WB, we provide a case study of PepsiCo's investment in the area for the production of 'Atlantic' potatoes for the processed market (different from the fresh potato market, which we do not consider here). We do this through focus groups and a series of interviews within one village region with a wide range of farmers (large scale, small scale and marginal farmers).

The paper is structured around three key themes, for which the key findings from the existing literature are somewhat mixed (see section 2). In first place, we ask whether the farmers in this area are financially better off farming for the large corporations. Does the contract system help small and marginal farmers in particular in their constant struggle for survival, and give them greater security? Second, we ask whether farmers benefit from greater knowledge and training about farming methods which might in turn increase their income. Third, we inquire into whether farmers in the region feel that they are part of a genuine partnership with PepsiCo and what the implications are around status, power and trust. We use the focus groups and interviews with farmers in the case study area to shed greater light on the advantages and disadvantages of contract farming.

The rest of the paper is structured as follows. In section 2 we review these issues through connections with the literature. At the end of each review section we postulate a research question around each theme which we attempt to address in section 4. In section 3 we give some brief details of our research area, the nature of contract farming (namely PepsiCo India) and the details of the interviews obtained with local farmers. In section 4 we review the dialogue provided by the farmers in relation to the three main research questions identified. Section 5 provides some concluding comments.

2. Impacts of contract farming on small and marginal scale farming

This section focuses on issues raised in the literature from the restructuring of the agricultural sector around greater empowerment of corporate firms in traditional farming areas. The growth in contract farming across the Global South, and the issues this raises, have been explored in many previous studies (useful overviews can be found in Glover 1994, Eaton and Shepherd 2001, Singh, S. and Bhaumik 2008, Prowse 2012, Da Silva and Shepherd 2013, Wang et al 2014, Glover and Kusener 2016, Minot and Sawyer 2016, Ton et al 2017). These studies explore both the wide range of different agencies and business models adopted by many different types of sponsor (private sector firms, Governments, co-operatives etc) as well as the core issues around fairness and impact. Within this large body of literature, however, there are three main themes concerning the impacts of contract farming on the farmers themselves (see Eaton and Shepherd 2001 for advantages and disadvantages for the sponsors themselves). The first main issue of debate is around whether contractual arrangements between a large corporate firm and individual farmers can improve the financial wellbeing of the latter (whether large, small or marginal farmers). Eaton and Shepherd (2001) argue that small-scale farmers have the potential to achieve higher monetary returns by switching over to contract farming from their conventional subsistence-based farming practices. Kumar and Kumar (2008) suggest incomes can be double for contracted farmers in India against those without contracts, although Ton et al (2017), from a review of many studies, put that figure between 25 and 50%. The higher incomes are said to come from the adoption of diversified cropping patterns and the cultivation of higher value products (the larger corporations tend to operate in national or global markets with higher prices), the reliability of payments from the large firms (through guaranteed production quotas with secures prices) and the potential to help small farmers use more fertilisers/pesticides to improve yields and thus incomes (Runsten 1992, Eaton and Shepherd 2001, Sharma 2014, Glover and Kusterer 2016).

However, before any greater income can be received, small farmers need to invest in these technological changes in agriculture, especially to ensure the new tough quality standards demanded by corporate firms are met (Kumar and Kumar 2008, Gramzow et al 2018). For small farmers this has increased the demand for investment capital and agricultural credit. However, access to institutionalised credit remains limited for small/marginal businesses [as observed by Adams (1971) in Latin American countries; Tolentino (1988) in the Philippines; Iqbal et al. (2003) in Pakistan; Vasavi (2010) in India]. Even after intense government efforts in India to increase rural bank branch expansion programmes, the outreach of formal agricultural credit is yet to cover a considerable part of the farming community. For example, innovative government initiatives like the Kisan Credit Card (KCC) in India, designed to provide production credit for farmers in a "timely and hassle-free manner" (NABARD, 2015), have failed to help many farmers due to regional variations in availability and problems of physical access (Singh and Sekhon, 2005; Kumar et al., 2007). At times the intense financial crisis of small/marginal farmers has made them turn to local money lenders (aratdars in WB, India) to take out loans with often very high interest rates (Mosse et al., 1997, Kumar et al 2007). Given such high rates of interest, many farmers are forced to look for supplementary incomes, for example becoming labourers at construction sites. If these jobs are not sufficient to repay loans, they may be forced to mortgage or sell household assets. In India, a considerable proportion of the small and marginal farmers (more than 35% and 60% respectively) are heavily dependent on informal sources of income due to the lack of working capital (NSS Data, 2014).

In some cases, the corporate firms may help small farmers to obtain credit, by financing themselves or providing access to loans from other private sources (Eaton and Shepherd 2001). However, this may in turn produce even more financial worries for the farmers. Key and Runsten (1999:383) suggest that the contracting firms have a “superior ability to monitor and enforce credit contracts and have lower default costs than do banks”. As the farmers are already contracted to sell their products to the firms, debt can be readily extracted from the crop revenue before payment is made to the farmer. Although that might help farmers obtain credit easier, at possible lower interest rates, hardship can still result from monies being withheld by the corporate firms to service any debt.

If small and marginal farmers can benefit from greater financial returns under contract farming, one of the problems is that the smallest and most marginal farmers are often overlooked for contracts in the first place (Carter and Mesbah, 1993, Dolan and Humphrey, 2000, Singh and Prowse 2013, Narayanan 2013). Corporate firms prefer to work with larger-scale landowners as they can better facilitate the use of mechanisation. In addition, it is harder for small or marginal farmers to pay for additional costs needed to fulfil exacting contracts around quantity and quality (irrigation and energy/power costs for example, see Kumar and Kumar, 2008). Thus it has been argued that in many cases contract farming has increased rural income inequalities (Meemken and Bellemare 2020). Even if small or marginal farmers have obtained contracts, they can be the first to lose those contracts when market conditions become more challenging (Narayanan 2013, Sudha 2013). However, small-scale farmers can be preferred if they can show the capability to reduce transaction costs by establishing ‘effective’ marketing cooperatives (Reardon et al., 2009, Oakeshoot 2018, Oakeshoot et al 2013). Empirical evidence can be found in India where the formation of Mahagrapes (an export-firm run as a partnership of 16 grape-grower co-operatives in Maharashtra) has helped small farmers gain greater economic success (Bakshi et al., 2006). Mahagrapes was able to integrate some local small farmers into international markets with the adoption of suitable technology and an array of improved post-harvest operations (Roy and Thorat, 2008). Also, it has been argued that even if marginal farmers cannot obtain contracts they may benefit from ‘community-led effects’ such as technology spillovers and the availability of more farm inputs and services ((Meemken and Bellemere 2020). Given this background, the first key research question we wish to explore in section 4 is to what extent do farmers feel that they are financial better off under contract farming?

A second main advantage of contract farming given in the literature is the transfer of knowledge around good farming practices. Eaton and Shepherd (2001) and Masakure and Henson (2005) perceive contract farming as an opportunity for small farmers to enhance their technological knowledge and ‘stability’. For example, in WB, PepsiCo claims to provide farmers with a “scientifically designed package of practices” that includes “the knowledge of the correct geometry and chemical kit required for optimal harvesting”, together with “better quality seeds and ensured timely irrigation by maintaining day to day follow ups on all relevant agricultural practices” (PepsiCo India, 2010). This suggests an opportunity for local farmers to adopt more sophisticated farming techniques to upgrade their production efficiencies. In fact the company asserts that it creates a “cost-effective” and self-contained agricultural supply chain on a local basis with a wider perspective of helping farmers to increase their yield and thus economic returns (PepsiCo India, 2017f).

However, the provision of technical support or market information from the contracting firms may actually result in additional financial hardships for the small farmers (Hayami and Otsuka, 1993). High transaction costs for supervision, training and co-ordination of financially and technologically challenged farmers usually outweigh the relative advantages of cheap family labour. Thus the second research question we posit is to what extent do the farmers believe that corporate contracts bring significant advantages for knowledge acquisition around better farming techniques and thus greater economic returns?

A third theme in the literature concerns issues around partnership, power, trust and fear. Akram-Lodhi (2007:1437) argues that the "commodification of rural labour" is actually the other face of "widespread semi-proletarianisation". However, many corporations argue that the farmers are actually partners in the supply chain. For example, PepsiCo claims to work with its contracted farmers as a "friend and development partner" with a broader perspective of helping them to "grow more and earn more" (PepsiCo India, 2017f). Such a partnership framework sounds quite promising if the potential of higher revenue to the small-scale farming sector is considered. Additionally, it also denotes a favourable future for the farmers in terms of their socio-economic status.

However, many argue that the partnerships are not equal and indeed the corporations hold all the power, especially in relation to the granting and removing of contracts (Eaton and Shepherd 2001). First, there are concerns over 'exploitative' terms/conditions, given that most corporate firms insist all produce is sold and marketed by themselves (Singh 2000, Vermeulen and Cotula, 2010). "This diminutive bargaining power is compounded by the fact that, unlike their larger counterparts, small growers do not have the option of marketing their produce in alternative ways" (Murray, 1997:53). In addition, Glover and Kusterer (1990) and Grosh (1994) argue that the large corporations often overcharge for their services, make delayed payments and may not explain their pricing policies to farmers. Pricing policies can often also be altered without warning (Chouan 2013). Indeed, a major report by FAO in 2016 (Batt al 2016) called for more flexibility within contract farming to protect farmers against price fluctuations.

The second major power issue is that surrounding quality control. The corporations usually have exacting standards in terms of the quality of the products. Produce rejection is common and can lead to genuine concerns for small farmers. There is very little in the literature on how small or marginal farmers cope with such situations, although a number of studies consider side-selling as a potential response from small/marginal farmers (Glover and Kusterer 2016, Eaton and Sheppard 2001). This is an important theme for us to pick up on later.

It has also been argued that contract farming can provide some new power-related (or status related) freedoms for small or marginal farmers. Gidwani (2002) argues that certain 'development' outcomes can endow the poorer section with new 'freedoms'. The introduction of new (advanced) resources can potentially alter the prevailing rural power structures by curbing the dominance of the 'local elites'. For example, widespread access to the canal irrigation facilities opened up newer income opportunities for the local poor in rural areas of the Indian regional state of Gujarat and also led to the faded supremacy of the upper caste landowners (Gidwani, 2002).

Thus, research question 3 is broken down into two parts. First, to what extent do farmers believe they are part of a partnership with PepsiCo, and second, to what extent have fears over quality control and contract termination added new problems related to stress and tension, and led to new coping strategies which may not be actually technically legal?

3. Data and the study area

The field site is a 'mouza' (a census village consisting of several hamlets) located in the community development block of Memari-I within East Bardhaman district in the Indian regional state of West Bengal (WB). We call it Rukminipur for here onwards to protect individual confidentiality. The village consists of around 700 households with about 3000 persons in total. About 25% of the population are employed in agricultural activities (District Census Handbook of Bardhaman, 2011). The farming activities predominantly centre on the production of two major crops, paddy rice (specifically Aman) and potato. An above-average yield rate in comparison to those of the district and the state indicates the importance of potato cultivation in Rukminipur. Potato is the cash crop that generates the major share of revenue for local farmers.

The key corporate business in the agricultural sector in Rukminipur is PepsiCo India, which has developed a vertically integrated supply network across India to procure the required agro-products from farmers, “combining deep insights into Indian farming with [PepsiCo’s] global technological expertise to transform the lives of farmers” (PepsiCo India, 2017c). Gulati et al (2008) provide a good history of Pepsi’s history of contract farming in India. PepsiCo’s Frito Lays is the dominant player in WB, specialising in processed potato foodstuffs with a 45% market share of the 19 billion INR worth of ‘branded (organised) snacks market’ in the state. PepsiCo works with the local farmers to procure their “processable varieties of potatoes” (FPIS, WB, 2013:3). Farming is a huge project for PepsiCo, implemented across nine regional states (WB, Maharashtra, Punjab, Gujarat, Uttar Pradesh, Karnataka, Bihar, Haryana and Chhattisgarh) incorporating over 24,000 farmers. PepsiCo India incorporates some of the local potato growers into their vertically integrated supply chain for procuring potatoes for potato snacks (under the Frito Lays brand). The farmers in the study area produce ‘Atlanta’ potatoes, popularly known as ‘Pepsi potatoes’ among local people. PepsiCo has been present in the study area since 2012.

A focus group approach was selected to capitalise on interactive discussions with several different categories of farmers. This approach involved conversational sessions that made the participants more relaxed and willing to participate. We intended to use a purposive sampling technique at the start but word of mouth (a type of snowball approach) in the end gave us access to virtually all farmers in the village (only a few did not take part). The categorization of farm size was undertaken using the National Sample Survey (59th round survey) guidelines based on landholding size – large (more than 10.00 hectares), medium (4.01–10 hectares), semi-medium (2.01–4.00 hectares), small (1.01–2.00 hectares) and marginal (0.01–1.00 hectare) (Reddy and Mishra, 2008). In line with the characteristic features of the state, the study area is dominated by small and marginal farmers. In Rukminipur 75% of all farmers belong to either of two categories: ‘small’ (endowed with 1.01–2.00 hectares of land) or ‘marginal’ (endowed with 0.01–1.00 hectare of land) category. Our focus groups consisted of 14 small-scale farmers and 13 marginal farmers, 2 medium-scale farmers and 1 large-scale farmer (see table 1). We also engaged 3 semi-medium farmers and 3 share-croppers to identify the specific livelihood challenges across different sub-sectors of farming (39% were thus small farmers while 36% were marginal). The medium and large farmers included in our sample set were the only farmers in the entire village falling in their respective categories, and all three were contracted farmers. However, only 42.9% of the small farmers in our focus groups were contracted to PepsiCo, whilst none of those in the marginal category were contracted. Additionally, none of the participant marginal farmers had been incorporated into PepsiCo’s localised supply chain.

Initially it was challenging to gather participants due to the lack of any prior familiarity with local people. Our first contact, provided by the Department of Geography, University of Burdwan, was with one of the large-scale farmers who later on introduced some of his colleagues. The first agreed participants also volunteered to call their colleagues and we took the opportunity to involve new participants in this way. Eventually 36 farmers were involved in 7 focus groups, each having about 5 participants depending on the farmers’ availability. The focus group discussions were facilitated by the first author. The discussion with each focus group took around 3 to 3.5 hours. At times the participants became passionately involved while discussing their livelihood issues. Sometimes some had to leave in the middle of the discussion for work reasons; sometimes they were reluctant to share personal viewpoints on certain complex or delicate issues. Fortunately, following the focus groups, all the participants agreed to an additional one-to-one interview. Each interview took about 1.5 to2 hours. Prior familiarity with the issues helped them to become more open and even at times outspoken. All discussions and interviews were in the local language (Bengali) and were recorded using a Dictaphone. The material was later transcribed by the first author and analysed using standard data analysis software. Both the focus group discussions and interviews have been used as the source of quotes in the following sections.

		No. of participants involved	
Farmers (by holding size)	Large	1	36 in Total
	Medium	2	
	Semi-medium	3	
	Small	14	
	Marginal	13	
	Share-croppers	3	

Table 1: Summary of participants

In the next section we explore issues around the three key research questions postulated in section 2. Note all names have also been anonymised (to preserve confidentiality) but refer to real people who were interviewed or in the focus groups.

4. Issues around contract farming in Rukminipur

On the basis of the literature and our empirical findings, this section looks at the major issues that have been prominent in Rukminipur as a result of the introduction of PepsiCo business strategies. Here, we analyse the most pertinent issues surrounding the impact of the growth in contract farming, to gauge whether PepsiCo has brought any constructive changes that have improved the livelihood of small-scale farmers (or might do so in the future). The issues considered in this context relate to the main research questions raised in section 2, namely, income security, knowledge and information transfer and partnership, power and trust.

4.1 Income security

As seen in section 2, a key argument around contract farming is that market-responsive non-traditional crops often require greater investments in mechanisation and farm inputs creating a higher demand for production credit. PepsiCo claim that their contracted potato growers are provided with superior seeds along with other inputs and farming implements which are "free of charge" (PepsiCo, 2017f). They also claim to be in partnership with the public-sector State Bank of India (SBI) to "help farmers get credit at a lower rate of interest" (PepsiCo, 2017f). However, most of the farmers we interviewed were not aware of this collaboration with SBI and the easier access to institutionalised credits, though they acknowledged the provision of essential farm inputs by PepsiCo. Jayanta Mukherjee (a medium sized farmer engaged with PepsiCo) who usually prefers production credits from institutional sources endorses the investment policies of PepsiCo:

> "This is good practice especially for those who are reluctant to approach the institutionalised credits because of lengthy and complicated official procedures. The contract will

> automatically allow you to access all the farm inputs and loans will be recovered through fixed prices for the product. I have been producing for the last two productive cycles for Pepsi and it seems to be quite a fair deal so far."

Sukhen Mondal is a small farmer without a contract and thus dependent on the traditional aratdari money lending system. The experiences of his colleagues make him appreciate contract farming as far as production credit is concerned:

> "I think this system is far better than the existing procedures dominated by the aratdars. In these contracts at least the farmers will be aware of the price to be received after the harvest and that is with all the adjustments for credit made in a transparent manner."

An additional advantage spoken of by the farmers we interviewed was the insurance scheme offered by Pepsi Co in case of unforeseen circumstances, such as crop failure or unsatisfactory production due to pest attack or natural hazards. For example, in the study area, potato blight is a very common problem causing frequent losses in crop production. The risk is always higher for potatoes and other commercial crops as the production costs are higher than those for traditional crops like paddy rice. Additionally, price swings due to market fluctuations can expose local farmers to further financial vulnerability. Such market imperfections are completely beyond the control of the producers irrespective of the size of their holdings; nor will any financial institution insure the crops against market fluctuations. In contrast, PepsiCo's "assured buy-back mechanism at a prefixed rate with farmers" does seem to help insulate the farmers from market uncertainties. Local farmers agreed that contracts insure them against probable market risks with the help of the offer of pre-determined market prices. Shahid Ghosh, a medium sized farmer (with 8 hectares of land) rationalises the advantageous aspects of contract farming in terms of an insured economic return:

> "If I have a contract with some firm, there must be a guaranteed income. You can always have a confirmed calculation of net profit before you sow the seeds".

A guaranteed income was very much seen as an advantage by many contracted farmers. The poor market for potatoes, coupled with excessive production, has increased the income instability of the potato growers over many years. Shahid Ghosh (a medium farmer practising contract farming) remarked that the fixed rate of Atlanta potatoes has secured their income:

> "While potato farmers are getting more indebted due to the chaotic market fluctuation across the state we, the 'Pepsi-farmers', are receiving a good price along with an advantageous profitable return."

Potato production in WB has tended to run in a 'boom and bust cycle' (FPIS, WB, 2013). However, the average price offered by PepsiCo has remained steady at around 350 INR for a 50 kg bag of potatoes in 2014 and 2015. This is in line with the price farmers would expect in a good year. For example, producers in Rukminipur experienced a good monetary return from potato farming in 2014 because of higher market demand. The farmers report that the average market price after the harvest was around 350 INR per 50 kg bag, which increased to 450 INR later. However, in 2015 the situation turned from 'boom' to 'bust'. The previous year's profit led to average productivity rising, but that led to a setback to the non-contracted farmers as the traditional buyers of WB potatoes -- that is, the states of Odisha, Bihar and Jharkhand and the North-Eastern states -- moved to reduce their dependence on WB, and overall production increased by 25-30% across all potato growing states. Consequently, a rise in production of 15% in WB resulted in a drop in price to a low point of 140 INR per 50 kg bag (Ghosal, 2015). Therefore, most of the farmers, irrespective of their contractual status, were positive about the income certainties provided by the contracting terms. Jayanta Mukherjee (a medium sized farmer contracted with PepsiCo) explained that contract can safeguard their "two square meals a day even during the 'bust' time".

Additionally, farmers seemed happy with the regularity of payments received from Pepsi Co. Asit Guin remarked, "Pepsi is very particular about payment and also pays on time. We usually receive the pre-determined amount (either in cash or by cheque) within 5 days of selling."

He also asserted that his involvement with PepsiCo was a way to materialise his "dream of a better life". He thinks that this involvement will not merely save him from the debt traps of informal creditors but also will uplift his social status:

> "I want my son to get a proper education and do some white collar job. I just work hard to feed my family and cannot really do anything more than that. Can I make my son an engineer without adequate money? I agreed to work with PepsiCo just to receive an assured income which is impossible to earn from the aratdar-dominated supply network. Moreover, an assurance of income also keeps your family in peace."

It seems that the provision of a steady income has helped farmers earn a kind of psychological stability. It remains difficult, however, to estimate the long term financial and social implications of such contractual agreements. Farmers whom we interviewed indicated that they are content as long as their expectations of financial outcomes are satisfied because they can leave aside the hurdles presented by intermediation and market upheavals. The main advantage of the contracts are, perceived as a potential solution to usurious informal loans.

Despite the advantages discussed above, a major issue raised in section 2 was the degree to which small and medium farmers have been able to engage with corporate firms like PepsiCo. As noted in section 3, the actual rate of participation in PepsiCo's supply chain in Rukminipur is lowest among small farmers, with only 42.9% contracted to PepsiCo, and none were contracted from the marginal category. Therefore, the situation in Rukminipur seems to immediately contradict PepsiCo's corporate statement 'to engage the small and marginal farmers with a broader perspective to transform their socio-economic lives'. As noted in section 2, small and marginal farmers are less favoured because of their small plot sizes and the difficulties this raises for mechanisation. PepsiCo argues that in WB, the problems related to size of holding relates back to the redistribution policies of the Communist government in the 1970s mentioned in the introduction.

The focus group discussions with local farmers made it clear that the dearth of ideal 'operational holdings' had become a major constraint to land productivity. Dinesh Ghosh, the only large farmer in Rukminipur, blames the land redistribution policies of the former Communist government for the current insufficiency in crop intensity as the proper implementation of technological knowhow appears to have caused a "setback" in small/marginal holdings:

> "The land redistribution has created a number of land-owners with tiny plots of land; but how many of them have the money to access advanced technology? Even if the small farmers hire some equipment where would they employ it? The plots are so small and fragmented that tractors, sowing machines, etc. cannot be operated properly in a cost-effective way. Less agricultural productivity would ultimately make the state suffer and we farmers are experiencing the results first hand."

When he was asked about his perceptions of working with PepsiCo to increase land productivity, marginal farmer Balaram said:

> "I try everything … be it pesticide or tilling with a tractor. I do not have any idea about the ideal productivity that I should have…. One thing that I realise seeing my colleagues is that being in touch with a big company like PepsiCo can help you improve your production… because the company has its own interest in your progress… Moreover, access to high quality

> inputs gets easier without any financial hassles [as a PepsiCo farmer] …but my farm size might be too small to attract them".

Marginal farmers like Balaram might not be aware of the practical corporate strategies related to economies of scale or transaction cost; but his narrative is very much indicative of the frustration of not being involved in the corporate supply chain simply because of his marginal status (despite being a landowner). Prakash Guin was another independent marginal farmer who had a good understanding of the practical difficulties of fragmented landholdings (he has a BSc degree). He shared his opinion on the same issue:

> "My family lost about 1.5 hectares of land property during 'Operation Barga'. My father's 4 hectares of land has now got partitioned among my four siblings and I became a 'marginal' farmer. I try to spend money for the best inputs or technologies since I also run a small manufacturing unit of thermocol glasses. However, the limited boundary of my land has restricted the trouble-free use of tractors or sowing machines…. I do not think even PepsiCo can solve this problem unless they try to merge the neighbouring lands… but that could raise a number of complicated issues with my neighbours."

To conclude this section, it seems that many larger-scale contracted farmers feel they now have greater security in terms of payments at guaranteed prices. For the contracted small farmers however many feel they have more debt as a result of the need to access new machinery and farm inputs in the search for higher production. This has involved more engagement with local money lenders who generally have higher interest rates. For marginal farmers it seems very unlikely that they can ever enjoy the required economies of scale in order to enjoy any financial benefits of contract farming.

4.2 Knowledge and information transfer

As noted in section 2, a key issue surrounds knowledge transfer and whether contract farming produces more knowledgeable farmers and hence better quality products (and potentially more revenue to the farmers themselves). Most non contracted farmers tend to use farm inputs with less expertise than contracted farmers. They still hugely depend on the local aratdars and company agents for the selection of inputs as they rarely come across government arranged training sessions or can avail themselves of soil nutrition expertise. These agents and aratdars seldom seem to transfer appropriate knowledge about the application of those inputs. They seem mostly interested in endorsing certain products in order to obtain commissions for themselves. This posits a threat to the land and the environment as a whole.

Tapas Hansda, a non-contracted marginal farmer surviving on informal credit, shared his experience:

> "The products of the renowned companies are rarely sold here. I use whatever is recommended by the aratdar and employ those fertilisers or pesticides based on an approximation following what I have seen my family do. Where else would I get to know how to use what?"

Salil Mahato (a non-contracted marginal farmer) discussed the malpractice of "push selling" by the aratdars:

> "The aratdars are usually more interested in selling the products of specific companies to win prizes and commissions by achieving certain targets. I neither have my own capital nor do I have any other contacts to ask for the required inputs. What else can I do other than take production credits from the aratdars in terms of farm inputs?"

In Rukminipur, the call centre project (Kisan call centres – see section 2) seems to have been of limited effectiveness. Our interviews indicated that the majority of the farmers were heavily dependent on aratdars or company representatives rather than having first-hand knowledge of inputs and technologies. Some small farmers (especially those who came across PepsiCo's methodical farming techniques) confirmed that they realised the significance of scientific knowledge and training. As Shahid Ghosh explained:

> "Proper training can improve production and also can help to maintain soil quality. For example, purchasing the pesticides does not mean your potatoes will be saved from blight. You must have thorough knowledge about how to apply it. Conducting one or two training programmes in a year at the level of the block might not be enough. PepsiCo representatives do these things for us. Though it is specific training for their prescribed Atlanta seeds, still it makes me learn a lot."

Here it seems that PepsiCo has managed to earn the confidence and trust of its contracted farmers as far as the production of Atlanta potato is concerned. Still the general gap in knowledge and information about scientific utilisation of farm inputs cannot be overlooked. For example, Nabendu Ghosh is a small farmer practising contract farming with PepsiCo. He is "satisfied" as far as PepsiCo's methodologies are concerned:

> "I do not have to think much about which input is to apply and how; because PepsiCo makes me cultivate following certain prescribed methodologies. For example, they train us how to use pesticide, which time of the day is the most appropriate to spray the pesticide, etc. This helps us protect the potatoes from blight and lessens the risks of crop failure."

Dinesh Ghosh (the only large farmer in the entire study area), in spite of being confident and well-informed about government services that he could access also emphasised the advantageous gains of PepsiCo contracts in terms of knowledge transfer and training:

> "The actual crop intensity and productivity will rise in a scientific way only if the government representatives come door to door. I have a college education and I can use facilities like Kisan Call Centres; but some of my colleagues do not even know what a call centre is and how far it can be helpful for their livelihood…. My experience says contracting with a company like PepsiCo can solve this problem to a certain extent."

In addition to this, Dinesh Ghosh attends agricultural seminars and training sessions regularly on his own personal initiative. He notes that he also listens to the company representatives and agents (sometimes aratdars, too) concerning their products and then takes advice from the call centre helplines. He has also registered himself with the helpline service of Bidhan Chandra Agricultural University, WB, from where he gets expert advice either through phone calls or through SMS alerts.

However, returning to financial matters raised in section 4.1, knowledge gained can come at a price. Carrying soil samples to the Agricultural Department's local offices, for example, is not only a time consuming matter, but also involves transportation costs. The small farmers who work on their own land just to save the cost of hired labour may not be able to afford a single day off given the costs of money, labour and time. This evokes the need for in situ supervision and guidance from experts for non-contracted farmers. Currently, state-provided training facilities do not appear to be helping farmers sufficiently whilst PepsiCo's supervision along with organised training and provision of customised solutions for greater agricultural sustainability has helped them to gain the trust of local farmers. Therefore, the expectation is that local farmers in Rukminipur will be better organised in future taking advantage of contract farming.

To conclude, it seems that for all farmers the lack of training opportunities (and in situ demonstrations) has created a general dissatisfaction as most are eager to preserve and enhance land productivity. However, those in a contractual arrangement with PepsiCo find it does offer an opportunity to achieve greater sustainability through the adoption of more scientific farming methods. Our field research found that corporate contracts can be most effective for those small farmers whose usual practices are likely to jeopardise the long-term nutritional value of the land. However, knowledge transfer and training for a specified crop (Atlanta potato) cannot safeguard the entire production culture of the study area, where the unscientific or disproportionate application of agro-chemicals like fertilisers, pesticides or HYVs etc. is a prevalent practice. Non-contracted farmers desperately need more Government help so that they too can raise their general awareness of new technologies and hence raise their farming standards.

4.3 Partnership and tensions

In section 2, we discussed broad issues relating to partnership, power and trust. The first question we raised here was to what extent do local farmers feel in partnership with Pepsi Co India? The term partnership presumes a reciprocal feeling of fairness. In this section we discuss how far this reciprocity of partnership is working in Rukminipur.

Asish Das, a small farmer with 2 hectares of land, has been contracted to PepsiCo for the last two years (as of December, 2014). When he was asked about any special attachment or realisation of partnership with Pepsi Co he stated clearly:

> "I do not know what kind of partnership you are talking about. What I can only understand is that I am under contract with PepsiCo and am legally responsible to conform to their prescribed pathways as far as the production of 'Pepsi-potatoes' is concerned. They are also in agreement to provide the production inputs at the start and my remuneration at the end of the production cycle. To me, the contract is as simple as that."

A similar response came from Dinesh Ghosh, the only large farmer in Rukminipur. He also considers such contracts to be a "formal buyer-seller relationship that demands a commitment from both sides". He added:

> "I think both of us have equal interests and expectations out of such an association. For example, I personally prefer to be contracted with PepsiCo for a steady income along with the hassle free marketing of my products; while PepsiCo needs me to satisfy their essential demand for potatoes. If this association is a 'partnership', then we are partners. However, I doubt if anyone of the 'partners' would be ready to help the other if the contract terms are violated. Does Pepsi ever show interest in low quality products just because a farmer has produced them with a lot of hard work? Similarly, I would always expect a timely payment at the fixed rate."

His awareness of a partnership (in the contractual relationship) does not accord with PepsiCo's assertion. Dinesh put it this way:

> "If I am a 'partner', I should enjoy the share of profit that PepsiCo earns out of the processed food made from the potatoes grown on my field. But I have the right to claim the price only, that too at a pre-secured rate."

The second key research question relates to an area less well advanced in the literature, namely the consequences of the power of Pepsi Co to both initiate and terminate contracts with local farmers. The biggest concern of farmers in Rukminipur was clearly around the constant fear that contracts will be terminated, normally because of poor quality. Eaton and Shepherd (2001) note that some contractors have used quality for example simply as a way to reduce purchases in times of oversupply whilst honouring contracts. Contracted small farmer Asit Guin expressed his apprehension:

> "I am afraid of the high rejection rate of PepsiCo. Even after following their prescribed methodologies, all the products do not always match the specification criteria. PepsiCo is very paranoid about the size of potatoes which should be almost like a cricket ball. If the size does not match even a bit, they will refuse to accept it."

The assurance of the buy-back mechanism (PepsiCo India, 2017f) is very much criteria-specific, keeping the farmers under constant pressure to meet the company's expectation levels. The stress is also felt by the medium and large farmers. Dinesh Ghosh, the contracted large farmer, was also worried by PepsiCo's crop rejection policies:

> "As they are providing the required inputs, it is quite normal that they will be very selective when picking their products. On the other hand, I have to accept their decisions as I have agreed with their terms and conditions. Sometimes it really gets tough to satisfy them even with maximum effort."

Surprisingly, the fear among contracted farmers of having their crops rejected has trickled down to those who are yet to experience contract farming. Some of these farmers were unenthusiastic about signing corporate contracts, reporting that they preferred to avoid such psychological and economic pressures. Sukhen Mondal, a small farmer expressed reluctance to be contracted to PepsiCo after observing the experiences of other colleagues:

> "Pepsi demands potatoes of a specific size… say around 180-200 grams. But here we usually do not produce such potatoes. This strict criterion stops me from signing a contract. What would I do with the rejected potatoes?"

This apprehension around crop rejection has created a reluctance among many of the non-contracted farmers to get into an agreement with a corporate firm. This apprehension is magnified by the fact that the alternative market for the Atlantic potato is extremely small. Whilst some studies have focused on the economic setbacks suffered by contracted farmers due to high rates of product rejection (e.g. Coe and Hess, 2005; Erappa, 2008; Ariza-Montobbio and Lele, 2010) we have discovered another important issue relating to the growing adoption of certain malpractices to try to offset and recoup income from rejected products (an issue also raised by Glover and Kusterer 2016 and Eaton and Sheppard 2001). Some of the interviewees reported that contracted farmers often covertly sell their products (grown from PepsiCo seeds) to intermediaries not only when they are burdened with a rejected quantity of potatoes but also if the market price goes higher than the contracted price. Dinesh Ghosh, the large farmer, remarks:

> "In 2014 the price of potatoes was much higher in the open market than the price offered by PepsiCo. Most [contracted] farmers kept aside a certain quantity of the output to sell in the open market, mixing it with the locally grown Jyoti potatoes. It is not only about being deceitful to PepsiCo, but it is something dishonest towards the consumers too. The potato seeds Pepsi provides are exclusively meant for making chips/crisps and these potatoes will be of no use for domestic consumption. Believe me, people cannot do anything with that kind of potato (which are tasteless) at home, neither boiled nor curry….nothing…. This is ultimately a waste."

Dinesh Ghosh's statement raises a critical question on the future adaptability of the farmers to the new business environment. Dinesh Ghosh went on to say that, "Such dishonest practices are very common everywhere. This is not as if the farmers in this village are doing it for the first time." Interestingly, he added that some farmers are "not shrewd" enough to perform such fraudulent activities by themselves and have elicited the help of some PepsiCo agents:

> "I must say there remains an obscure agreement between the farmers and the local PepsiCo agents through whom the company is running the contracts. PepsiCo cannot monitor each farmer's land to make an exact estimation of the ultimate production…. Therefore, the agents also enjoy their share of income derived from these illegitimate dealings."

So, the responsibility for unethical practices appears also to be shared by the local agents. In addition to the more frequent practice of selling outside the contract, another unethical practice was disclosed in the interviews as most of the contracted farmers confessed to mixing up the rejected output of Atlanta potatoes (produced from PepsiCo seeds) with the fresh potatoes produced by them independently. Tarak Ghosh (a semi-medium farmer) confessed:

> "Say PepsiCo has rejected 10 bags of potatoes which weigh about 500 kg. Now what will I do with this many rejected products? Sometimes, I mix them up with the Jyoti potatoes and go back to an aratdar to access the market…. I know I am deceiving my customers, but I do not have the capacity to withstand the loss. Pepsi provided the seeds or other inputs. But I had to invest on my own, too. For example, the expense for irrigation is as high as 1000 INR per bigha. If I am borrowing money from some other source to use such essential facilities, I have to repay that, too." (January, 2015)

In Dinesh Ghosh's opinion, such unfair practices have grown because of the company's inflexible contracts demanding higher quality: "If Pepsi takes the cream of the milk, then where to sell the slurry part? This is the reason why the poor farmers sometimes get distracted from their moral responsibilities." Being a large farmer Dinesh Ghosh once tried to negotiate with the local agent of PepsiCo on behalf of all the contracted farmers:

> "I really feel bad while thinking of such deceitful activities. We are answerable to our customers…to the society. That is why I approached the local vendor so that the rejected potatoes could be picked up by PepsiCo at a negotiable rate. But the company contracts are too rigid to enable attention to be paid to our appeals." (December, 2014)

This sub-section suggests that PepsiCo India's theoretical assertion of functioning as the "friend and development partner" of the farmers can be challenged from the perspective of the power relations which seem to be still strongly in their favour. Many of the local farmers seem to be under complete corporate control in return for the luxury of receiving a fixed price for their crops at the end of each cycle. This control causes fear and anxiety for even the larger-scale farmers and may ultimately put off nay marginal farmer contemplating contracting.

5. Conclusions

As ever the question of who gains and who loses is a complex one. The larger contracted farmers have been better able to adopt machinery and new chemical inputs and have generally benefited from greater income security and better training. The contracts have also helped those many small farmers who have been and would otherwise be in debt to the informal moneylenders and who struggle to access scientific farming methods. The farmers seem happy that they receive timely payments which are made on the basis of a fixed rate, thus securing a certain amount of income, independent of market uncertainties. Another advantage is that the contracted farmers' output is now insured against market risks (by means of pre-determined price rates), a service that is not offered by any bank or insurance company. A detailed quantification of income security and changes in the standard of living of farmers could usefully form the scope of a future study.

However, there are clearly concerns voiced by the farmers over contract farming in Rukminipur. To gain more resources to farm more efficiently (more mechanisation and chemical inputs) small-scale farmers have often had to go more frequently to the local money-lenders and pay higher interest rates. Finance and labour constraints have also made it more difficult to leave their land to benefit from corporate training schemes. However, the major concern is over quality control. If the quality fails to reach expectation, the product is rejected and thus the premium is extracted through the nonrepayment of the price of those products for which the cost of inputs was borne. Unfortunately, product rejection is a common practice by PepsiCo if the product does not attain their prescribed standards. Product rejection has kept the local contracted farmers under constant psychological pressure, which often outstrips the anxiety they used to face from market fluctuations while working independently. The anxiety around product refusal has spread to such an extent that many non-contracted farmers are reluctant to go into any corporate contract even discounting the advantages of an assured income. In this context, we see a window for future research analysing the economic and psychological impact on contracted farmers occasioned by quality monitoring and product refusals by the contracting firm. This research would include analysis from the standpoint of corporate representatives assigned to quality monitoring and buy-back procedures in order to provide a rounded picture.

A by-product of the concern around quality control is the rise in innovative ways in which the contracted farmers 'cheat' the system. Contracted farmers often covertly sell their products (grown from PepsiCo seeds) to intermediaries not only when they are burdened with a rejected quantity of potatoes but also if the market price goes higher than the contracted price. The piling up of rejected Atlanta potatoes (which are of no use in domestic cooking) with locally grown Jyoti potatoes (to again be sold to intermediaries) has also become a common practice in the study area. These are some of the ways the farmers try to overcome the psychological stress of economic loss, perhaps at the cost of their ethical responsibilities to society (and to their employer too). Thus, one upshot of the contract system is an increase in illegal activities in relation to the distribution of the final products. These tactics reveal how contracted farmers cope with difficult situations, an issue rarely discussed in the existing literature.

However, none of these issues apply to most marginal farmers who remain largely locked out of the contract system as their lands are simply not large enough for mechanisation. Even if more would be given contracts (perhaps after land consolidation) the fears over quality control are likely to be too great for this sector to contemplate linking up to the corporate world.

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