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Article *in* Economic and political weekly · February 2010

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Rethinking Agricultural Production Collectivities

BINA AGARWAL

In the face of persistent rural poverty, an incomplete agrarian transition, the predominance of small and marginal farms and a growing feminisation of agriculture, this paper argues for a new institutional approach to poverty reduction, agricultural revival and social empowerment. It makes a strong case for a group approach to agricultural investment and production by promoting collectivities of the poor which, it argues, would be much more effective on all these counts than the traditional individual-oriented approaches. The collectivities proposed here, however, are small-sized, voluntary, socio-economically homogeneous and participatory in decision-making, in keeping with the principles emphasised in a human rights approach to development. The paper describes a range of successful cases of agricultural production collectivities from the transition economies and south Asia. It also reflects on the contexts in which they may be expected to succeed, and how these efforts could be replicated for wider geographic coverage and impact.

Bina Agarwal (*bina@iegindia.org*) is at the Institute of Economic Growth, Delhi.

1 Introduction

Grass roots action across the globe demonstrates that collectivities of the poor can improve their well-being in ways that individual approaches usually cannot: it can enhance their incomes, their self-respect, their ability to challenge structural inequalities and oppressive social norms, and their bargaining power in markets, at home and with the state. The process of empowerment is especially important – one that recognises the poor as agents rather than simply as welfare recipients – and is more likely to bring long-lasting gains. Globally, rural areas contain 2.1 billion people living on less than $2 a day (and 880 million living on less than $1 a day). Most of them are involved in agriculture (World Bank 2008). The majority are small and marginal farmers, many are landless agricultural labourers, and in recent decades an increasing proportion are women. An estimated 70% of those living in absolute poverty globally are women and the number of rural women living in absolute poverty is assessed to have risen by 50% over the last two decades relative to 30% for rural men (figures cited in the UNIFEM web site 2008).

In most developing regions there has also been a highly gendered agrarian transition, as men in notably larger numbers than women have moved to non-farm jobs. In India, for instance, agriculture contains 57% of the population but contributes only 18% of the gross domestic product. Agricultural growth rates are low and the agrarian transition has been slow and clearly gendered. As men move out of agriculture those left behind on farms are increasingly women, leading to a feminisation of agriculture. In 2004-05, 49% of male workers but 65% of all women workers and 83% of rural female workers were still in agriculture (NSSO 2004-05), and their percentage is rising. An estimated 35% of households are de facto female-headed from widowhood, marital breakdown, or male outmigration (GOI 1988),[1] and overall 38.9% of all agricultural workers are women (NSSO 2004-05). Many are uneducated and possess few skills beyond farming. The demographic profile of the Indian farmer today is thus a far cry from the young, articulate, new-technology-seeking profile popularised in the 1970s Krishi Darshan TV programme. Farm size is also falling: 70% operated less than 1 ha in 2003 compared with 56% in 1982 (GOI 2008), and landlessness is growing (Rawal 2008). Women constitute most of the landless, typically owning no land themselves even when born or married into landed households (Agarwal 1994, 2003). Indeed, given intra-household inequalities in resource distribution, there are poor women in non-poor households whose work contributions (as unpaid family workers) are usually invisible, and who remain atomised and isolated as workers.

Also, although there is a now a growing recognition that for higher agricultural growth we need substantial investment in rural infrastructure, crop research and improved farming practices, there is rather little recognition yet of the demographic shift towards female farmers. Nor is there enough engagement with the question: will small and increasingly female farmers be able to take advantage of this infusion of infrastructural investment, and overcome constraints of scale and access bias?

In this paper, which could be characterised as a policy think piece, I argue that for alleviating rural poverty, and especially poverty among women, as well as for energising agricultural growth, we need a new institutional approach – *a group approach* – to rural development. Such an approach could prove to be much more effective than individual-oriented approaches, for tackling deprivation among agrarian populations and enhancing their productive potential, especially in resource-scarce circumstances. In other words, we need to explore a wider range of institutional arrangements for farming than simply single family cultivation which is the norm, and is often assumed to be a more efficient form of enterprise than a collectivity. I use the term "collectivity" rather than "collectives" or "cooperatives" to encompass all forms of joint farm enterprises, and to transcend the particularity associated with these earlier terms.

The form that an agricultural collectivity takes could vary, as could the level of collective endeavour, ranging from simply joint investment in capital inputs to joint production. I outline the potential gains from agricultural collectivities, especially joint farming, and examine their prospects for enabling the rural poor and especially women to become agents of their own empowerment.[2] I argue, however, that the structure of such collectivities would need to be rather different from the early historical experiences of collective farming in socialist and other contexts. In particular, the new collectivities would need to contain significant elements of a human rights-based approach to development, especially equity, accountability, participation and the empowerment of vulnerable groups.[3]

To demonstrate that such collectivities are not simply a theoretical construct but have a basis in contemporary reality, I focus on two types of examples. One relates to countries which undertook farm collectivisation and subsequently de-collectivised, but where, despite the option of individual family farming after decollectivisation, many households chose to form new production cooperatives. The other relates to women's group farming in south India. Although yet other types of production collectivities also exist, such as those formed around fish production or community forestry, group farming is of particular interest since it relates to a major resource – agricultural land – and there are vast numbers dependent on it for a livelihood. Access to land and the ability to cultivate it productively can also prove crucial to realising the right to food, which is becoming increasingly difficult to fulfil with rising food prices and grossly unequal access.

Since group farming has a long and largely unsuccessful history, I first briefly spell out the central features that are seen to underlie the failure of earlier efforts on many counts. I then outline the very different characteristics that agricultural collectivities are likely to need for success. I follow this with examples of successful agricultural production collectivities both from outside south Asia and within it, which embody some or all of these principles. Finally I examine how the success, especially of women's group farming in India, could be replicated and its geographic coverage and impact enhanced. The illustrative examples are drawn from specific regions, but a group approach to agricultural investment and production would have wider geographic relevance.

It needs mention, however, that this paper is not cast in a generalised land reform framework on which there has been considerable conceptual and policy debate in recent years.[4] Rather, my primary focus is on the potential of a group approach in empowering poor farming households both economically and socially, whatever the source of their land – inheritance, markets, or state transfers. State transfers of land to the poor, for instance, can occur not only under redistributive land reform but also in other contexts, such as for resettling families displaced by large dams or natural disasters (e g, a tsunami). A group approach can, however, also enhance the ability of the poor to gain access to land through the market (as elaborated further below).

2 Lessons from History

2.1 Top-Down Collectivities

Historically, agricultural collectivities were mainly of two types: production collectivities involving some form of joint cultivation, and service collectivities for credit, inputs, or marketing. Production cooperatives largely failed, especially in the early period (although the subsequent story is more complex), while service cooperatives were relatively successful.

Joint cultivation was linked mainly to socialist collectivisation, such as in the USSR, eastern Europe, China and North Vietnam, but during the 1960s and 1970s there were also significant efforts in some non-socialist countries, such as Ecuador and Nicaragua in Latin America, Ethiopia and Tanzania (the Ujaama policy) in Africa, Israel (the kibbutz) in west Asia, and on a minor scale in India. A comprehensive assessment of these early experiences – in all their range, complexity and geographic variability – requires specialised scholarly research which is outside the purview of this paper. However, a focus on some key features which are recognised to have contributed to their failure, outlined here in broad brushstrokes, is meant to provide a background to the current discussion,[5] and to demarcate those early top-down approaches from the bottom-up group approach I am proposing.

Socialist collectivisation was characterised by five features which had especially negative outcomes: coercive pooling of small peasant farms; compulsory requisitioning of produce; vast sizes of production enterprises; farmers' lack of voice in management decisions; and hidden as well as explicit forms of socio-economic inequality, including gender inequality.[6] In other words, they violated all the principles of a human rights approach mentioned above. In most part, the effects of the massive forced collectivisation on productivity and human welfare in the early period proved highly adverse.[7] In the USSR and China they were associated with famines and the deaths of millions of people and animals. Some countries in eastern Europe, such as Hungary,

escaped this fate by shifting course fairly soon after launching collectivisation by abolishing compulsory deliveries, allowing households to keep small individual plots and initiating farmer-support measures (Swain 1985, 1992; Berend 1990). Elsewhere, as in North Vietnam, persuasion soon gave way to coercion as pressure for rapid collectivisation increased, and production and living conditions deteriorated (Kerkvliet 2005). Lin (1990) demonstrates the critical importance of voluntariness – the ability to exit the collective – in determining the impact on productivity in China, and attributes the collapse of Chinese agricultural production during 1959-61 to "the deprivation of the right to withdraw from the collective in the fall of 1958" (Lin 1990: 2229).[8]

Outside state socialism, the promotion of joint farming was different from that in socialist countries in some significant respects but similar in others. Many of these initiatives in the 1960s and 1970s were propelled by pro-small-peasant land reform (Ghose 1983), but influenced by socialist assumptions of large farm efficiency. Broadly, joint cultivation was promoted either by pooling small farms into large cooperatives as in Ethiopia and Tanzania, or by constituting cooperatives on state-controlled land (including that confiscated from large owners), as in Nicaragua, Ecuador and Israel. In some countries both forms were promoted.

Although usually initiated under the principle of voluntariness, the process often became coercive under government pressure for speedy implementation.[9] Also, common to all these initiatives were the very large sizes of farms and top-down management.[10] In Ethiopia, for instance, in the mid-1970s, some 20,000 peasant associations with 5 million members were created within a year, with each collective cultivating 800 ha on average (Alula and Kiros 1983). In parts of Ecuador each farm was around 10,000 ha (Borda 1971). Such large farms made farmer participation in planning and management virtually impossible. Women, in any case, were rarely involved in decision-making on state farms (Deere and Leon 2001). And the productivity and welfare outcomes of the collectivities were mixed and regionally variable; there were gains in some regions but not in others and the overall impact on poverty was limited.[11]

The production cooperatives also performed service functions, such as joint procurement of inputs and marketing, but solely service collectivities did not involve joint cultivation. Established during the 1950s-60s in many countries, service cooperatives were successful in greater extent than production cooperatives (Deininger 1993; Inayatullah 1972). But class, gender and other social differences were largely ignored in their formation, leaving them dominated by men and the better-off. For women, both social structure and an inbuilt gender bias proved exclusionary. Membership was limited to one person per household. This was typically the male household head, even though women's farm work was vital in all regions, as was their involvement in marketing in many regions (UNRISD 1975).

Both production and service collectivities proved more beneficial to communities where socio-economic inequalities were low, solidarity and social affinity among the participating farmers was high, the units were not large in scale, and there was effective democratic authority and a willingness to remove non-performers (Inayatullah 1972).[12] These elements can prove critical for successful cooperation, as demonstrated by recent experience of production collectivities in the transition economies and India (detailed further below).

India's experiments with cooperatives (strongly influenced by China) in the 1950s-60s provide similar lessons. Cooperatives were seen as a major instrument of rural economic development which appealed to both socialists and Gandhians (Frankel 1978). However, early attempts to promote joint farming encountered strong resistance from large landowners supporting the ruling Congress Party, and most state governments shelved the idea, barring a few pilot experiments. Goyal (1966: 122) found only 111 joint farms in six Punjab districts in 1958.[13] Solely service cooperatives were geographically more widespread but mainly benefited large and medium farmers (Frankel 1978: 196). In time, other types of service cooperatives emerged, which did benefit the small producer, such as Anand, the highly successful milk cooperative in Gujarat, and the sugar cooperatives of Maharashtra.[14] Although these are often called "producers" cooperatives, in fact they undertook no joint production but simply joint marketing of individual producers' goods.

In most of these collectivities the family was the participating unit. Hence although the gender effects of collectivisation are little discussed in the literature, it can be surmised that in collectives formed within non-socialist regimes – with some exceptions, such as the kibbutz – women remained largely embedded in traditional roles and positions of disempowerment.[15] Where they became direct members in producer cooperatives, it was on unequal terms.[16] Even within socialist regimes, women got an unequal deal. In Soviet Union's collective farms, women were concentrated in manual jobs that were designated less skilled and received lower remuneration. Only 0.8% of tractor drivers and 1.4% of machine handlers were women, and 85% of women employees relative to 66% of men in collectivised farms performed tasks termed as unskilled (Swain 1985: 99). In China, in 1973, the gender differential in average work points was 2.5 (Swain 1985: 98-99). In Vietnam, again, women received harder tasks and fewer work points than men (Kerkvliet 2005: 91). In India, except in women-headed households, men represented the family; and production cooperatives were constituted by family units as was membership in service cooperatives. This needs emphasis since the successful cases of group farming in India described further below break this pattern and are constituted of women alone.

In overview then, the early historical experience of collective farming within the socialist context, characterised by coercive formation, large-sized units, compulsory grain requisitioning and top-down decision-making, was marked by strong disincentives for the farmers and brought few of the expected gains in productivity and human welfare. Collectivities in non-socialist regimes, although somewhat more voluntary, were yet not free from coercion, had large production units, top-down management and little adaptation to local conditions. And gender inequality was in-built in both the socialist and non-socialist contexts.

Notably, however, in countries where the initial large collectives were subsequently downsized and peasants were allowed to

leave them, a large number survived. In central Asia, eastern Europe and parts of Latin America, when de-collectivisation was initiated, many farming families, for varied reasons, continued to work together in reformed collective institutional arrangements, or formed new bottom-up groups for joint cultivation on the restituted land (see Section 4). This suggests that it was the particular features of early socialist collectivisation which contributed to the adverse effects, rather than the infeasibility of cooperative production or collective action per se. The early failures, however, continue to be barriers to policy rethinking on collective approaches to farming.

2.2 Conceptualising Bottom-up Collectivities

A successful framework for small farmer agriculture, which would also fulfil the tenets of a human rights approach to development, requires a substantially different kind of production collectivity than these early historical examples. In particular, from the lessons learnt we can suggest that collectivities should be framed around at least six principles: (i) Voluntariness; (ii) small size, constituted of, say, groups of 10-12 or 15-20 farmers; (iii) socio-economic homogeneity or marked social affinities among members; (iv) participatory decision-making in production, management and distribution; (v) checks and penalties for containing free riding and ensuring accountability; and (vi) group control over the returns and a fair distribution of the benefits, as decided transparently by the members.

As discussed below, the successful cases of agricultural production collectivities today have most or all of these features.

3 Potential Gains from Bottom-up Collectivities

Collective farm activity could range from just joint investment in lumpy (physically indivisible) inputs such as agricultural machinery, to land pooling and joint cultivation by small owners, or even joint land acquisition by purchase or lease. Especially where small and marginal farmers predominate, there could be gains in productivity as well as bargaining power in acting jointly rather than individually. This is likely to be even more the case with women farmers. In India, for instance, although farmers are increasingly female, few women have direct access to agricultural land. Families transfer land mostly to male heirs, the state transfers land largely to male household heads, and markets favour men over women, since they have more financial resources (Agarwal 1994, 2003). Women farmers also face male bias in extension and credit access, and social restrictions on their mobility and interactions in the marketplace for input procurement and product sale.[17] Rather few women are themselves members of service cooperatives. It is well-recognised by policymakers in developing countries that agriculture needs to provide both higher output and viable livelihoods. But the substantial recent focus on infrastructure (irrigation, roads, etc) and research and extension, in countries such as India (see, e g, the Eleventh Five-Year Plan: GOI 2008) begs the question: by what institutional arrangement will it be ensured that small and marginal and increasingly female farmers have access to the infrastructure? A bottom-up, more collective approach to farming could address these concerns.

At the least, a group approach could help small and marginal farmers to undertake lumpy investments by pooling financial resources. It is not economically viable for farmers operating one or two hectares, especially if fragmented, to invest in tube wells or machinery such as tractors, or even keep a pair of bullocks. An active rental market can help with tractors and bullocks, but water leasing requires other essentials, such as negotiating a passage for water channels and managing water flows, all of which are more difficult (if at all possible) to undertake through rental arrangements. Here joint investment by small farmers with contiguous plots could provide a solution. Groups can also undertake rain water harvesting or soil conservation more economically than individuals.

In addition, for the landless, a group approach can increase market access to land. By pooling financial resources and negotiating jointly, groups can prove much more effective than individuals for purchasing or leasing in land. Again this would especially benefit women, who typically lack the funds to operate effectively in land markets. This process could be furthered with state-subsidised credit for land purchase or leasing in by groups.

Group farming by pooling owned land or jointly leased land, however, involves a much higher level of cooperation than simply joint investment in inputs, and would be more difficult to achieve, but it can also bring greater productivity gains and social empowerment as compared with individual production units, for several reasons. First, it can help spread the risk of farming among a larger number and increase production opportunities. Cultivating as a group, farmers would be better placed to experiment with higher value, more risk-prone crops with larger payoffs. It would also enlarge choices for crop diversification since a collective pool of land is more likely to have soil variety.

Second, land pooling can increase the cultivable area since boundaries and bunding between fields become redundant and the saved area could be cultivated (see also Ganguli 1953). By enabling consolidation, fragmentation would also be reduced.

Third, joint cultivation allows labour sharing and easy substitution for a member who is temporarily unable to work due to illness or other exigencies. This can especially benefit marginal farmers, who would also gain from labour pooling for peak season needs, for which they may normally be dependent mainly on family labour. In general too there would be less conflict/competition between farmers for obtaining extra labour during peak needs. Traditionally, labour exchange systems served these needs to some extent, but such arrangements have declined over time, and cannot commonly be found except among women in certain regions (Agarwal 2000). Also, a collectivity would bring together a greater diversity of skills, talents and knowledge than found in one person or family. Skill pooling can bring higher returns. For women farmers, a group can bring into the fold women with leadership qualities or scarce managerial skills.

Fourth, a group would be better placed to enter into non-exploitative contract farming arrangements. It is now increasingly common for companies requiring an assured supply of agricultural raw materials, or running food processing and retailing chains, to enter into contracts with farmers. Typically these arrangements are with individuals rather than with farmers'

groups. Evidence from Latin America and India shows that such arrangements seldom benefit small and marginal farmers, except in the rare cases where the contracts are with *a group* of farmers and there are protective laws in place.[18] Companies usually contract larger farmers (Singh 2000).[19] Small farmers, where involved, face exploitative terms: prices are often low, capital and input transfers rare, and farmers risk crop rejection on grounds of uneven quality. Women in farm households often lose out since their workload increases under contract farming while men control the cash generated (Collins 1993). Intra-family tensions have also increased in some countries (Bulow and Sorensen 1993, cited in Kumar 2006). And nutrition can suffer when the land is diverted from food to commercial crops but the money generated is not spent on food.

In India, the rare examples of benefits flowing to small and marginal farmers relate to cases where the farmers have entered into collective contracts. In the Punjab, for instance, the Mahindra Shubhlabh Services followed a consortium approach, with contractual safeguards for risk protection for maize farming. In south India, the United Planter's Association signed contracts with women's self-help groups (SHGs) for tea cultivation, with some companies buying 90% of their tea from SHGs (Singh 2000). Basically, unless the small and marginal are organised into groups or cooperatives, their bargaining power with companies remains weak. A group could negotiate better terms, afford legal aid to ensure non-exploitative terms, and obtain crop insurance which in India is highly state-subsidised, inefficient and unequally distributed (Ghosh and Yadav 2008). Contracts given to women's groups could also ensure that both men and women gain.

Fifth, a farmers' collectivity would be more socially empowered than individuals. It can improve the clout of farmers with government agencies and so their access to formal credit, inputs and information (see also Braverman et al 1991). In this sense too the collective can serve as a bargaining unit. Also cooperative risk-pooling via joint liability for default can enhance the borrower's credit worthiness (Deininger 1993). Moreover, relationships developed while working together can come in handy during illness or personal misfortune. Such potential non-economic pay-offs could propel cooperation, even when the economic pay-offs are not large.

Sixth, groups would be better placed than individuals to deal with short-term shocks such as rising food prices and long-term disasters due to climate change. The rural poor are net buyers and not net sellers of foodgrains. The recent rise in foodgrain prices is estimated to have added millions more to the numbers of the poor globally.[20] As a group, the poor would be better protected both as producers and as consumers. As producers, they would have better prospects of moving from being deficit to surplus farmers (and so gaining from the price rise) through improved access to infrastructure and technology, and greater ability to take advantage of higher value crops or contract farming arrangements. As consumers, they would be better able to undertake income smoothing.

These benefits of land pooling, joint investment and collective cultivation need not be confined to those who already own land, but could extend to the landless leasing in land. Moreover, all these advantages would be compounded if the collectivities were formed of women farmers, given the constraints they face in operating individually, such as their lack of control over land and major assets, resource and financial limitations in input purchase and capital investment, social restrictions on mobility and public interaction, and greater vulnerability to market swings or climatic shifts. Intergenerational benefits can also accrue in that daughters of successful women farmers would be better placed to move out of agriculture to skilled non-farm jobs, propelling a more gender-balanced agrarian transition.

The groups would, however, need to overcome the classic problem of free riding, such as work shirking in group cultivation.[21] Here small group size and socio-economic homogeneity would help, since small groups, constituted of people who know each other, can enforce penalties for shirkers through weekly meetings, management committees, or other methods, and also exert moral pressure for compliance.

Can this potential inherent in agricultural production collectivities be realised in practice? I believe so. There are diverse examples of farmers successfully cooperating, ranging from jointly investing in lumpy inputs such as irrigation technology or farm machinery, to pooling owned, purchased or leased-in land for joint cultivation.

4 Group Farming: Ground Examples

There are two types of examples of group farming which particularly warrant our attention. The first type relates to countries in central Asia, eastern Europe and Latin America which undertook large-scale collectivisation during the 1950s to 1970s, but de-collectivised in the 1980s and 1990s, enabling farmers to revert to individual family farming. Many, however, chose to form new group enterprises on the restituted land, or continue in much downsized and transformed former collectives. The second type of example, drawn from India, has several distinct features, the most important being that the groups are constituted only of women rather than of entire households pooling land and resources. Both types of examples, however, demonstrate the potential of farmers voluntarily working together in agricultural production collectivities for the output and security gains they bring, and the resource constraints they help overcome, apart from non-economic benefits.

4.1 Reconstituted Collectivities in Transition Economies

The de-collectivisation of former collectivised agriculture did not lead straightforwardly to individual family farming, as advocates of private enterprise or sceptics of collective action might have expected. In fact, as recent studies on Kyrgyzstan in central Asia, Romania and east Germany in eastern Europe, and Nicaragua in Latin America show, many households constituted new collective enterprises, or returned to some form of prior collective enterprise, or stayed on in a smaller reformed collective. In Romania, for example, by 1993, 43% of the de-collectivised agricultural land had returned to cooperative forms of production on a voluntary basis (Sabates-Wheeler 2002: 1737). In the Kyrgyz Republic, family cooperatives constituted 63.6% of all farm enterprises in 1997 (Sabates-Wheeler and Childress 2004: 6); and in east

Germany in the mid-1990s, family partnerships covered 22% of the total cultivated area (Mathijs and Swinnen 2001: 102). Clearly many households saw advantages in group production over individual farming.

This is further borne out by the analysis based on primary data that these studies provide, and which demonstrates that small family cooperatives can prove more efficient than individual family farms, in given contexts. The broad features of there cooperatives are summarised in Table 1. In all four countries, substantial numbers of family-based cooperatives coexist with individual family farms, as well as other types of collective farms such as reformed large state farms. These family cooperatives differ a great deal in the number of families constituting them and in their pooled farm size. In Kyrgyzstan, for instance, some are constituted of as few as two and others of as many as 48 families, the typical group ranging from four to 15 families, often related by blood (Sabates-Wheeler 2005, 2006). Groups larger than 13 families, however, face problems of cooperation (Malcolm Childress, personal communication 2009). In Romania, similarly, Sabates-Wheeler (2002, 2006) found that family cooperatives are made up of anything between three and 20 households; and these are usually friends, relatives or neighbours who have come together to farm collectively. In east Germany again, each family cooperative is constituted of a few families who know each other (Mathijs and Swinnen 2001). The mean area cultivated by these family cooperatives varies from 16 ha in Kyrgyzstan to 41 ha in Romania, while in Nicaragua and east Germany where families often cooperate not only for cultivation but also over livestock, the average farm is larger, namely, 420 to 450 ha, respectively. In Nicaragua, most cooperatives have individually managed home plots for food, and collectively grow additional crops for food or cash, while cattle are individually owned but pastures are collectively owned and managed (personal communication, Ruerd Ruben, October 2009). The objectives of forming groups also vary from primarily fulfilling basic needs and alleviating poverty, as in Kyrgyzstan, to enhancing both subsistence and profits, as in Romania (Sabates-Wheeler 2006).

Notably, in all four countries, family cooperatives are found to be more efficient economically, or to have performed better on other counts, than individual family farms. In Kyrgyzstan, Sabates-Wheeler and Childress (2004:13) found that total factor productivity was significantly higher and the total annual income from crop production was 1.8 times more in the family cooperatives relative to individual family farms. In Romania, family cooperatives compared with individual family farms had substantially higher crop yields of wheat, maize and sunflower, consistently higher labour productivity across the entire farm size range, and higher land productivity up to about 6.5 hectares, after which individual family farms did better (Sabates-Wheeleer 2002). In east Germany, Mathijs and Swinnen (2001: 106) establish that family cooperatives are "the most efficient organisational form, combining high levels of pure technical efficiency due to good labour governance with low employment, often relatives, and full economies of scale by operating on larger farms

Table 1: Performance of Family Cooperatives vs Individual Family Farms: Examples from Central Asia, Eastern Europe and Latin America

Features	Central Asia (Kyrgyz Republic)	Eastern Europe (Romania)	Eastern Europe (East Germany)	Latin America (Nicaragua)
Study author	Sabates-Wheeler and Childress (2004)	Sabates-Wheeler (2002, 2005)	Mathijs and Swinnen (2001)	Ruben and Lerman (2005)
Year of data	2000-02	1998-2000	1991-92 and 1994-5 (panel data)	2000
Sample	463 farms	259 farm enterprises	1,167 farming enterprises	476 farms
Type of farms	Family cooperatives (FC) Individual family farms (IF)	Family cooperatives (FC) Individual family farms (IF) Legal associations (LA)	Family cooperatives (partnerships of a few families owning land) (FC) Individual family farms (IF) Reformed large state farms or shareholder companies	Former collectivised, now smaller collective farms (FC) Former collectivised now individual family (IF (c)) Never collectivised, individual family (IF)
Farm and group size	Average size of FC = 16.2 ha, 12-13 workers	Average size of FC = 41.2 ha, 3-20 members (usually friends, relatives)	Average size of FC: 449 ha (crops 534 ha, livestock 250 ha)	Average size of FC = 420 ha[b] 25-40 members in basic grain production[b]
Decision-making	Consensual, especially in small groups[a]	Consensual	No information	By an assembly and elected board[b]
Economic impact of FCs relative to other types of farms	FC output 1.8 times greater than IF. FC total factor productivity was significantly higher than IF	FC have higher individual crop yields for wheat, maize and sunflower than IF or LA FC have higher labour productivity than IF FC have higher land productivity than IF up to a certain farm size	FC had the most efficient organisational form in terms of overall technical efficiency during transition (maximum output for given input of land, labour and capital)	Income not different among the three types of farms FC better than IF in terms of standard of living
Advantages of FCs	Land access Labour pooling Labour specialisation Risk pooling Asset pooling a key incentive for group formation	FC helps overcome resource constraints faced by individual families. As stated by farmers Better access to farm machinery (72%) Help in farming own land (72%) Scale advantages (20%) Better credit access (39%)	Good labour governance and full economies of scale by operating larger farm sizes than the average IF	As stated by farmers Land access (43%) Cooperative service access (21%) Credit access (19%) Enjoy working together (12%)

a Personal communication Sabates-Wheeler 2009; b Personal communication Ruerd Ruben.

than average family farms". In other words, the family cooperatives produce much greater output with given inputs of land, labour and capital. In Nicaragua, households belonging to earlier collectivised farms which chose to remain together in smaller groups after de-collectivisation were found to have a higher standard of living than those which moved to individual family farming, although overall incomes were not significantly different between the two types of farms (Ruben and Lerman 2005).

Among the important reasons for forming or remaining in collectives were better and more secure access to land and/or machinery, shared production risk in the absence of agricultural insurance, advantages of labour and skill pooling, economies of scale, and better access to cooperative services and credit (see also Table 1). In Nicaragua, farmers also said they enjoyed working together. Many of the family groups would not have had secure access to land, or adequate labour, machinery, skills or credit, or been able to enjoy scale economies, if they had gone it alone. Working together helped build social capital as well. Close social ties (as relatives, friends, or neighbours), and/or long experience of working together has helped sustain cooperation and reduced free riding, although as Childress found, in subsistence contexts it helps to keep the number of cooperating families small (personal communication, Malcolm Childress, June 2009). All the studies emphasise the need to consider a range of institutional forms for farming, depending on the local context, with group farming having particular advantages in situations of resource scarcity and uncertainty.

These examples satisfy several of the conditions mentioned above as likely to make for successful cooperation. They are all based on voluntariness. All of them have chosen groups over individual family forms. The farm area is small under largely subsistence agriculture, as in Kyrgyzstan and Romania, and of medium size where more commercial and livestock farming is involved, as in east Germany and Nicaragua. And the groups are socially cohesive – the cooperating households forming groups have close social ties. Additional favourable features include a fair distribution of work and benefits among the cooperating households, and participative decision-making. This is documented for some countries and can be inferred for the others, since the groups are unlikely to survive under unfair work-sharing and distributional arrangements. In Romania and Kyrgyzstan, for instance, the harvest of staple crops and the returns from collectively marketed cash crops are shared equitably, and decision-making is consensual. In Nicaragua too farmers can participate in decision-making, although in more formal and indirect ways: decisions are made in regularly-held assemblies where all members can vote, but the board (annually elected) has substantial influence (personal communication, Ruerd Ruben, October 2009).

Unfortunately we know rather little from these studies about the impact on gender relations. Sabates-Wheeler (2006: 21) mentions an all-women production cooperative in Kyrgyzstan in passing, and possibly many of the cooperative members in the mixed-gender groups are de facto women household heads, given that in these countries (other than Nicaragua) women still have a substantial presence as agricultural workers: in 2006 they constituted 35% of the total agricultural labour in Kyrgyzstan, 45% in Romania, 37% in Germany as a whole, and 10% in Nicaragua (*FAO Statistics*). More research on the gendered implications of family cooperatives and other forms of production collectivities operating today would be revealing. Deere and Leon (2001: 96-97), for instance, mention that in the 1990s, a 1,000 women in Nicaragua formed production collectives when there was a growing demand for land by women. It would be useful to know how well these are functioning.

4.2 Bottom-up Collectivities in South Asia

The second type of notable agricultural production collectivities are located in India. They are distinct from the family cooperatives of the transition economies in being constituted entirely of women, even where the women's families are cultivating small parcels of land.

Although examples of Indian farmers jointly investing in irrigation wells can be found both historically (Punjab's *sanjh* system goes back to the early 20th century: Goyal 1966, Darling 1947), and in the contemporary period (I found many male farmers collectively investing in tube wells in Alwar district, Rajasthan), group *cultivation* involves a much higher scale of cooperation. The successful examples of this almost all involve poor women farmers, supported by local NGOs and state schemes. Here the age-old assumption that farms are to be cultivated only on a family basis was abandoned to encourage and support joint farming by groups of women. The earliest and best-known initiative comes from Andhra Pradesh. With the support of the Deccan Development Society (DDS) which works in Medak district (a drought-prone tract) poor, low-caste women have been leasing in or purchasing land in groups, through various government credit schemes, and cultivating the land collectively. There is as yet no systematic quantitative study of DDS's farming groups; hence the discussion here is based on an update of my earlier fieldwork and writings (in much abbreviated form).[22] The insights this initiative provides, however, are of central relevance for any future effort at promoting group farming in India.

The central plank of DDS' approach is to ensure food security in an environmentally-friendly way, through organic farming and multiple cropping. The group leasing programme was initiated in 1989. In 2008 it involved 144 women organised into groups (sangams) of 5 to 15 across 26 villages, cultivating a total of 211 acres (= 85 ha).[23] About 25% of the rent is paid by sangam members, and the rest is covered by interest-free loans from DDS, which the groups then repay in instalments. Very poor women who lack cash can repay their share through labour. All tasks are shared except ploughing for which they hire tractor services. After paying the rent and other costs, as well as DDS' loan, and keeping aside grain for seed, the harvest of each crop is shared equally among the members. Some groups lease land from more than one landlord. Typically, when the lease of say three to five years ends, the group negotiates a new one. Sometimes at this point the members reconfigure into new groups. The state government has also allowed women's groups to use loan money from other anti-poverty schemes for land leasing.

A related innovation has been group farming on land purchased by groups of women. This draws on a state government

scheme that provides subsidised credit to groups of landless, dalit women for collectively buying agricultural land. Half the money is a grant and half a loan repayable within 20 years. Catalysed by DDS, women form a group and apply for the loan after identifying the land they want to buy. The purchased land is divided equally among the group members and registered in individual names. In 2008, 25 women's groups constituted of 436 women were cultivating 555 acres (= 224 ha) of purchased land in 21 villages, each woman owning one acre (and sometimes less) but farming it jointly in groups ranging from 10 to 20 women in size. None of these women could have purchased such land or cultivated it as productively on an individual basis.[24] Most of the sangam women are dalits while the farmers from whom they lease or purchase land are predominantly upper caste men, with a small proportion being Muslims or backward castes. The sangam women are seen as reliable tenants. Hence, despite caste hierarchy, many landlords now approach them for leasing out their land, in contrast to the initial period when it was women who approached the landlords for a lease. The landlords benefit since their underused land gets cultivated and the women gain a livelihood.

Table 2a: Women's Land Lease Group, Pastapur Village (Andhra Pradesh) – Expenses and Returns: June 2008 to March 2009 (Group of 13 women cultivating 9 acres)

	Expenditures (Rs)		
	Monsoon Crop	Winter Crop	Annual
Ploughing payment	6,300	6,000	
Manure cost and labour	6,840	–	
Seed cost and sowing labour[a]	780	3,415	
Weeding labour[a]	3,250	4,850	
All operating costs	17,170	14,265	31,435
Lease paid[b]			10,500
Total annual expenditure			41,935
	Return (Rs) (value of crop produced)		
Green gram	12,250		
Black gram	10,600		
Sorghum		35,000	
Straw		8,750	
Bengal gram		22,800	
Sunflower		3,540	
Linseed		1,125	
Lentils		375	
Wheat		1,200	
Sirisenaga		1,000	
Mustard		625	
Total annual income	22,850	74,415	97,265
Net profit for 9 acres			55,330
Profit per acre			6,147

a Imputed cost of seed and women's labour. Women preserve the seeds and none of the seeds are actually purchased.
b Annual instalment on the lease that the group pays to DDS.
Source: Collected for the author by DDS, 2009.

Table 2b: Single Family Owner Cultivator in Two-Acre Farm, Pastapur Village, Andhra Pradesh – Expenses and Returns (June 2008 to March 2009)

	Expenditures (Rs)		
	Monsoon Crop	Winter Crop	Annual
Ploughing payment	1,350	1,550	
Manure cost and labour	900		
Seed cost and sowing labour[a]	1,410	1,450	
Weeding labour[a]	2,750	630	
All operating costs	6,410	3,630	10,040
	Returns (Rs) (value of crop produced)		
Maize	9,350		
Sorghum		4,000	
Straw		2,500	
Sunflower		1,000	
Bengal gram		3,450	
Total Income	9,350	10,950	20,300
Net profit for two acres			10,260
Profit per acre			5,130

[a] Imputed cost of family labour plus cost of hired labour.
Source: Collected for the author by DDS, 2009.

Usually leasing precedes purchase. This helps women judge the land's quality and potential productivity, assess how well they can function as a group, and in some cases even save enough from good harvests to buy land. The lease groups typically consist of a mix of landless women and women whose households own one or two acres. Such a mix is encouraged by DDS in order to include in each group some women with farm management skills. As a lease group the women can also hone their farming skills and ability to function as a group, build trust and solidarity, and tackle conflicts and free riding, before venturing into purchase. Defaulters can be evicted. On both leased in and purchased land, women practise organic farming and multi-cropping. Some grow up to 24 crop varieties a year (the seeds of which they preserve) thus reducing the risk of crop failure and providing a balanced subsistence diet. On field boundaries they plant crops which cattle do not eat, thus using the land productively while also creating a "crop fence". As noted, each crop grown is typically divided into equal portions among the sangam women.

Unfortunately there is no systematic data for the DDS groups, of the kind discussed above for the transition economies, to help us compare production gains on group-managed farms with those on individually-managed ones. Such research is clearly needed. Nevertheless, Tables 2a and 2b provide an illustrative comparison between farming enterprises which, according to DDS, are fairly typical. Table 2a relates to a DDS lease group in Pastapur village with 13 women cultivating nine acres, and Table 2b relates to a two-acre farm from the same village, cultivated on a family basis. The information was obtained by DDS from two women members in the case of the lease group (Table 2a) and from the woman managing the land with her family in the case of the individual family farm (Table 2b).[25] After deducting paid out and imputed expenses, the net returns per acre cultivated are 20% higher in the lease group. These returns provide women and their families with subsistence for about four-five months of the year (personal communication, P V Satheesh, October 2009). For the remaining months they depend partly on produce from their own land if they have any, and partly on wage work. There are also other productivity benefits from group farming which these figures do not capture. Weeding, for instance, is a critical peak operation and timeliness is important for yields. Timely completion of weeding is easier with group management than in individually cultivated farms which have to compete with others for hiring labour in the peak period.

Group farming has not only helped the women realise many of the earlier noted potential benefits of joint cultivation, it has enhanced their capabilities. The sangam women have learnt to

survey and measure land, hire tractors, travel to town to meet government officials, buy inputs, and market the produce. Collective cultivation allows them flexibility in labour time, cost sharing, and the pooling of their differential skills in farming, accounting, and public dealing.

One of the sangam women in Pastapur village (cited in Hall 1999) summarised the perceived benefits succinctly:

> Women can share the profit and the responsibility. In individual cultivation, different women have different levels of agricultural knowledge and resources for inputs. [Hence] in collective cultivation they may make unequal contributions. Those with less can compensate the others through taking a reduced share of the harvest, or by repaying them in instalments. Different levels of contribution are fine, because the women all know what each other's resources are. Knowledge of each other's family needs also leads to tolerance of women not appearing for work in the fields – to some extent. The levels of sharing are agreed on and fixed before the season: each women should get an equal share unless her contribution falls below that of the other women. There are no disputes about shares: all the women are involved in dividing the crop, so none can be accused of taking more than her fair share.

Standard collective action problems are solved by peer pressure. Work shirkers are penalised in the groups' weekly meetings, some of which I have sat in on. The fact that the women in each sangam are from the same village and are codependent in other ways creates pressure against default. As one group told me: "We supervise and see if anyone is slackening intentionally or due to compulsion… If a woman is ill, she can send other family members to substitute. But if a young women does not turn up she has to send two persons the next day or give two persons' wages". Sometimes groups do break up, but usually reconstitute into new, more cohesive, ones, and restart joint cultivation. The voluntary nature of group formation allows this realignment which is central to institutional success. Moreover, having worked together they see the advantages of collective farming and build what has been termed a habit of cooperation.[26]

Potential conflicts of interest, such as those arising if the sangam woman's family owns land and needs her labour, are reported by the women to be minimal in practice, since individual time input on the group's land is not excessive and many women, in any case, belong to landless families. Krishnapur's sangam, for instance, told me: "We all know that the [sangam] land will yield well. Men know this too. Also the number of days that anyone has to put in on the communal land is not excessive, since the whole sangam works together. After that the women can work on their family land. So there is no serious conflict."

Another complexity can arise when individual cultivation becomes more profitable, say if the family can now afford irrigation. Assured irrigation reduces cultivation risk and enhances profits, while in dryland farming risk sharing is an important incentive for group cultivation. Potentially, groups cultivating purchased land are more prone to splitting, since women have an exit option. In practice, such splits among DDS groups are not common. Where they have occurred, some have formed new units, others have settled for reduced jointness by continuing with labour exchange and/or investing collectively in irrigation and marketing, while cultivating separately.

Other gains that women report from group farming are improvement in family diets, healthcare and children's education; enhanced respect in the community; and better spousal relations. Women now bargain for higher wages when they need supplementary work, since they have a livelihood choice. Bonded labour and caste indignities are also reported to have declined. As Ratnamma, a sangam woman (cited in Hall 1999), noted: "They [the high caste people] used to call us by the caste name which was very derogatory. Now they put the respectful suffix – amma – and seat us on an equal basis [in public gatherings]. It is only because we have an organisation that they [the landlords] … are scared to cross us." Women also say that local government officials give them priority over individual men. Within the home, women report a decline in domestic violence and greater control over their own earnings. Some husbands have returned to their wives after the latter purchased land, and most women mention that their spouses now listen more to them. In general, men's perception about women's capabilities improved after women began to farm collectively.

A community food security programme has been another positive outcome. In many villages in the region, with support from the Ministry of Rural Development, DDS initiated a programme to bring fallow land under cultivation, by extending loans to small and marginal male farmers through women's committees which manage the programme. In many cases, the men had received the land under land reform but could not cultivate it without infrastructural support. Under the scheme, each participating farmer can enter two acres and get a loan in instalments over three years. In return, over five years, the farmer gives a specified amount of the grain he harvests to a community grain fund managed by the women. The women's committees (each usually consists of five women overseeing 20 acres) ensure that the farmers use the loans for cultivation, supervise the operations, encourage the use of organic manure and mixed cropping, and collect the harvest share for the fund. They also identify and rank the poor from the most needy upwards. The poorest are eligible for the most grain, sold to them at a nominal price.

As a result of this venture, a large amount of fallow or underused land is now being cultivated. By DDS's estimates, today 2,580 families across these 51 villages are cultivating 3,550 acres and in 2008-09 produced 1.4 million kilograms of extra grain. Mainly sorghum is intercroppped with redgram and occasionally with maize. In addition, along with other local NGOs, DDS has in recent years extended this alternative public distribution system to another 67 villages, covering 2,884 families and 2,983 acres of land, and producing an additional 1.2 million kg of mixed grain per year.[27] The extra grain contributes to several million additional meals. The land also provides fodder for animals. Women's sangams constitute the centre points of these enterprises.

Some important ingredients of these collectivities, such as a gender-progressive NGO, a group approach, and a focus on landless women, can be found in many other grass roots initiatives. But the focus on land, linked with group farming, is rare, in contrast to the usually less effective income-generating work promoted under many government schemes for the poor. Also, these

collectivities allow women to access land through the market without depending on male-biased family inheritance systems. And pooling land for cultivation helps overcome problems of small size and fragmentation. That these groups are all constituted of women is important in that it gives women independent access to assets, control over income, self-confidence, and social support from group members which they would not easily gain in family-based cooperative farming.

These initiatives have all the ingredients mentioned earlier as conducive to collective functioning: they are voluntary in nature, socio-economically homogeneous (in terms of class and gender), constituted of people who know each other, small-sized in both membership and production units, participatory in decision-making (with mechanisms instituted for dealing with free riding), and in control of the produce which is shared equitably. Gender equity is not an issue since these are all-women groups. Hence, in initiation, size, functioning and composition, they are unlike both the socialist collectivisation and the non-socialist joint farming cooperatives described earlier.

In this context, it is also worth considering another type of collective arrangement first suggested by Agarwal (1994) but untried so far. This alternative would require the government to give poor rural women group rights over the land it distributes under various schemes. Effectively, the women would be stakeholders in a kind of land trust. Each woman in the group would have rights of use but not of alienation. The daughters-in-law and daughters of such households living in the village would share these use rights. Daughters marrying outside the village would lose such rights but could re-establish them by rejoining the production efforts, should they return on divorce or widowhood. In other words, land access would be linked formally with residence and working on the land. If such a scheme were initiated simultaneously in a group of villages within which there are intermarriages, and which constitute what could be termed "a marriage circle", then daughters leaving the village on marriage would gain rights in their marital village and so obtain livelihood security there as well. This would be more workable in regions where marriages tend to be within relatively short distances, as is south India (Agarwal 1994). This form of collectivity could give economic security to poor women, whatever their marital status, encourage long-term investment in the land, and bypass problems of the land reverting to male hands via inheritance.[28] Some NGOs have been receptive to the idea of creating such a land trust for women on an experimental basis.

Although the above examples of women's group farming relate to women who initially owned no land themselves but subsequently acquired some,[29] many aspects of their functioning could be applied to cases where women are prior owners of some land through inheritance, purchase, or state transfer, which they can then pool and jointly cultivate. In fact, the women who purchased land via subsidised credit are effectively owners pooling their land. Hence, group farming could benefit not only landless women but also women who own or have customary rights over small plots. Nor need the formation of groups be limited to women. As noted above for Kyrgyzstan and Romania, agricultural collectivities could also be constituted of male farmers pooling land and cultivating with family labour, given that most landowning rural households in India own less than one hectare. Indeed, Patnaik (2003) describes how some landless beneficiaries of the land reform programme undertaken in West Bengal in the 1970s are now pooling their land for growing vegetables and fruits for local urban markets. This has raised and stabilised their incomes and freed them from daily wage work. Some others are engaged in cooperative aquaculture. Here, as in the DDS case, two factors were especially important catalysts – support from local bodies (in this case local government) and easy credit.

It is possible of course that farmers may be more open to land pooling where they are initially landless and receive land from the state or acquire it jointly, than where they have been longstanding owners, habituated to individual cultivation. But even among the latter, rising food prices, or new production opportunities opened up by higher value crops or contract farming, or an ecological crisis arising from climate change and requiring mitigation/adaptation, could create conditions where collective approaches become attractive. Where families pool land under predominantly male management, however, although the potential productivity gains can be realised, the gender equity effects would be limited, in contrast to women only farming groups. Women in families pooling land, for instance, are likely to continue as unpaid family labour and gain few of the empowerment benefits that women pooling land with other women are noted to bring.

The agricultural production collectivities I have described represent institutional innovations within a market economy and have not been part of any larger land reform programme. They would, however, overcome many of the difficulties marginal farmers tend to face after land reform, if the land transfer is not accompanied by institutional support for credit, inputs, etc. The bottom-up collectivities also fulfil the earlier-mentioned human rights criterion: all the women's farming groups are constituted of the poor, contribute to livelihood enhancement and empowerment, and are participative and voluntary in nature. They use inputs from NGOs and the state, but are state-supported and not state-controlled. Although more quantitative research is clearly needed, the existing evidence is a strong pointer that group farming can, in particular conditions, prove successful in providing decent livelihoods and dignity especially, for the most disadvantaged – namely poor, low caste women. Their children would also then have greater possibilities of being able to choose other livelihood options, say in the services or manufacturing sectors. The downside, however, is that group farming requires intensive NGO support at the start and is still geographically confined. Further below I outline how this limitation could be overcome.

5 Is Success Linked to Gender and Ecology?

The examples of group farming we have considered cover both voluntary male cooperation on a family basis in the transition economies, and cooperation among all-women groups in India. This suggests that under conducive conditions group farming is possible for both men and women. At the same time, for several reasons women's production collectivities may work better than men's. Rural women are much more resource constrained than

men and therefore have more to gain economically from joint ventures. They share similar constraints set by gendered social norms. They are also much more dependent on one another because they have fewer livelihood alternatives and hence exit options than do men. This interdependence for everyday survival raises the overall cost of social sanctions if cooperation fails, making women less likely than men to free ride. For similar reasons, women might be more compelled than men to resolve conflicts faster and to better sustain collective action (Agarwal 2000). Women in one sangam told me, for instance:

> Men get angry easily and walk away. They say: Why should we sit here? If we get up and leave, the problem too will go away. Women reflect more. They say: even if I am fighting with her now, I have to go together with her for weeding or water, or if I don't have flour in the house, I will have to borrow from her. This is always at the back of our minds.

Recent research on groups of varying gender composition, managing natural resources in developing countries, also indicates that predominantly women's groups tend to display more solidarity among members, and are better at conflict resolution, than predominantly men's groups (Westerman et al 2005). Moreover, in many areas, especially in south Asia, women's labour exchange systems survive while men's have been disappearing (Agarwal 2000). And women's social networks of marriage alliances and everyday forms of sharing are often different from men's. These networks too provide one of the foundations for women's solidarity and hence a basis for cooperation among them.

Ground experience also indicates that women tend to be more cooperative than men. DDS, when first established in 1983, for instance, worked only with male farmers until, as P V Satheesh (director of DDS) reports, the village women challenged this exclusivity and asked: "Why don't you work with women?" This led the organisation to promote both men's and women's groups, initially as credit-and-thrift groups. When problems of corruption and noncooperation undermined the men's groups, DDS shifted almost entirely to all-women sangams. The Grameen Bank in Bangladesh similarly began with men's savings groups and then moved almost entirely to women's groups.[30] SHGs in India (discussed below) are again predominantly constituted of women. All this does suggest that gender could be an enabling factor (albeit not the only factor) in successful group functioning in particular contexts, stemming from the relative specificity and vulnerability of women's socio-economic position.

Another factor that is likely to impinge on the potential for forming successful farming collectivities is the extent of ecological vulnerability. Group cultivation may be more successful at two ends of the spectrum: one, in ecologically vulnerable areas where there is subsistence rainfed farming and higher risk of crop failure with associated greater pay-offs from cooperation; and two in areas where irrigated farming and high value crop cultivation is possible but small size and individual high risk is a constraint. The case studies of the transition economies further suggest that resource imbalances (e g, having labour but inadequate land, or the opposite) and other resource constraints under market imperfections, are likely to encourage cooperation, in addition to past experience of successful cooperation.

Emerging financial or ecological crises could also create conditions conducive to farmer cooperation. Steps to adapt to or mitigate climate change, for instance, require the local implementation of projects such as soil improvement, rainwater harvesting, tree planting and crop diversification – all of which are more viable as group projects.

Regionally, the availability of land for groups to lease in or buy is likely to be greater where larger numbers have moved out of agriculture, reducing population pressure on cultivable land. For instance, although there are no comprehensive figures, emerging field studies in parts of Andhra Pradesh suggest that more land is now available for leasing in from large farmers whose sons are no longer willing to farm.[31] Of course the growing demand for land for non-agricultural purposes could well change this picture. Variations in local economic and political power balances are also likely to impinge on the ability of poor farmers' groups, and especially of women's farming groups, to navigate land, input and credit markets.

- Essentially, group farming could prove to be an effective institutional form which, in particular contexts, could help alleviate poverty for women and their families, increase productivity and food security, enhance social status among socially-oppressed groups, and empower women economically and socially. But is this replicable?
- In India, apart from Andhra Pradesh, there have been small-scale experiments of women's group farming undertaken by NGOs in Gujarat and Kerala.[32] In addition, a few years ago, an UNDP-GOI project sought to involve 50,000 women across 1,357 villages in three states (Andhra Pradesh, Uttar Pradesh and Orissa) to farm collectively in small groups. The early evaluations were positive and encouraging (see Burra 2004; and GOI-UNDP 2004-05). There are also examples of women's groups undertaking pisciculture collectively.
- In Bangladesh, similarly, the Bangladesh Rural Advancement Committee (BRAC), a major NGO, helps women lease in and cultivate land collectively, despite opposition from orthodox village communities. Its early efforts date to the 1970s (Chen 1983), but in the late 1990s, somewhat more controversially, BRAC itself reported purchasing about 300 acres of land (investing about taka 400 million) and leasing it to 1,500 women organised in groups, in addition to organising 20,000 women in groups to lease in land from private-owners. The women repaid the lease amount from their returns.[33] In another striking example, landless women formed cooperative groups with support from the NGO, Proshika, to acquire minor irrigation equipment and sell water to male farmers who, to take advantage of the service, pooled their plots (Wood and Palmer-Jones 1991).
- There are also examples from Africa of emerging collective approaches to rural livelihoods through asset pooling, such as livestock herders reconsolidating their herds in Kenya.[34] Indeed in sub-Saharan Africa, where communal systems of land-ownership are still widespread, the possibility of women farming collectively warrants exploration, although some of the problems women face in getting fair access to land within these systems will need to be overcome (see, e g, Whitehead and Tsikata 2003).

6 Enhancing Geographic and Strategic Reach

Can successful collectivities, such as those catalysed by the DDS in India, or by large NGOs elsewhere in south Asia, be replicated more widely across regions and enhanced in scale strategically? By strategic scaling up I do not mean enlarging group size (small size, as noted, is more conducive to successful functioning); rather I mean creating strategic linkages between groups. Drawing on India for illustration, I believe a substantial potential for replication and enhanced reach lies in encouraging group farming by village SHGs.

There are over 2.2 million SHGs in India, predominantly constituted of women.[35] Typically SHGs are economically homogeneous consisting of 10-12 self-selected women who pool their savings and rotate lending within the group. One village can have several SHGs. Groups that have a proven record of working together for about six months are eligible for a bank loan as a proportion of their group savings deposit. Loans, if taken, go to the whole group which then decides its use. Many SHGs, especially those catalysed by NGOs have, however, graduated beyond loan disbursements and become advocacy groups, putting pressure on village councils to complete long-standing projects for village improvement (EDA 2006).[36] Although most SHGs begin as savings and credit groups, they differ from microcredit groups in important ways (Ramesh 2007; Harper 2002). The latter are formed basically around credit,[37] can involve women with no proven record of working together, loans go to individual women, and there is usually little focus on social advocacy.

Until the early 2000s, two-thirds of the SHGs were being promoted by NGOs, although now they are also being catalysed by state governments and banks. Many NGOs formed SHGs around savings and credit as an entry point for empowering women. For instance, since the early 1980s, MYRADA has catalysed "Self-help affinity groups" in south India based on the idea that there will be mutual trust if members have common social or geographic origins, or have the same livelihood source, or share gender bonds, or some combination of these.[38] These "affinities" enhance solidarity and discourage free riding.

Recent surveys show that a fair percentage of SHGs are formed of poor and socially disadvantaged women. Half the SHG women in EDA's (2006) survey were below the poverty line, and 55% belonged to the lowest castes or tribes. An all-India survey of 2,750 SHGs in three states similarly found that in 41% of the SHGs the majority of members were from scheduled castes or tribal households, and in 42% the majority were from landless families (Nirantar 2007). In the National Council of Applied Economic Research's (2008) study of 961 SHGs (of various gender compositions) in six states, 60% of the members were below the poverty line. Deininger and Liu (2009), based on an analysis of two rounds of panel data for 2,400 household in Andhra Pradesh, find that households (including the poorest) which had been SHG members for 2.5 to three years, gained in consumption, nutritional intake and asset accumulation.

At the same time, most SHGs, with rare exceptions, take loans for family-based micro-enterprises (NCAER 2008), the benefits of which may not flow to women. Here involving SHG women in group production, especially joint farming, could enlarge the economic scope of these institutions. The typical 10-14 person SHG is the right size to successfully take up group farming, based on leased or purchased land, or the pooling of small family plots. They also have financial resources and links with banks. Some are already involved in group enterprises such as community forestry, sericulture, and pisciculture. And some large companies, as noted earlier, have contracted women's SHGs to supply products such as tea. There are also occasional cases of SHGs initiating group farming on leased in land.[39] Graduating towards group farming would thus be possible for many SHGs if land were available and if they received subsidised credit and infrastructural support. This would help expand the scale and geographic reach of women's group farming and, in turn, move SHGs out of the narrow confines of savings-credit and individual or family-based micro-enterprises towards economically stronger and socially empowering group enterprises.

Their impact could, however, be even greater if they were part of an SHG federation (a network of individual SHGs). Typically, SHG federations have been promoted by NGOs, and today there are an estimated 69,000 – 89% in southern India, constituted variously at the village, panchayat or district level, with one federation (in Andhra Pradesh) at the state level (APMAS 2007). Some federations link 10-40 SHGs, others a few thousand. A typical SHG federation is multi-tiered. Federations provide SHGs with bargaining power vis-à-vis the government and the market, as well as the capacity to sustain over time.[40]

Although it may be too early to speak of federations of women's farmers' groups, since the numbers of such groups need to increase and spread, if SHGs were to take up group farming on a notable scale, their existing networks could serve as a basis for forming federations of women's farming groups as well. Given the regional concentration of SHGs, however, it would prove useful to first concentrate on parts of south India, especially Andhra Pradesh, for testing how well SHGs are able to take up group farming, before expanding it to other regions; although there could be some NGOs with strong rural women's networks in other states, which may be interested in trying this out on a pilot basis.

7 Conclusions

The poor, especially in market economies, need the strength that collectivities offer for creating more economic, social and political space for themselves, for enhancing their socio-economic well-being and voice, and as a protection against free market individualism. It has been argued here that a group approach to farming, especially in the form of bottom-up agricultural production collectivities, offers substantial scope for poverty alleviation and empowering the poor as well as enhancing agricultural productivity. To realise this potential, however, the groups would need to be voluntary in nature, small in size, participative in decision-making, and equitable in work sharing and benefit distribution. There are many notable examples of such collectivities to be found in varied contexts, such as in the transition economies and in India. All of them bear witness to the possibility of successful cooperation under given conditions. And although the gender impact of the family cooperatives in the transition economies are uncertain, the Indian examples of

women only group farming offer considerable potential for benefiting women.

The ideational impact of the highly adverse welfare effects of early socialist collectivisation, however, has created a policy blind spot in relation to the varied ground reality in which collectivities continue to flourish in many contexts and countries. This remains a particularly serious barrier to shifting policy towards promoting agricultural production collectivities in developing countries such as India. This barrier needs to be overcome by wider dissemination of information on existing collective ventures in policy circles;[41] more research on the conditions under which they emerge and sustain; and greater experimentation with collective enterprises on the ground, especially by grass roots organisations. Such experimentation would also help reveal how local-level structural inequalities of class/caste/gender might play out and be overcome.

In anticipation, we might also address a question that sceptics might pose: why would we expect agricultural production collectivities to succeed today when most did not historically? One part of the answer lies in the lessons already learnt about the features that are conducive to forming successful collectivities, in particular the principles of voluntariness, group homogeneity or affinity, small size, participatory decision-making, peer-implemented sanctions for work shirking and other forms of free riding, and equitable benefit sharing. A second part of the answer, at least for south Asia, lies in the mushrooming of civil society groups, especially since the late 1970s. While not all groups are motivated by a desire for social transformation, many are. And a third part of the answer lies in the prior existence of a wide range of collectivities, especially women's SHGs. Although most have not tried joint production, some have, and many others have the potential of doing so. These can constitute three major pillars, which did not exist in the earlier period, on which new agricultural production collectivities could be built.

NOTES

[I have presented aspects of this paper in several forums: as part of the B N Ganguli Memorial Lecture, Delhi, 2008, at the workshop on "Poverty and Human Rights", Harvard University, 2008; to the steering committee on agriculture, 11th Five-Year Plan; and in my acceptance speech for an honorary doctorate at the Institute of Social Studies, The Hague, 2007. I thank the participants of these events, as well as Amrita Chhachhi, Ashwani Saith, and several colleagues working on agrarian change in the Netherlands and the United Kingdom, for their useful suggestions. I am also most grateful to P V Satheesh, Suresh Kumar, Rachel Sabates-Wheeler, Ruerd Ruben and Malcolm Childress for providing me with unpublished information from their ongoing work. Responsibility for the end product, however, is mine alone. A version of this paper will also appear in a book, *Freedom from Poverty: Economic Perspectives*, edited by Stephan Marks, Bård Andreassen and Arjun Sengupta.]

1 These estimates are dated but indicative. We would expect rural female-headedness to grow with time, with decreasing marital stability and kinship support and increasing male outmigration.

2 In the paper, "poor" implies income poverty, which often overlaps with asset poverty (especially landlessness). Although there are likely to be poor and assetless women in non-poor households, given intrahousehold inequalities, poor women, as referred to here, are both poor themselves and come from poor households.

3 These four elements are especially emphasised in human rights approaches to development (see, e g, Marks 2003: 6).

4 See, e g, the World Bank's approach to market-led agrarian reform as enunciated by Deninger and Binswanger (1999) and Deininger (1999) and its critique (Borras 2003). See also Griffin et al (2002) on redistributive land reform and the critique of their approach by Byres (2004) and others in the *Journal of Agrarian Change 2004*, 4 (1-2).

5 See Agarwal (2008) for more details.

6 See especially Robinson (1967) and Nove (1969) for the USSR; Lin (1990) and Putterman (1997) for China; Swain (1985, 1992) for Hungary; and Goyal (1966) for an overview of several countries.

7 See Robinson (1967) and Nove (1969) for the USSR; Lin (1990) and Putterman (1997) for China. Deininger (1993) also shows that productivity was much lower under forced collectivisation in China (1959-2006) and North Vietnam (1958-71) than in subsequently decollectivised farms. See also Hanstad (1998) on the former Soviet republics.

8 Lin notes that it took 23 years, minus the second world war years, for productivity to reach the pre-first world war level.

9 See, e g, Alula and Kiros (1983) for Ethiopia; Ibhawoh and Dibua (2003) and Scott (1998) for Tanzania; and Carlos (1988) for Nicaragua.

10 See, e g, Alula and Kiros (1983) for Ethiopia; Scott (1998) for Tanzania; Borda (1971) for Ecuador; and Mort and Brenner (2003) and Gavron (2000) for Israel.

11 These effects deserve an in-depth probing, which is not possible here, but some early assessments are illustrative. Some regions in Latin America, for instance, showed production increases with improved technology (Borda 1971) but in others the incomes of the landless declined (Peek 1983). Similarly, Alula and Kiros (1983) report an increase in food consumption and incomes in Ethiopia, but assessments for Tanzania point more to non-economic than economic gains (Ibhawoh and Dibua 2003). See also UNRISD (1975) for a summary of the results from studies that UNRISD sponsored in the late 1960s, to examine the performance of cooperatives in Asia, Latin America and Africa. These are especially revealing of the early emerging effects.

12 See also Borda (1971) and Ruben and Lerman (2005) on the importance of social affinities in the early stages of collectivisation in Latin America. Borda especially highlights local, family and ritual ties.

13 Projecting from these six districts, he estimates that Punjab as a whole had 198 joint cooperative farming societies, 44% of all cooperative societies in the state.

14 See Somjee and Somjee (1978) and Mascarenhas (1988) on Anand, and Baviskar (1980) on the sugar cooperatives.

15 In Latin America even in service cooperatives, as noted, the members were typically men. See also Deere and Leon (2001).

16 See Deere and Leon (2001) on male bias in the membership of production cooperatives in Latin America. In Nicaragua women formed only 11% of the members in the 1980s.

17 Agarwal (1994, 2003); see also IFPRI (2001) for Africa.

18 For Mexico, see specially, Runsten and Key (1996); and for India, see Singh (2000) and Kumar (2006).

19 See also Warning, Key and Soo Hoo (nd, c 2000) for case studies on Mexico and Senegal on why small farmers get excluded.

20 Assessments differ, but Ivanic and Martin's (2008) figures are illustrative. They assess that 105 million people have been added to the world's poor in low income countries (out of a low income population of 2.3 billion), due to rising food prices since 2005.

21 See Olsen (1965) on free riding. Since then, economists have recognised that many factors can contain free riding, including norms of trust and reciprocity within societies and peer pressure and vigilance within small groups.

22 See especially Agarwal (2003). Additional information was obtained from DDS in October 2009. The discussion in Agarwal (2003) is based on Satheesh (1997a, 1997b); Hall (1999) who undertook her research in close interaction with me; Menon (1996); and DDS (1994-95). I also draw on my discussions with P V Satheesh, Rukmini Rao, and many women's sangams and key women informants during several fieldvisits to DDS between 1998 and 2004. Recent figures were provided by Suresh Kumar of DDS.

23 One acre = 0.40468 hectares.

24 Even many landless male farmers in this district, who received an acre each under the government's land reform programme, could not cultivate it effectively on their own and were later helped by the women's committees (see further below).

25 I am grateful to Suresh Kumar from DDS for obtaining this information for me.

26 See Seabright (1997) on how cooperation can be habit forming.

27 Figures provided by Suresh Kumar, DDS, October 2009. The average annual yield for grain was reported to be at least 400 kilograms per acre.

28 Although women, if they own land, can legally bequeath it to anyone, there is social pressure to bequeath it to sons. Women themselves are often reluctant to bequeath land to daughters since they leave their birth village on marriage.

29 In some cases, however, the women's families owned small plots.

30 Notwithstanding the contested nature of gains by women in the Grameen Bank groups, it is well accepted that women typically cooperate well within the groups.

31 Personal communication in 2008 by Carolyn Elliott (professor emeritus, political science, University of Vermont) based on her recent fieldwork in Andhra Pradesh.

32 In Gujarat, the NGO, Anandi has tried to promote group farming by women on leased in land; and another NGO, Mahiti, has catalysed a women's collective on leased in and reclaimed uncultivable wasteland to plant animal fodder (personal communication, Sejal Dave, Mahiti 2008). In Kerala

women's groups are leasing in land for vegetable cultivation (Tharakan 1997).

33 Communication by Md Aminul Islam, Director BRAC (CPD 2000).

34 Communication by a participant at a workshop on "Poverty and Human Rights", Kennedy School of Government, Harvard University, 2008, where I presented aspects of this paper.

35 See EDA (2006), Tankha (2002), Nair (2005), APMAS (2007), NCAER (2008) and Deininger and Liu (2009), among others.

36 Some 30% of SHGs surveyed by EDA (2006) had been involved in such advocacy. Many groups have also reached out to the very poor (NCAER 2008).

37 They are typically structured on Bangladesh's Grameen Bank model.

38 Established in 1968, MYRADA works with poor communities in south India and increasingly focuses on women-only groups (Fernandez 2005). It is notable that the groups from central Asia and Latin America are also often formed among close relatives or friends.

39 The Gujarat NGO, Anandi, for instance, has attempted this.

40 On federations of SHGs, see especially APMAS (2007), Tankha (2002), Nair (2005), and EDA (2006).

41 Two chapters in the Eleventh Five-Year Plan include my recommendations for promoting group farming, especially for women, and strengthening women's land rights (see GoI 2008, Chapter 1, Vol III on "Agriculture"; and Chapter 6, Vol II on "Towards Women's Agency and Child Rights"). Whether these recommendations will be implemented remains to be seen.

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