

Promoting Socially Inclusive and Sustainable Agricultural Intensification in West Bengal and Bangladesh (SIAGI)

Mango Farming by Self Help Groups at Jhariakocha of Bankura District

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Compiled by:

Pulak Mishra & Bhagirath Behera (IIT),

Subrata Majumdar (CDHI)

Niladri Sekhar Bagchi (IIT)

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Front cover image: A women’s self-help group in their mango orchard in Bankura, with SIAGI team members. Photo credits: Lilly Lim-Camacho

Author Affiliations:

1. Dr Pulak Mishra, Professor of Economics, Department of Humanities and Social Sciences, Indian Institute of Technology Kharagpur, Kharagpur – 721302 (India)
2. Dr Bhagirath Behera, Professor of Economics, Department of Humanities and Social Sciences, Indian Institute of Technology Kharagpur, Kharagpur – 721 302 (India)
3. Subrata Majumdar, Managing Director, Centre for the Development of Human Initiatives, Jalpaiguri – 735121 (India)
4. Niladri Sekhar Bagchi, Doctoral Research Scholar, Department of Humanities and Social Sciences, Indian Institute of Technology Kharagpur, Kharagpur – 721 302 (India)

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1 Background to the study

This report is based on the field visits carried out at Jhariakocha village of Bankura district. This village is known for its mango orchard developed by the Self Help Group (SHG) members with financial assistance from the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and active involvement of the local Panchayat, the district administration and PRADAN (the NGO working in the area). The objective of this study was to explore the farming practices of mango and its value chain potentials for promoting socially inclusive and sustainable agricultural intensification in the area.

Mango Plantation for Livelihood Generation and Social Inclusion

In 2008, as many as 12 SHGs came together and arranged 50 acres of barren land on lease from a total number of 52 owners. The lease period was initially for 25 years which was later extended to 30 years. These SHGs started planting mango seedlings in 2008 and the work was completed in 2009. The seedlings were supplied by the Horticulture Department of the state government with necessary financial support from the MGNREGS. The labour costs for this project were also covered under this scheme, whereas other inputs like fertilizers and pesticides were supplied by the local Panchayat. Although 12 SHGs were involved in the project initially, more SHGs joined later increasing the total number of SHGs to 15. Out of these 15 SHGs, there is only one male group and the rest are women groups.

While mango started growing in 2011, selling of the produce commenced from 2012. During 2008-2011, the members of the SHGs provided labour free of costs to nurture the trees. However, payments of due wages were made later under the MGNREGS. For better management of the mango orchard, the SHG members used to hold meetings once in every week and discuss about different problems and their solutions, future opportunities, etc.

The initial decision for this orchard was taken in a meeting with participation of all the group members. PRADAN had a very significant role in this regard. The idea of developing the mango orchard in such rocky barren land was first initiated by PRADAN. The success of similar initiative at the hilltop of Bagmundi (in Bankura district) helped immensely in convincing the SHG members.



Image 1 Interactions with the SHG members

Landowners versus the SHG Members: Conflicts of Interests

The lease agreement between the SHGs and the land owners was done on a legal paper in a proper judicial way. The initial 12 SHGs were signatories to the lease agreement. According to this lease agreement, share of sales revenue was supposed to be distributed as: 60 percent for SHGs, 30 percent for land owners and the remaining 10 percent for the local Panchayat. However, in 2013, the landowners and the SGHs undertook a judicial process to review the shares of sales revenue from the orchards. At the end of the judicial process, the verdict came in favour of the SHGs with a change in the revenue share structure to – 50 percent for SHGs, 40 percent for the landowners and 10 percent for the Panchayat. After the settlement, while the SHGs are getting their 50 percent of revenue directly, the share of the land owners' is deposited with the local Panchayat. Conflict mediation and dispute resolution between SHGs and land owners continue.

Farming Practices

The mango growing process is quite simple. After the seedlings are planted, the soil is manured and regularly watered. The SHG members fertilize the soil, weed out the bottom area and spray pesticides on the trees on regular basis. There are 5840 trees now in the orchard. In the beginning, 20-25 trees died, which were later replaced. It takes two to three years for the trees to bear fruits. The SHG members themselves give all the labour required for digging and manuring soil, watering, spraying pesticides and all other works of maintenance.



Image 2 The Mango Orchard in Jhariakocha

The members visit to the orchard and give their labour for maintenance and protection of the orchard whenever they find spare time after doing their household chores. They sometimes hire males to do heavy labour where required. There is a bricked room with a small porch in the orchard. This room is used for shelter as well as storing of mangoes during harvest and also for occasional cooking of lunch by the members.

At the time of harvesting, the mangoes are plucked with utmost care such that their glues are not stuck on the skin. They are kept upside down in boxes filled with dry paddy stalks to avoid trickling of mango glues on the skin of the fruit. The mangoes are sorted according to their types, size and quality. The major types of mangoes grown here are *Amrapali* and *Mallika*. The other types are *Himsagar*, *Langra*, *Golapphas* and *Alphonso*. There is huge demand for the Amrapali variant in the local and nearby markets. Normally, mango flowers come up in the middle of January. The seedlings that were suggested by PRADAN were of good standard. But, due to the rocky and low fertile soil, these trees are giving 6-7 kg of mangoes each, whereas the same type of seedlings gave forth 15-20 kg of mangoes in each tree in a mango orchard in the state of Jharkhand.

In the initial two years the SHG members did intercropping as well. They grew vegetables like pumpkins, white gourd, foot long beans, flat beans etc. However, when the land owners stopped one of the major sources of water supply, they couldn't continue with intercropping any more.

The members are of the view that if irrigation facilities and other support are provided for intercropping, not only their income will increase, it will also help them to mitigate the risks of crop failures.



Image 3 The Stepped Pit for Water Retention

In the initial years, water was sourced from the nearby ponds for use in the orchard. Also, two submersible pumps were used for this purpose. However, water crisis cropped up as soon as the land owners stonewalled one of the submersible pumps. In order to preserve rainwater and restrict running off of rainwater, the system of soil binding was done in the orchard in consultation with PRADAN. The total area of the orchard was divided into subareas of 30×40 sq. ft. each. In

each subarea, a stepped pit of 7×7×3 cubic ft. was dug on the deepest part. There are three steps each of one foot depth in every pit to prevent soil erosion due to flow of rainwater. In the downward part of the orchard, a small pond of about 80×100 sq. ft. was dug. The rainwater, which flows from the upper slope to the lower slope area of the orchard, fills up all the pits and finally is stored in the small pond. The pits work as the ground water recharge points, whereas the pond works as a discharge point of rainwater. In the dry season, when there is no water in the pits, they are used to dump weeds and leaves. These weeds and leaves dry up in the pits in the course of time and are subsequently used as manure.

Market Dynamics of Mango

Production of mangoes varies depending on weather conditions. For example, production was low in 2016 mainly due to hailstorms in the flowering period. Nearly 20 percent of total produce is used for self-consumption by the SHG members and their families. In the last two years, the average (recurring) cost of production was 18000 Rupees (Rs.). All these costs were borne by the SHG members themselves as the Panchayat stopped funding from 2015.

Normally, the SHG members sell mangoes directly to wholesalers. In some cases, the local consumers also come to the orchard to buy mangoes. In 2015, the DNO (district nodal officer) took some of the members to New Delhi to sell mangoes and the produces could be sold at a very high price of Rs. 120 per kg. However, on their way to Delhi, a lot of mangoes got rotten. The SHGs also sell mangoes in the agriculture fairs at Bankura and Khatra at an average price of Rs. 40 per kg. Importantly, they do not sell the produce in the retail markets of Bankura and Khatra due to lack of access. The retail markets in Khatra and Bankura have well established traders. That's why it is difficult for SHGs to acquire space and sell mangoes there.

Table 1 Selling Price of Mango and Revenue of the SHGs

Year	Selling Price per kg (Rs.)	Revenue of SHGs (Rs.)
2012	10	13275
2013	15	126380
2014	15	51070
2015	30	132500
2016	30	52392

There is no mango processing unit in the nearby areas. Some of the members are eager to start their own processing units and for that they want proper training in respect of preparing jam, jelly, sauce, juice, pickle, mango fruit leather, etc. Recently, one such training was organized by the government, though only a few of the members could take the training. The members are of the opinion that longer training programmes for a large number of members should be organized to develop necessary skills. There is also scope for preparing aamchur (a mango spice locally known as aamsi) from raw mangoes. This is widely used, particularly in the northern Indian regions as a spice. It is generally available in the big market centres. The danger here is that while they might learn to process, they may not be able to market it. It's important that value adding is seen as a through-chain activity, and not just at one part of the chain.

Socio-Economic Changes for the SHG Members

The mango orchard seems to have facilitated socio-economic changes for the members. Some of the members have started constructing bricked houses. The children go to school regularly and they do quite well in the school exams. Some of them have started availing private tuition also. The households get adequate drinking water from tube wells installed by the Panchayat. They also avail government health programmes (*Swasthasathi*) and social welfare programmes (*Samajsathi*) through the Sangha¹. The children from a little well to do families also go for extracurricular activities such as dancing and playing. However, many of the houses do not have toilets and open defecation is largely prevalent. Although some of the members have LPG (liquefied petroleum gas) connection, majority of them use firewood for cooking.

¹ A Sangha is constituted of several Upasanghas and an Upasangha is constituted of several SHGs.

2 Some Reflections from the Major Players

Views of the SHG Members

As mentioned above, the SHG members are interested in intercropping of vegetables in the orchard. However, this requires proper irrigation facilities and opening of the submersible pump which was stonewalled by the land owners. Besides, big drains and iron fencing around the orchard would help in preventing cattle grazing and stealing of mangoes. Furthermore, electricity connection in the orchard would help the male members to work in the night and also reduce the incidence of theft.

Views of the Retailers

The retailers in Khatra normally buy the whole mango orchard at about Rs. 60000, approximately Rs. 15 per kg. The mangoes are carried from the orchard in small cartons loaded in trucks. Normally, the entire lot is sold out in just two to three days. Sometimes, for quick selling, they subcontract several mobile street vendors by giving them Rs. 250-300 each per day. The *Amrapali* variety has a large market demand. In the retail market of Khatra, the price of mangoes is around Rs. 30 per kg. In addition to orchard contracting, the retailers also source produce from the local wholesalers. However, this lowers the margins for the retailers.



Image 4 Interaction with Retailers at Khatra Market

Views of the Local Traders

The other mango producers sell their products to the local traders in Khatra. These traders have small fruit collection centres at Khatra where they store the mangoes before supplying to the head trader at Bankura. The head trader at Bankura has large storage facilities. These local traders buy mangoes at a price of Rs.22-25 per kg and supply it to the head trader for a lump sum margin of Rs. 2000- 5000 per truck. They sell a part of the collection to the local retailers also. The average retail price at Khatra market is Rs. 30 per kg.



Image 5 Local traders' office and local retail market

The head trader at Bankura also supplies mangoes to the processing units elsewhere. According to the local traders, developing strong networks among local traders, producers, head traders and retailers is crucial for proper marketing of mangoes at reasonable price. The traders are also of the opinion that they can facilitate selling of mangoes produced in the orchard as they know the demand in various markets due to their large network with the wholesalers and other retailers.

3 Important Aspects of Social Inclusion

In this mango orchard, all of the SHGs except one are of women members. The following features support inclusion of women and other marginalized groups:

1. The Panchayat and the district administration (office of the DM and the DNO) actively supported the women SHGs and helped them in many ways.
2. Most of the works in the orchard require simple skills of digging soil, watering plants, carrying loads, plucking mangoes, sorting and grading mangoes and packing them in cartons etc., which women and other marginalized people can easily learn and do. Also, low cost of capital goods such as spade, basket, spraying tools, scythe, cartons etc. do not become barriers to the inclusion of women and marginalized section in the initiative.
3. Location of the orchard in the vicinity of the SHG households helped them as they do not need any kind of transport facility to come to the orchard. They can work in the orchard whenever they find time after their regular household works.
4. Coordination of the initiative by PRADAN helped the members to understand the potential of the project and unite them together to make it a success.
5. The positive attitude of male members of households toward their women counterparts also facilitated social inclusion. It is reported that the male members frequently come forward and share their expertise in agricultural works with the women counterparts.

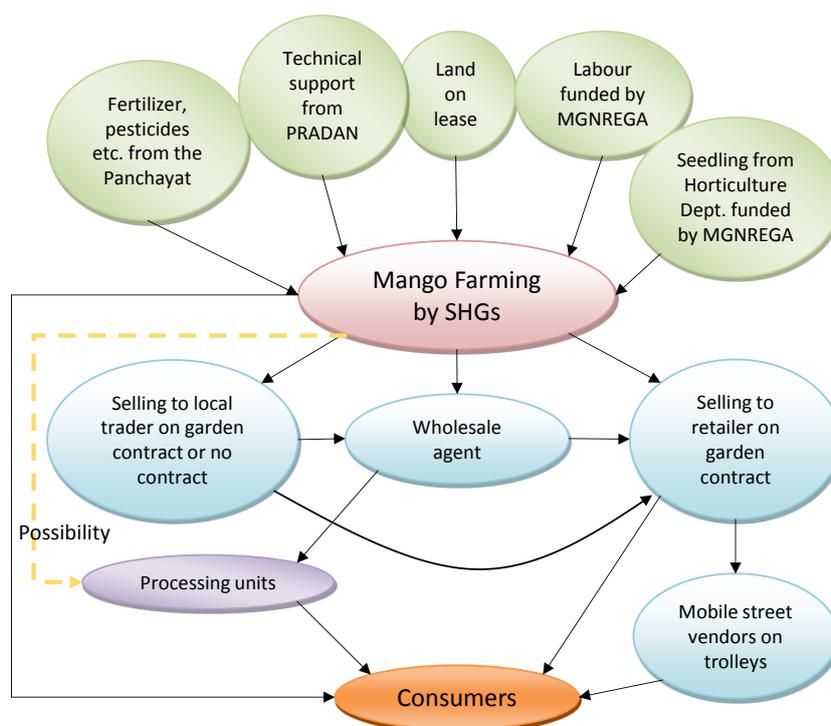


Figure 1 Mango Value Chain in Bankura

4 Constraints to and Opportunities for Social Inclusion

Constraints to Social Inclusion

However, the following constraints limit the social inclusion:

1. No ownership of land is a major constraint in achieving larger social inclusion.
2. Lack of proper and continuous training facilities for mango processing activities hinder setting up of small processing units at household level.
3. There is hardly any banking and insurance facilities available in the area, which is a big hindrance in respect of financial inclusion of the members.
4. Lack of proper irrigation facilities and electricity in the orchard pose serious problems in terms of risk mitigation and security of women workers.
5. In the absence of mango processing activities, the members earn only seasonal livelihoods from the orchard.

Future Scope for Social Inclusion

The following measures can facilitate larger social inclusion under the project:

1. Setting up mango processing units in the nearby area or at the household level with proper training would help the members to earn livelihoods round the year.
2. Setting up of a small but dedicated team of educated women and youth especially for marketing mangoes and other processed products would help in getting good prices.
3. In off seasons, there is scope for intercropping of vegetables like chili, black pepper, foot long beans, flat beans, pumpkins etc. provided the water problem created by the land owners is resolved.

5 Concluding Remarks

In order to develop a socially inclusive value chain, the related activities should be arranged in such a way that women and marginalized people can easily learn and do. Further, the initial investment requirement in the process must be low such that the members can collectively fund it. For further social inclusion, proper trainings should be provided to the existing as well as new members, especially for processing activities. Imparting necessary marketing skills to the members by making a dedicated team of educated women and youth can play crucial role in this regard. This will also reduce the scope for exploitation by local traders and wholesalers.