

# WOMEN FARMERS LED SERVICE PROVISION IN RICE FARMING THROUGH SELF HELP GROUP PLATFORM

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## ABSTRACT

*Financial inclusion is the key impact created by the self-help group in the last more than one and a half decades. Delved deeper it can be found that from small savings and credit groups that aimed for empowering poor rural women, the Self-help group has positively evolved one of the largest institutional platforms of the poor at the global level. (World bank 2020) .*

*In India, Self-help groups are increasingly playing a crucial role in empowering women in the social, economic, and political spheres. It is a platform community-based group that is formed of 10-20 women coming together as a group. In a rural context in India, this platform has become an important vehicle of change for the poor and marginalized section of people whereby it also releases them from the clutches of poverty (Sahu and Singh, 2012)*

*It is increasingly playing important role in empowering rural India with knowledge delivery related to various efforts of the government. In the covid era, too this platform played a powerful and result oriented platform whereby fighting covid was made easy by perform the self-help groups members in their villages through sharing of the protocols released by government. Self-help group played a powerful role when it came to mask production. As per the report of world bank self-help groups had played a powerful role silently in ninety districts of the country producing masks, sensitizing people with right information to tackle covid, running community kitchen and also supplying essential food supply during crisis situation.*

## INTRODUCTION:

In agriculture, Self-help group is an important and a result-oriented platform to empower women in agriculture. As a voluntary association of poor and marginalized rural women, it acts as a powerful agency for empowering women in rural India. The platform also provides opportunities for collective bargaining power, thereby creating an opportunity for better access to credits and agriculture extension system to their members. Through the SHG access to microcredits and opportunities for farm income generation is availed by the women members of the groups. It is important to understand that the members of the group act together as a unified force with better negotiating power, risk taking capacity and many a time resolving conflicts both socio-economic through better exposure, knowledge, and awareness generation.

It has played a crucial role in establishing the identity of women at the grassroots level particularly agriculture. It has improved the status of women as participants, decision-makers, and

beneficiaries in the democratic, economic, social, and cultural spheres of life (Kondal, 2014). In many cases it has been found that self-help groups are playing the role of a catalyst for solving the social, economic, and developmental issues (Ganguly *et al.*, 2016b).

Increasingly it has also played a pivotal role in empowering women in agriculture. It has played an important role in empowering women working at farm. Women who are affiliated to Self-help groups are comparatively more empowered to those who have no affiliation to such groups. (Shinogi. *et al.* 2021)

### **Group Affiliation creates a conducive ecosystem for improved knowledge related to farming**

The Self-Help Group platform helps women to get out of their households and come together to form an affinity while working and planning agricultures activities. Belonging to a group gives each member a group affiliation and a space where they can feel free to learn and unlearn from each other's and share their thought. The safe space where the members listen to each other and discuss the issues which are common to all and many a time the group members also resolve the issues related to individual members. The platform provides them a cohesive environment where they can take decisions based on knowledge gained through the training and capacity-building program.

Not only related to the finance, social and health segments, but SHG also plays a crucial role in the field of agriculture too. Agriculture is the backbone of Indian economy is directly being influence positively by the group affiliations of women farmers at the grassroot of India in rural areas. The group affiliation also empowers the women to come out of their individual shell, learn and unlearn new things. It is important to understand that the affiliation and belongingness to a group support women members emotionally where together the members can share their own struggle and explore opportunities.

The self-help group which is also taken as a platform for empowering the knowledge bank of women at the grassroot levels from different arena like, health, agriculture, domestic violence, education, financial literacy etc by different government and non-government, private players create a conducive environment for them to be empowered with knowledge. It is important to understand that the belongingness to one's group give them an identity of their own. Along with the increasing opportunity for women to learn the SHGs due to its social networking play's significant role in enunciating farmer's need to knowledge dissemination agencies (Glendenning *et.al.* 2010)

In case of cereals cropping system like rice and wheat, there is an increasing role of women from sowing to harvesting to marketing. Among various key factors migration is one of the prompt reasons where women in the villages have increasing role to play in farm practices. The increasing migration of men of the household to nearby city, district and other states leads to women active role in agriculture as compared to earlier time.

## **Women Farmer leading Mechanical Rice Transplanting through Self Help Group in Muzaffarpur**

The total production of Rice at the Kharif season is 3527.822 tones and the yield is 1127 kg/hectares (Agricultural department-Govt of Bihar 2006-2007). Bihar agriculture is dependent on monsoons. The erratic monsoon has become an issue in the last decade owing to climate change. The distribution of rainfall and water resources is not uniform a result of which the irrigation facilities are also uneven. When we analyze the rainfall and the productivity as per the agriculture data we find that approximately fifty-seven percent of its area is irrigated which is majorly dependent on the monsoon. Bihar's Total irrigated area is 45.67 hectares out of which thirty percent is under canal water. The impact of such irrigation and water resources directly impacts crop productivity where as per the estimate in 2006-2007 the area under the foodgrains reduced to 61.55 lakh hectares as compared to 65.48 lakh hectares in 2005-06.

### **Need for smart agriculture system, a sustainable intensification technology in rice and wheat.**

With the increasing climate change, it has become more than ever to practice improved farming practices in agriculture. When it comes to staple crops like wheat and rice it is farm important now for farmers to adopt technologies that reduce their investment, increase productivity, save time and reduce drudgery.

In South Asia, it becomes crucial to produce more by efficiently using their small lands and making optimum utilization of the natural resources. Equally the innovations and new technology adoption must be environment friendly. As a result of which zero tillage technology become of great use whereby it allows the intensification of cropping systems parallelly saving resources at the same time. There are technical details that needs to be understood as far as conventional tillage and zero tillage are concerned.

### **Conventional Tillage (CT)**

The softening of soil happens in Conventional tillage (CT) use. The seedbed prepared in this allows the seed to be placed easily at a suitable depth into moist soil using seed drills or bullock-drawn desi-plow or manual equipment. This results in good uniform seed germination. It generally involves ploughing or intensive (numerous) tillage trips.

Along with any soil amendment, the last crop residues are combined along with any soil alterations (fertilizers, organic or inorganic) into the soil. In this, Crop residues, especially loose residues, create problems for seeding equipment by raking and clogging.

Though there is a temporary relief from the compaction using implements that could break below-ground compaction layers formed in the soil. But serious problems are being encountered nowadays with the use of implements like rotavators which are used for soil compaction. This further leads to water stagnation after the first irrigation and leaves of wheat becoming yellowish

in color. It encourages the broadcast method of sowing which is the worst agronomic practice and does not follow the concept of proper crop geometry

## Zero Tillage

Zero tillage may be defined as the placement of seed into the soil by a seed drill without any prior land preparation. To understand zero tillage in common language it means that at the planting time 30 percent of the soil surface should be covered with residues at planting time. The machinery component of the technology is formed by the tractor drawn ZT seed cum fertilizer drill. This allows wheat seed to be sown directly into un-ploughed fields with a single pass of the tractor, often with simultaneous basal fertilizer application, especially phosphorus. This machine is multipurpose, which can be used for other crops as well. It can also be used for planting other crops like lentil, chickpeas, mustard, green gram, maize, and even rice



*Fig. 1: Women farmer with her zero tillage in wheat*

When it comes to rice, in current scenarios water crisis is an upcoming challenge. Water availability for agriculture is becoming increasingly scarce In India, rice is traditionally grown by broadcasting the seeds into puddled fields. More than 30 percent of water is consumed for transplanting and puddling. The farmers are heavily seen dependent on Monsoon for irrigation. Timely transplanting of rice was based on the availability of cheap laborers and timely monsoon. Availability of labor on time is also emerging due to migration happening at the village level in Bihar. The migration of the male members of the family to the urban areas in search of non-farm activities is becoming another major problem.

As a result of the problems being faced it becomes imperative for farmers to use technologies that save their time, reduce drudgery, and provide an opportunity for timely transplanting and better

yield. Especially when it comes to women farmers such improved technology which can deal with the challenges become more crucial Therefore, the need has been finally realized by the farmers across the region to explore new rice-producing technologies to solve the problem of less availability of labor, reduce drudgery, reduction of crop loss, and mainly eliminate puddling. The mechanical transplanting of rice became a visible option for the women farmers who through their self-help group they bought a machine for mechanical rice transplanter from their own group saving for transplanting rice in their fields. Further, they used the machine to provide services to fellow farmers in the nearby area.

The self-help group of Jyoti Mahila Samakhya federations operational in Muzaffarpur led the service provider of the machine transplanting of rice through the women farmers of the self-help groups. It also became an imminent business model owing to the possibility of timely transplanting and the less time taking capacity of the machine to transplant paddy fields as compared dot manual transplanting. Such interventions planned well can help small and marginal farmers to have an additional option for added income generation. The enterprise can be run by both indivial and groups of farmers When it comes to women farmers, they are doing it through their self-help groups help them to mobilize resources and also get ascertained the number of farmers the customer. Social networking in the self-help group helps them to do such intervention in a planned way. Thus, this study was encircled around the Entrepreneurship opportunities that is possible through MTR which include both Individual & Group business models. This also provides an opportunity for the youth to be involved in agriculture whereby such a business model which also tackles the issue of rice productivity and added income source can be positive for youths to take ahead as agriculture entrepreneurs generating greater employment opportunities.

The self-help group giving the service also helps in reaching out to such innovative technologies among the small and marginal farmers.

### **The affiliation to the self-help group makes them a better risk taker**

In one of the studies carried out under the cereal system initiative for south Asia, it was found that the self-help group membership and association gives women farmers to have better decision-making and also makes them risk takers. They have an agency to fall back which is their group and hence they are in a better position to take risks as part of the group member. It was found that the women work together through its regular meetings, disseminate awareness, and works as an institution. Bot ah community and their family level there is a change in their status. It was also interesting o find that the women who were form the self-help group also have a better landholding and also a say on it. They have access and ownership to land. To which they also explain the group membership keep them informed and ware of their land rights as a woman. The decision to sell and/or purchase cultivable land was mainly made by the couples together or by other household members The women status in relation to agriculture activities and participation has also increased. wo-thirds of the women were engaged in land preparation, crop establishment, weeding, harvesting, and drying. A large number of women are found to be involved in land preparation, crop establishment, spreading herbicide/pesticide, harvesting, and threshing, and the result is statistically significant. The women spend more time (compared with their husbands or other men

in the household) in different agricultural activities (except weeding, marketing, and seed preservation). It can be seen that, though women in the treatment group were involved more in agricultural activities, the percentage of time spent in different agricultural activities compared with that of their husbands or other male members in the household was higher it comes to the decision-making process, a majority of the women reported that that as far as the decision making process is concerned their involvement was below 50% compared with that of their husbands. The women though have started participating in the decision-making still it is as compared to their husbands in the household, but interestingly they find it fine that they have shared in the decision-making. (Ganguly. et.al. 2016)

### **Self Help group leading the enterprise of Machine transplanting of Rice in Muzaffarpur, Bihar**

In the eastern gigantic region of India, Bihar migration is an increasing reality at the village level. For instance, migration flows from rural Bihar, have steadily increased over the past 30 years. The proportion of migrant workers in the state has risen from 15.7% in 1998-99 to 25.5% in 2009-10 (Source: IHD 2012). For instance, migration flows from rural Bihar, have steadily increased over the past 30 years. The proportion of migrant workers in the state has risen from 15.7% in 1998-99 to 25.5% in 2009-10 (Source: IHD 2012). Due to this migration issue, there is a scope for the woman farmers to take leadership and have better decision-making capacity in adopting the technologies which provides a business opportunity as well serve for the better yield and less investment saving time and drudgery.

The also leads to the emergence of opportunities for independent farmer or as a group enterprise to develop a service provision around mechanical rice transplanting of rice with the provision of mat type nursery supply as well. The mat type of nursery can be easily placed and grown in the backyard of their house with efficient better bet agronomy practices. Through this new technology, women group have opportunity to come out and take part in socio-economic decision-making process which help in women empowerment and become financially independent and thus reduced the gender gap issue prevailing in that society. The Jyoti Mahila Samakhya Federation operational in Muzaffarpur took an initiative whereby the self-help group members came together and became the first women led service provider group of the region. (Akter 2015). It is taking the initiative in women-centred agribusiness service provision model as shared by the group members of the two shelf help group of Jyoti Mahila Samakhya Federation It was reported that Woman Farmers This is setting an example on the field on the hanging role of women in agriculture and reducing the gender gap. Earlier, no women had access to agriculture-related training programs and micro credit. Women were not given a chance to own production and postharvest machineries or equipment. Adoption of the transplanters reveal the impacts on women. Findings also show that labour-saving technologies also have impacts on women time and income generation. Government should emphasize on the increase on the ability of the woman farmer entrepreneurs to earn agricultural income through agribusiness ventures or micro-enterprises by use of the machineries during the service provision facilities. Training programs and scheme targeting women as a group

have the greater impact and potential to address the gender issues rather than programs targeting woman as individuals.

### **Overview of the MTR service providing business model Bandara Muzaffarpur by Self Help Group Members of federation.**

Jyoti Mahila Samakhya federation operational in Muzaffarpur district have hundreds of self-help groups working under its umbrella. The self-help group members work intensively for issues related to education, child rights, girls' education, women empowerment in the area through the village level self-help groups and its associated members. In agriculture the federation works with women farmers on sustainable intensification practices in wheat and rice, vegetables, livelihood, livestock etc. The member of the federation is progressively working for empowering women in agriculture. Under the theme of farm for improved agriculture practices adoption by women farmers, increasing their productivity, less investment and more saving the farmers of the groups carried out the mechanical rice transplanting activities. The two group members came together and from their group saving bought the machine transplanter machine for rice. They further carried out the service provision in their own area and thereby also providing service of rice transplanting by the machines in the fellow farmers plot of the nearby area. Jyoti Mahila Samkhya federation has been the initiative of the government of India program popularly known as Mahila Samakhya.

The intervention of the government has been dedicated to the empowerment work of women in the field of social, economic, and political reforms. As part of the intervention the federation has been operational for leading the women through the self-help groups.

In the field of agriculture through the self-help group association of women farmers the federation has been helpful in getting the women at the grassroot level oriented with the progressive training and capacity building program around the better bet agronomy practices. The women farmers trained through the umbrella of the self-help group have practiced improved farming in their area and farming plots. It is important to note that the women of the groups largely belong to the small and marginal farmers plots. The farmers have a combination of their own land and the lands taken on rent to do the farming.

Through the agriculture institutes they have been given trainings and have acted as the progressive farmers with their innovations.

Along with the improved farming practices through the adoption of better bet agronomy practices in wheat and rice like timely sowing of wheat, zero tillage in wheat sowing, timely transplanting of rice, using improved varieties these groups of women as a part of the self-help have also become the pioneer in the service provision of machine transplanting of rice in their area.

Two self-help group from Bandra block have been involved on Machine Transplanting of Rice as service provision. The members vary from 10 to 12 women. In 2016, they have provided the service provision for 50 acres of land. The model of the service provision adopted by these women farmers included Machine Transplanter for transplanting rice in the field of farmers both men and women @ Rs 800 for customer group members belong to the self-help groups of the federations

and Rs 1,000 for the Outsider those who are not the member of the group whereby the nursery was developed by the customers themselves (Mat Nursery was developed by the customers)

Jyoti Mahila Samakhya has thus initiated the group business model by two Self Help Groups leading the custom hiring of the machine transplanting as the service provision. Name of the self-help group was Gulab Samooh led by Guddi Devi of Harpur village in the Bandra block.

Only hiring of Machine Transplanter @ Rs 800 for customer group members and Rs 1,000 for the Outsider (Mat Nursery was developed by the customers). The unique proposition of the MTR service providing cum Mat Nursery Business Model. The Unique Selling product of this mat nursery is its reduction in its requirement in labour which also reduces its expenditure cost., Fast & efficient and ensures timely planting., Reduces stress, workload, and health risks, ensures uniform spacing & plant destiny, seedlings recover fast, tiller vigorously and mature uniformity. The unique Selling Product of this service is that majority of service providers are farmers first and provide custom services to other farmers which covers risk, less output more input i.e., profit, and most importantly creates employment.

According to the Group Discussion conducted with the woman farmers it was reported that they are satisfied and want to extend the level of their entrepreneurship in this field as the transplanting machines. This has resulted in reduction of labor and cost of cultivation for the small marginal farmers. Since, reduction in drudgery is one of the important factors attracting women farmers. Thus, they planned a strategy to buy a new transplanting machine in their near future with their savings.

As, a result, from the survey, all the above respondents added one more point that through this there is skills in agriculture for promoting entrepreneurship which contributes to local economy. It is an opportunity for generating more income through farming and become financially and socially stable. Moreover, they are introduced to improved farming techniques, more scientific in nature and modern crop establishment and management methods, through different equipment and machinery to enhance productivity and also creating empowerment among the woman farmers which is seen as an important factor in improving living standard of farm community of Bihar.

There are certain challenges which the farmer shared, which revolves around the market competitions. The self-help groups members also shared the prospective of the increasing in the area as per the demand. Demand is more and sometimes we struggle with managing the services as shared by one of the farmers. They further shared the need for increasing the number of the machine in the area as per the demand.

## Cost benefit Analysis & Findings

Table 1: Mechanized Paddy Transplanter versus Traditional paddy transplanting with community business provided by the SHGs Gulab Samooh

Particulars required (one acre)	Mechanized Rice transplanting (One Acre)			Traditional method of Rice Transplanting (one acre)		
	Unit	Per unit rate (INR)	Total cost (INR)	Unit	Per unit rate	Total cost (INR)
Seeds (Kg)	14	35	490	30	35	1050
Polythene sheet Cost (Meter)	20	8	160		0	0
Labour Cost for Nursery Preparation	1	200	200	2	200	400
Diesel Use for irrigation in Nursery (Hour)	2	100	200	2	100	200
Ploughing for field preparation (Puddling)in No	2	750	1500	2	750	1500
Diesel Use for irrigation during field puddling (liter)	4	100	400	7	100	700
DAP Used during Puddling (Kg)	40	28	1120	40	28	1120
Labor Cost for Nursery cutting (MPT)& Pulling (Traditional)	2	200	400	3	300	900
Labor cost for Nursery Transplanting	2	200	400	9	200	1800
Diesel cost For Transplanting (Liter)	1	60	60	0	0	0
Rental Charge for MPT(Acre)	1	800	800	0	0	0
Miscellaneous (Flooding of labor, Small parts of Machine)			400			1000
Total			6130			8670

There was further detailed discussion related to the strength of the machine transplanting with the women group in order to understand the benefits and limitation of the technology. The following details came out as the strength of the service provision being led by the women farmers

### **Strengths**

- Conducive to be adopted as the group enterprises by the self-help group
- Women farmers friendly as it reduces drudgery
- Helps in addressing the challenges faced in transplanting due to the non-availability of farmers on time.
- Agronomy wise the transplanting through the machine ensures uniform spacing and plant density
- Healthy seedlings which is crucial for the translating and quality production, the mat type of nursery grown for transplanting ensures, that seedlings mature uniformly.
- Women farmers being empowered with the improved knowledge building.
- In comparison to manual transplanting, it ensures timely transplanting saving time and cost of production
- It also ensures increased return cost.

Along with the above-mentioned benefits relate do the agronomy, production and on farm benefits this technology is also viable as a service provision business model led b the women farmers groups, as seen in the case of Jyoti Mahila Samkhya Federation of Muzaffarpur. The opportunity of the business model is feasible as far as small and marginal farmers in concerned. There is an opportunity to improve the quality-of-service provision, high trust building among the farmers, The business model also creates a conducive environment with increasing the demand the raised seedlings of the mat nursery & the transplanter, possible growth of woman as an independent & successful farmer cum entrepreneur. There is the limitation, which was found to be, high cots if machinery difficult to be purchased by individual farmers, hence it provides the space for group ownership.

There is certain situation where the group conflict can also happen over a period of time, seedlings need to be transplanted on time hence the availability of irrigation and irrigated land on time is crucial. This further needs detailed minute level training to the farmers and service providers group for both quality and quality services.

## CONCLUSION

There is a need for such intervention which is sustainable and also provides women farmers an opportunity to practice new and improved technology. As seen the self-help group and the association of women farmers as the member of the group provided them with an opportunity to become service providers. The service provision in agriculture or the business is considered to be the man domain area. But we see how the group association creates a level playing field for the women to adopt improved technology and also start the beginning of women led service provision in rice farming, The women through the service provision get established as the progressive women farmers in their area.

From business point of view, it is a successful interventions adding to income generation opportunity and also improving the agronomy practices of the region .If we try to understand the service provision form the point of view of the women farmers, it seems to be a viable option where through the group affiliation they are able to pool resources for investment and cover the cost after the planned service provision provided to their fellow community farmers of the region . From women farmers point of view, with the provision of subsidy and group saving the business model is conducive to run. They further suggest that small machines for transplanting can help them to take this business model at large scale. As a community enterprise, it becomes a useful agriculture enterprise model. This also provides the women farmers in groups to generate income and address the issues related to lack of labor availability during transplanting time, less investment compared to manual transplanting and last but not least reducing the drudgery of women farmers and saving time where in turn it is used by them in other productive works.

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