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ORGANIC FARMING AS A LIVELIHOOD OPPORTUNITY AND WELL BEING FOR SUNDARBAN FARMERS

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ABSTRACT

The challenges for small holding agriculture in India are quiet demotivating specially in the regions where education and awareness level is low and poverty is high. One such region in India is Sundarbans, West Bengal. Therefore the study was conducted with marginalised farmers of Sundarban. The study attempts to Explore different opportunities and challenges related to livelihood and wellbeing among extremely marginalised farmers through organic farming adoption. The study also identified different factors or categories realted to organic farming practice and evaluate the relationship between them. The farmers and eco volenteers from an NGO were interviewed and Grounded theory was applied to analyse the information. 42 items were itentified through Open coding , 7 categories evolved through Axial coding . Organic Farming Adoption is identified as the core category through Selective coding.
Key words : Organic Farming, Grounded Theory , Sundarban , Livelihood.

1. INTRODUCTION

The Indian organic food market is growing at a faster rate compared to the developed nations (Singh & Verma, 2017). Though the domestic market is limited, the industry has immense export opportunities (Singh & Verma, 2017; Nandi et al., 2017). India is having the highest number of organic producers in the world (Willer et al., 2018). All these factors interested a significant number of corporate players to venture in this domain. More than 80 percent of organic farmers of India are small and marginal, holding less than 2 hectares of land (Mahendra Dev, 2014). The challenges for small holding agriculture in India are quiet demotivating. Some of those issues that marginal-small farmers have to encounter on a regular basis are imperfect markets which lead to generation of a small value for their product, product realization, absence of access to credit markets; poor human resource base; poorer access to public goods such as public irrigation (Mahendra Dev, 2014). In some cases many corporate players take an advantage of their situations and exploit them to develop their own market. Moreover skepticism or trustworthiness about organic production among the consumers is an important issue.

1.1. Why Sundarban ?

Sunderban accounts for one of the World's largest salt tolerant mangrove forest and declared as World Heritage Site in 1987. The deltaic region is intertwined by complex network of tidal waterways and mudflats. Wide range of fauna – 260 bird species, Bengal tiger, estuarine crocodile and Indian Python. On the other hand climate threats are quiet evident in Sundarban. One major indicator is increasing temperature of water, Sundarbans is experiencing an increase in water temperature at a rate of 0.5 degree C per which is much higher in comparison to the observed global sea surface temperature which is increasing at the rate of 0.06 degree C per decade (Bhatt et al., 2018; Loucks et al., 2010). Scientific data shows that the rise in sea level is almost double than that of global average in last 25 years. There is a significant upsurge in the intensity of cyclones hitting the deltaic region (Bhatt et al., 2018). Heavy siltation and unhealthy disposal of solid waste from adjacent cities affected the soil and water in this region. The rivers in the Sundarbans do not receive fresh water from the upstream Ganges (Bhatt et al., 2018). Multiple such factors have disrupted the agriculture system of Sundarban. Agriculture is also being affected because of the high levels of salinity in the soils due to frequent high tides, cyclones and storm (Mukhopadhyay et al., 2018). Agricultural area had shrunk due to multiple reasons. Only 12% of the cropped area in the Sundarbans is irrigated through rain-fed ponds, tanks and canals; majority of the agricultural land is rain fed, the irrigation system is highly inefficient (Hajra and Ghosh, 2018). It has been observed that rainfall has become erratic and its intensity has increased causing further damage to the agricultural yield and variety reduction. There were six local salt-tolerant farmers' paddy varieties. Now they are just left with two varieties due to too much of mono crop culture.

Poverty in Sundarban has made these challenges even worse. It is one of the most densely populated parts of India. Population density of about 929 persons/square kilometers in 2001, which has increased to 1,082 persons per square kilometers in 2011. 44 per cent of the population living in this region is below the poverty line. The landholding among the farmers in this region is significantly low which is around 0.2 hectares on an average. Considering all the above mentioned challenges in this region the study attempts to explore farmers' life in Sundarban and multiple opportunities and challenges related to livelihood and wellbeing. The achievement of wellbeing can vary from escaping morbidity, mortality, being adequately nourished, having mobility etc. to complex ones such as being happy, achieving self respect etc. (Sen, 1993).

2. THE OBJECTIVE FOR THIS STUDY

- Explore different opportunities and challenges related to livelihood and wellbeing among extremely marginalised farmers through organic farming adoption .
- Identify different factors or categories related to organic farming practice and evaluate the relationship between them.

3. RESEARCH METHOD

Grounded Theory is applied to explore the opportunities and challenges among the farmers. Grounded theory was first presented by Glaser and Strauss (1967) out of an urgent need in the field of social science research. It is also a suitable approach in generating factors for different constructs (Parry, 2003). It is generally performed through three stages – Open coding, Axial coding and Selective coding.

Primary research for this study is being conducted through a continuous and active engagement with Sundarban based NGO operating in the region called Pashchim Chintamanipur. They started organic farming as an intervention in 2015 to create livelihood opportunity and wellbeing among this extremely marginalized farmers. 1000 farmers got enrolled at the initial stage which has now increased to 3770 farmers and quiet a significant among them are women, spread across 23 villages. They have appointed 17 eco volunteers to supervise and monitor their activities. Average land ownership among these farmers are one bigha (In WestBengal 1 bigha = 0.1338 hectare). Therefore their land holding is around 0.2 hectares. Each land has a small pond which is a source of water for irrigation , helps in rain water harvesting and also perform some fishery activity.

Primary data was collected through interview and focus group discussion among the resource farmers, women farmers and eco volunteers of an NGO from Sundarban Region with a set of semi structured questionnaire addressing towards understanding their land holding and basic financial strength, challenges related to organic farming adoption etc. The transcripts from these interviews and focus group discussion are being used for open coding to generate exclusive items.

3.1. Open Coding

The interview of the farmers and some NGO eco volunteers are recorded verbatim. The recording was in local language. Initially a transcript was prepared in local language and then translated in English by an expert. Another expert was introduced to retranslate it back to the original local language. And both the transcript in local language was compared to check the deviation or distortion from the original in the overall theme or meaning.

The transcript in English language has gone through minor changes in this process. Then this transcript was used for open coding. The researcher did open coding on the data to identify concepts, which are also known as labelled phenomena (Goulding, 2002). Then the primary labelling was done based on the researcher identification in relation to its significance in the data.

Open Coding is an interpretative process by which data are broken down analytically. Its purpose is to give the analyst new insights by breaking through standard ways of thinking about or interpreting phenomena reflected in the data.

The following open coding process has been explained below with few examples. It has three sections: Excerpt, Primary label and Memo. Excerpt is a portion from the translated transcript; Primary label which is the key phrase or sentence or concept evolved from the extraction of the transcript which is also known as labelled phenomenon. Memos are integral part of grounded theory. Memo contains the explanation and the logic behind selecting the primary labels and their role in the context.

Excerpt 1 (Resource Farmer)

I have to spend lot of time and energy in preparation of compost and the soil. We are going through lot of struggle in the process of converting the land fit for organic farming. Sometimes with so much change in weather and also sometimes it is difficult to map right kind of soil with the seed. Then we don't get a market who will pay little more for this labour.

Primary label / Open Code : The primary label or the open codes from the above transcript are as follows.

- Lot of time and energy in the preparation of compost .
- Lot of time and energy in preparation of soil
- Lot of struggle in the process of converting the land fit for organic farming
- Frequent weather change is also a constraint
- Difficult to map right kind of soil with the seed
- No market to get a value for the labor

Memo : The primary label "Lot of time and energy in the preparation of compost" is one of the key concern that farmers mentioned and is a major limitation for getting into organic farming . Similarly "Lot of time and energy in preparation of soil" is another major limitation for organic food adoption. "Lot of struggle in the process of converting the land fit for organic farming" is something which most of the farmers have mentioned and not much government support are available for this, sometimes they feel that the NGO support is also not enough. "Frequent weather change is also a constraint" is an important parameter to be considered for organic food production. Change in weather is badly affecting the production, which is done organically. Many farmers have mentioned that it is "Difficult to map right kind of soil with the seed" as many areas in Sundarban has become extremely saline after "Aila" cyclone and also due to frequent flood and continuous contamination of different pollutant is changing the soil composition and hence creating multiple patches of different variety of soil. "No market to get a value for the labor" is a major problem across all marginalized farmers in India and definitely the challenge is even more when they are willing and trying to convert to organic farming practice. Most of the literature has mentioned about the challenge associated to develop market for organic farmers.

Excerpt 2 (Eco Volunteer)

The children see the kind of hard work they put in. Their parents are not getting enough money in return. So next generation is not much interested in it. Farming is not a glamorous work for next generation. They are always influenced by different television program and exposed to different types of lifestyles through that. They are strongly influenced by urban lifestyle. Sometimes they are interested to learn technology. But organic farming has no technology association in our place.

Primary Label/ Open Code

- Next generation is not much interested because organic farming is not much revenue earning.
- Farming is not a glamorous work for next generation.
- Next generations are strongly influenced by urban lifestyle.
- Lack of technology intervention in organic farming does not attract next generation.

Memo: "Next generation is not much interested because organic farming is not much revenue earning" is another major constrain for popularizing the knowledge related to organic farming across India. Due to too much

unhealthy media exposure going around kids and young adults are continuously getting attracted to those. Typical corporate attraction towards multiple short-term job market is continuously shifting their interest therefore “farming is not a glamorous work for next generation”. As “Next generations are strongly influenced by urban lifestyle” therefore its extremely degrading for them to pick up farming specially organic farming as a profession. And also “Lack of technology intervention in organic farming does not attract next generation”. Technology intervention can be a key-driving factor to attract next generation and definitely lot of young minds to innovate in farming domain for sustainable food production.

Excerpt 3 (Women Farmer)

I am interested to take up organic farming to take care of my family nutrition and also earn some money. I am empowered through organic farming and able to plan for my child’s development. I can manage my regular food and nutrition demand and sell surplus production, which is a source of earning for me. I use that money for my child’s private tuition. I take active part in family decision-making.

Primary Label

- I am interested to take up organic farming to take care of my family nutrition
- Sell surplus production which is a source of earning for me
- I am empowered through organic farming and able to plan for my child’s development.
- I take active part in family decision-making

Memo: “ I am interested to take up organic farming to take care of my family nutrition “ is a key statement. This gives an understanding that how women can be potentially channelized to organic farming which will eventually take care of family food security, nutrition and health. “Sell surplus production which is a source of earning for me”, this statement shows how organic farming can be a potential driver for poverty eradication and livelihood opportunity for this marginalized community. “ I am empowered through organic farming and able to plan for my child’s development.” This is another primary label, which highlights on child’s development through women empowerment. In this context it was being possible through organic farming adoption. They were being able to eat nutritious and healthy food and also their wellbeing and education are also being taken care off. “I take active part in family decision making”, this is also an important aspect of empowerment and adoption of organic farming made that possible to a certain extend.

3.2. Axial Coding

The next phase of Grounded theory has being performed with these open codes, which is called Axial coding. Once the open coding is over the researcher moved to axial coding to establish the relationship between the open codes, which are subcategories, and categories through contextual and theoretical understanding.

According to Corbin (1998), in order to test emerging hypotheses, relationship statements are made at the abstract level, not from raw data, but from concepts. This requires a different and more sophisticated coding technique, which is commonly referred to as ‘axial coding’ and involves the process of abstraction onto a theoretical level (Glaser and Strauss, 1967).

The categories are connected to sub categories through axial coding (Corbin and Stauss, 1990). In this study axial coding was performed to relate the different categories and sub- categories, which are generated, based on exploratory contextual understanding. Axial coding is the process of relating categories to their sub-categories. The coding is termed “axial” because coding occurs around the axis of a category, linking categories at the level of properties and dimensions (Corbin and Strauss, 1990).

All the primary labels were laid on one side and the categories on the other. Then they were mapped through affinity mapping exercise. Through this exercise large number of qualitative information get sorted into groups or categories. From contextual understanding the researcher attempted to explore the connections between sub categories and categories. For example “Labour intensive and lot of struggle at the initial stage”; “Next generation is not much interested because organic farming is not much revenue earning” are primary labels evolved from open coding. These primary labels, which are also called sub categories under axial coding, were connected to the category “Organic Farming Adoption”.

Table 1 : Subcategories and Categories Evolved From Axial Coding

SUBCATEGORIES	CATAGORIES
Organic farming adoption	<p>Labor intensive lot of struggle at the initial stage Lot of time and energy in the preparation of compost . Lot of time and energy in preparation of soil Lot of struggle in the process of converting the land fit for organic farming Mapping right kind of soil with the seed. Next generation is not much interested because organic farming is not much revenue earning. Farming is not a glamorous work for next generation. Next generations are strongly influenced by urban lifestyle. Lack of technology intervention in organic farming does not attract next generation. Frequent weather change is also a constraint</p>

Market accessibility	Maintaining a continuous customer base is a challenge. Very difficult to keep the leafy vegetables fresh till the time of delivery. Sometimes fail to predict the demand. Lack of quality control. Lack of product merchandising and packaging.
Family Well being	Women are empowered through organic farming. Able to earn and plan for their child development. Able to take their own decision. Improved their respect towards environment. Take care of the quality of soil which got too much affected by inorganic fertilizers.
Health care and nutritional need	Grow fresh and good quality vegetables for family. Maintain cow for better quality milk for family. Maintain hen and duck for better quality egg and meat. Maintain and ponds to rear fishes. Each farmer's family is self-sustained to take care of their nutritional need. Lack of medical facility. Primary health care facilities are minimal.
Education and Awareness	Wide resource of indigenous knowledge related to farming. Wide resource of indigenous knowledge related to medicinal plants. Strong awareness and knowledge related to reptiles like snakes and crocodile. Strong knowledge about pisciculture (breeding and rearing of fish). Lack of medical awareness. Lack of technology knowledge. Lack of scientific knowledge.
Livelihood Opportunity	Low cost organic farming as a potential for economic development. Surplus milk produced by healthy cows is highly valued in the market. Eggs produced organically are of high demand in the market. Actively engaged in building ponds, rain water harvesting.
Women Empowerment	Women are interested to take up organic farming as a potential livelihood opportunity. Women feel it as a potential driver for their poverty eradication. Able to earn and plan for their child development. Able to take their own decision.

3.3. Selective Coding

Selective Coding is the process by which all categories are unified around a core category (Corbin and Strauss, 1990). Here in this study the selective coding on the data was performed to identify the central category. Selective coding is the process of integrating and refining the theory. The central category or the core category represents the main theme of the research. Here in the study the theme of the research focuses on organic food adoption. Other factors like Market Accessibility, Family Well Being, Health Care and Nutritional Need, Education and Awareness, Livelihood Opportunity, Women Empowerment revolve around Organic Farming Adoption. For example, Market Accessibility is one of the driving factor which is responsible to provide revenue from their produce. Therefore if that factor is strong enough then Market Accessibility will be a potential motivating factor for Organic Farming Adoption. Similarly other factors are in some way connected to Organic Farming Adoption through this Selective Coding technique.

4. CONCLUSION

The application of grounded theory on the transcripts generated from the farmers' interview led to multiple dimensions related to adoption of organic farming as a livelihood opportunity.

The study generated around 42 items or primary labels through open coding technique. The Axial Coding technique under grounded theory contributed to 7 dimensions: Organic Farming Adoption, Market Accessibility, Family Well Being, Health Care and Nutritional Need, Education and Awareness, Livelihood Opportunity, Women Empowerment. Selective coding technique facilitated the identification of the core category, which is Organic Farming Adoption and established its connection with all other 6 categories. These categories along with the items can be used as a guideline for further research. The items evolved from open coding can be used for scale development process by application of exploratory and confirmatory factor analysis. The key attribute like Organic Farming Adoption can be a potential driver to economic development of this marginalised farmers. This will eventually contribute to farmers' livelihood and wellbeing.

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