

Original Research Article

**Comprehensive analysis of the Livelihood Index among Millet Farmers associated with Farmers Producer Organizations (FPOs) in Madurai District of Tamil Nadu**

**ABSTRACT**

This study conducted in 2022 across the Sedapatti, Thirumangalam, and Usilampatti Blocks of Madurai District in Tamil Nadu, aimed to explore the Livelihood Index among Millet Farmers associated with Farmers Producer Organizations (FPOs). Employing a sample size of 120 respondents through a proportionate random selection procedure, data collection was facilitated via structured personal interviews. The study unveiled that a majority of respondents (68.33%) exhibited a medium level of livelihood, characterized by access to all five capitals - Natural Capital, Physical Capital, Human Capital, Social Capital, and Financial Capital. Moreover, 19.16% reported a high level of livelihood, while 12.05% experienced a low level. This distribution underscores the varying degrees of resource accessibility among the surveyed individuals, shedding light on the diversity of livelihood conditions within the studied population. The study's findings emphasize that the elevated livelihoods of millet farmers and members of Farmers Producer Organizations (FPOs) are strongly linked to their access to natural capital resources. It becomes evident that there is a notable requirement for improvement, particularly concerning financial capital, followed by social capital and human capital. The enhancement of these aspects holds the potential to empower respondents to efficiently harness the available capitals, thus fostering sustainable livelihoods. This suggests that strategic efforts towards bolstering financial resources, social networks, and individual capabilities are key to optimizing livelihood outcomes in the context of millet farming and FPO engagement.

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**Keywords:** Livelihood capital index, human capital, social capital, physical capital, financial capital and natural capital; Farmer Producer Organization.

**1. INTRODUCTION**

“Farmers Producer Organisation” (FPO) - It is one type of PO where the members are farmers. Small Farmers’ Agribusiness Consortium (SFAC) is providing support for promotion of FPOs. PO is a generic name for an organization of producers of any produce, e.g., agricultural, non-farm products, artisan products, etc. NABARD(2015).

Farmer Producer Organizations (FPOs) are one such farmer's aggregate. FPOs are registered under the Indian Companies Act, 1956. Producer Organizations therefore are supposed to be non-political entities aimed at providing business services to smallholder farmer members, founded on the principal of self-reliance (Onumah et al., 2007).

Eighty-seven percent of agricultural households in India are small and marginal producers, cultivating small plots which generate low returns. Their average monthly income is Rs 6426, making farming on small plots economically unviable (NSSO 2014). Therefore, policy makers and practitioners are turning to producer collectives as a means for improving the economic situation of small producers.

In India, There are of about 2092 FPOs registered under NABARD with 170 FPOs in Tamil Nadu which stands second next to Karnataka. Under SFAC, 792 FPOs are registered with 11 FPOs in Tamil Nadu (NABARD, 2019).

Millet is a collective term referring to a number of small-seeded annual grasses that are cultivated as grain crops, primarily on marginal lands in dry areas in temperate, subtropical and tropical regions.

Some of the common millets available in India are Ragi (Finger millet), Jowar (Sorghum), Sama (Little millet), Bajra (Pearl millet), and Varagu (Proso millet).

India has shared the vision to make **International Year of Millets 2023** a 'People's Movement' alongside positioning **India as the 'Global Hub for Millets**

Prime Minister Narendra Modi, during his address on the 97th edition of Mann ki Baat on January 29th, emphasized a special focus on millet farming and the use of products made of it.

On one hand, this has made those small farmers happier who used to traditionally grow millets in their fields, on the other hand, Farmer Producer Organisations (FPOs) and entrepreneurs have now speeded up efforts to bring Millets to market and make them available for the common people.

Considering the information mentioned above, the present study was initiated with the following specific objectives.

**Objectives:**

- ✓ To analyses the livelihood status of Millet Farmers of FPO in Madurai District of Tamil Nadu.

## 2. METHODOLOGY

The selection of Madurai District in Tamil Nadu for this study was carried out deliberately for specific reasons. According to millet production statistics, Madurai ranks second in terms of both area and production among the districts in the southern zone of Tamil Nadu, following the northern zone. This prominence in millet cultivation within the southern zone of the state made Madurai an ideal and purposeful choice for the study.

Four Farmers Producer Organizations (FPOs) were identified within Madurai District.

1. Sathuragiri Farmers Producer Company Limited,
2. Usillsai Farmers Producer Company Limited,
3. Madurai Traditional Farmers Producer Company Limited,
4. DHAN Farmers Producer Company Limited

These FPOs are specifically focused on millet cultivation within Madurai District. These four FPOs operate in collaboration with millet-cultivating farmers from various blocks within the district, including Sedapatti Block, Thirumangalam Block, and Usilampatti Block

The sampling method employed for this study was proportionate to the number of farmers in each FPO. As a result, a total of 120 millet farmers were selected as respondents through random sampling.

**The distribution of these respondents is provided in Table 1.**

S.No	Name of the FPO	Members of the FPO	No. of respondent selected
1.	Sathuragiri Collective Farming Farmers Producer Company Limited.	500	15
2.	Usillsai Collective Farming Farmers Producer Company Limited.	500	15
3.	Madurai Traditional Farmers Producer Company Limited(CCD)	1500	45
4.	Peraiyur & Thirumangalam Farmers Producer Company Limited (DHAN)	1500	45
<b>Total</b>		<b>4000</b>	<b>120</b>

Different categories of livelihood assets index was followed by Swathi (2016) used in this study comprising of livelihoods such as human capital, social capital, physical capital, financial capital and natural capital for which sub-indices were computed and summed up at rural livelihood index.

Index is the ratio of actual score obtained by the millet grower and maximum score possible under that the particular assets. All the five indices were used by this formula.

$$\text{Livelihood capital index} = \frac{\text{Actual score of the respective capital obtained by the millet farmers}}{\text{Maximum possible score of the respective capital obtained by the millet farmers}}$$

### 3. RESULT AND DISCUSSION

#### 3.1 Overall existing Livelihoods of Millet farmer as well as FPO member

**Table no: 2 Distribution of respondent according to their Overall existing Livelihoods of Millet farmer as well as FPO member**

(n=120)

S.No	Category	Number	Per cent
1.	Low	15	12.5
2.	Medium	82	68.33
3.	High	23	19.16
<b>Total</b>		<b>120</b>	<b>100.00</b>

The results from table 2, concerning the overall existing livelihoods indicate that a significant majority, over 68.33%, of millet farmers and FPO members possess a medium level of livelihoods, characterized by access to all five capitals. Furthermore, 19.16% reported a high level of livelihoods, while 12.05% experienced a low level of livelihoods, indicating limited access to the five capitals.

These findings align with prior research by Kiran (2011) and Anand (2007), providing additional support to the current study's outcomes. This suggests a consistent trend across

different studies regarding the assessment of livelihood levels among millet farmers and FPO members.

**Fig.1 Comparison of farmers according to their overall existing livelihoods**

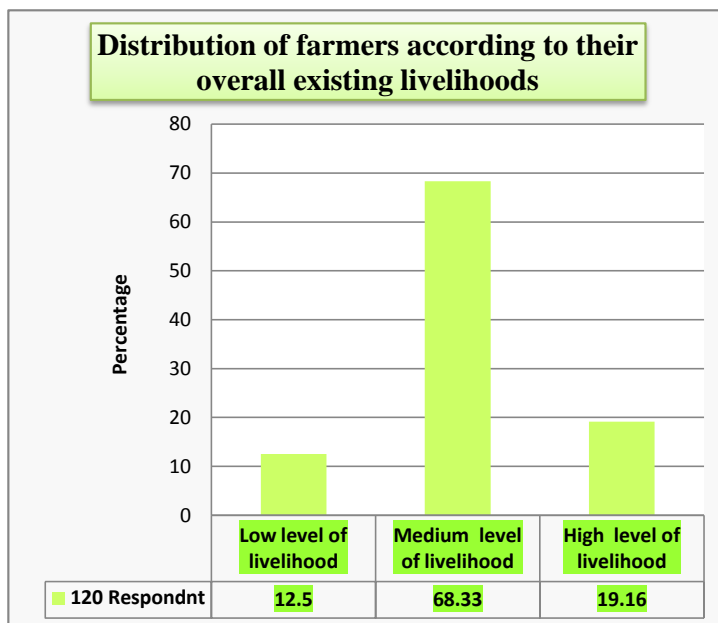


Figure 1 illustrates a comparison of farmers based on their existing livelihood levels. The graph likely depicts how different categories or groups of farmers are distributed across various levels of livelihoods. This comparison could provide insights into the distribution of livelihoods among millet farmers and potentially highlight patterns or trends related to their access to different resources and capitals. The visualization in Figure 2 may help to understand the distribution and variations in livelihood levels within the studied population.

### 3.2 Access of five livelihood capitals

**Table no: 3 Distribution of farmers according to their access of five livelihood capitals**

S.No	Sub capital	Index value (%)
1.	Human capital	75.00
2.	Social capital	71.23

3.	Financial capital	67.62
4.	Physical capital	78.20
5.	Natural capital	79.58

In Table 3, a comprehensive study and comparison of all five capitals was conducted through index calculations. The findings revealed that natural capital (79.58%) holds the highest level of accessibility within the livelihoods of millet farmers and FPO members, followed by physical capital (78.20%), human capital (75.00%), social capital (71.23%), and financial capital (67.62%).

This indicates that the livelihoods of millet farmers and FPO members are significantly influenced by their access to natural capital resources. It is apparent that there is room for improvement in terms of financial capital, followed by social capital and human capital. Enhancing these aspects would enable the respondents to effectively utilize the accessible sustainable livelihood resources at their disposal.

**Fig.2 Distribution of farmers according to their access of five livelihood capital**

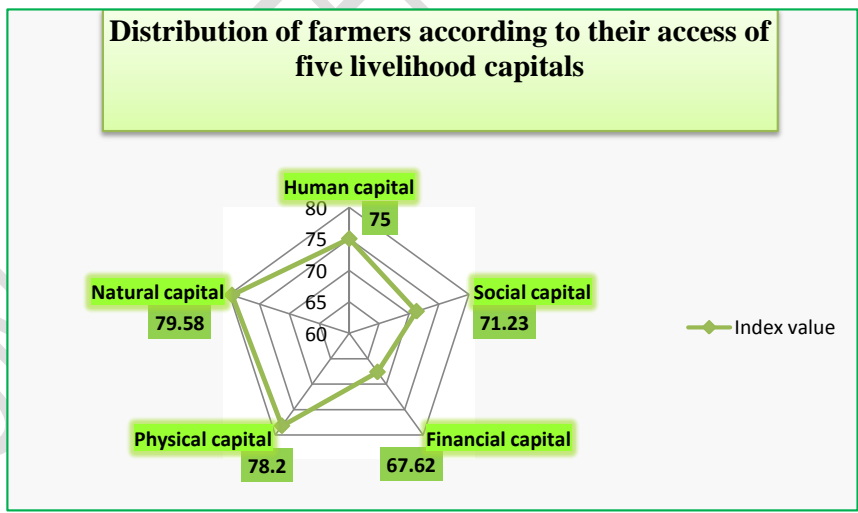


Figure 3 likely presents the distribution of farmers based on their access to the five livelihood capitals, namely Natural Capital, Physical Capital, Human Capital, Social Capital, and Financial Capital. This graph is likely to display how the surveyed farmers are positioned in terms of their access to these different capitals. It could help visually represent the diversity in resources and opportunities available to farmers, shedding light on which capitals are more

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accessible to certain groups and which may need improvement. The visualization in Figure 3 can provide a clear understanding of the resource distribution and the balance of different capitals among the farmers.

### **Natural capital**

Respondents are had greater access on Natural capital includes the type of land, cropping system and soil depth of the farmer's farmland. Most of the agricultural activities depend on the natural capital. If the natural resources are conducive and favourable, it will contribute to the agriculture development in the rural areas.

Crop cultivation practices can indeed vary based on the soil type present in different geographical zones. In the specific study area encompassing the villages of Sedapatti, Thirumangalam, and Usillampatti in Madurai, I identified three distinct soil types: red soil, black clayed soil, and alluvial soil.

Among these observed soil types, the most prevalent is black clayed soil, constituting 50.00% of the soil type in the Sedapatti block. Following closely is the presence of black clayed soil in the Usillampatti block, accounting for 41.66%. The least common soil type is alluvial soil, making up only 9.16% of the observed soil types. This alluvial soil is located in a village that is connected to a stream originating from the Sathuragiri hills situated in the Peraiyur and Elumalai taluks.

These variations in soil types are instrumental in shaping the specific crop cultivation practices within each of these regions.

The findings related to soil depth indicate that approximately half of the respondents' soil, accounting for 60.83%, is categorized as deep soil. Additionally, 32.50% of the soil is of medium depth, while a smaller portion, specifically 6.66%, is characterized as having shallow depth. These variations in soil depth hold significance for agricultural practices and land use in the respective areas. The aforementioned discovery underscores the profound connection between the respondents' livelihoods and their chosen cropping patterns. The majority of respondents engage in cultivating a diverse array of crops within a single season, including kuthiraivalli, perennial cotton, red sorghum, maize, varagu, rice, legumes, vegetables, and flowers. A distinctive practice observed in this region is the cultivation of perennial cotton, wherein cotton seeds are sown in dry land and harvested after one monsoon, with the cotton

plants left in the field for another monsoon. This leads to multiple cotton harvests, minimizing cultivation expenses.

Furthermore, certain farmers, both small and large, adopt various cropping patterns across their farmland, dedicating different sections to different crops. For instance, they allocate one acre for rice, another acre for cholam, 40 cents for cumbu, 80 cents for paruthi, 20 cents for maize and gram, and an additional 20 cents for crops like onion, chilli, and tomato. Additionally, an acre of land is dedicated to cultivating coconuts. This multiplicity in cropping patterns is attributed to some respondents growing crops primarily for their own consumption, contributing to the diversity in cultivation practices within the region.

### **Physical capital**

Physical capital is the basic infrastructure and an indicator for the development status of the respondents. It includes household material and livestock possession, housing type, and cooking fuel available to the growers. Jonathan (2000) stated that infrastructure is commonly a public good that is used without direct payment, consisting of changes to the physical environment that help people to meet their basic needs and to be more productive.

This observation indicates that contemporary society has elevated its quality of life by embracing modern household products and technology. This trend is particularly pronounced among respondents categorized at the middle level. On the other hand, those with lower incomes predominantly possess marginal or small plots of land, contributing to their low annual earnings. In contrast, a substantial portion of respondents are classified as large farmers, enjoying a notable annual income.

A significant percentage, specifically 68.33%, of the respondents indicated possessing a medium range of household materials. The prevalent possession of medium range household materials is a reflection of contemporary norms, where most households are equipped with essential items. While some individuals exhibit lower or higher household material levels based on their respective low or high incomes, the general trend reflects a baseline of minimum necessary possessions across households.

The findings indicate that a significant majority of respondents, accounting for 74.16%, rely on LPG as their primary source of energy for cooking. In contrast, 25.83% of respondents still use kerosene for cooking purposes. Interestingly, the data reveals that none of the

respondents are utilizing firewood as a source of energy for cooking, signifying a shift away from this traditional practice.

### **Human capital**

Human capital includes mass media exposure of the growers, labour availability and health facilities. It helps people to pursue livelihood strategies to achieve their goals. At a household level, human capital is the factor of the number and quality of labour available; this varies according to household size, skill levels, leadership potential, health status, etc. It is a key factor within the livelihood framework for the reason that all other capitals are partly depend on it for the sustainability (Sayer and Campbell, 2003)

The limited exposure to mass media among respondents can be attributed to several factors. A significant majority of the respondents are of older age, which might result in a lower familiarity with new devices and technologies. Additionally, their lower literacy rates could contribute to difficulties in navigating modern media platforms, and a lack of familiarity with social media further contributes to this low degree of exposure.

Regarding the evaluation of leadership qualities, the overall analysis indicates that a majority, over 55.84%, exhibited a low level of leadership quality. This is followed by respondents with a medium level (25.83%) and a relatively smaller percentage with a high level (18.33%) of leadership qualities

The presence of primary health care centres in most villages is expected to ensure sufficient and timely health care services for the local population. While this might seem like a valid premise for assessing government hospitals, the actual situation reveals a different perspective. The majority of respondents, often with limited income levels, face constraints in evaluating private clinics due to financial limitations.

The results of the labour availability study highlight that a significant portion, specifically 48.33%, of millet farmers and FPO members rely on family labour for their agricultural activities. Another notable percentage, 35.00%, depends on hired labour, while a smaller segment, 16.66%, engage in skilled labour.

The largest proportion of respondents, comprising 31.66%, has attained education up to the middle school level. This trend aligns closely with their age demographics, as a considerable portion of the respondents are elderly and were limited in their educational opportunities

during their earlier years. This historical context has influenced their educational levels, resulting in a notable concentration at the middle school education level.

Due to the prevalence of small and marginal farmers among the majority of respondents, their annual income tends to be on the lower to medium scale. This scenario underscores the fact that these farmers allocate a significant portion of their earnings towards agricultural supplies and intercultural operations. Unfortunately, this often translates to diminished returns for these farmers, leading to a situation where their income falls short of covering the cost of cultivation. In many cases, they aren't left with any surplus after settling these components under social capital are participating in training, membership in organisations, access to society and extension agency contact. Social capital is the most important resource available in the rural communities as they have a strong societal tie up.

The findings regarding training participation indicate that a substantial portion of the respondents, approximately expenses, and they are obligated to promptly repay any debts they might have accrued given their limited income. These factors contribute to the distribution of labour types observed in the study.

### **Social capital**

Social capital has direct link with the development of the society and the livelihood of the people. Social capital refers to social resources including informal networks, membership and relationships of formalised groups and trust that facilitate cooperation (Clark and Carney 2008, Sayer and Campbell 2003).

The 48.33% exhibited a low level of engagement in training activities. This could be attributed to valid reasons, such as a significant number of respondents being women and elderly individuals. These demographics often have commitments to household responsibilities and face challenges related to mobility and transportation, which may hinder their ability to actively participate in training sessions.

Based on the findings related to social involvement, it's evident that the larger share of farmers, around 54.16%, demonstrated a moderate degree of engagement in social activities. Notably, a considerable number of respondents were affiliated with Self-Help Groups (SHGs), Farmers Interest Groups (FIGs), and cooperatives, signifying a robust level of social participation.

Examining the extension agency contact results, a significant majority, approximately 68.33% of respondents, displayed a low level of interaction with extension agencies. This lack of contact can be attributed to respondents' limited awareness of extension agents, who often primarily connect with the agricultural community through designated contact farmers. Interestingly, a surprising number of respondents were unfamiliar with institutions like the Agricultural Office or the Madurai Krishi Vigyan Kendra (KVK), which might be linked to the fact that a significant portion of the respondents are women

### **Financial capital**

Financial capital includes annual income, access to credit, savings, debt, place of saving, and loans in emergency. Financial capital is very crucial for growth and development in a society.

According to debt statistics, it is evident that (40.00%) of farmers do not have any debts. Among millet farmers and FPO members, (26.66%) have obtained loans ranging from Rs. 5,000 to Rs. 10,000, while (17.50%) have debts below Rs. 5,000. Additionally, (15.83%) have accumulated debts exceeding Rs. 10,000. This suggests that the majority of respondents are from nuclear families and therefore have no outstanding debts. Among the respondents in debt, they are primarily borrowing funds for agricultural ventures and their children's education.

When it comes to savings, the predominant group is those with savings surpassing Rs. 10,000, constituting (39.16%) of the respondents. In contrast, (26.66%) have savings below Rs. 5,000, and (23.33%) of millet producers and FPO members have savings ranging between Rs. 5,000 and Rs. 10,000. A smaller percentage, (19.16%), reported having no savings at all.

The significant range of savings can be attributed to the family structure, primarily consisting of nuclear families. These households typically comprise a single child or elderly couples (Grandma & Grandpa), and they tend to possess larger parcels of land for agricultural production. Additionally, the top motivating factor behind their savings is reserving funds for their children's marriages, as reported by the majority of respondents. The substantial level of savings can be attributed to the family structure, predominantly nuclear families, consisting either of a single child or elderly couples (Grandma & Grandpa). Moreover, these families tend to own larger plots of land for agricultural purposes. Another contributing factor to the heightened savings is the primary reason provided by most respondents, which is reserving funds for their children's future marriages.

As per the study findings, it was found that 41.66% of the respondents chose to save or invest their money in gold/silver, while 33.33% preferred to keep their funds as readily available cash on hand. Additionally, 15.00% of millet producers and FPO members opted to deposit their earnings in cooperative banks, and a further 10.00% chose to deposit their money in conventional banks.

This analysis brings to light that a significant majority of the respondents chose to allocate their income towards investments in gold/silver, a practice deeply rooted in tradition as a means to preserve earnings from harvest returns—commonly observed across diverse farming communities. The next prominent group of respondents opted to retain cash in hand, ensuring swift debt settlement and addressing immediate family expenses. Another notable percentage of respondents elected to deposit their earnings into cooperative institutions. This choice suggests their affiliation with these cooperatives. In contrast, the smallest proportion of respondents showed preference for bank deposits, influenced by advice from their children regarding interest rates—also a practice observed among literate farmers.

This analysis leads to the conclusion that a significant majority of farmers respondents are borrowing from moneylenders. Moneylenders are often the sole individuals who provide loans to farmers in times of necessity, without requiring any collateral. This arrangement typically involves farmers selling their crops directly to the moneylenders or having their debt settled from their harvest proceeds by these lenders. Additionally, Self-Help Groups (SHGs) and Farmers Interest Groups (FIGs) emerge as highly favourable alternatives for borrowing among housewives. These groups offer a convenient and agreeable avenue for securing loans without the need for collateral.

#### 4. CONCLUSION

In conclude, millet grower have experienced moderate level of livelihood. However, there remains a need for further advancement in terms of social and financial capital. It is imperative that they need to well-informed about millet value addition and promotional initiatives, secure sufficient financial access and ultimately, harness the complete advantage of Farmers Producer Organzataions (FPOs) across all dimensions of livelihood capital.

In forthcoming years, millet are poised to play pivotal role in global food security, while Farmers Producer Organzataions will continue to be instrumental in ameliorating the livelihoods of small and marginal farmers in India. Furthermore, the aspiration of the

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agricultural community could be realized – whereby farmers themselves determine the prices of their produce. Farmers Producer Organizations will be under governance of farmers and for the prosperity of farmers.

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