

RESEARCH ARTICLE

From process to outcome: An NGO's role in developing FPO in agriculture sector

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ABSTRACT

Agriculture sector is vital for the Indian economy. This sector not only fulfills the food necessities of the people but also engages farmers and laborers. Farmers have a great role to play in agricultural development. Their understanding and involvement in agricultural activities, learning and adaptation to new tools & techniques of agriculture, and skills to manage their own farm-based activities drive towards agricultural development. The Government of India is emphasizing on the formation of Farmer Producer Organisations (FPOs) as an innovative measure to develop agriculture sector. Non-governmental organizations (NGOs) have also been involved in developing and enabling FPOs to enhance agricultural productivity and improve the socio-economic status of farmers in the overall development of the agricultural sector. In this context, NGOs play an imperative role in developing FPOs, guiding their members (farmers) to improve their agricultural knowledge, hone their skills, solve their group-level problems, and contribute to the overall development of the agricultural sector. This study addresses all these aspects in detail. The group development process followed by an NGO in developing an FPO and its impact on farmers' development, contributing towards agricultural development, has been focused on in this study. The catalytic role played by an NGO in the developmental process of FPO is being highlighted. The importance of FPO in the development of farmers is enabling them to be financially literate, confident, and entrepreneurial, linking up their farm-based activities with the market, and honing their knowledge and technical skills are focused.

Keywords: Farmer Producer Organization (FPO); agricultural development; group development process; NGO's role; farmers' development

1. Introduction

The contribution of agricultural and allied sectors to the GDP of the country is 20.01% in 2020–2021, 19% in 2021–2022, and 18.3% in 2022–2023^[1]. The farmers contribute significantly to the agriculture sector of India. Their development is one of the key objectives of national agricultural policy. However, the

ARTICLE INFO

Received: 17 October 2023 | Accepted: 27 March 2024 | Available online: 15 February 2025

CITATION

Modi Y, Panda S., Safare R, et al. From process to outcome: An NGO's role in developing FPO in agriculture sector. *Environment and Social Psychology* 2025; 10(2): 2183. doi:10.59429/esp.v10i2.2183

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smallholder farmers are having problems as inadequate access to new technology, input, credit, and market, and the absence of economies of scale are being revealed^[2]. Keeping the challenges of the agriculture sector in mind, the government of India has brought new policy measures and an intervention mechanism for the socio-economic development of the farmers in the form of promoting Farmer Producer Organisations (FPOs). The FPO concept gained momentum in 2015 though introduced in 2012 with an intention of developing farmers' financial, technical, farm-based skills and knowledge to have more access to larger market contributing to their economic enrichment^[3]. FPOs enabling farmers to reach larger market and selling crops & agricultural products thereby improving their income was reflected^[4]. A total budgetary outlay of Rs 6865 crores have been allocated for developing and promoting 10,000 FPOs till the year 2027–2028^[5]. In agriculture sector, many innovative measures involving cooperatives, producer companies, self-help groups, contract farming and commodity interest groups promoting FPOs have been taken; yet, only 25% of FPOs are successful in attaining their objectives. It essentially requires sensitizing, promoting and developing FPOs in India with a great vigour^[2]. The organizations promoting FPOs have an important role to play for developing and sustaining the FPOs in long-run. In this light, role of an NGO developing an FPO for achieving the farmers' economic, technical and entrepreneurial skills, knowledge enhancing their income has academic and pragmatic significance. The study addresses to the developmental process and its implication on farmer's development contributing to agricultural development.

2. Review of literature

2.1. NGOs and their role

Non-Governmental Organizations are considered as institutions for development of people. These organizations reach the hopeless, poor, needy and socially deprived segment and develop them by motivating, mobilizing resources. They also provide directions for leadership development, empowerment and enable social members to be self-reliant in various sectors including agriculture^[6,7]. NGOs play four kinds of roles viz; protective, preventive, promotive and transformative^[8]. The NGOs developing FPOs are considered as promotive kind of activities^[9]. NGOs have a vital role to play in the development of FPOs. The role of NGOs is to facilitate and access the real situations of people along with farmers as these organizations work and understand grass level situations of society. The NGOs work as promotive agencies in development of FPOs. NGOs perform crucial role in community mobilization, farmers' participation, leadership development among farmers and in developing farmers to become self-management and self-driven to develop the FPOs effectively; NGOs perform crucial role. It is emphasized that NGOs developing business knowledge, supply chain and marketing skills of FPO members have bright future so far, the sustenance of FPOs and development of agricultural sector is concerned^[9]. The income enhancement of farmers in the states of India like Odisha, Kerala and Madhya Pradesh has been reported^[10]. The essentiality of need-based resource mobilization, capacity building of farmers and guidance of FPOs along with their leadership development were advocated^[11].

2.2. Farmers' challenges

The small and marginal farm households constitute around eighty-seven percent of total farm households in India^[12]. The small-scale producers, small farm households have little capital to invest, lack market channels and resources to participate in larger and global value chains^[13]. It is important on the part of small and marginal farmers to be linked with larger and global value chain networks^[14].

The creation of opportunities and challenges for farmers due to rise of modern retail claim and supermarkets have been the key findings^[15,16]. The use of sophisticated food production technology by producers as a challenge for small and marginal farmers was reflected^[17,18].

Lack of infrastructure of most of the farm households, selling products at unremunerative prices, dominating role of private trades in marketing of cereals in Gujarat along with other States have been identified as the key areas of concern^[19]. In traditional market network system, small farmers having more autonomy and better control over the farming and production activities were discussed by ^[20]. The mandi system aiming at stable remunerative prices for producers and consumers regulated by fair play of demand and supply forces, however, the small and marginal farmers not getting so much economic benefit from such mandi system was focused^[21-23].

It is found in a study that more than seventy-five percent of the cereals and pulses output being sold through local private traders^[12]. The contractual farming system was introduced in India in 1990's. The companies determine the quality, quantity, prices and timing of delivery of products, input services to farmers like technical related assistance^[24].

Due to the higher transaction costs, firms often exclude small farmers from contract farming^[25]. The producer led alternatives like cooperatives and producer companies integrate farmers with market incurring low transaction costs and enabling farmers to explore own marketing strategies was mentioned in a study by ^[26]. Increased demand for food and shrinking grain area per person^[27], farmers' market inefficiency resulting less producers' share & remunerative prices^[28], bureaucratic, administrative and financial constraints leading public agricultural extension services as supply driven rather than demand driven^[29] are some of the challenges of small and marginal farmers in India.

The lack of processing facilities for farmers due to inadequate fund, and market competition from the multinational and large agriculture processing units, pre-harvesting services and post-harvesting credit facilities were discussed^[26].

2.3. FPOs and their importance

The purpose of formation of FPOs to improve the bargaining power of agricultural producers through collaborative farming and marketing practices; importance of FPO developmental process and its impact, identification of factors attributing to sustenance and better performance of FPOs have been highlighted ^[26,18,12]. Better performance of FPOs in the state of Gujarat, India was revealed.

A pilot scheme of Farmers Producer Organizations (FPOs) was introduced by Government of India through the Small Farmers' Agribusiness consortium in the Ministry of Agriculture^[26]. The basic purpose of forming FPOs is to inform and collect farmers especially small farmers, at various levels across State to foster technological developments, enhance productivity, enable improved access to inputs and developing their agriculture-based livelihoods ^[19]. The key objective of FPOs is to improve forward and backward linkage of small farmers by providing them technology, inputs and access to larger markets. The FPOs organize farmers through Farmers' Interest Groups (FIGs) and help to reduce transformation costs enabling the farms to be strive to improve capacity building, access to quality inputs, better services, remunerative markets and greater competitiveness for farmers^[12]. The credit, retail service and production inputs are the enticing factors for farmers to participate in FPOs^[30]. FPOs provide services to farmers, develop their farm productivity and guide them in selling their products establishing market linkage with local traders and producer organizations^[31].

It was mentioned about success of farmer producer companies and how their success is dependent on farmers' commitment, integrity, quality of leadership, acceptance within the community and acceptance of farmer companies in the market environment. The economic implication of FPOs on farmers was also highlighted^[32].

The FPOs have challenges like lacking effective functioning, less awareness of credit facilities, lacking information relating to market linkage, inadequate knowledge in farm related technology and over & above sustaining agribusiness to improve their income^[5].

Majority of the FPOs in India primarily dealing with marketing and input supply services and widening the market opportunities by entering into processing and value addition have been emphasized along with mentioning the indicators of performance of Farmer Producer Organizations (FPOs)^[33,34]. And the indicators were marketing services, financial services, group leadership, technical services, networking services, input supply services, infrastructure support, social factors, group decision making and group cohesiveness.

There are around 10,000 FPOs functioning in India out of which National Bank for Agriculture & Rural Development (NABARD) has promoted 5060 while other 4940 FPOs have been promoted by Small Farmers' Agri-Business Consortium (SFAC), National Cooperative Development Corporation, NGOs and other promoting agencies^[11]. The FPOs functioning in various states viz; Delhi, Chattisgarh, Jammu & Kashmir, Madhya Pradesh, Odisha, Karnataka, Andhra Pradesh, Kerala; and improving the economic status of farmers have been highlighted. The need of concerted efforts of all stakeholders including the promotional agencies like NGOs for developing sustainable and effective FPOs along with enhancing the income of small and marginal farmers have been suggested. This indicates the importance of FPOs in India and their vital role in improving the economic status and business knowledge of farmers.

The education, age, access to information technology, credit facilities and association with cooperative bodies also influence farmers to participate in FPOs. An interesting finding relating to functions of FPOs is their more involvement in non-traditional crops and providing farmers more opportunities to align their cropping pattern with the prevailing market demands^[11].

The paradigm shift from subsistence agriculture to commercial agri-business in developing countries requires innovative measures in agriculture sector in India ^[35]. The vital role of farmer's organizations to act as a driving force for agricultural and farmers' development was analyzed^[36]. As a concept, FPOs were created under agriculture development programme of government. The promotional cost was incurred by the NGOs developing FPOs^[37]. The small and marginal farmers constitute the largest group of cultivators in Indian agriculture. Around 85% of operative holdings are smaller than or about two hectares and amongst these holdings, 66% have less than one hectare^[18]. The small and marginal farmers having intensive knowledge of local agriculture and low-cost access to family labour was focused by^[38]. And their suffering of high transaction costs in the form of non-labour nature keeping the farmers in disadvantageous position was also discussed. The problems of small and marginal farmers as inability to access credit and insurance services, vulnerability to climatic changes, pests & other risks have been revealed and mentioned how greater import competition accentuated the difficulties of the small holders in India necessitated the emergence and growth of FPOs as organizations for addressing, redressing agricultural problems and driving towards farmers' development^[34,39].

2.4. FPOs and their implications

The positive implications of FPOs on farmers have been the key findings. The increase in consumption, expenditure, investment on productive assets, education, health and nutrition of their family members,

decline in indebtedness and more investment on having positive outcomes for households of farmers in terms of increase in consumption expenditure, education, health & nutrition and decline in indebtedness were focused [26]. The factors attributing to farmers' participation in FPOs have been highlighted. The factors viz; market risk mitigation, storage facilities, processing, extension services, input availability and credit support provided to farmers have been identified as the motivating factors for the farmers to participate in FPO activities.

FPOs lead in marketing agricultural products to provide economic benefits to farmers and their welfare, improve their bargaining power avoiding distress sale^[40]. More employment generation in farm and non-farm activities^[41,26], improvised extension services reducing input costs and enhance productivity minimizing transportation costs, relating to transport, handling and supervision of agriculture based enterprising activities and making economic advantage for farmers have been highlighted^[20,30]. There are many factors motivating farmers to participate in FPOs have been identified. These factors are risk mitigation services, future trading, linkage with corporates and exporters, direct marketing, technological support like extension services, advisories, quality inputs for better farming; credit support during harvesting and sowing seasons^[15,40,38]. It has been highlighted that a farmer's interpersonal conditioning factors viz; education, size of the land, cropping pattern, consumption and awareness about modern agricultural practices, determine farmers to participate in FPOs^[25,26].

In a study on assessing the economic implications of Farmer Producer Organizations (FPOs) in Gujarat, highlighted the participation of small and marginal farmers improving their access to credit, storage, output and input markets^[12]. It is revealed that households associated with FPOs have high level of income, consumption, investment and less incidences of indebtedness. The systematic and positive inputs by FPOs are helpful to farmers in increasing their household income, consumption expenditure, investment in productive assets and decreasing in loan outstanding.

In their study on performance of FPOs in Medak district, Telengana found overall performance of FPOs as average to poor. The factors viz; education, group leadership, group communication, adherence to rules, group participation and team spirit exhibited positive and significant association with performance of FPOs. They focused that there were twelve factors contributing to performance of FPOs^[34]. The factors were categorized into three as: group composition comprising of age, education, caste, land holding, farming experience & income; governance and management comprising of group leadership, group communication & adhering to rules; and the third category as membership commitment comprising of group participation, group cohesiveness & team spirit. All these twelve factors put together explained around seventy-two percent variation in the performance of FPOs. It was suggested to mobilize young and educated farmers for more participation in FPO activities.

2.5. Group development process and FPO

Group development process is important. It enables members of a group to understand, trust, cooperate and solve their problems bringing more cohesiveness among members. There are five stages in group development process viz; forming, storming, norming, performing and adjourning^[42]. In the development process, group members are identified, educated, created awareness and interest for the formation of a group. The conflicts, misunderstandings on issues & ideas, approaches & intentions among the members go through the storming stage. Then the members imbibe to the standard policies and procedures framed by the members for the interest of the group. It is followed by drives and contributions by the members towards

achieving planned goals of the group which is referred as performing stage. After attaining the goals, the function of the group gets adjourned.

An organization or small group following the stages of group development process achieves its goals and performs with high motivation among members. It is important to have group development process for achieving the goals of a group^[43,44,45]. Effective group development process has brought benefits to organizations^[46]. The Tuckman's model has been mostly referred and widely recognized in organizational literature^[47]. Tuckman's model is helpful in attaining group work, collaborative efforts among group members, performing functional role, creating more interpersonal relationship and task activity^[48].

The FPOs need to follow development process to build, grow and retain effective functioning for achieving their goals. The agencies like NGOs, Self-Help Groups, Cluster Based Business Organizations (CBBOs) have to guide and motivate farmers to promote effective and result driven FPOs. The challenges of FPOs can be overcome by process driven developmental activities to be taken by NGOs and other agencies^[49,11].

It is noteworthy to mention that Sajeevan Foundation (NGO) follows Tuckman's group development model in developing FPOs^[50]. And this NGO follows five stages viz; forming, storming, norming, performing and adjourning in developing FPO. It is aligning with the stages prescribed in Tuckman's model. The application and implication of group development process pertaining to an FPO is studied.

The importance of FPOs for farmers' development impacting agriculture sector in different states of India is revealed in the literature review. The growth and development of effective and result oriented FPOs are essential for strengthening agriculture sector at the local, state and national level which gets firmly established from the previous studies being mentioned under different headings in the review of literature. The importance of development process and role of NGO in developing FPOs towards attainment of their goals and sustaining their developments is a key finding in literature. And keeping this in view, the present study has been conducted on to the process and impact of NGO's developmental role on FPO. Though the study is conducted on a local level NGO and FPO; yet, the results could be applicable at the national and international level for strengthening development of farmers and agriculture sector. It could lead to movement of FPO development at the national and international levels. The study has importance for policy makers and developmental agencies to incorporate new guidelines and norms pertaining to FPO development. This study is also important for academia especially to test and explore new models for developing FPOs examining the vitality of developmental agencies like NGOs.

3. Methodology

Based on the insights from the literature review; the following objectives, questions, hypotheses and research framework (**Figure 1**) have been framed in this study.

3.1. Research Objectives (RO)

RO1: To study the process followed by NGO in developing FPO.

RO2: To determine the impact of NGO's group development process on achieving FPO's goals.

RO3: To study the variation among respondents relating to FPO development process.

3.2. Research Questions (RQ)

RQ1: How NGO develops an FPO particularly from process perspective?

RQ2: How group development process followed by NGO contributes to FPO's goals?

RQ3: Is there any variation among the respondents relating to FPO development process?

3.3. Hypotheses (H)

H1: Group development process of NGO has significant association with FPO goals.

H2: The group development process followed by NGO has significant impact on FPO's goals.

H3: There is perceptual variation about effectiveness of FPO developmental followed by NGO.

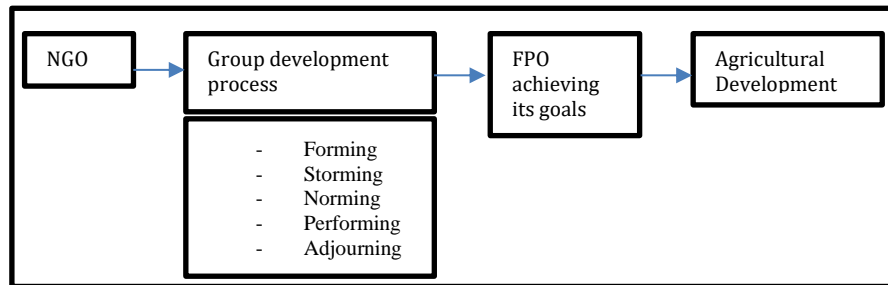


Figure 1. Research framework.

The present study is a descriptive and analytical one. Both primary and secondary sources have been used in this study. The research instrument has been designed with the necessary and relevant questions to collect data from the respondents. Prior to the development of the final research instrument, questionnaires have been built by taking insights from the literature review in tune with the research objectives and hypotheses. The field staff of the NGO associated with the FPO development process and the executive and general body members of the FPO constitute the respondents in this study. The NGO *Sajeevan Foundation* develops the FPO. The NGO official records and documents have been accessed.

A pilot study is conducted on fifty respondents. Based on the result of the pilot study, the content & construct validity and reliability values of the items in the research instrument have been considered. Those items with less value have been deleted. The experts in the field of agricultural development and statisticians have been consulted, and their views have been incorporated in designing and developing the final research instrument.

Finally, a research instrument comprising 25 items on the developmental process having five stages, viz., forming, storming, norming, performing, and adjourning, and 15 items on the goals of FPO have been developed, incorporating the necessary changes in the draft instrument. The reliability of the instrument is 0.81, relating to the developmental process followed by the NGO and 0.83, relating to the goals of the FPO. The reliability values are acceptable^[51]. The respondents having the option to select any one from a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5) was administered to 200 respondents. However, only 174 responses were complete in all aspects as per the requirement of the study. The response of the participants pertaining to FPO and FPO goals has been analysed.

One of the leading non-governmental organisations (NGOs), as *Sajeevan Foundation*, operating in Gujarat, India working, on the development of FPOs, has been covered in this study. There are 4 NGO field staff who are working on developing an FPO. There are 300 members (farmers) in the FPO. Out of three hundred members, 11 are executive body members, and remaining 289 are non-executive body members. So, the universe of study is 304. As per the sample size specification, for a population of 300, the sample size should be 169^[50]. In this study, responses of 174 samples have been taken following simple random sampling method. As the sample size is more than the requisite number 169, it is in line with the number of sample size taken for this study^[50].

The samples comprise 163 farmers as non-executive members of FPO, 8 farmers as executive members of FPO, and 3 NGO field staff directly working with FPO. Out of the 4 NGO field staff, 3 have responded to the questionnaire being administered to them. The sample size becomes 174. The correlation, regression, and independent sample t-test have been conducted using SPSS 26.0 in this study.

4. Results and discussion

4.1. Organization

The NGO namely, *Sajeevan Foundation* is working in Rajkot, Gujarat State in India is taken in this study. This NGO has been working since 1999. It is one of the leading NGOs working for developing Farmer Producer Organizations (FPOs) in Gujarat. This NGO actively explores the gifts of nature which should be utilized, secured and manifested for development of mankind. It also works in the areas of girl child education, tree plantation, water harvesting system, women empowerment, development of FPOs, welfare and overall, for the upliftment of society. Being boon to the society, *Sajeevan Foundation* has taken various welfare projects on organic products, naturopathy and Ayurveda.

Around five thousand acres of land have been cultivated organically nurturing more than one hundred medicinal herbs, inspired many people to adopt organic food along with treating, caring & curing patients with the medicines prepared by organic farming; all these bear testimonies of success of this NGO. Its activities to keep the family members of rural areas healthy, protect the environment green and efforts for sustainable development have been appreciated. The founder of the NGO has been conferred with many awards and recognition locally and nationally.

This NGO has developed one FPO by taking farmers in and around Rajkot district, Gujarat. An FPO has at least three hundred farmers as members to be functionally operative, and there is no upper limit to it. One FPO is provided with two crores of Indian rupees to be provided as a loan to its members. The loan has to be repaid to FPO at a specific interest rate fixed by the government. The interest rate is generally 9% per annum. The FPO member taking the loan has to pay 7% interest, and the government has to bear 2% interest on the principal amount given as a loan to members. The NGO gets Rs. 5 lakhs for developing one FPO. And such an amount is paid by the government. An NGO hires one Chartered Accountant and one Company Secretary and pays them. The NGO facilitates the group developmental process. The field officers and other NGO officials provide necessary guidance to the executive as well as general members of FPO in enhancing their technical, farm-related skills and knowledge, enabling them for bank linkage, account and record maintenance, supporting their effective resource mobilisation for larger market linkage and business development, and contributing towards enhancing farmers' income. The NGO *Sajeevan Foundation* plays the role of catalyst by providing their best efforts to drive the FPO members to achieve farmer development as the basic goal of FPO.

4.2. Analysis of survey results

4.2.1. Demographic

The demographic profile of the respondents has been collected. Gender and age are the two demographic parameters taken in this study. Out of 174 respondents, 110 (63%) are male and remaining 64 (37%) are female. The age wise distribution of respondents indicates that 28 (16%) belong to 18–25 years, 44 (25%) belong to 26–35 years age group, 69 (40%) belong to 36–45 years age and the remaining 33 (19%) belong to more than 45 years of age group. It is interesting to mention that after a male member join in FPO, he generally desires to take his wife and his mother to become members. It is in order to take more loan

based on their membership in FPO. The literacy level of farmers as members of FPO is very low. Around 95% of the FPO members are illiterate.

4.2.2. Perceptual variation analysis from t-test

The NGO, FPO Executive Body Members, and FPO General Body Members have different perceptions about the FPO development process followed by the NGO. The respective variation in their perceptual values is tabulated (Tables 1 to 6). And the variation is also tested, resulted in it as significant, which is evident from 'p' values. It is interesting to mention that NGO field staff have a better perception about the FPO development process followed by Executive Body Members of FPO, and the least perceptual value is indicated by General Body Members of FPO. It requires more understanding and carrying out activities by farmers in line with FPO goals. The low-level literacy and less exposure to the changes in the technical and agribusiness fields are the prime reasons for the low perception by farmers. The 'p' values show significant perceptual variation among respondents, which accepts the concerned hypothesis (H3) formulated in this study.

Table 1. Response of NGO and FPO executive body members relating to group development process.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Perceptual Variation	NGO	3	4.0796	0.47888	0.09578
	FPO Executive Body Member	8	3.3532	0.43550	0.08710

Table 2. Results of t-test between NGO and FPO executive body members regarding group development process.

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Perceptual Variation	Equal variances assumed	0.061	0.806	5.611	0.00	0.72640	0.12946
	Equal variances not assumed			5.611	0.00	0.72640	0.12946

Table 3. Response of FPO executive body members and FPO general body members relating to group development process.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Perceptual Variation	FPO Executive Body Member	8	3.3532	0.43550	0.08710
	FPO General Body Member	163	2.4996	0.51953	0.10391

Table 4. Results of t-test between FPO executive body members and FPO general body members regarding group development process.

		Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Perceptual Variation	Equal variances assumed	0.063	0.802	6.296	0.00	0.85360	0.13558
	Equal variances not assumed			6.296	0.00	0.85360	0.13558

Table 5. Response of FPO general body members and NGO relating to group development process.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Perceptual Variation	FPO General Body Member	163	2.4996	0.51953	0.10391
	NGO	3	4.0796	0.47888	0.09578

Table 6. Results of t-test between FPO general body members and NGO regarding group development process.

		Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Perceptual Variation	Equal variances assumed	0.182	0.671	-11.181	0.000	-1.58000	0.14131
	Equal variances not assumed			-11.181	0.000	-1.58000	0.14131

Source: Primary Source

4.2.3. Correlation test analysis

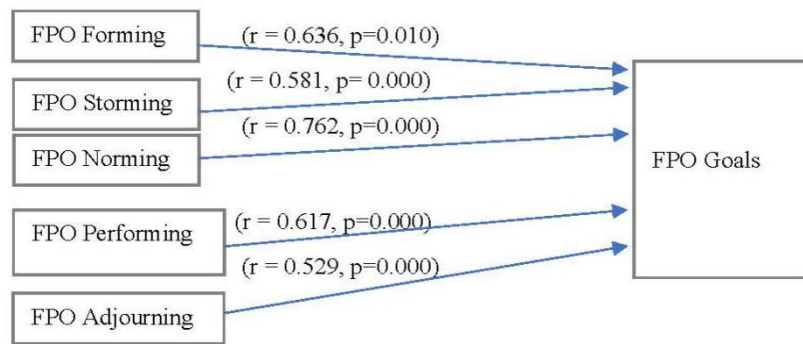


Figure 2. Various stages in building FPO and their Co-relationship with agricultural development.

Source: Result of statistical testing regarding FPO.

Farmer Producer Organisation (FPO) is developed following a process having five stages of group development. The stages are forming, storming, norming, performing, and adjourning. All the stages of the developmental process have a significant association with the goals of FPO. It is being indicated by 'r' values and proved statistically by respective 'p' values (**Figure 2**). As the 'p' values are < 0.05 in all the stages of the developmental process, it indicates a significant association of the FPO developmental process and the goals of the FPO. By this, the first hypothesis (H1) being formulated is accepted.

4.2.4. Regression test analysis

It is evident from **Table 7** that the development process followed by the NGO and the goals of FPO are positively and significantly correlated. All these are indicated by the multiple R = 0.711. With regard to beta coefficients, "FPO Forming", "FPO Storming", "FPO Performing", "FPO Norming" and "FPO Adjourning" yield significant impact on goals of FPO. The coefficient of determination yielded a value of 0.506; when it was adjusted for all the errors, the value yielded 0.48. This indicates that all the stages in the development process of FPO put together explain 48 percent of variance in attaining FPO goals. And interestingly, such value is also statistically significant ($F = 19.367$, d.f. = 4, 173, $p = 0.00$). It accepts the hypothesis (H_2)

confirming the impact of the development process FPO on attaining the goals of FPO. Hypotheses 1 and 2 have also proved significant statistically.

Table 7. Predictions and estimates for impact of developmental process on FPO goals (Dependent Variable = FPO Goals).

Model	R	Unstandardized Coefficients	Standardized Coefficients	'p' Value
FPO Forming	0.636*	0.641	0.352	0.010
FPO Storming	0.581*	0.613	0.346	0.000
FPO Norming	0.762*	0.582	0.210	0.000
FPO Performing	0.617*	0.602	0.332	0.000
FPO Adjourning	0.529*	0.438	0.206	0.000
Model-1	R	R Square	Adjusted R Square	F-Value
	0.711	0.506	0.484	19.367, d.f.= 4, 173 'p' = 0.000

Source: Result of Statistical Testing on FPO developmental process and FPO goals.

4.3. Suggestions

The vital role of NGO, group development process in developing FPOs impacting FPO's goals, and the importance of agriculture sector have been the findings of this study. The authors have provided suggestive measures for the development of effective FPOs in the future for the betterment of agriculture sector.

The NGO takes the initiative in identifying the potential farmers to form FPOs. The NGO personnel working directly with the farmers are suggested to have more visits to villages and rural areas to understand the problems of farmers and guide them to create awareness among farmers regarding the importance and benefits of FPOs. It is essential for farmers to understand the purpose and goals of the development of FPO along with the role of NGOs promoting FPOs. More camps, interactions, and workshops for farmers for developing FPOs in tune with the FPO guidelines with the scope of mobilization of resources for mobilization of resources are suggested.

The group development process followed in FPO should be facilitated and documented, and efforts should be taken to create interest among farmers to manage FPO by their own farmer members. The issues and activities among the farmers in FPO meetings should be observed and intervened to develop honesty, clarity, and responsibility among FPO members. As the FPO development is a process-oriented phenomenon, utmost care should be taken in developing human relations skills among the FPO members. It is to develop more cohesiveness, cooperation, and interest in farmers to strengthen FPO driving for better future of farmers. Developing leadership traits among the executive body members in FPO is vital, which should also be given importance by NGO. It can be done by creating interest among FPO members and organizing leadership programmes customised to the needs, expectations, and goals of FPO.

More participation of farmers, interests among FPO members in carrying out their FPO-related activities and over & above, their own drives and activities for financial, technical and business linkage of FPOs are suggested. All these measures shall be helpful in attaining more farmers' cooperation in developing effective and efficient FPOs.

More training should be imparted on the maintenance of agriculture, banks, and financial-related documents of farmers being submitted by them. Special care should be taken by NGOs promoting FPOs so

that the farmers can trust the NGOs and FPOs functioning for greater development of agriculture sector in India.

Building trust among farmers on the role of NGOs promoting FPOs is vital. Utmost care for trust building among FPO members by NGO is suggested. Training on maintenance of records relating to bank transactions, submission of land related documents, linkage with social and digital agricultural platforms in India and abroad, documentation of agricultural activities, issues and challenges in marketability of products and over & above in developing digitally competent farmers is suggested. The farmers should be able to use modern agricultural tools & techniques for improving their standard of living.

The Government should create innovative schemes and rural and urban marketing centers to facilitate import and export of agricultural products. The Government should execute plans to increase the literacy rate of farmers so that they can understand, cooperate and contribute to agriculture sector better than ever before.

5. Conclusion

Farmer Producer Organisations (FPOs) contribute to farmers' development, thereby developing the agriculture sector. NGOs play a catalytic role in the development of FPOs. In developing FPOs, NGOs follow Tuckman's group developmental process. The association between the FPO development process and the goals of FPO is established. The impact of the FPO development process on the achievement of FPO goals has been established as significant. The perceptual variation among the respondents, viz., general body members and executive body members of FPO and NGO staff, is revealed. The outcome of this study shall be useful for policymakers to formulate new guidelines in developing FPOs. The study is also beneficial to the academicians and researchers in developing new insights on the group developmental process of FPO on attaining its outcome. The perceptual variation among the FPO members and NGO about the development process of FPO also creates a scope for conducting future research. It shall provide new insights on the dynamics of the FPO development process.

Author contributions

Conceptualization, **SP** and **YM**; methodology, **SP** and **RS**; software, **SP** and **PG**; validation, **SP**, **YM** and **RS**; formal analysis, **SP**; investigation, **YM** and **DM**; resources, **PG** and **DM**; data curation, **YM**; writing—original draft preparation, **SP**; writing—review and editing, **SP**, and **RS**; visualization, **RS**; supervision, **SP**; project administration, **SP**; funding acquisition, **YM**. All authors have read and agreed to the published version of the manuscript. Abbreviation of authors as:

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Acknowledgments

The authors are thankful to officials of Sajeevan Foundation (NGO), Gujarat, India for providing the necessary data and cooperation in developing this article.

Conflict of interest

The authors declare no conflict of interest.

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