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Measuring the Role Performance of Farmer Producer Companies: An Index Development Perspective

Himadri Roy¹, Basavaprabhu Jirli² and Saikat Maji³

1. Res. Scholar, 2. Prof., 3 Asstt. Prof., Department of Extension Education, IASc, BHU, Varanasi, U.P.

Corresponding author e-mail : himadri.roy.cau@gmail.com

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ABSTRACT

Collectivizing the small and marginal farmers via Farmer Producer Companies (FPCs) has been considered as a way forward to address various agricultural value chain related challenges. Since the inception, Government has taken several initiatives and issued working guidelines from time to time for maintaining financial and technical viability of the FPCs. In the light of various guidelines issued by the governing bodies, the FPCs are supposed to help the farmers in various arrays of activities ranging from capacity building of beneficiaries, advisory on various agricultural activities, market integration for both inputs and outputs, enhancing agricultural productivity by implementing modern agricultural technologies, collective post-harvest activities along with marketing of the produce etc. At this juncture the need for an instrument to measure the role-performance of FPCs was recognized. Hence, a standardized index was developed which can delineate the activities undertaken by the FPCs to help the beneficiaries in achieving the economies of scale and self-sustaining solutions to several farming related problems. The process began with identification of 101 performance indicators classified under seven different dimensions. The indicators were then validated by the experts. After content validation 47 indicators were finally selected to constitute the index. And the reliability of the index (Cronbach's Alpha value 0.963) was indicative regarding the consistency of the results.

Key words: *Index; Farmer producer company; FPC; Role-Performance; Cronbach's Alpha; Relevancy Test;*

In India, agriculture plays a pivotal role in overall development of the economy. It has also contributed tremendously in meeting almost the entire food requirement of the people which helped the agricultural production trend to attain a commendable state of self-sufficiency. However, huge increase in production of agricultural commodities has not resulted in that level of increase in income of cultivators (Adhikari et al., 2021). Small and marginal farmers account for 86 per cent of the total operational land holdings in India (Agriculture census, 2015-16). The small scale of operation is a major concern for the small and marginal farmers. They need to procure agricultural inputs in small quantity from the local traders at 20-30% higher market rate (Bikkina et al., 2015). Again, transporting small quantities of produce to urban markets is not viable and they therefore end up selling their produce, particularly perishable

commodities to local traders at markedly lower prices (Hegde, 2010). In absence of collectivization, the small scale of operations significantly reduces bargaining power in input procurement as well as sale of output (Kirsten and Sartorius, 2002; Penrose-Buckley 2007) Small and marginal farmers' situation is further complicated by their inability to obtain credit and insurance, as well as their vulnerability to climate change, pest attack and other risks (World Bank, 2008).

The agrarian community in India possesses an age-old social attribute of coming together to address common problems of society as well as agriculture. A variety of approaches including cooperatives have been tried for collectivising the farmers. In the backdrop of the previous experiences of the performance of traditional cooperatives in India, it was felt that there was a need to give more freedom to

farmers' organizations to operate as business entities in a competitive market. This led to the formation of Producer Companies with the amendment of Section 581 of the Companies Act, 1956 as per the recommendations of Y K Alagh Committee. The Companies (Amendment) Act 2002 came into effect from February 2003 onwards and the Farmer Producer Companies (FPCs) emerged as potential driving force for social advancement and empowerment of the farmers (Alag, 2007). Farmer Producer Companies (FPCs) refer to independent, non-governmental, membership-based rural organizations of part or fulltime self-employed smallholders and family farmers, pastoralists, artisanal fishers, landless people, women, small entrepreneurs and indigenous peoples (FAO-ILO, 2014). These originations are characterized by formal, autonomous, outward oriented organizations and can be regarded as a hybrid between private companies and co-operatives (Trebbin, 2014). Producer Organizations are thus expected to be non-political organizations that provide business services to smallholder farmer members and are based on the principle of self-sufficiency (Onumah et al., 2007).

The prime aim of forming the FPCs is to act as an interface between the farmers and the outside world by providing both the forward and backward linkages along with several activities in the value chain starting from input procurement to selling of the final produce. It may include several arrays of activities like bulk procurement of raw materials, dissemination of production technology, market information dissemination, facilitating finance for production purpose, aggregation and storage of member's produce, primary processing activities like cleaning, drying and grading, proper value addition activities, packaging,

labelling and brand building, marketing of the final produce, export etc. Thus, FPCs are expected to perform a number of diverse activities for the upliftment of member farmers. In this backdrop, an effort was made to develop a suitable index for measuring the Role-Performance of the FPCs covering all different possible dimensions, as a part of broader research on FPCs.

METHODOLOGY

This particular segment focused on procedural steps needed to achieve the research objective to develop the FPC's Role Performance Index (FRPI).

Defining the construct : Construct is a concept with added meaning deliberately adopted for specific scientific purpose (Kerlinger, 1973). Here construct is 'Role-Performance of FPC'. The term 'Role' implies to the duty, task or work associated with a certain position and 'Performance' indicates the act of performing, executing and accomplishment with efficiency and effectiveness. Davis (1949) conceptualized Role-Performance as "how an individual actually performs in a given position as distinct from as to how he is supposed to perform. Under present study the construct Role-Performance of the FPCs was operationalized as various activities performed and production related services provided by the FPCs to the members in efficient way for their overall welfare.

Identification of various dimensions of the construct: FPC is basically conceived to help its members in the ease of doing agriculture. The FPC can contribute in any manner deemed fit to support the members in reducing the costs of cultivation, to get the best and latest technology in affordable terms and to aggregate their produce, process and sell in a remunerative market.

Operational definition of the dimensions of the construct

Dimension	Operational Definition
Social Mobilization	A mechanism of mobilizing the members to organize into FPC for collective improvement of their own social and economic condition.
Capacity Building	Interventions of FPC for developing and strengthening the strategic, organizational management skills and knowledge level of the members on agriculture and allied activities.
Production Support	Activities for supporting the members in primary production activities ranging from quality input (seed, fertilizer, animal feed etc.) supply along with advisory on production process aiming at reduction in cost of production process.
Marketing Support	Collective marketing strategies like bulk procurement of produce, storage, grading, processing, labelling, value addition, packaging, transportation etc. to protect the members from distress sale, price fluctuation, high transportation cost etc.
Technical Support	Various agriculture related advisories and consultancy services, linkage with various organizations, infrastructure facilities like custom hiring services, processing of agricultural produce, storage facilities etc.

Considering the wide range of activities performed and services provided by the FPC to the members the present construct ‘Role-Performance of the FPC’ was measured in seven different dimensions namely, Social Mobilization, Capacity building, Production Support, Marketing Support, Technical support, Financial Support and Legal Compliances.

Initial selection and editing of suitable indicators within different dimensions of the construct : A number of indicators under each dimension of the construct were collected from literatures viz. magazines, published reports, research papers, review articles, related manuals and web resources. Personal discussions were also held with the domain experts, directors of the FPCs to finalize the indicators.

A total of 101 indicators were framed under seven different dimensions of the construct (Table 1). The indicators were further edited according to the fourteen criteria given by Edward (1957).

Selection of indicators for FPC’s Role-Performance Index under different dimensions after Relevancy test (Content validation) : All the collected statements or indicators (Table 1) under seven dimensions may not be equally relevant to measure the Role-Performance of FPC. So, these indicators were subjected to undergo the scrutiny of the experts to determine their extent of relevancy for establishing the content validity and their screening for final inclusion in the index. The experts were scientists, researchers, professionals of relevant domain from various Agricultural Universities and Institutes, Govt. departments, NGOs etc. For the critical evaluation, 101 indicators were sent to 100 judges along with necessary instructions. The judges were requested to indicate the degree of relevancy of each indicator on a three-point continuum viz., Most relevant, relevant, and irrelevant with scores 3, 2, and 1, respectively. Out of 100, only 53 judges responded in give time span, out of which 7 incomplete and ambiguous responses were rejected. Finally, the scores given by 47 judges were considered for computing the Relevancy Weightage (RW) and Mean Relevancy Score (MRS) and Overall Mean Relevancy Score (OMRS) of all the indicators by using the following formulas:

$$RW = \frac{(MRR * 3) + (RR * 2) + (LRR * 1)}{MPS}$$

Where,

MRR= Most Relevant Response

RR= Relevant Response

LRR = Least Relevant Response

MPS= Maximum Possible Scores

$$MRS = \frac{(MRR * 3) + (RR * 2) + (LRR * 1)}{\text{Numbe of Judges}}$$

$$OMRS = \frac{\text{Sum of total weightage of all indicator}}{\text{Total No. of Judges * Total No. of indicat}}$$

Where,

MRS=Mean Relevancy Score

MRR= Most Relevant Response

RR= Relevant Response

LRR = Least Relevant Response.

By using these three formulae the indicators were screened for their relevancy. Accordingly, the statements having Relevancy Weightage (RW) greater than 0.85 and Mean Relevancy Score (MRS) greater or equal to Overall Mean Relevancy Score (OMRS) i.e. 2.55 were considered for final selection of indicators or statements (Madhu et al., 2021). With the help of this process, in the first stage out of 101 indicators total 47 indicators were sorted which were further rewritten and modified as per the suggestions given by experts (Table 1).

Determination of Index Values : It is required to assign specific weights (Index Values) to each dimension of the FRPI based on their perceived significance. The index values were determined by using Guilford's (1954) Normalised Rank Order Method. The method has the distinct feature that it can be used with any number of variables and does not require a large number of judges. Following steps were followed to determine the values.

Judges’ rating to the dimensions of the construct : In this method the judges ranked seven dimensions of FRPI according to their perceived importance in determining various role of the FPC in benefitting the members.

The rankings were obtained from same judges who contributed in establishment of content validity of the construct. Judges were asked to rank all the seven dimensions of FPC’s Role-Performance Index from 1 to 7, where 1 represents the most important dimension and 7 represents the least important dimension of the Index. Out of 100 judges, 40 judges submitted the ranking properly and those were found suitable after careful examination for further analysis. The rankings given by all 40 judges were summarized and presented in Table 2.

Calculation of proportions : Proportions (P value) for each dimension was worked out form the judges’ ranking by using following formulae.

$$p = \frac{R_i - .05}{n} \times 100$$

Table 1. List of preliminarily identified indicators and computed RW and MRS after expert judgments

Indicators	RW	MRS
<i>Social Mobilization</i>		
Collectivizes the member in a common platform*	0.89	2.66
Promotion of balanced social composition in FPC.	0.83	2.49
Motivates the members for participating in various production and business-related activities*	0.91	2.74
Functional contact of members along with the FPG representatives and BODs of FPC.	0.82	2.45
Organises regular meeting among the members*	0.89	2.66
Mobilization of common resources among the members to benefit them*	0.89	2.66
Systematically approach other non-members to join the FPC to explore various benefits*	0.85	2.55
Coordination, mutual assistance and mutuality among the members to achieve common goals.	0.86	2.54
Problems of each member are being discussed in a common platform and being solved.	0.84	2.51
Empower the small-scale farmers to ensure the participation in FPC	0.84	2.51
Promotes participation of women members in mainstream agriculture and decision process*	0.85	2.55
<i>Capacity building</i>		
Organizes various Awareness program on various farming practices for the members*	0.91	2.74
Organizes trainings for members on latest agricultural practices*	0.91	2.72
Conducts training of BODs on various managerial aspects and leadership qualities of FPC*	0.88	2.64
Organizes exposure visits for the members to showcase successful FPCs.	0.76	2.44
Arranges demonstration of new agricultural practices and technologies for the members*	0.87	2.62
Distribution of various literatures related to FPC among the members	0.72	2.17
Skill Development on various livelihood activities for income diversification*	0.86	2.57
Advisory support to improve market orientation of member farmers*	0.90	2.70
Helps in building greater commitment of members towards the FPC	0.81	2.43
Provides guidelines to the members regarding value chain management.	0.82	2.46
<i>Production Support</i>		
Timely input procurement for the members	0.84	2.44
Quality input procurement	0.84	2.54
Bulk Procurement of inputs at lesser price*	0.88	2.64
Judicious use of quality inputs	0.82	2.47
Promotes crop diversification	0.78	2.34
Timely input distribution among members (Seed, Fertilizer, animal feed etc.)*	0.89	2.68
Promotes livestock farming	0.73	2.19
Promotes small supplementary enterprises	0.72	2.17
Community irrigation facility	0.71	2.13
Reduces the over-all cost of production*	0.86	2.57
Advisory services on standard production protocols to maintain the quality of produce*	0.86	2.57
Advisory services on various production risk management	0.83	2.53
<i>Marketing Support</i>		
Bulk procurement of the produce from the members*	0.91	2.72
Procurement of whole produce from each member for better price realization	0.83	2.54
Collection of produce from farm gate	0.78	2.34
Arrangement for the transportation facility for produce to the market*	0.90	2.70
Timely disbursement of information on latest market price and trend*	0.92	2.77
Channelize the produce to the mandis for direct marketing.*	0.91	2.74
Creates one stop center for selling the product of members	0.77	2.52
Primary processing like drying, cleaning & grading of the produce*	0.86	2.57
Brand building, Packaging, Labeling & Standardization of the produce*	0.87	2.62
Eradication of middle man from the value chain.	0.79	2.44
Development of proper market linkages	0.79	2.58
Reduction of transportation cost of marketing	0.84	2.51
No arbitrary deduction in produce cost	0.69	2.06
Increase of total marketed output	0.79	2.38
Realization of better price for the produce*	0.87	2.62
Reduction of market risks*	0.87	2.62
Establishment of linkages with private companies or Govt. organizations for marketing*	0.89	2.68
Promotes online commerce platforms like e-NAM, NCDX for trading the members produce*	0.88	2.64
Ensure no distress sale by producer members	0.85	2.53

Finds out and build export markets.	0.79	2.36
Provision of contract farming or buyback agreements with member producers	0.80	2.40
Arrangement of acceptable and affordable packing material in bulk	0.82	2.54
<i>Technical Support</i>		
Advisories related to crop planning based on demand situation*	0.86	2.57
Preparation of crop calendar for optimization of input use	0.88	2.64
Custom hiring services for agricultural implements*	0.85	2.55
Advisory services on crop protection*	0.94	2.81
Advisory services on water and nutrient management	0.77	2.30
Proactive weather advisory services	0.69	2.06
Maintaining linkage with line departments and agricultural institutions to avail modern technologies and expert advice	0.80	2.40
ICT based agricultural consultancy	0.83	2.54
Dealership of input companies as distributor	0.82	2.54
Helps in liaisoning with the Government departments for convergence of various programs like soil testing, micro irrigation, organic farming and seed production*	0.87	2.62
Soil testing based nutrient recommendation.	0.81	2.43
Proper storage facility for the produce of the members after bulk procurement*	0.85	2.55
Provides value addition facility*	0.85	2.55
Infra-structure for food processing.	0.87	2.60
Seed storage and seed processing facility	0.79	2.48
Engaging in various company activities like procurement, marketing, auditing, expenditure, agri-business committee etc.	0.82	2.47
<i>Financial Support</i>		
Promotion of savings habit among the members*	0.85	2.55
Awareness on formal credit sources	0.77	2.37
Accessibility of credit facility from FPC*	0.86	2.57
Immediate payment after the procurement of produce form the members*	0.89	2.66
Credit for farm mechanization	0.71	2.37
Collateral free loan disbursement among the members.	0.74	2.21
Provision for crop and livestock insurances for the members*	0.87	2.60
Documentation support for availing various Govt. schemes	0.72	2.23
Promotes financial linkages with lending banks to ensure access the credit at reasonable interest*	0.89	2.66
Harnesses the benefits of various Govt. schemes. for the welfare of members*	0.85	2.55
Allocation of funds into various developmental activities of FPC	0.83	2.49
Preparation of bankable business plan*	0.85	2.55
Mobilizes the share capital of the company*	0.86	2.57
<i>Legal Compliances</i>		
Promotes FPGs (Farmers Producer Groups) as a building block of FPOs*	0.90	2.70
Impartiality in election of the members as BODs of the company*	0.86	2.58
Equal shareholding of members in the company	0.80	2.40
Share the patronage bonus among the active members of the company*	0.85	2.55
Regular auditing of the company's business profile	0.75	2.38
Proper policy advocacy	0.83	2.49
Compliances to the regulation by the members	0.77	2.37
Proper policy frame work for financing FPGs according to their requirements within the ambit of FPC*	0.85	2.55
Induces the members to contribute for a minimum share capital in FPC	0.84	2.53
promotes proper maintenance of company profile, balance sheets, books etc*	0.87	2.59
Maintenance of various records for inflow and outflow of cash in company	0.84	2.51
Maintains the inventory of resources	0.82	2.57
Proper management of common properties of the company (land, water resources, farm implements etc)*	0.86	2.57
Fund management for various developmental activities	0.80	2.53
Rapport with financial institutions	0.77	2.40
Transparency in various monetary transactions*	0.87	2.60
Maintain economic viability and technical feasibility of the company	0.78	2.42
Overall mean relevancy score (OMRS)		2.55

*Denotes indicators/statements selected for further analysis having RW>0.85 and MRS \geq OMRS;
RW=Relevancy weightage; MRS=Mean Relevancy Score

Where,

R_i stands for the rank value of the dimension 'i' in reverse order i.e 7 to 1.

'n' denotes the number of dimensions ranked by the judges (here, n=7)

The central area of the dimensions had to be ranked in this case. The p stands for the centile value, which represents the area of the dimensions in a normal distribution. The P values were worked out for all the ranks shown in Table 2 and the P values for all ranks ranged from the lowest 7.14 to highest 92.86.

Calculation of the C values: The correct rank orders (1 to 7) were displayed in the column r_i in Table 2. In the second column R_i the reverse rank orders (7 to 1) were given. The C values were determined for each rank from the table – M (Guilford, 1954).

Calculation of Index values for every dimensions : In the next step the $\sum(f_{ji}C)$ values were calculated for all the dimensions of the index. This value was calculated for every dimension by multiplying it's the frequencies found for each rank i.e 1to7 with the respective C values of the respective ranks (r_i), and then summing up the products. The mean of the total $f_{ji}C$ matrix was 5.86 (1640/280) and the mean of the C values was 5.86 (41/7). Now, to determine the index value for each dimension, the $\sum(f_{ji}C)$ values were divided by the total number of judges i.e 40 and from the obtained results it was found that $M_c = R_j$. Hence, the obtained M_c values were accepted and considered

as the index values. The mean of the M_c or R_j or R_c values was 5.86. The standard deviation and standard error of the M_c values was 0.65 and 0.23, respectively. The obtained index values (R_c) were shown in Table 2 against the row M_c or R_j or R_c .

Computation of the Composite Index : Each dimension of FRPI contains unequal number of items so, their range of total scores will also be different. Hence, the total score of each dimension will need to be converted into unit score after collecting the data from the respondents in the study area. The following formulae will be used for the conversion with simple range and variance as given below,

$$U_{ij} = \frac{Y_{ij} - \text{Min}Y_{ij}}{\text{Max}Y_j - \text{Min}Y_j}$$

Where,

U_{ij} = Unit score of the i^{th} respondents on j^{th} dimension

Y_{ij} = Value of the i^{th} respondent on the j^{th} dimension

$\text{Max}Y_j$ = Maximum score on the j^{th} dimension

$\text{Min}Y_j$ = Minimum score on the j^{th} dimension

The score of each dimension will be ranging from 0 to 1 i.e. when Y_{ij} is minimum, the score will be 0 and when Y_{ij} is maximum the score will be 1. Then the unit scores of each respondent will be multiplied by respective index value of each dimension and then the scores will be summed up. Then, the obtained score will be further divided by the sum of index values in order to get the FRPI score for each respondent.

Table 2. Weightage to the indicators of Role performance Index

r_i	R_i	SM	CB	PS	MS	TS	FS	LS	\sum	p	C
1	7	2	2	9	14	10	2	1	40	92.86	8
2	6	2	2	16	11	4	3	2	40	78.57	7
3	5	4	6	9	6	6	7	2	40	64.29	6
4	4	11	7	3	4	5	7	3	40	50.00	6
5	3	7	6	1	3	5	8	10	40	35.71	5
6	2	7	9	0	1	6	6	11	40	21.43	5
7	1	7	8	2	1	4	7	11	40	7.14	4
$\sum f_{ji}$		40	40	40	40	40	40	40	280	350	41
$\sum(f_{ji}C)$		218	215	269	273	245	219	201	1640	Mean = 5.86	
M_c or R_j or R_c ($\sum f_{ji}C / \sum f_{ji}$)		5.45	5.38	6.72	6.83	6.12	5.47	5.03	41	SD = 0.65	

SM=Social Mobilization; CB=Capacity Building; PS=Production Support; MS=Marketing Support;

TS=Technical Support; FS=Financial support; LS=Legal compliances.

r_i = Correct Rank order, R_i = Reverse rank order, \sum = Sum, P = Proportion, C = C values of respective ranks from Guilford's Table M, M_c = Mean Value, R_j = Response value, R_c = Index Value, σ_c Standard Deviation; Standard Error for $M_c = 0.23$

$$FRPI_i = \frac{\sum U_{ij} * I_j}{\text{Sum of Index Values}}$$

Where,

FRPI_i = FPC's Role Performance Index for ith respondent

U_{ij} = Unit score of the ith respondent on jth dimension

I_j = Index value of the jth dimension

∑ = Sum

The status of FPC's role performance will be computed based on the total index score of all the dimensions.)

Table 3. Reliability Statistics of Role Performance Index of FPCs

	Part 1	Value	.931
		No. of Items	24 ^a
Cronbach's Alpha	Part 2	Value	.926
		No. of Items	23 ^b
	Over all	Value	0.963
		Total Items	47
Correlation between forms			.941
Spearman-brown coefficient	Equal length		.970
	Unequal length		.970
Guttman split-half coefficient			.968

a. The items are: i1, i3, i5, i7, i9, i11, i13, i15, i17, i19, i21, i23, i25, i27, i29, i31, i33, i35, i37, i39, i41, i43, i45, i47.

b. The items are: i2, i4, i6, i8, i10, i12, i14, i16, i18, i20, i22, i24, i26, i28, i30, i32, i34, i36, i38, i40, i42, i44, i46.

i₁= Indicator no. 1; i₂=Indicator no. 2 and so on)

Reliability test and construction of final index : It's an integral step in constructing an index. It was important to portray the indicators based on the extent to which those can differ the Good Performing FPCs with the Poor Performing FPCs. With this interest the reliability test was done for the 47 indicators/ statements which were selected after computing the content validity. For this purpose, a schedule consisting of those selected indicators was used for interviewing a sample of total 40 members from non-sampling FPCs. The responses for the selected indicators were obtained on 3-point continuum viz. always, sometimes and never with scores of 3, 2 and 1, respectively. After administrating the test, the results were analysed by using SPSS 23 and reliability co-efficient (Cronbach's Alpha) was found to be 0.963 which denotes very high level of reliability of the developed Index (Table 3). Again, for each and every dimension of the construct the Cronbach's alpha has been given in Table 4.

RESULTS AND DISCUSSION

The final index consisted of 47 indicators under

Table 4. Dimensions of Role Performance Index of FPCs with number of indicators along with Cronbach's Alpha value

Construct	No. of initial indicators	No. of final indicators	Cronbach's Alpha Value
Social Mobilization	11	06	0.845
Capacity Building	10	06	0.716
Production Support	12	04	0.804
Marketing Support	22	10	0.862
Technical Support	16	06	0.881
Financial support	13	08	0.892
Legal compliances	17	7	0.716

7 different dimensions (Table 5) which will be able to measure the construct 'Role-Performance of FPC'. The responses need to be recorded on a three-point continuum representing Always, sometimes and never with scores 3, 2, 1 respectively. The Role-Performance score for each FPC according to the respondent members can be calculated by summing up all the scores obtained against each indicator. Based on the obtained Index scores, the FPCs can be divided into Good, Moderate and Poor Performing FPC by using cumulative square root method.

Ranking for seven different dimensions of FPC's role performance index were ranked by judges with expertise in social science and FPC related activities according to their perceived significance in determining the significant contribution FPC in benefiting the members. From the Table 6, it could be revealed that according to experts the first and foremost important dimension for measuring the role performance of FPC is marketing support, next important factor is production support and the third most important dimension is technical support followed by other different dimensions. It could be enunciated that marketing support plays crucial role in sustainability of any FPC, without proper marketing facility FPC will be unable to channelize the aggregated produce of the members for better price realisation. Proper marketing facility can aid in packaging and reduce the transportation cost which will diminish the dependency of members upon the middle man. Again production support is also essential for facilitating the timely disbursement of agricultural inputs among the members at a lesser price compared to retail market which ultimately results in lowering the overall production cost. Technical support is also an important aspect in delivering various farming related advisories. Small and marginal

Table 5. The Final Role-performance Index with 47 indicators representing 7 different constructs

Performance Indicators	Always	Sometimes	Never
<i>Social Mobilization</i>			
Collectivizes the member in a common platform.			
Motivates the members for participating in various production and business-related activities.			
Organises regular meeting among the members.			
Mobilization of common resources among the members to benefit them.			
Systematically approach other non-members to join the FPC to explore various benefits.			
Promotes participation of women members in mainstream agriculture and decision process.			
<i>Capacity building</i>			
Organizes various awareness program on various farming practices for the members.			
Organizes trainings for members on latest agricultural practices.			
Conducts training of BODs on various managerial aspects and leadership qualities of FPC.			
Arranges demonstration of new agricultural practices and technologies for the members.			
Skill Development on various livelihood activities for income diversification.			
Advisory support to improve market orientation of member farmers.			
<i>Production Support</i>			
Bulk Procurement of inputs at lesser price.			
Timely input distribution among members (Seed, Fertilizer, animal feed etc.).			
Reduces the over-all cost of production.			
Advisory services on standard production protocols to maintain the quality of produce.			
<i>Marketing Support</i>			
Bulk procurement of the produce from the members.			
Arrangement for the transportation facility for produce to the market.			
Timely disbursement of information on latest market price and trend.			
Channelize the produce to the mandis for direct marketing.			
Primary processing like drying, cleaning & grading of the produce.			
Brand building, packaging, labeling & standardization of the produce.			
Realization of better price for the produce.			
Reduction of market risks.			
Establishment of linkages with private companies or Govt. organizations for marketing.			
Promotes online commerce platforms like e-NAM, NCDX for trading the members produce.			
<i>Technical Support</i>			
Advisories related to crop planning based on demand situation.			
Custom hiring services for agricultural implements.			
Advisory services on crop protection.			
Helps in liaising with the government departments for convergence of various programs like soil testing, micro irrigation, organic farming and seed production.			
Proper storage facility for the produce of the members after bulk procurement.			
Provides value addition facility.			
<i>Financial Support</i>			
Promotion of savings habit among the members.			
Accessibility of credit facility from FPC.			
Immediate payment after the procurement of produce from the members.			
Provision for crop and livestock insurances for the members.			
Promotes financial linkages with lending banks to ensure access the credit at reasonable interest*			
Harnesses the benefits of various Govt. schemes. for the welfare of members.			
Preparation of bankable business plan.			
Mobilizes the share capital of the company.			
<i>Legal Compliances</i>			
Promotes FPGs (Farmers Producer Groups) as a building block of FPOs.			
Impartiality in election of the members as BODs of the company.			
Share the patronage bonus among the active members of the company.			
Proper policy frame work for financing FPGs according to their requirements within the ambit of FPC.			
promotes proper maintenance of company profile, balance sheets, books etc.			
Proper management of common properties (land, water resources, farm implements etc).			
Transparency in various monetary transactions.			

Table 6. The weightage and ranks of seven dimensions in the computed FRPI given by the judges

Role Performance Index	Calculated Mc or Rj	Rank
Social Mobilization	5.45	V
Capacity Building	5.38	VI
Production Support	6.72	II
Marketing Support	6.83	I
Technical Support	6.12	III
Financial Support	5.47	IV
Legal Compliances	5.03	VII

(Note: Mc = Mean Value, Rj = Response value)

farmers can avail various farm machineries at minimal cost and along with proper storage facility. Other dimensions like financial support, social mobilization of the members, capacity building activities and legal compliances are also important aspects for the overall FPC's performance for bringing a paradigm shift in Indian agriculture.

CONCLUSION

The main motto of forming FPC is to organise the small and marginal farmers into collectives so that they can reap numerous benefits rather than individual approach. The FPCs are supposed to perform various activities across the value chain to help the members. Hence, it was felt necessary to construct such index which can access various functions and roles of FPC to help the members in attaining the economics of scale. The validity and reliability of the Index denotes high level of precision and consistency of result. The developed Index will be very much useful for the researchers, policy makers and other academicians and it also can be used outside of the study area perspective with necessary modifications (If required).

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

REFERENCES

- Agriculture Census Division, Ministry of Agri. & Farmers Welfare, New Delhi. All India Report on *Agri., Census 2015-16*.
- Adhikari, A.; Pradhan, K. and Reddy, S. (2021). Factors associated with the sustainability of farmers' producer organization (FPOs). *Indian Res. J. Ext. Edu.*, **21** (4):145-148
- Alagh K.Y. (2007). On producer companies. PRADHAN'S workshop on producer companies.
- Bikkina, N.; Turaga, R.M. and Bhamoriya, V. (2015). Farmer producer organizations as farmer collectives: A case study from India. IIMA working papers, Indian Institute of Management Ahmedabad, Research and Publication Department.
- Davis, K. (1949). Human society. The Macmillan Co., New York.
- Edward, A.L. (1957). Techniques of attitude scale construction. Appleton Century- Crofts, New York.
- FAO-ILO. (2014). Cooperatives & producers' organizations: Food, Agriculture & Decent Work: ILO & FAO working together.
- Guilford, J. P. (1954). Psychometric methods. Tata McGraw Hill Publishing Co. Ltd.
- Hegde, N. G. (2010). Development of Value Chains for Sustainable Agriculture. *Financing Agriculture*, **42** (7): 26-28.
- Kerlinger, F. N. (1973) Foundations of behavioural research. Holt, Rinehart and Winston Inc., New York.
- Kirsten, J. and Sartorius, K. (2002). Linking agribusiness and small-scale farmers in developing countries: is there a new role for contract farming? *Development Southern Africa*, **19**(4): 503-529.
- Madhu, L.; Kadian, K.S.; Meena, B.S.; Manjunath, K. and Meena, D. (2021). Development of an index to measure the farmers' perception towards input dealers as para extension workers. *Indian Res. J. Ext. Edu.* **21** (4): 92-98.
- Onumah, G.; Davis, J.; Kleih, U. and Proctor, F. (2007). Empowering smallholder farmers in markets: Changing agricultural marketing systems and innovative responses by producer organizations, Accessed on 29 June 2021 from http://mpr.ub.uni-muenchen.de/25984/1/MPRA_paper_25984.pdf.
- Penrose-Buckley, C. (2007). Producer organisations: a guide to developing collective rural enterprises. Oxford: Oxfam.
- Trebbin, A. (2014). Linking small farmers to modern retail through producer organizations- Experiences with producer companies in India. *Food Policy*. **45**: 35-54.
- World Bank. (2008). World development report: Agriculture for development. Accessed on 29 June 2021 from http://siteresources.worldbank.org/INTWDRS/Resources/477365-1327599046334/WDR_00_book.pdf.

