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Farmer Participatory Decentralized Planning through Local Self Government Institutions of Kerala- Perceived Efficacy and Determinants of Agricultural Officers

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Abstract

Kerala successfully evolved a paradigm of decentralized and participatory development planning taking advantage of the provisions of the 73rd and 74th amendments devolving about 30 per cent of the total plan funds and transfer connected developmental departments to the LSGIs. The study to analyze the efficacy of farmer participatory decentralized planning through local self-government institutions of Kerala as perceived by agricultural officers along with the determinants was conducted on in five agro climatic zones of Kerala. It was found that 82.5 per cent of the respondents had medium level of perceived efficacy. Factor analysis delineated two factors that affected the efficacy perception of Agricultural Officers both together explaining a total variance of 69.57 per cent. These factors were identified as participation-performance interdependence and decentralization- development facilitation factors. Participation – performance interdependence factor consisted of seven variables such as attitude towards Panchayati raj, sense of empowerment, attitude towards participatory planning, role performance, leadership quality, extent of participation in working groups and sharing of responsibility explaining 46.93 % of total variance. Decentralization- development facilitation factor consisted of three variables such as accountability in planning and implementation, transparency within the group and leadership propensity explaining 22.64% total variance.

***Key words*:** Farmer participatory planning, Decentralized planning, Agricultural development, Perceived efficacy

Participation of people in decision making effectively distributes benefits to the people with least costs and thus has become a major reform agenda in developing countries. As a strategy to reduce marginalization of the weaker sections in decision making process decentralized planning ensures efficiency and equity in administration and sustainability of the development process due to its proximity with the grassroot level institutions and functionaries. Decentralization is considered to be a process of deepening democracy, which would make local development a challenge for the society to tackle with [1]. While analyzing the service delivery mechanism in decentralized system, Oommen [2] revealed that service delivery to the poor was weak because of reasons such as lack of commitment for mobilization of the poor, poor accountability of elected officials, lack of political commitment to share power and inadequate resources and expertise in the local governments. But people's participation strengthens governance by making it more responsive to their aspirations and preferences of the people. However, in reality, participation of people in decision making processes has been ignored in the past, causing stagnation in development and performance deficiencies of developmental institutions [3]. Satish Kumar *et al*. [4] in a study on attitude of beneficiaries in the watershed development found that favorable attitude could be converted to more favorable attitude by changing the variables such as organizational participation and extension participation of respondents.

Kerala successfully evolved a paradigm of decentralized and participatory development planning taking advantage of the provisions of the 73rd and 74th amendments. This involved the historical decision of the Government of Kerala to devolve about 30 per cent of the total plan funds and transfer all the developmental departments to the LSGIs. While analyzing the sub optimal performance of grama panchayaths in the decentralized system in Kerala, Planning Commission [5] outlined that grossly inadequate devolution, existence of parallel systems, excessive control by bureaucracy, tied nature of funds, reluctance to use fiscal powers, status of the Gram Sabha as some of the deficiencies.

Regarding participation of stakeholders in planning process Kannan [6] observed that regular participation of the officials in *Gram Sabha* meetings significantly influenced joint agricultural activities such as demonstrations of new technology to farmers, effective deliberations on agricultural issues in *Gram Sabhas* and delivery of agricultural public services. However, according to Harilal [7], due to inherent problems in the methodology of planning which failed to ensure better administrative co-ordination and cooperation in decentralized planning, participation of people in the panchayath level planning was declining and only the poor and

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lower middle class found it important to involve in this process. While people take part in planning process, Samanta and Nayak [8] identified a change of role of people from users and beneficiaries to policy makers, co-producers and public service evaluators. Obviously, the perception on efficacy of the system would be greatly influenced by the extent of direct participation in the consultation process prior to formulation of projects. Pillai and Prakash [9] revealed that high level of education tended to decrease interest of people to participate. Datta and Sodhi [10] opined that local self-governments, being the locus of decentralized planning, must institutionalize participation of the target groups.

Alex [11] reported that Kerala with its own legacy of democratic decentralization, drew up a specific plan in 1996 for democratic decentralization. This was made possible by establishing three levels of local governments at the district, block (the middle tier), and villages and devolving political and financial authority to these institutions. This included four distinct measures: (1) transferring key development departments in the rural sector and their personnel to the local self-governments; (2) devolving administrative authority to plan, implement, and monitor development program at the grassroots level; (3), devolving as much as 30% of development grants of the state government to the local governments; and (4) formulating an innovative framework of processes and procedures to draw up local-level development plans in all key sectors that have direct impact on the people.

The platforms of rural democratic institutions offer innumerable opportunities for human resource development, social capital formation, negotiation, consensus building, conflict resolution, and creative thinking in several ways. Emphasizing the importance of this administrative structure to facilitate decentralized planning, Oommen [12] described that the most important contribution of the people's plan movement was the introduction of new methodology for decentralized planning which has widened the avenues of people's participation.

MATERIALS AND METHODS

Study area

The study was conducted in five districts selected from five agroclimatic zones of Kerala- Thiruvananthapuram (Northern Kerala), Palakkad (Central zone), Malappuram (Northern Kerala), Wayanad (High range zone) and Thrissur (Problem Area Zone). Forty panchayats were selected based on cropping intensity. A brief profile of the study area has been given in (Table 1).

Study sample

Sample for the study was drawn following stratified random sampling procedure. One district each was randomly selected from each of the five agro climatic zones of Kerala. From each district eight Panchayaths with high cropping intensity were selected. The sample of respondents comprised of 40 Agricultural Officers, 40 Grama Panchayat Presidents and 80 farmers who are members of the agricultural working group at Panchayat level constituted for participatory planning. The total sample size thus was 160.

Measurement of efficacy of decentralized agricultural planning and determinants

The decentralized Agricultural Planning through Local Self Government Institutions LSGIs of Kerala has been institutionalized through a process involving 15 stages which was categorized in to three distinct phases -Participatory Need assessment phase, Plan formulation and resource allocation phase and Plan appraisal, Integration and implementation phase. After close scrutiny of various guidelines and orders of the LSGI and State Planning Board, perusing the past research studies and relevant literature in the area of participatory planning and by discussing with the agricultural scientists, 120 parameters determining the efficacy of various stages were arrived at. These parameters were subjected to expert rating and a final 60 parameters were selected under 15 dimensions with four parameters under each dimension**.** Each parameter was judged based on the degree of efficacy of that parameter against a five-point continuum of mostly adopted, often adopted, occasionally adopted, rarely adopted and not adopted with scores 5,4,3,2and 1 respectively. Pretesting was done in a non-sampling area among 30 randomly selected respondents. The selected items were combined in to a scale. Then it was subjected to content validity method through judges rating for the questionnaire validity. The reliability was found out using Cronbach's Alpha statistics and the value of 0.819 showed high reliability acceptable enough to be used in data collection. Other independent variables were measured adopting methodologies already standardized.

Analysis of data

Data collected was subjected to factor analysis to delineate factors determining perceived efficacy of decentralized agricultural planning process. Analysis was conducted using SPSS software for windows version 9.2. Using Principal component analysis, dimensionality of data was reduced to a few variables. Descriptive statistics like frequency and percentages were used to study the profiles of the respondents.

RESULTS AND DISCUSSION

Efficacy of farmer participatory decentralized planning as perceived by Agricultural Officers was found to be influenced by certain personal characteristics of the officers.

Table 1 Profile characteristics of the agricultural officers of LSGIs in decentralized planning (n = 40)

S. No.	Variable	Number	Percentage	Mean	Standard deviation
1.	Leadership quality				
	Low	18	45	13.93	0.944
	Medium	22	55		
	High	0	0		
2.	Sharing of responsibility				
	Low	16	40	17.6	0.496
	Medium	24	60		
	High	0	0		

3.	Attitude towards Panchayathiraj			57.13	1.09
	Low	13	32.5		
	Medium	25	62.5		
	High	2	5		
4.	Leadership propensity				
	Low	9	22.5	13.73	0.554
	Medium	31	77.5		
	High	0	0		
5.	Attitude towards participatory planning				
	Low	6	15	66.85	1.477
	Medium	25	62.5		
	High	9	22.5		
6.	Accountability in planning and implementation				
	Low	2	5	7.95	0.221
	Medium	38	95		
	High	0	0		
7.	Transparency within the group				
	Low	4	10	7.9	0.304
	Medium	36	90		
	High	0	0		
8.	Sense of empowerment				
	Low	8	20	70.63	1.353
	Medium	20	50		
	High	12	30		
9.	Participation in working group				
	Low	7	17.5	93.9	2.836
	Medium	23	57.5		
	High	10	25		
10.	Role performance in decentralized planning				
	Low	6	15	66.84	4.39
	Medium	2	80		
	High	32	5		
11.	Efficacy of decentralized planning				
	Low	4	10	71.663	2.09
	Medium	33	82.5		
	High	3	7.5		

A glimpse through the profile characteristics of agricultural officers reveals that with respect to leadership quality 55% belonged to the medium category and 45% to the low category. With regard to sharing of responsibility 60% belonged to the medium category and 40% belonged to the low category. Regarding attitude towards Panchayati raj 62.5% of the officers had medium attitude. Only 5% had the high attitude towards Panchayati raj. It was also found that 77.5% of officers had medium leadership propensity. With respect to the attitude towards participatory planning, 62.5% officers belonged to the medium category and 22.5 % belonged to the high category. Majority of officers belonged to the medium category with respect to accountability in planning and implementation (95%), transparency within the group (90%), participation in working group (57.5 %) and role performance (80%). With respect to the sense of empowerment only 50% belonged to medium category while 30% belonged to high. This points to the fact that agricultural officers are to be trained in leadership quality and sharing of responsibility [13].

Perceived efficacy of agricultural officers on decentralized farmer participatory agricultural planning through Local Self Government Institutions LSGIs

The perceived efficacy of the institutionalization of participatory planning was analyzed in five agro climatic zones of Kerala. The respondents were classified in to three categories viz. low, medium and high based on their PEDP values. The results are depicted in (Table 2, Fig 1).

Table 2 Distribution of agricultural officers according to their overall perceived efficacy index (n=40)

S. No.	Categories of OPEI	Number	Percentage	Mean	Standard deviation
1.	Low	4	10		
2.	Medium	33	82.5	71.663	2.09
3.	High	3	7.5		
	Total	40	100		

It could be observed from the (Table 2, Fig 1) that 82.5 per cent of the respondents were found to have medium level of perceived efficacy followed by low (10%) and high (7.5%). Hence majority of the respondents were found to have medium level of perceived efficacy of decentralized planning (PEDP). This indicates that most respondents perceived the decentralized planning process as moderately effective in addressing local agricultural development needs.

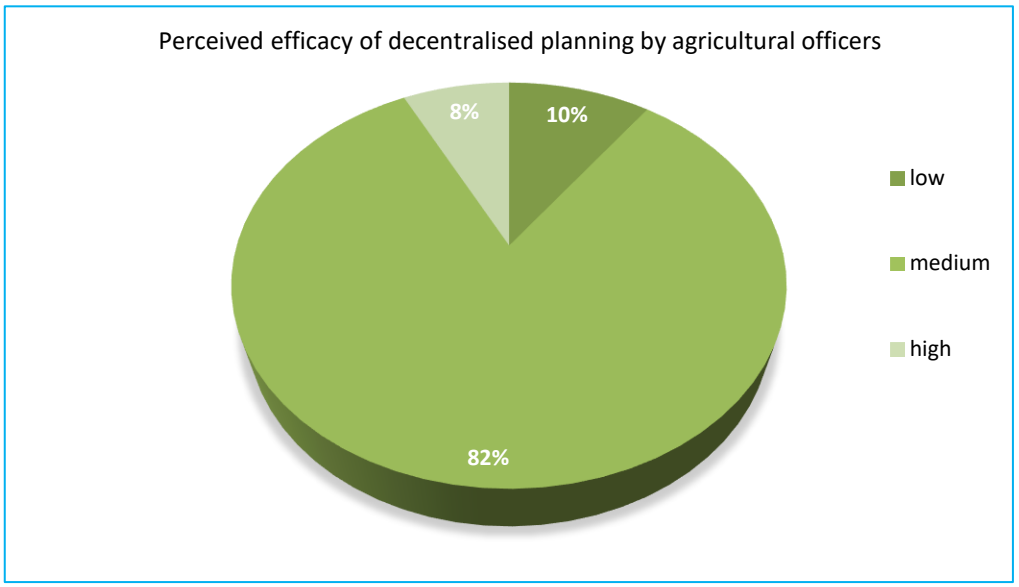


Fig 1 Distribution of agricultural officers according to their perceived efficacy of decentralized planning

Table 3 Relationship between perception on efficacy of decentralized planning in agriculture and socio- psychological attributes of Agricultural Officers (n = 40)

S. No.	Independent variable	Correlation coefficient
1.	Leadership quality	0.497**
2.	Attitude towards Panchayati Raj	0.591**
3.	Attitude towards participatory planning	0.660**
4.	Sense of empowerment	0. 802**
5.	Participation in Working Group meeting	0.849**
6.	Role Performance	0.815**
7.	Sharing of responsibility	0.374*

**Significant at the 0.01 level (*Pearson correlation*); *Correlation is significant at the 0.05 level (2-tailed)

Determinants of perceived efficacy scores obtained by agricultural officers

Perception of the agricultural officers on the efficacy of decentralised planning programme in agriculture is influenced by various personal characteristics. The relationship between the scores on perceived efficacy and selected socio-psychological traits of the officers is given in (Table 3).

Since there were only quantifiable variables, *Pearson* correlation coefficient was used to find the relationship between the dependent variables and their perception on the efficacy of decentralized planning. It was found that variables viz. leadership quality, attitude towards Panchayati Raj, attitude towards participatory planning, sense of empowerment, participation in Working Group meeting and role performance were significant at 0.01 level while sharing of responsibility was positively correlated at 0.05 level of significance [14]. Results of the multi linear regression between socio psychological attributes of Agricultural officers with perception on the efficacy of decentralized planning has been given in (Table 4) below:

Table 4 Relationship between socio psychological attributes of agricultural officers with perception on the efficacy of decentralized planning : Multi Linear Regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.943[a]	0.890	0.852	0.80378

Results of ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1.	Regression	151.664	10	15.166	23.475	0.000[b]
	Residual	18.736	29	0.646		
	Total	170.400	39			

a. *Dependent Variable:* Perception on the efficacy of decentralized planning

b. *Predictors: (Constant)*, Role performance, transparency within the group, leadership propensity, sharing of responsibility, accountability in planning and implementation, sense of empowerment, participation in working group, attitude towards Panchayati raj, attitude towards participatory planning

Table 5 Factor analysis of the variance explained by selected personal attributes of agricultural officers in decentralized planning

Residuals Statistics[a]					
	Minimum	Maximum	Mean	Std. deviation	N
Predicted value	66.7509	76.7370	71.6333	1.97201	40
Residual	-.98244	2.13134	.00000	.69312	40
Std. Predicted value	-2.476	2.588	.000	1.000	40
Std. Residual	-1.222	2.652	.000	.862	40

a. Dependent Variable: Efficacy

Test of sampling adequacy

To check whether the sampling of values is adequate for conducting factor analysis Kasier-Meyer-Olkm KMO test was done. The value obtained was greater than 0.674 and was significant. Bartlett's test is a check for identity matrix. A significance value of less than 0.05 indicated that the data is not an identity matrix. The data proved to be approximately multivariate normal and acceptable for factor analysis.

Table 6 Kaiser-Meyer-Olkin measure of sampling adequacy

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.674
Bartlett's Test of Sphericity	Approx. Chi-Square	288.957
	df	45
	Sig.	0.000

Table 7 Communalities of independent variables on factor analysis

Communalities		
Variables	Initial	Extraction
Leadership quality	1.000	.629
Sharing of responsibility	1.000	.532
Attitude towards Panchayatiraj	1.000	.826
Leadership propensity	1.000	.584
Attitude towards participatory planning	1.000	.735
Accountability in Planning and implementation	1.000	.773
Transparency	1.000	.742
Sense of Empowerment	1.000	.797
Participation in working group	1.000	.663
Role performance in decentralized planning	1.000	.676

Extraction method: PCA

Communality is the measure of the percentage of variable's variation, that is explained by the factors. In other words, it is the extent of variance a variable share with all other variables involved in factor analysis. A high communality depicts that that variable has much to share common with other variables. From the above table it is clear that variables leadership quality, attitude towards Panchayati raj, attitude towards participatory planning, accountability in planning and implementation, transparency within the group, sense of empowerment, participation in working group and role performance were having relatively high communality scores [15].

Table 8 Total Variance explained in factor analysis of personal attributes of agricultural officers

Component	Initial eigenvalues			Extraction sums of squared loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1.	4.721	47.210	47.210	4.721	47.210
2.	2.236	22.362	69.572	2.236	22.362
3.	.972	9.725	79.297		
4.	.709	7.089	86.386		
5.	.503	5.031	91.417		
6.	.313	3.129	94.546		
7.	.210	2.098	96.644		
8.	.155	1.554	98.198		
9.	.128	1.280	99.478		
10.	.052	.522	100.000		

It can be seen from the above table that out of the 10 variables, two factors could explain 69.57% variance. These two variables obtained in factor analysis in PCA were used for subsequent multiple linear regression analysis. Components with Eigen values greater than one were only selected. Rotation maximized the loading of the variable on one of the extracted factors while minimizing the loading in other factors. Scree plot depicting the delineated factors on the X axis and the corresponding Eigen values on the Y axis was used to extract the major determining factors (Fig 2).

Table 9 Variance explained in factor analysis of the selected attributes of agricultural officers (n = 40)

Total variance explained				
Component	Extraction sums of squared loadings	Rotation sums of squared loadings		
	Cumulative %	Total	% of variance	Cumulative %
1	47.210	4.693	46.929	46.929
2	69.572	2.264	22.643	69.572

Extraction Method: Principal Component Analysis

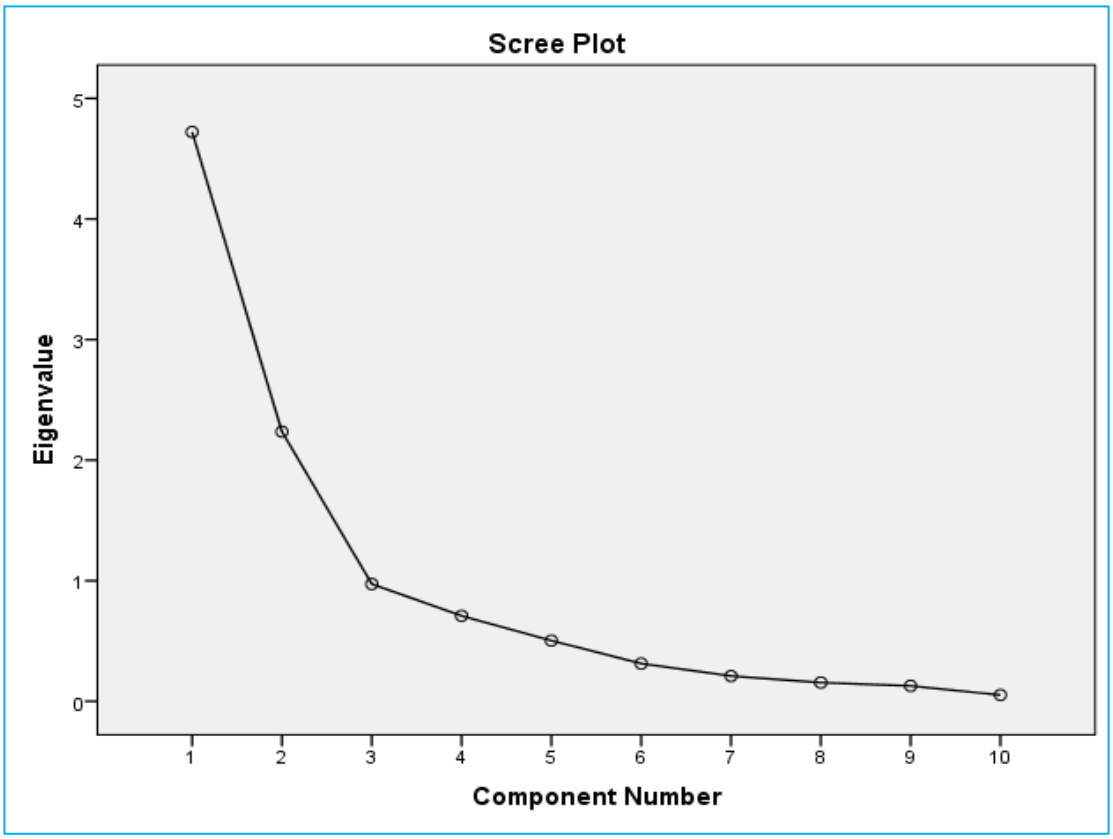


Fig 2 Factor scree plot of variance among selected attributes of agricultural officers that influence their perception on the efficacy of decentralized planning

The extracted graph flattened off after the break of the inflexion and the two factors before the point was selected as the major determining factors. The major factors together explained 69.57 per cent of total variance

Table 10 Rotated component matrix of factor analysis of the attributes of agricultural officers that influence their perception on the efficacy of decentralized planning

Name of the variable	Component	
	1	2
Attitude towards Panchayati Raj	0.895	
Sense of empowerment	0.880	
Attitude towards participatory planning	0.855	
Role performance	0.822	
Leadership quality	0.788	
Extent of participation in Working Groups	0.744	
Sharing of responsibility	0.716	
Accountability in planning and implementation		0.873
Transparency within the group		0.859
Leadership propensity		0.758

Extraction Method : Principal Component Analysis
Rotation method: Varimax with Kaiser normalization

The first component comprised of seven variables attitude towards Panchayati Raj, Sense of empowerment, attitude towards Participatory Planning, role Performance, leadership quality, extent of participation in working groups and sharing of responsibility [16]. The second factor extracted out of the principal component analysis had accountability in planning and implementation, transparency within the group and leadership propensity as the three variables in it. Variables with loadings more than 0.50 were grouped under a factor (Table 10).

Table 11 Factor loadings of attributes of agricultural officers in decentralized planning in Panchayats (n = 40)

Factor No	Items	Items extracted under factors	Factor loadings
Factor 1	1	Attitude towards Panchayati Raj	0.895
	2	Sense of Empowerment	0.880
	3	Attitude towards Participatory Planning	0.855
	4	Role Performance	0.822
	5	Leadership Quality	0.788
	6	Extent of Participation in Working Groups	0.744
	7	Sharing of responsibility	0.716
Factor 2		Accountability in planning and implementation	0.873
		Transparency within the group	0.859
		Leadership propensity	0.758

Factor analysis delineated two factors that affected the efficacy perception of Agricultural Officers of selected Panchayats. It was observed that these factors had significant influence on the perception of the efficacy and are independent of each other. Each factor was derived from a weighted linear combination of variables that accounted for the largest total variation in the data. These factors are given in the order of importance with respect to the proportion of the variance accounted by each factor. Two factors together explained a total variance of 69.57 per cent which implied high significance of the selected variables in the efficacy of institutionalization of decentralized planning in agriculture in Village Panchayats of Kerala [17].

The results of the rotated factor matrix for the items covered under each factor have been presented in (Table 11). The results showed that Factor 1 comprised of seven items with factor loadings ranging from 0.895 to 0.716. It also showed that Factor 2 had three factors with factor loadings of 0.873, 0.859 and 0.758. The uniformly high values of factor loadings indicated the significance of these variables in the delineated factors and the overall efficacy perception.

Based on the items loaded under each factor, appropriate nomenclature was assigned and has been depicted as major factors in (Fig 3). Accordingly, the major factors that have close relationship with the efficacy perception were identified as Participation-performance Interdependence and Decentralization- Development facilitation. Participation-performance enabling factor alone could explain 46.93 % of the total variance while Transparency- Accountability factor explained 22.64% total variance.

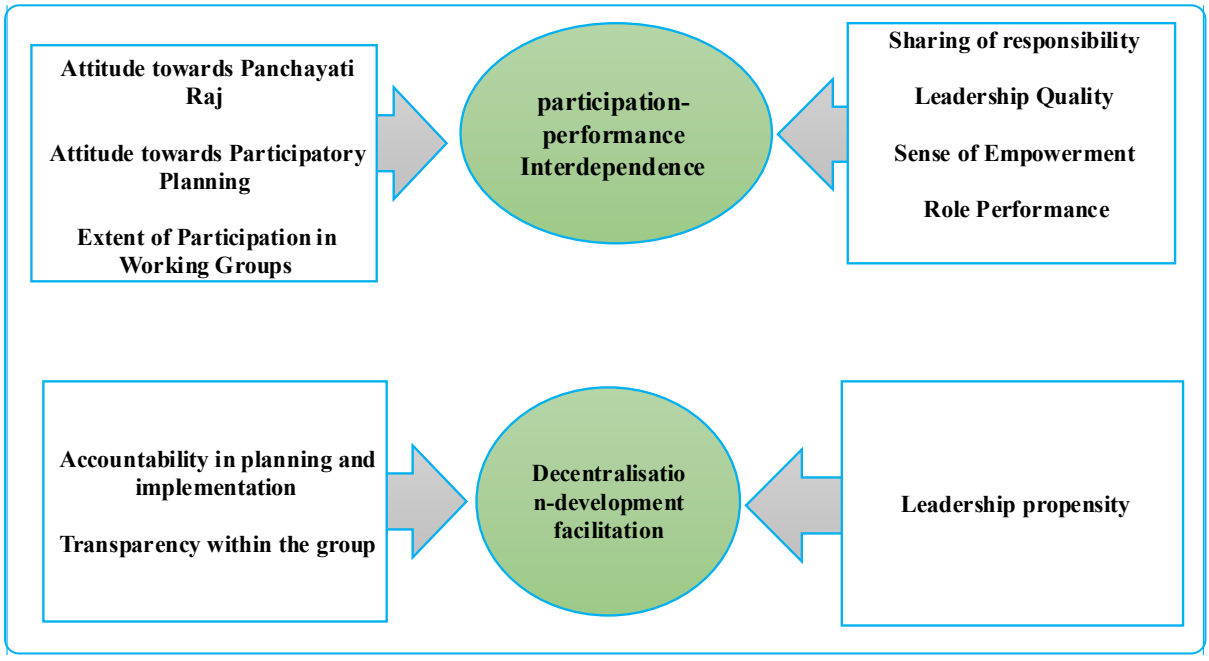


Fig 3 Diagrammatic representation of variance among factors of agricultural officers of LSGIs

Multi Linear Regression of the extracted factors (attributes) of Agricultural officers with perceived efficacy of decentralized planning at LSGIs

In order to determine the proportion of variance that can be explained by the independent variable the MLR was done. The model summary of the regression analysis given below:

Table 12 Model summary of the Multi Linear Regression analysis

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	0.817[a]	0.667	0.649	1.23779

a. Predictors: (Constant), REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1
b. Dependent Variable: Efficacy

From the (Table 12), the R^2 value (coefficient of determination) tells the proportion of variance. The adjusted R^2 value revealed that 64.9 % variance has been explained by the independent variable. From the ANOVA table it can be seen that the test is statistically significant. The obtained F-value of 37.109 was statistically significant at the 1 per cent level ($p<0.01$), indicating that the independent variables, taken together, significantly influenced the perceived efficacy of decentralized planning among agricultural officers of Local Self Government Institutions [18].

ANOVA[a]

Model		Sum of squares	df	Mean square	F	Sig.
1.	Regression	113.711	2	56.856	37.109	.000[b]
	Residual	56.689	37	1.532		
	Total	170.400	39			

a. Dependent Variable: Efficacy

b. Predictors: (Constant), REGR factor score 2 for analysis 1, REGR factor score 1 for analysis 1

Estimated model Coefficients on the Multiple Linear Regression (MLR) analysis of factors on Perceived Efficacy has been given in (Table 13). It can be concluded from the Multiple Linear Regression (MLR) model that unit increase in first factor; Participation-performance interdependence produced 1.667 increase in the perceived efficacy of the decentralized planning by Agricultural officers of the LSGIs. Similarly, unit increase in second factor, decentralization-Development facilitation produced 0.373 unit increase in efficiency perception.

Table 13 Estimated model coefficients on the MLR analysis of factors on perceived efficacy

Model		Unstandardized coefficients		Standardized coefficients	t	Significance	Collinearity statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	71.63	0.196		366.01	0.000		
1.	REGR factor score 1 for analysis 1	1.66	0.198	0.797	8.406	0.000	1.00	1.00
	REGR factor score 2 for analysis 1	0.373	0.198	0.179	1.884	0.067	1.00	1.00

a. Dependent Variable: Perception on efficacy of decentralized planning

Participation – performance Interdependence factor consisted of seven variables such as attitude towards Panchayati raj, sense of empowerment, attitude towards participatory planning, role performance, leadership quality, extent of participation in working groups and sharing of responsibility explaining 46.93% of total variance [19]. decentralization-development facilitation factor consisted of three variables such as accountability in planning and implementation, transparency within the group and leadership propensity explaining 22.64% total variance. Any capacity building strategy for the agricultural officers based on these variables will be helpful to bring desirable strategic changes in the decentralized farmer participatory planning process [20].

CONCLUSION

The study revealed that the majority of agricultural officers had a medium level of role performance (80%) and perceived efficacy of decentralized planning (82.5%) through Local Self Government Institutions (LSGIs). Perceived efficacy was significantly and positively associated with leadership quality, attitude towards Panchayati Raj, attitude towards participatory planning, sense of empowerment, participation in working group meetings, role performance and sharing of responsibility. Factor analysis identified two major factors, namely Participation–Performance Interdependence and Decentralization–Development Facilitation, which together explained 69.57% of the total variance. The subsequent multiple linear regression analysis indicated that these factors explained 64.9% of the variation in perceived efficacy of decentralized planning. The findings emphasize the need for strengthening the capacities of agricultural officers in leadership, participatory planning, empowerment, role performance, accountability, transparency and effective participation in working groups. Capacity-building programmes focusing on these attributes may enhance the effectiveness of decentralized and farmer-participatory agricultural planning and facilitate more effective implementation of agricultural development programmes through LSGIs.

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