

Indicators and Index to Measure the Public and Private Agricultural Extension Organizational Effectiveness

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ABSTRACT

Based on review of literature and discussion with extension experts. 28 indicators to measure the extension organisational effectiveness have been identified and subjected to judges rating. Considering relevancy percentage of 75, 21 indicators have been selected in input, process and outcome level. Based on selected indicators, extension organisational effectiveness index was developed.

ASSESSING the effectiveness of extension organisation is a complex task. A detailed review of various research studies pointed out that a common measurement problem is the inability to isolate the contribution of extension from other factors affecting farm productivity (Feder *et al.* 1987). But, in this existing pluralistic extension scenario, comparison of public, private and NGO extension is necessary to formulate appropriate future extension approach. Hence, an attempt was made to identify and standardize the indicators and an index to measure the effectiveness of public and private extension organisations.

METHODOLOGY

Meaning and operational definition of extension organizational effectiveness indicator : Indicator is a fact, a pointer or a signal. It is a person or thing that points out or gives information. It is fact of an environment whose occurrence serves as evidence that a particular condition exists (Oxford, Webster and Collins dictionaries).

Indicator is a number or other descriptor that is a representative of a set of conditions and which conveys information about a change or trend in these conditions. It is a representative or summarized form of many variables. Indicators are the tools that are used to assess the status, condition or trend of a given system (Maglinao, 2001).

Indicator is something that measures or describes a current condition in relation to a predetermined reference or a set of references. It demonstrates trend when observed over time. Indicators are variables that help to measure changes in a given situation. An indicator is a statement about the situation that exists when an objective is reached. It gives qualitative and quantitative details to objectives. There are four types of indicators; input, process, output /outcome and impact indicators (Anonymous, 2001).

Extension organisational effectiveness indicator was operationalised as pointer or evidence, which helps to measure the extent of attainment in input, process and outcome level.

To identify the extension effectiveness indicators, different levels like input level, extension activity level, clientele and extension personnel involvement level, reaction level, extension personal performance level, organisational performance and outcome level has been identified through referring Bennett (1977), Seepersad and Henderson (1984), Misra (1997) and Sulaiman and Sadamate (2000). At each level, different indicators were identified, which have been edited, modified and restructured based on discussion with extension experts and faculty members. Effectiveness indicators on three levels with 28 indicators were mailed with appropriate instruction to 110 judges.

Relevancy analysis : The judges were asked to check each of the items carefully for being relevant or not relevant, using three point continuum, viz., Most Relevant (MR), Relevant (R) and Not Relevant (NR). The judges were also requested to make necessary modifications and addition or deletion of items, if they desired so. The judges considered for this purpose were the extension experts in the SAUs, ICAR institutes, National Institute of Agricultural Extension Management (MANAGE), Hyderabad, National Institute of Rural Development (NIRD), Hyderabad and Indian Institute of Plantation Management (IIPM), Bangalore. The responses were received from 74 judges (67.27 %) in time. Relevancy percentage was worked out by summing up of the scores of Most Relevant (MR) and Relevant (R) categories, which was converted into percentage.

$$\text{Relevancy percentage} = \frac{\text{More Relevant responses} \times 2 + \text{Relevant responses} \times 1}{\text{Maximum possible score} (74 \times 2 = 148)} \times 100$$

The items having relevancy percentage of more than 75 per cent were considered for final selection of statements. Accordingly, 21 indicators were selected and 7 indicators were deleted. Further, in the light of suggestions, criticisms and comments of the judges, the items were modified and rewritten after the critical review and discussion with experts.

After selecting the relevant effectiveness indicators, following measurement procedure has been developed for the measurement of extension organisation effectiveness.

Measurement of extension organisation effectiveness

I. Input Level

1. Total expenditure intensity (TEI) on extension organisation (Rs./ha/year): Total expenditure incurred by an extension organization per hectare of net cropped area.

(Salary + expenditure on extension activities)

$$\text{TEI} = \frac{\text{Total expenditure incurred on salary and extension activities}}{\text{Net cropped area in its operational area}}$$

2. Expenditure intensity (EI) on extension activities (Rs./ha/year): Expenditure incurred by an extension organization on extension activities per hectare of net cropped area.

$$\text{EI} = \frac{\text{Expenditure incurred on extension activities}}{\text{Net cropped area in its operational area}}$$

3. Clientele contact intensity (CCI) (hr/clientele/year) : Number of actual contacts an organization makes with their clientele in a year and expressed in the number of hours.

$$\text{CCI} = \frac{\text{Sum total of contact achieved by the organisation}}{\text{Net cropped area in its operational area}}$$

4. Technical manpower: cultivator ratio (TCR): Ratio between the number of extension personnel and the number of target population covered by the organization in their operational area.

$$\text{TCR} = \frac{\text{Target population /cultivators}}{\text{Number of field level functionaries available for extension work}}$$

In input level sub items were arrived at different units of measurement, to arrive at a common index, following formula has been applied irrespective of units in each sub item.

$$\text{Index} = \frac{\text{Actual score on the sub items}}{\text{Maximum score on the sub item among the extension organisations}} \times 100$$

Selected extension organisational effectiveness indicators and measurement tools

Sl.No.	Extension organizational effectiveness indicators	Measurement tools
I	INPUT LEVEL	
	1. Input Level	Interview schedule developed Formula by Sulaiman and Sadamate (2000)
	2. Expenditure intensity on extension activities	Interview schedule developed Formula by Sulaiman and Sadamate (2000)
	3. Clientele contact intensity	Interview schedule developed Formula by Sulaiman and Sadamate (2000)
	4. Technical manpower: Cultivator ratio	Interview schedule developed Formula by Sulaiman and Sadamate (2000).
II	PROCESS LEVEL	
	EXTENSION ACTIVITY	
	Extension agency-Frequency, Adequacy, Usefulness	Interview schedule developed
	CLIENTELE & EXTENSION PERSONNEL INVOLVEMENT	
	a. Extension service commitment of clientele	Scale of Saravanan (2003)
	b. Organizational commitment of extension personnel	Scale of Porter <i>et al.</i> (1974)
	c. Client accountability of extension personnel	Scale of Saravanan (2003)
	REACTION LEVEL	
	1. Willingness to pay for extension service	
	a. Percentage of clientele (PC)	Interview schedule developed
	b. Rupees willing to pay (RWP)	Interview schedule developed
	2. Job satisfaction of extension personnel	Interview schedule developed
	EXTENSION PERSONNEL PERFORMANCE	
	a) Job performance	Interview schedule developed
	b) Job competence	Scale of Reddy (1990)
	ORGANIZATIONAL PERFORMANCE	
	1. Organizational climate	Scale of Kolb <i>et al.</i> (1974)
	2. Guidance and supervision	Scale of Reddy (1976)
	3. Communication	Scale of Sharma (1969)
	4. Facilities and resources	Interview schedule developed
III	OUT COME LEVEL	
	Client satisfaction	
	a. Relevancy	
	b. Quality	
	c. Usefulness	
	d. Customer service	Scale of Saravanan (2003)

$$\text{FAUI} = \frac{\text{Actual frequency score}}{\text{Maxi. possible frequency score}} \times 100 + \frac{\text{Actual adequacy score}}{\text{Maxi. possible adequacy score}} \times 100 + \frac{\text{Actual usefulness score}}{\text{Maxi. possible usefulness score}} \times 100$$

Process Level

a. Extension activity : Extension agency-Frequency, Adequacy, Usefulness Index (FAUI): Number of contacts made by extension personnel to their clientele and adequacy, and usefulness of disseminated information.

b. Involvement of clientele and extension personnel

b. 1. Extension service commitment (of clientele) index (ESCI) : The degree to which a farmer has a strong belief and acceptance of extension services, is willing to exert considerable amount of benefit from the extension service and has a strong desire to continue with the extension service.

$$\text{ESCI} = \frac{\text{Average actual extension service commitment score}}{\text{Maximum possible extension service commitment score}} \times 100$$

b. 2. Organisational commitment (of extension personnel) index (OCI) : The extent to which an extension officer has a strong belief and acceptance of organizations goals and values is willing to exert considerable effort on behalf of the organization and has a strong desire to stay in the organization.

$$\text{OCI} = \frac{\text{Average actual organisational commitment score}}{\text{Maximum possible organisational commitment score}} \times 100$$

b.3. Client accountability (of extension personnel) index (CAI) : The degree of responsibility of the extension officer to serve the interest of the clientele.

Average actual client accountability score

$$\text{CAI} = \frac{\text{Average actual client accountability score}}{\text{Maximum possible client accountability score}} \times 100$$

c. Reaction level : 1. Willingness to pay for extension service: The degree of desirability of farmers to pay for extension service. It is expressed in terms of number of farmers and rupees willing to pay per season.

1.1. Percentage of clientele (PC)

$$\text{PC} = \frac{\text{Actual number of respondents willing to pay}}{\text{Total number of respondents}} \times 100$$

1.2. Rupees willing to pay (RWP)

$$\text{RWP} = \frac{\text{Actual rupees willing to pay}}{\text{Number of respondents}} \times 100$$

2. Job satisfaction (of extension personnel) index (JSI) : The degree to which an extension officer is satisfied or dissatisfied about various dimensions of extension job.

$$\text{JSI} = \frac{\text{Average actual job satisfaction score}}{\text{Maximum possible job satisfaction score}} \times 100$$

d. Extension personnel performance level : 1. Job performance index (JPI): The degree to which an extension officer accomplishes the task assigned to him in terms of quality and quantity.

$$JSI = \frac{\text{Average actual job performance score}}{\text{Maximum possible job performance score}} \times 100$$

2. Job competence index (JCI) : Sufficiency or adequacy of the abilities or qualities possessed by a job incumbent which aid him in achieving the intended results.

$$JCI = \frac{\text{Average actual job competence score}}{\text{Maximum possible job competence score}} \times 100$$

e. Organisational performance level : 1. Organisational climate index (OCI): The perception of extension officer about his work place, facilities, co-workers and work culture.

$$OCI = \frac{\text{Average actual organisational climate score}}{\text{Maximum possible organisational climate score}} \times 100$$

2. Guidance and supervision index (GSI) : The regular counseling and advice received by the extension personnel from those in the upper hierarchy in connection with professional growth and technical matters.

$$GSI = \frac{\text{Average actual guidance and supervision score}}{\text{Maximum possible guidance and supervision score}} \times 100$$

3. Facilities and resources index (FRI): The availability of men, money material and methods at the extension personnel's disposal which aid in successful accomplishment of work assigned.

$$FRI = \frac{\text{Average actual facilities and resources score}}{\text{Maximum possible facilities and resources score}} \times 100$$

4. Communication index (CI) : The authenticity, clarity, and brevity of the message received by the extension officer regarding different agricultural information from different sources

$$CI = \frac{\text{Average actual communication score}}{\text{Maximum possible communication score}} \times 100$$

IV. Outcome Level

Client satisfaction : Client satisfaction is the degree of satisfaction of the client with respect to relevancy, quality, usefulness and customer (client) service of the extension programs.

a. Extension service relevancy index (ESRI) : The degree of relevancy of extension service to the clientele.

$$ESRI = \frac{\text{Average actual extension service relevancy score}}{\text{Maximum possible extension service relevancy score}} \times 100$$

b. Extension service quality index (ESQI) : The degree of professionalism of extension personnel and their extension service.

$$ESQI = \frac{\text{Average actual extension service quality score}}{\text{Maximum possible extension service quality score}} \times 100$$

c. Extension service usefulness index (ESUI) : The extent of usefulness of extension service to the clientele.

$$ESUI = \frac{\text{Average actual extension service usefulness score}}{\text{Maximum possible extension service usefulness score}} \times 100$$

d. Extension agency customer service index (EACSI) : The nature of interaction between clientele and extension personnel.

$$EACSI = \frac{\text{Average actual extension agency customer service score}}{\text{Maximum possible extension agency customer service score}} \times 100$$

After computing different level indexes, overall index calculated based on following method;

$$\text{Input level index (ILI)} = \frac{TEII + EII + CCII + TCRI}{4}$$

$$\text{Process level index (PLI)} = \frac{FAUI+ESCI+OCI+CAI+PC+RWP+JSI+JPI+JCI+OCI+GSI+FRI+CI}{13}$$

$$\text{Outcome level index (OLI)} = \frac{ESRI + ESQI + ESUI + EACSI}{4}$$

$$\text{Over all organisational effectiveness index} = \frac{ILI + PLI + OLI}{3}$$

The identified indicators and developed index will have practical applicability in ascertaining the effectiveness of public and private extension organisations. The indicator wise index will provide better comparison between public and private agricultural extension organisations.

To quantify different quantitative and qualitative indicators, standardized scales, schedules, procedures, formula and index was used. The developed index was used to measure the effectiveness of public and private extension organisations in Karnataka state. Results revealed that overall extension organisational effectiveness index was highest in NGOs (71.04), followed by agricultural consultancies (60.35), agri business firms (53.36) and Farmers' Contact Centers of State Department of Agriculture (44.13).

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