Analysis Indicators of Innovation Management (I\textsubscript{Im}) in Water Usage Cooperatives in Iran

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Abstract: The purpose of research is analyzing perception of farmers regarding innovation management in water usage cooperatives by \textit{I\textsubscript{IMWUC}} (Indicators of Innovation Management in Water Usage Cooperatives). The method of research was correlative descriptive and causal relation. A random sample of Dezful township farmers of Khuzestan province, Iran (n=135) were selected for participation in the study. According to results perception of farmers regarding management of innovation was between moderate and high. Also regression showed that level of education, income, crop yield, size of farm, social participation, level of participation in extension classes may well explain for 59% (R\textsuperscript{2}=0.591) changes in perception of farmers regarding \textit{I\textsubscript{IMWUC}}.

Key words: Innovation management, farmers, Dezful.

INTRODUCTION

Fundamentally, agricultural cooperatives are user-owned and user-monitored movement, they return extra income, they are stimulated members by supplying a service to satisfy members’ requirement for affordable and degree of excellence goods and they are self-reliance, self- responsibility, self–assistance and autonomous. (Doyer, 2005).

Not only agricultural cooperatives have several advantages such as open membership, democratic control and continuous education, But also this individually owned business has some disadvantages such as any losses borne by the owner be shared and capital limits the size of the business. (Birchall, 2005).

Now days in many countries, such as Iran, government is making better the function of agricultural cooperatives as organizations that could assistance the development of small-scale farmers. Agricultural cooperatives have provided many profits in our country such as making employment, producing income, facilitating economic empowerment, and abolishing poverty. (Azizi, 2007).

Innovation in business has been studied by multiple researchers (Kleefl, 2007., Kotelinkov, 2008., Kwamena, 2008). Innovations management uses the systems and business to make the organization more innovative. The aim of innovations management is to maintain and improve the competitive position of the business by usage of innovation. The purpose of this research is analyzing innovation management in water usage cooperatives by \textit{I\textsubscript{IMWUC}} (Indicators of Innovation Management in Water Usage Cooperatives). Also at this research used one framework with subsystems of innovations management and analyzed linkage to other variables (Figure 1).

Methodology:

The method of research was correlative descriptive and causal relation. A random sample of Dezful township farmers of Khuzestan province, Iran (n=135) were selected for participation in the study. A questionnaire was developed to gather perceptions of farmers regarding Indicators of Innovation Management in Water Usage Cooperatives (\textit{I\textsubscript{IMWUC}}).

The questionnaire was pilot tested in Shoushtar township. Questionnaire reliability was estimated by calculating Cronbach’s alpha. Reliability was (Cronbach's alpha=0.81).Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS). Appropriate statistical procedures for description (frequencies, per cent, means, and standard deviations) were used.

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Results:
For analyzing perception of farmers to management of innovation in water usage cooperatives in Dezful Township of Khouzestan province, was used \(I_{5IMWUC}\) (Indicators of Innovation Management in Water Usage Cooperatives).

\[
\begin{align*}
I_{5IMWUC} = \frac{\sum_{i=1}^{4} [\sum_{j=1}^{6} (\bar{X}_{ij})]}{4}
\end{align*}
\]

\(i=\)each factor of management innovation \\
\(j=\)each item of each factor \\
\(i=\)id1+iip2+io3+iid4 \\
iid1=Innovation designing \\
iip2=Innovation planning \\
io3=Innovation organizing \\
iiid=Innovation diffusion

According to results, mean rank and standard deviation of farmers perception regarding each factor of management innovation include:

\(M_{id1}=3.423, \; sd_{id1}=1.12, \; M_{ip2}=3.341, \; sd_{ip2}=1.08, \; M_{io3}=3.098, \; sd_{io3}=0.98, \; M_{id4}=3.716, \; sd_{id4}=1.07\)

Based on the results perception of farmers regarding management of innovation was between moderate and high (Table 1).

Also to identify the correlation between selected independent variables with the dependent variable (perception of farmers regarding Management of Innovation). In this study, there was a significant relationship between the perception of farmers regarding Management of Innovation with level of education, income, crop yield, size of farm, social participation, and level of participation in extension classes. Level of education, income, crop yield, size of farm, social participation, level of participation in extension classes may well explain for 59% (\(R^2=0.591\)) changes in perception of farmers regarding Management of Innovation.

Table 1: Perception of farmers regarding Indicators of Innovation Management (\(I_{5IM}\)).

<table>
<thead>
<tr>
<th>Factors</th>
<th>Number of items</th>
<th>Mean</th>
<th>sd</th>
<th>(I_{5IM})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation designing</td>
<td>7</td>
<td>3.423</td>
<td>1.12</td>
<td>3.394</td>
</tr>
<tr>
<td>Innovation planning</td>
<td>6</td>
<td>3.341</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td>Innovation organizing</td>
<td>8</td>
<td>3.098</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>Innovation diffusion</td>
<td>9</td>
<td>3.716</td>
<td>1.07</td>
<td></td>
</tr>
</tbody>
</table>

*: 1=very low, 2=low, 3=moderate, 4=high, 5= very high
Table 2: Correlation between selected variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop yield</td>
<td>0.616</td>
<td>0.000***</td>
</tr>
<tr>
<td>Size of farm</td>
<td>0.387</td>
<td>0.000***</td>
</tr>
<tr>
<td>Social participation</td>
<td>0.514</td>
<td>0.000***</td>
</tr>
<tr>
<td>Income</td>
<td>0.511</td>
<td>0.000***</td>
</tr>
<tr>
<td>Participation in extension</td>
<td>0.234</td>
<td>0.000***</td>
</tr>
<tr>
<td>Level of education</td>
<td>0.332</td>
<td>0.000***</td>
</tr>
</tbody>
</table>

Note: *: p<0.05; **: p<0.01; ***: p<0.001

Table 3: Linear regression results for predicting changes in perceptions of farmers.

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Tsig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop yield</td>
<td>0.435</td>
<td>0.452</td>
<td>0.543</td>
<td>3.543</td>
<td>0</td>
</tr>
<tr>
<td>Size of farm</td>
<td>0.511</td>
<td>0.354</td>
<td>0.443</td>
<td>2.432</td>
<td>0</td>
</tr>
<tr>
<td>Social participation</td>
<td>0.633</td>
<td>0.454</td>
<td>0.214</td>
<td>3.343</td>
<td>0</td>
</tr>
<tr>
<td>Income</td>
<td>0.254</td>
<td>0.543</td>
<td>0.812</td>
<td>3.981</td>
<td>0</td>
</tr>
<tr>
<td>Extension classes</td>
<td>0.333</td>
<td>0.344</td>
<td>0.091</td>
<td>2.813</td>
<td>0</td>
</tr>
<tr>
<td>Level of education</td>
<td>0.454</td>
<td>0.432</td>
<td>0.41</td>
<td>4.877</td>
<td>0</td>
</tr>
<tr>
<td>Constant</td>
<td>5.564</td>
<td>1.005</td>
<td>-</td>
<td>4.678</td>
<td>0</td>
</tr>
</tbody>
</table>

F= 15.167           Signif F= 0.000     R2=0.591

This relationship is described in the following formula:

Y = A+ b1X1 + b2X2 +...

Y= 4.432+ 0.616x1 + 0.387 x2 + 0.514x3 + 0.332 x4 + 0.511x5 + 0.234x6 + 0.332x7

Discussion:

Business-driven innovation and technology management is a relatively modern management strategy that is slowly beginning to explain in business management (Dankbaar, 1996). Innovation management is the economic implementation of new ideas and discoveries, and the implementation of an innovation culture in an organization, to promote and make possible the development of new ideas and business opportunities. Innovation management consists of innovation strategy, culture, idea management and implementation of innovation processes (Riederer et al., 2005).

According to results the people with high education level, income, training and social status had better perception to innovation management in their business. This finding was supported by Riederer et al., (2005) and Coash et al., (2003).

REFERENCES


