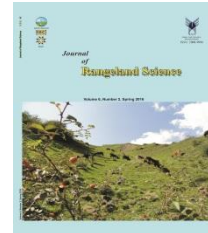


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Research and Full Length Article:

Evaluating Effectiveness of Rangeland Management Cooperatives in Gonbad, Iran

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Abstract. There is a different function between rangeland management cooperatives in which effectiveness is also affected. The aim of this research was to identify and analyze the effectiveness of rangeland management cooperatives in Gonbad, Iran in 2015. The research was performed using a descriptive statistical method. The statistical populations include all the members of rangeland management cooperative in Gonbad. The sample size was determined by Cochran ($n=200$). For sampling, the random cluster method was used. The questioner was provided with 40 variables. Validity and reliability of questionnaire were confirmed according to the experts of Department of Natural Resources and Watershed Management, Golestan province and Cronbach's alpha was given as 0.97. Factor analysis was conducted based on principal components and varimax rotation for recognizing the function of cooperatives of rangeland management using SPSS software. Factor analysis considers 40 variables for five manageable and understandable factors. Five extracted factors were information and extension services, technical support services, collaboration and social interaction, rangeland rehabilitation and supply of inputs accounted for 74% of total variation for range management cooperatives. Therefore, it is important for successful cooperatives to pay attention to these five factors.

Key words: Natural resources, Cooperatives, Rangeland restoration, Success, Assessment

Introduction

Effectiveness is known as a degree of achievement to the preset objective. The function is a set of activities in order to satisfy a need or demands (Suvedi and Ruonavara, 1999). Lack of stakeholder's awareness on natural resources sector, especially rangelands and forests for public participation in the conservation, improvement and development of natural resources is one of major problems and limitations for natural resource development.

One of the non-governmental organizations (NGO) in natural resource development is the cooperatives that play an important role in promoting the development of natural resources through resource mobilization and local capacity utilization. Characterized with scientific and management expertise, natural resources cooperatives by relying on the public force benefit from the decisions of general assembly and board (Khosroshahi, 2006).

One of the institutions for cooperative economy is the cooperative union that helps the cooperative companies to achieve the economic and social goals. In fact, cooperative union is the result of cooperative companies following the same objectives. When cooperative unions work together, they can enjoy from the benefits of more scientific management and have access to more capital, national and international markets among the others (Anonymous, 2013).

Pezeshkirad and Kianimehr (2001) in a study of rural cooperatives in improving technical and economic states of Sabzevar, Iran regarding the wheat farmers concluded that among the technical functions, level of technical knowledge, efficient use of inputs, seed and membership variables were significantly effective. At the same time, membership, ways of access to seed, fertilizer, pesticide and credit and number of banks were positive and significant.

Jalali and Karami (2006) evaluated the factors affecting the participation of rangeland stockholder and managers in range management cooperatives in Kurdistan province, Iran and showed that among the factors associated with natural resources personnel, fanaticism, and success orientation, individual technical knowledge, education, benefits-costs, social consequences of participation, extension services and supply of input were significantly effective.

Sharifzadeh *et al.* (2013) assessing the factors affecting the participation of members in the management of rural cooperatives in Gorgan, Iran showed that there was a positive relationship between the presence of members with an interest in participating in the community. In addition, the results showed that they were positively correlated with the age of respondents.

Shahraki *et al.* (2013) evaluated the effect of training on participation of stakeholders in the implementation of rangeland management plans in Gonbad, Iran. Their results showed that stakeholders in restoration programs including the pitting, provision of labor, cooperation in the protection of implemented plans and fencing planted area provided cooperation in the provision and development of drinking water and the collection of plant seeds.

ZareYekta *et al.* (2014) in research of views of range management cooperatives members on success of range management plans in Golestan province, Iran, showed that satisfaction of cooperatives members, cooperative relationship with local natural resource department, management competency of cooperative managers, and holding training had an impact on the success of range management cooperatives in protecting and restoring rangelands.

Sergaki (2010) found that partnership not only in the cooperatives but also in cooperative unions played an important role in the development of small

businesses. Benturaki (2000) studied the causes of failure of rural cooperatives in Tanzania and concluded that government interventionist policies, violation of basic principles of cooperation, undeveloped laws of cooperatives, lack of independence and autonomy, lack of democracy, lack of empowering members and lack of an efficient organizational structure are main causes in Tanzania. The success of rural cooperatives in Tanzania depends on changes in leadership status and reformation of state's role in cooperatives; it has been suggested that considering the cooperative leadership revolution and their unions, the desired efficiency increases which is a condition for the economic and social development. The role of state, the advanced legislation on cooperatives, education among members and leaders, extension and public participation in cooperative programs have been introduced as the effective factors for cooperatives success.

Taimni (1985) in a study of guidance on modern policies for cooperatives in Asia concluded that such issues as the creation of human resources development and management, human resources, information, job design and evaluation, compensation, insurance, development and discipline lead to much more success and effectiveness of cooperatives.

In a research entitled as Beliefs and Attitudes among Rural Residents in the Forest and Rangeland, Fortmann and Kusel (1990) concluded that not only profits but also social factors including the values and attitudes such as level of education, age, income, place of residence and size of ranch affect the decisions of ranchers.

They studied the management style and demands of forest owners in California and found that most demographic characteristics affect their decisions. Small owners had offered the best response for their training programs because they believe their living

conditions will be improved by such programs, but big owners tend towards the counseling agencies and programs that protect and enhance their income from their property.

Ladele *et al.* (1994) in a study in Nigeria entitled as social and economic functions affecting the performance of agricultural cooperatives concluded that active participation of members in cooperatives and training of members will increase the number of cooperative members.

Agrawal *et al.* (2004) evaluated the performance of cooperatives in India. Their results showed that cooperatives play an important role in marketing the products and facilitating the collaboration with cooperative members.

Erdman *et al.* (2005) evaluated the factors contributing to the improvement of cooperation and found that four factors of environment and physical resources, skills and required training as well as cooperatives function are effective in their function.

Allahyari (2008) assessing the factors affecting fishery cooperatives management found that in the cooperative process, important functions are the access to credit and loans for the members of cooperatives and the development of training courses as a success factor of small cooperatives.

Fauske (2002) in his study as the preparation of cooperative leaders to understand, experience, and implement the cooperation came to the conclusion that cooperation had a great role in improving and providing the required training and informing plans.

Adrian and Wade Green (2001) evaluated three principles involving minimum profit and better services, free membership and fairness as important factors in cooperative success.

Rangeland cooperative unions with 23 members were established in 2003. The members accepted the conditions for membership in rangeland cooperatives. It

was registered as the first rangeland cooperative union in Golestan province. The present research aims to assess the determinant factors for the effectiveness of rangeland management cooperatives as an approach to achieve the rangeland cooperative objective by the unions as well as obviating the limitations and barriers in the way of rangeland management cooperatives.

Materials and Methods

This study was conducted in Gonbad, Golestan Province, Iran. The area is characterized with warm and dry climate. In this study, statistical population was consisted of all the members of rangeland cooperative unions in Gonbad, Iran. Sample size was calculated by Cochran formula about 200 people.

Sampling method was conducted using a cluster manner. Given large number of widely distributed cooperative members in Golestan, it was concluded that evaluating all of them is time consuming and difficult. So, the studied population regarding the cooperative unions was consisted of the sample of population selected randomly and the rangeland cooperatives were selected in proportion to number of members. Questionnaire of 40 variables was a tool for data collection and measurement of variables. The validity of data was confirmed by the experts of training and extension of agriculture and natural resources and watershed management department of Golestan province. Its reliability was recognized by Cronbach's alpha as 97%.

Factor analysis is a method of combining the related variables into a new single variable. It is used for data reduction as the preferred method for creating the indices and scales with respect to the related variables. Factor analysis was used by weighing the raw scores and analyzing the weighted scores in order to identify the key success factors in rangeland management

cooperatives. The final scores of rangeland management cooperative function were obtained by multiplying the weight average and current score success rate. Factor analysis was conducted based on principal components and Varimax rotation for recognizing the function of cooperative unions of rangeland management. The factor analysis was performed using SPSS software

Results and Discussion

Demographic and professional characteristics of respondents

In terms of demographics, the average age of respondents was obtained as >51 years old. In the meantime, most respondents (29%) were in the age group of 41-50 years. About 88% of them were married. In terms of family members, the average number of dependents was 5.2 people. 29.5% of respondents had high school education. Ranching experience was about 31%. In addition, 58% of respondent families had one or two members of cooperatives.

55% of respondents were engaged in ranching and farming. The results showed that 70% of respondents had purchased one to two shares of rangeland cooperatives. About 28.5% respondents used the rangeland for forage production. 57.5% of stakeholders had livestock sheep and lamb.

About 46.5% of respondents had 1-30% of their income from cooperative activities. 67.5% of respondents had followed the traditional ranching. 62% of cooperative members had the 11-20 year membership. On average per month, 58.5% of respondents referred to the cooperatives once to twice. In addition, 69% of respondents on average referred to the union once or twice per month. Data showed that 62% of respondents did not have a position in the cooperatives. 4% of respondents were the directors, 24.5% of respondents were the board of directors and 10.5% of them were the

ombudsmen in the cooperatives. The present findings were more and less in the same trends of other researchers (Pezeshkirad, and Kianimehr 2001; Jalali, and Karami, 2006; Sharifzadeh *et al.* 2013; Shahraki *et al.* 2013; Zareyekta *et al.* 2014; Taimni, 1985; Fortmann and Kusel, 1990; Ladele *et al.* 1994).

Factor analysis of rangeland cooperative union variables

In the present research, factor analysis was used in order to identify and classify the effectiveness of rangeland union cooperation and amount of variance given the data from stakeholders (ranchers and rangeland managers) and the achieved scores from this factor were used as the values for each components. Based on the findings, KMO has been

obtained as 0.93 which indicates that data are desirable for this analysis. The KMO measures the sampling adequacy (which determines if the given responses of the sample are adequate or not). Based on Kaiser (1974), the value above 0.9 is KMO superb. In addition, Bartlett test value for data correlation matrix was 8.97 which is significant ($P < 0.0$).

Results showed that in the process of factor analysis, the first, second, third, fourth, and fifth factors have been given as 27.73% of the variance, 17.59%, 15.95%, 6.86% and 6.03%, respectively and totally, they were accounted for 74.17% of total variation (Table1). All the remaining factors with Eigen values lower than 1 were considered as non significant.

Table 1. Extracted factors with eigen values, variance percent and the cumulative percent of variance

Factors	Eigen Values	Relative Variance %	Cumulative Variance%
Factor 1	11.09	27.73	27.73
Factor 2	7.03	17.59	45.32
Factor 3	6.38	15.95	61.27
Factor 4	2.74	6.86	68.14
Factor 5	2.41	6.03	74.17

The loadings of 40 variables with regard to five extracted factors are present in Table 2.

The higher the absolute value of the loading, the more the factor contributes to the variable (We have extracted five variables wherein 40 items are divided into 5 variables according to the most important items with similar responses in component 1 and simultaneously in components 2, 3, 4 and 5). The gaps (empty spaces) in the table represent the loadings that are less than 0.5; this makes the reading of table easier. We suppressed all the loadings less than 0.5 (Table 2).

Finally, factors were named according to the common theme of items on each factor as follows: first factor as informing and extension training, second factor as specialized supportive services, third factor as collaboration and social

interaction, fourth factor as rangeland restoration and fifth factor as supply of inputs. The first to fifth factors account for the explained 27.73, 17.59, 15.95, 6.86 and 6.03% variances for the components of range management cooperative functions, respectively.

Table 2. Eigen vectors of variables related to each factor and the factor loadings

Factor	Items	Factor1*	Factor2	Factor3	Factor4	Factor5
Forming and training extension	Training courses for cooperative managers	0.811				
	Visit of rangeland and field guide for rangeland managers	0.825				
	Distribution of extension publications and brochures	0.618				
	Training how to graze livestock	0.839				
	Training on proper election of forage combination and determine the diet of livestock	0.813				
	Informing and training to the member on relevant laws and regulations	0.797				
	Using local media to inform the inform the public about the products and services cooperative member	0.727				
	Identify investment opportunities in the members field of activity	0.585				
	Providing counseling and legal advice to member cooperatives	0.567				
	Collecting and compiling data and statistics documenting and reporting on the status of member cooperatives	0.760				
	Launch and introduction of cooperative model and superior in union activity	0.709				
	Identify available livestock breeds	0.551				
	Identify innovations and introduce new technologies to member cooperatives	0.856				
	Special inspections carried out inside and outside the province for member cooperatives	0.860				
	Identifying and supporting stagnant cooperative or in decline	0.680				
	Participation in exhibitions related to the unions field of activity	0.832				
Survey and assessment of the union in order to provide needed services	0.566					
Specialized supportive services	Provide management services to members of the cooperatives in the organization and administration of cooperatives organizing and administration of cooperatives		0.701			
	Investment in the fields of services and products		0.736			
	Pricing of products of member cooperatives		0.691			
	Rangeland insurance and risk management services in cooperation with insurance and insurance companies		0.651			
	Providing banking facilities to members		0.645			
	Marketing and offering member cooperatives products		0.796			
	Controlling livestock entering and exiting time in rangeland		0.783			
	Establishing farms for the cultivation of forage and store it for winter		0.577			
	Water storage heavenly in rangeland		0.590			
	Range management plans		0.762			
Preserving and restoring operation of grasslands		0.798				
Rangeland conservation		0.678				
Promoting cooperation and social interaction	Assistance to resolve internal conflicts of member cooperatives as elders			0.752		
	Monitor the implementation of laws and regulation by member cooperative			0.759		
	Coordination with agencies and organizations responsible for the coordination and delivery of services to member cooperatives			0.566		
	Cooperation with research institutions as develop innovative products and services			0.823		
	Generating manufacturing and service units and other economic activities to meet the needs of the union			0.639		
Rangeland rehabilitation	Rangeland seeding				0.800	
	Rangeland planting				0.752	
	Rangeland fertilization				0.589	
Supply of inputs	Production and distribution of veterinary drugs					0.575
	Supply and distribution of the manual feed					0.753
	Providing and producing rangeland species seed					0.759

*= The gap (empty spaces) on the table represent loadings that are less than 0.5, this makes reading the table easier.

Analytical model on effectiveness of rangeland cooperative unions

In this study, factor analysis was used to classify the rangeland cooperative union functions. According Fig. 1, an exploratory analysis with data normalization approach was used. The main objective was to explain the large

number of variables based on basic structure with fewer elements. By putting 40 variables in factor analysis, five factors were generally extracted for cooperative union functions, and the given variables in each factor with some titles for them were chosen (Fig. 1).

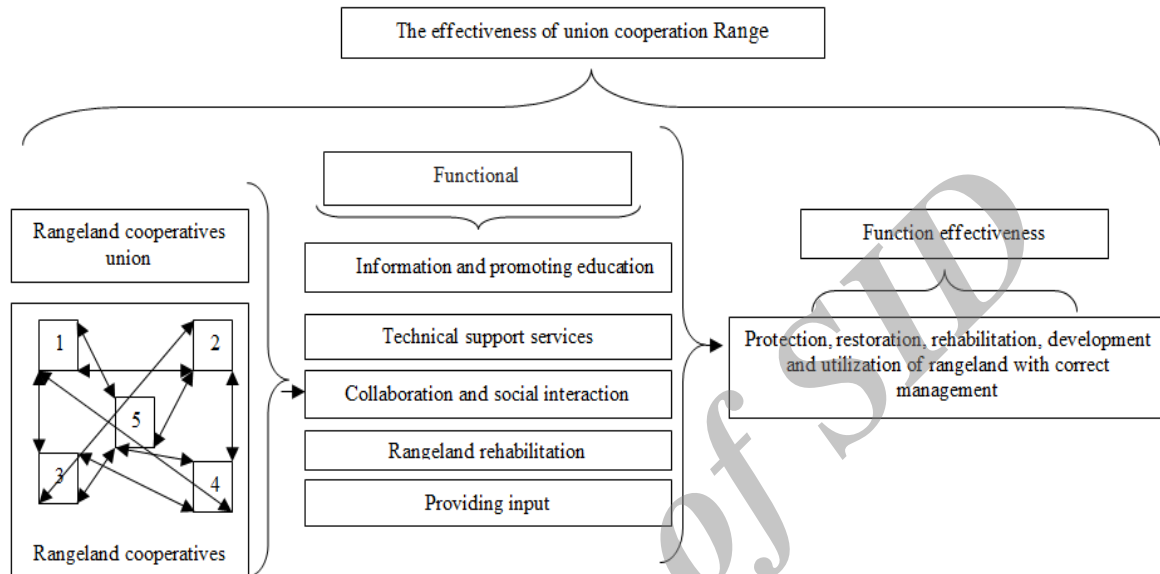


Fig. 1. Schematic of analytical model of function effectiveness for rangeland cooperatives union in Gonbad city

Conclusion

Factor analysis of rangeland cooperative union's functions was led to the extraction of five factors involving the informing and extension training, specialized supportive services, social interactions and cooperation, rangeland restoration and input supply. Results confirmed that rangeland management cooperatives play important roles which are presented in statue of rangeland management cooperatives as well as literature.

According to the research findings, the following strategies can be used to improve the effectiveness of rangeland cooperative union in Gonbad, Iran summarized as follows:

1. As the results showed, rangeland cooperative union should consider the educational activities such as workshops, visiting local institutions,

function television training programs and distribution of promotional brochures, extension documentaries, being in contact with natural resources promoters and radio training programs for participation in the preservation and restoration of rangeland, rangeland management principles, restoration and conservation of rangeland, knowing the rules and regulations of rangeland management plans and ways for financial management of cooperatives.

2. The stakeholder's needs should be considered in relation to the effectiveness of functions of rangeland cooperative unions as it is specified in statue.
3. The standards on rangeland cooperative union functions, human resources, management and proper

use of rangelands should be determined in order to build capacity and competitiveness of cooperatives of rangeland management and the accurate assessment of activities is necessary.

4. Essential equipment should be provided for the rangeland cooperative union by the government agencies in terms of seeding, planting fertilizers application, water storage in rangelands, dry farming conversion and erosion control in rangeland.

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اثربخشی کارکرد اتحادیه تعاونی‌های مرتعداری در شهرستان گنبد، ایران

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چکیده. اتحادیه تعاونی‌های مرتعداری کارکردهای مختلفی دارند که میزان اثربخشی آنها متفاوت است. این تحقیق با هدف شناسایی و تحلیل اثربخشی کارکرد اتحادیه تعاونی‌های مرتعداری در سال ۱۳۹۴ در شهرستان گنبد انجام گرفت. تحقیق حاضر از نوع توصیفی بود و به شیوه پیمایشی اجرا شد. جامعه آماری تحقیق اعضای اتحادیه تعاونی‌های مرتعداری شهرستان گنبد بودند. حجم نمونه از طریق فرمول کوکران مشخص شد ($n=200$). برای نمونه‌گیری از روش خوشه‌ای تصادفی استفاده شد. روایی پرسشنامه که دارای ۴۰ متغیر بود براساس نظر کمیته تحقیق و کارشناسان اداره منابع طبیعی و آبخیزداری استان گلستان و پایایی آن نیز از طریق محاسبه ضریب آلفای کرونباخ ۰/۹۷ تایید شد. در این تحقیق از تحلیل عاملی استفاده شد. با تجزیه و تحلیل داده‌ها، اثربخشی اتحادیه تعاونی‌ها در موفقیت کارکردهای اتحادیه تعاونی بدست آمد. نتایج تحلیل عاملی ۴۰ متغیر را به پنج عامل با عنوان‌های اطلاع‌رسانی و آموزش‌های ترویجی، خدمات حمایتی تخصصی، پیشبرد همکاری و تعاملات اجتماعی، احیای مراتع و تامین نهاده‌ها تقسیم نمود که ۷۴ درصد از واریانس کل متغیرهای کارکرد اتحادیه تعاونی‌های مرتعداری را تبیین کردند. بنابراین توجه به پنج عامل فوق در موفقیت کارکرد تعاونی‌ها در منطقه مورد مطالعه ضروری است.

کلمات کلیدی: منابع طبیعی، اتحادیه تعاونی‌ها، احیای مراتع، موفقیت، سنجش