

# Factors Influencing the Design of Agricultural Advisory Service Network in the West Azerbaijan Province

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## ABSTRACT

The major purpose of this study was to identify factors influencing the design of agricultural advisory service network in the West Azerbaijan province of Iran. The population of this research consisted of consultants who provided services to farmers. By using a Cochran formula, 306 respondents were selected. The results showed that consultants faced many obstacles such as lack of necessary facilities, illiteracy of farmers and lack of cooperation among related institutions and organizations. Results also showed that factors influencing effectiveness of network included economic, extension-educational, policy-making, socio-cultural, managerial and infrastructure factors. These six factors accounted for 59 percent of the variance in the effectiveness of advisory services.

**Keywords:** Agricultural Advisory Services Network (AASN); Azerbaijan Province; Factors; Iran; Pattern; West.

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## INTRODUCTION

A general agreement exist that extension services, if correctly designed and implemented, can improve agricultural production (Romani, 2003; Muyanga & Jayne, 2006). Thus there has been a desire to reform the public extension into a system that is cost effective, responsive to farmers' needs, broad-based in service delivery, accountable and integrally sustainable mechanisms.

In Iran the current extension system (public extension system) has been described as ineffective and inadequate to the agricultural sector. Despite the important role of agricultural sector in food production, employment and exports of non oil products, it is facing with many problems including poverty, unemployment, low productivity, environmental destruction; unskilled human resources employed in agriculture and inefficient extension systems in the agricultural sector (Mirzai *et al.*, 2008).

Basic resources such as water, soil, pastures and forests have been used basically by rural population in Iran. Majority of rural population are illiterate and providing services to these people requires a skillful and experienced extension agents.

Economic and financial crisis, low performance of public extension and dependency on specialized knowledge and technology imply that alternative ways should be introduced to provide services to farmers in Iran (Alibeigy & Zarafshany, 1995). Ghiyasvand *et al.*, (2008) pointed to that the major challenges of agricultural sector in Iran is lack of specialized experts to help farmers. Hosseini and Sharifzadeh (2008) called the process of decentralization in agricultural extension as a new paradigm that would improve agricultural extension activities.

In order to develop the agricultural sector and increase the human resources productivity, it requires the improvement of knowledge and skills of producers (Anderson, 2008). Success and effectiveness of extension systems have been directly affected by access to agricultural experts (Ahmadi, 2005). In recent years, private agencies and NGOs have emerged as a part of pluralistic extension to provide services to farmers (Mandler, 2010).

Commercialization in agricultural production and demand-driven produce for market, require technical consulting services in agriculture (Christoplos, 2008). Chipeta (2006) defined agricultural advisory services as activities and services that present new knowledge to farmers. These services can help them to develop agricultural and management skills. These services include publishing and distributing information, providing advices to farmers by individual or group methods, testing new techniques in their farms and developing farm management tools. The importance of an effective agricultural consulting service is due to a direct effect on performance and efficiency of farmers (Sundberg, 2005). Agricultural consulting can be combined with other techniques in production process. These services need adequate access to credit facilities and product marketing, in order to increase production and improve farmer's performance (Smith & Munoz, 2002).

The main goal of using AASC is to increase agricultural product level through strengthening technical skills of farmers and monitoring their activities in their farm (Benin *et al.*, 2007). Anderson (2008) believes that agricultural counseling services are crucial elements that cause delivery of information and improved welfare of farmers and other rural people. Agricultural system Engineering Organization in Iran defined AAS as a network that aims at meeting technical and information needs of stockholders, modifying farm management and applying new technologies in the field of agriculture and it also tries to overcome the limitations of public extension. According to Ministry of Agriculture (2009), there are 55 Agricultural Extension Services Centers (AESC) in the West Azerbaijan province and only 381 personnel work in these AESCs. The small number of staff employed in these centers is not sufficient to cover more than two hundred thousand farmers in the province.

Based on the review of literature, income level of farmers, yield crops, cost of consulting services, providing loans and facilities to farmers and amount paid by farmers for the service influence the efficiency and effectiveness of agricultural advisory services (Safarzadeh, 2002; Beglarian *et al.*, 2003; Mahmudul *et al.*, 2002).

Providing guidance to farmers about AASC, visit to farms and areas where consulting services provide advisory services to farmers, training farmers' based on their needs,

providing appropriate technology to farmers, training farmers about communication skills among extension factors which influence the design of AAS (Hoddinott & Kinsey, 2001; Beglarian, 2003).

Empowerment skills of consultants through training courses, effective planning for development services, participate members in decision making, improving extension activities and continuous monitoring and evaluation of activities were consisted as managerial factors in designing the AAS (Birner *et al.*, 2009; Anderson, 2008).

National policies of government, financial and credit policies for farmers, paying part of the costs through voucher systems to farmers, monitoring and evaluation of private firms, encourage farmers to set up organizations, developing infrastructure (roads, telecommunications, ICT), developing appropriate procedures for communication and coordination between public and private sector, support and incentives needed for companies to provide consulting services to the marginalized farmers (women and small farmers) were determined as policy-making factors that influencing in designing AAS (Safarzadeh, 2002; Beglarian *et al.*, 2003; Birner *et al.*, 2009; Anderson, 2008).

Education level of farmers, accepting risk by farmers, considering the current trends and sub-culture in rural areas, considering the position of knowledge among the community members, acceptance of recommendations by other farmers, competition among farmers and linkages between different groups of farmers (women; small farmers) were considered as socio-cultural factors that influence the design of AAS (Ahmadi, 2001; Labarathe, 2009).

The main purpose of this study was to define the factors influencing the design of agricultural advisory service in the West Azarbaijan province of Iran.

## **MATERIALS AND METHODS**

A survey study was applied as a methodology of this research. The survey was conducted between 4 June 2010 and 25 July 2010. Data were collected by using of structured questionnaires that addressed by consultants to the questions. A questionnaire was developed based on these interviews and relevant literature. A 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used as a quantitative measurement.

Content and face validity were established by a panel of experts consisting of faculty members and experts in the Ministries of Agriculture. A pilot study was conducted with 30 consultants who had not been interviewed before the earlier exercise of determining the reliability of the questionnaire for the study. Computed Cronbach's Alpha score was 0.91 which indicated that the questionnaire was highly reliable. The research population included of consultants that provide advisory services to farmers in West Azerbaijan Province (N=1631). By using a Cochran formula, sample size was 306. For measurement of correlation between the independent variables and the dependent variable correlation coefficients have been utilized and include Pearson test of independence. Also multivariate regression and path analysis methods were used to identify factors that influence the design of AASN.

## **RESULTS AND DISCUSSION**

The results of descriptive statistics show that the average age of consultants was 28.5 years, with 3.22 years work experience. Majority of them were male (72.2 percent) and 81.4 percent of consultants had bachelor degree. The main activity of consultants was monitoring on production of crops and on-farm visit (54 percent) was the methods of delivering advisory services (Table1).

**Table 1: Personal characteristics of respondents**

characteristics	n	percent	mean	SD
Age	22-25	37	12.1	28.53 3.83
	26-30	141	46.1	
	Up than 31	128	41.8	
Sex	Female	85	27.8	
	Male	221	72.2	
Work experience	Less than 2	118	38.3	3.22 1.55
	2-4	123	40.2	
	Up than 4	65	21.2	
Education level	Bachelor of Science	249	81.4	
	Master of science	54	17.6	
	PhD Degree	3	1	

The findings indicated that printed materials were the main sources to get information (CV= 0.247), interaction with progressive farmers (CV= 0.304) was ranked as the second and agricultural magazines and journals (CV= 0.307) was ranked as the third main sources to get information (Table2).

**Table 2: The sources to get information by consultants**

	Mean	SD	C. V	Rank
Printed materials	3.64	0.90	0.247	1
Progressive farmers	3.51	1.07	0.304	2
Agricultural publications	3.28	1.01	0.307	3
CD and educational films	3.48	1.14	0.327	4
Experts	3.35	1.13	0.337	5
Internet	3.43	1.18	0.344	6
Agricultural researchers	3.23	1.17	0.362	7

Strongly agree=5 agree=4 intermediate=3 Disagree=2 Strongly disagree=1

Based on the results of the study, increasing management skills was considered the main advantages of AAS (mean= 4.33) and the least important advantage of AAS was improving public extension services (Table 3).

The perception of respondents about constraints in effectiveness of AAS was displayed in table 4. Lack of necessary facilities was found to be the main constraint in effectiveness of AAS and ignoring the rural women needs in extension activities was the least important constraints.

**Table 3: Advantages of Agricultural Advisory Services**

	Mean	SD	C.V	Rank
Increasing management skills of farmers	4.33	0.80	0.184	1
Improving access to services	4.32	0.80	0.185	2
Increasing participation of farmers in planning and decision making process	4.26	0.80	0.187	3
Increasing the experience of extension services	4.36	0.82	0.188	4
Increasing accountability of extension consultants	4.28	0.86	0.200	5
Increasing negotiating skills of farmers	4.15	0.90	0.216	6
Reducing cost of public extension	3.84	0.97	0.252	7
Increasing awareness level of farmers	3.74	0.97	0.259	8
Increasing quality of extension services	3.79	1.02	0.269	9
Increasing incomes of farmers	3.41	0.93	0.272	10
Improving public extension	3.66	1.04	0.284	11

Strongly agree=5 Agree=4 Intermediate=3 Disagree=2 Strongly disagree=1

**Table 4: Priorities of obstacles from consultants perception**

Obstacles	Mean	SD	C.V	Rank
Lack of necessary facilities (vehicle) by the consultants	3.76	0.96	0.255	1
Illiteracy of farmers	3.59	1.03	0.286	2
Lack of cooperation of other institutions and organizations(public) with AASC	3.62	1.04	0.287	3
High cost of consultancy services	3.41	1.05	0.307	4
Weak interaction between the public research institutions and private sector	3.46	1	0.289	5
Lack of coordination between public and private sector	3.48	1.02	0.293	6
Lack of subsidies and grants from the government for companies and farmers	3.72	1.11	0.298	7
Lack of trust in advisory services companies	3.45	1.06	0.307	8
Unhealthy competition between advisory agencies	3.39	1.05	0.309	9
Lack of expert and technical personnel in AASC	3.44	1.07	0.311	10
Lack of executive power of AASC	3.51	1.09	0.313	11
Lack of monitoring and evaluation activities of AASC	3.38	1.11	0.328	12
Lack of services to marginal farmers	3.44	1.17	0.340	13
Little attention to the needs of women farmers	3.37	1.20	0.356	14

Strongly agree=5 Agree=4 Moderately=3 Disagree=2 Strongly disagree=1

Spearman coefficient was employed for measurement of relationships between independent variables and dependent variable. Table 5 displays the results which show that there were relationship between perception of respondents about design of agricultural advisory services and economic, extension/education, managerial, policy making, socio cultural and infrastructural factors as independent variables.

**Table 5: Correlation coefficient measures between independent variables and depended variable**

Factors	$r_s$	Sig.
Economical factor	0.480**	0.000
Extension-educational factor	0.753**	0.000
Managerial factor	0.536**	0.000
Policy making factor	0.460**	0.000
Socio – cultural factor	0.347**	0.000
Infrastructure factor	0.328**	0.000

\*\*= P<0.001

Table 6 shows the result for regression analysis by stepwise method. Independent variables that were significantly related to perception of respondents about design of AAS were entered. The result indicates that 59 percent of the variance in the perception of respondents could be explained by economic, extension/education, managerial, policy making, socio cultural and infrastructural factors.

**Table 6: Multivariate Regression Analysis**

Variable	B	$\beta$	t	Sig.
Constant	17.99	---	9.66	0.000
Economical factors ( $x_1$ )	0.288	0.148	3.31	0.002
Educational-Extensional factor ( $x_2$ )	0.785	0.619	11.47	0.002
Managerial factor ( $x_3$ )	0.410	0.270	5.44	0.004
Policy factor ( $x_4$ )	0.377	0.380	3.84	0.005
Social – cultural factor ( $x_5$ )	0.260	0.144	2.16	0.000
Infrastructure factor ( $x_6$ )	0.193	0.262	5.52	0.004

R= 0.773     $R^2_{adj}$  = 0.589    F=73.81    Sig: 0.000

$$y = 17.99 + 0.288x_1 + 0.785x_2 + 0.41x_3 + 0.377x_4 + 0.26x_5 + 0.193x_6$$

$$y = 0.148x_1 + 0.619x_2 + 0.270x_3 + 0.380x_4 + 0.144x_5 + 0.262x_6$$

## CONCLUSION

The perception of experts about the factors affecting the design of agricultural advisory service in West Azarbaijan Province was discussed in this article. The results of regression analysis demonstrated that extension/education factors are the most important factors affecting the design of AAS.

The results of the study showed that AASC faced with many problems. Lack of necessary facilities (vehicle) by the consultants, illiteracy of farmers and lack of cooperation from institutions and other organizations were the main obstacles of AASC. These problems affect effectiveness of AAS, and it is necessary to design and implement strategies to combat these problems.

This study examined factors that influenced the designing of AAS. Several authors, such as Kidd *et al.*, (2000); Linder (2007); Martimort and Straub (2009); Krishna and Shekra (2001); Lerman (2002); Dong *et al.*, (2006); Frederick *et al.*, (1997) and Safarzadeh (2002) pointed out that factors such as economic, extension/education, sociocultural, managerial, policymaking and infrastructural factors influenced the design of AAS.

Government should explore ways to increase the participation of farmers in planning, implementing and evaluating programs related to agricultural advisory services. This could influence the effectiveness of these services.

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