

Recognizing Operative Factors on Agroforestry Effective Extension in Guilan Province, Iran

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Abstract: Making economic, environmental and social benefits along with preservation, revival, development and appropriate exploiting from renewing natural resources is the main subject for a sustainable development in 3rd millennium that Agroforestry is trying to reach. While inhabitants of forests and its outskirts inhabitant's way of life is in contrast with natural resources improvement. The general aim of research is recognizing affective factors in presenting Agroforestry effective extension. This research in aspect of an applying proposes and correlation way is based on collecting non-experimental data's. Validity of questionnaire as a research tool confirmed by experts panel and its reliability of $\alpha = 0.885$ is emphasized. Statistic society of existing research includes 230 people of extension experts in Guilan. For analyzing the data, deductive statistic is used. Results from stepwise regression shows 7 factors include extension agent's personal characteristics, way of presenting the service, economical characteristics, requirement, personal characteristics of clientele, cultural and social features of the area and policy making particulars, explained 86% variance of Agroforestry effective extension.

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1. Introduction

Those who always crop from forest and are known as partial croppers, is proved that prevent stability of biological environment in this area. They make changes in forest ecosystem and at the end lead to low economic potential of forests (Workman et al. 2005). Always when we talk about woodmen and its outskirts inhabitant's limitless usage of forest wood two factors appears: one is poverty and the other is wood for fuel and warming; that these two factors are the most essential ones in subversion of forest along with wood smuggle (Rodriguez et al. 2009). Population growth, cutting forest trees and climate change is a base to decreasing of stability in forest production. In these circumstances, possibility in exploiting from a system that one could use forestry and agriculture altogether and in a way that doesn't harms environmental structure and also makes the woodmen and its outskirt inhabitants familiar with that is useful. This system is called Agroforestry (Salil, 2008). With consideration to this fact, those woodmen and its outskirt inhabitants are not against the development of forest and are even ready to participate in recovery, preservation of forests, still their way of living is in contrast with forests production making and their livestock could make loss to forests (Mirfardi, 2004).

Among through all of world's resource, forests and pastures because of their direct effect on

people's life are the most important and superior (Forest and pastures organization, 2010). One that is obvious is the main energy needed for woodmen and outskirt inhabitants is supplied from forest. Many of markets, houses, corrals etc, is made from woods of forests (Jarju, 2008). Agroforestry system is tried to make a stable situation in jungle area (Olson & Ebert, 2007). Agroforestry is a compound name for a system in using earth and applying technologies in providing permanent wood and also deliberately administration of uniform management in units and fields for getting agricultural products, forest products and culturing livestock simultaneously in special interval and sequences, that this system has ecological and economical solidarity between members (Pinto et al., 2001). It is an appropriate way for recovering usage of earth and intensification in productivity; it makes intensification in utilizing in agriculture especially for poor farmers that couldn't afford high charge of fertilizers, pesticide and other expenses (Mazhar et al. 2009). Based on studies done in Iran, basically, 87% of subversion factors in natural resources are human and only 13% is assigned to natural factors (Forest and pastures organization, 2010). Because of this improving, knowledge level of people for preventing from subversion is inevitable. For better recognition of Agroforestry system and appropriate education of this system to them, Agroforestry extension

programming is made. Agroforestry extension considers promoting properties in presenting education to woodmen and other people. Reviews in Agroforestry extension are done widely and complete. How to invest and risk of it and also way of marketing of products are parts of subjects to be considered in Agroforestry extension. Indeed, limits of extension agent's information and theme specialist in applying Agroforestry are in an acceptable level (Pratt et al., 2002). The thing that is important in presenting the extension services is its proper and effective presenting, that happens providing attracting the peoples partnership and using correctly from human relations (Ponniah et al., 2008). In different researches, some of researchers review the factors that their possibility of their effects in effectiveness of Agroforestry extension activities and programming is probable. In some researches, two factors are effective: economical factors and people knowledge level as individual factor (Louis et al, 1999; Darvish et al., 2009). Also in some of researcher's idea, individual factor affects in Agroforestry extension (Vandenban & Hawkins, 1988; Bonnard, 1995; Strong & Jacobson, 2006). In charge system role, on ground as a policy making factor and also choosing suitable extension methods are of factors that has an important role in presenting Agroforestry (Scherr & Muller, 1990; barrow, 1991; Current & Scherr, 1995; Buyinza et al., 2009). Social and cultural factor (connection level with extension agents, knowledge level of people's environment, world's thinking level, social partnership etc.) is one of the important factors in presenting and extending Agroforestry (Waghmare, 1998; Muneer, 2008). Using from Agroforestry by woodmen and outskirts inhabitants is an innovation that for reaching it we need to provide the least requirements. On the other hand, if needed tools for system are not provided, this activity would be impossible. The requirements are prerequisites or basic and essential factors that each system needs for starting them (Gemo et al., 2005). From some researchers point of view, basic factors as required factor and in the other hand knowing them for programming is a suitable guideline (Hedge, 1991; Scherr, 1992; Nair & Latt, 1994; Reed, 2007). In this researches, requirements includes factors like making the people aware of Agroforestry, making motivation in local society, making scientific and technical substructure, making capacity in local society, attract people partnership, clientele oriented and self-sustaining are considered.

At the time that world is developing fast and technologies and different systems in agriculture and natural resources are applied, Agroforestry system has effects on recovery and preservation and appropriate exploiting of recycling resources.

Considering the challenges that exist in this field, Agroforestry has benefits that are prominent. Economical benefits (increasing food production, wood for fuel, increasing wood producing, increasing provender etc.)(Workman et al., 2003). Social benefits (improvement the rural standard's life with stable production, improvement innutritious food and health by increasing the quality and variety of food)(Salil, 2008) and environmental benefits (like lowering pressure on forest, better protection of ecological system making a useful cycle of nutritious food in trees)(Olson & Ebert, 2007). Guilan forests are greatly worthwhile from the aspect of wood producing, nutritious substance, decorative plants, medical herb, making preoccupation and producing resource of currency. Also the most important and valuable direct and indirect effects of these forests are because of making basis in order to sustainable development. Because of subversion in forests at the north of Iran, it seems that for lowering these subversions administrating Agroforestry system could smooth the existing pressure but up to now Agroforestry is not successful in motivating and attracting woodmen and outskirts inhabitant's partnership, because of not being imparted of extensional education (Mohamadi, 2008). Also protection of forest has roots in philosophy and religion. But all of the new age efforts for protecting these resources only insist on technical advices. On the other hand, mostly physical protection is noteworthy than emphasis on human knowledge, while the way you treat with nature is in human's hand and human as the last chain of every kind is a sustainable strategy (Mather, 1980). Because the most affective factors in perfect presenting of Agroforestry, is presenting extension services and increasing people level of awareness. So this research because of concentrating on extension sector is valuable. Based on this value in presenting true Agroforestry and lack of required studies in this field and also importance of preventing from subversion of natural resources by woodmen and obligation of keeping herbaceous coverage of precious Guilan forest revolve the importance of this project.

The main objective of this study is getting to know some of affective component in Agroforestry effective extension. For reaching this target, edited special objectives include: 1- Review of experts characteristics 2- Nomination of severity of correlation between dependent variables of study and effective extension of Agroforestry from experts point of view 3- Regression analysis of affective component on effective Agroforestry extension from experts point of view.

2. Material and Methods

Noting that research target of some affective components is in Agroforestry extension. It's a non-experimental research and is done by survey techniques. Gathering information tool is questionnaire. For editing the questionnaire first visionary basis was revised and by accounting the result of studies, preliminary questionnaire provided. It included 9 parts. The first part was related to individual characteristics questions including 5 questions, seven parts was related to evaluating independent variables of research(extension agent's personal characteristics, way of presenting the service, economical characteristics, requirement, personal characteristics of clientele, cultural and social features of the area and policy making), include 77 questions in the form of 5 optional questions (Likert) and the final part is related to evaluation of dependant variable of research (Agroforestry effective extension) includes 14 questions in form of 5 optional Likert is edited. For studying the validity of tools of research, mentioned questionnaire provided for experts and specialist that after necessary reforms, its validity was confirmed. For testing reliability of questionnaire, 30 numbers of them were completed by related experts for preliminary test as Cronbach calculated alpha was 0.885 that is a suitable reliability coefficient for this research. Statistic society of existing research include 230 people of experts that has agricultural extension position in Guilan province or has bachelor of science (BS) or upper degrees in one of agricultural and natural sources branches and were working in governmental and private companies. For delicacy increase the accuracy we use capitation way. 230 questionnaire were distributed among experts and all of them were invited (answering coefficient was 100%). In descriptive statistic from average statistics, mode, median, diagram and Coefficient of Variability (C.V), and in deductive statistics from correlation analysis (Pearson correlation coefficient) and Stepwise regression evaluation is used. For analysis and evaluation of data collected, SPSS software version 18 is used.

3. Results

First objective: Review of experts characteristics: Research findings show that 193 people of studied men experts (83.9%) and other 37 are women (16.1%). Analysis of given answers from experts about age shows that the most frequency is for age group 41 to 50 years old (%40.9) and the least frequency is related to 30 and younger (%6.5). Average age of people is 42.6. Revising education level shows that the most frequency is for BS (Bachelor of Science) degree (%48.7) and MS.C degree (%38.2) and PHD degree (%13.1) in order has

low redundancy. Revising educational level status show us that the most frequency is related to cultivating field of study (%29.6) and the least frequency is for herbal science and agricultural management. Also agricultural extension (%15.2), animal husbandry (%13.4), natural resource (%10), soil science (%10), gardening (%8.7) and wood and paper industry (%6.1), in order include the other frequency. Revising given answers from experts about job background shows that the most frequency of job background is related to range of 11 to 15 years (%34.8) and the least one is upper than 20 years(%12.2). The average of experience is 13.8 years. Also range of 6 to 10 years (%20.4), 16 to 20 years (%17.8) and range of 1 to 5 years (%14.8) in order make the other redundancies.

Second objective: Determining correlation intensity between independent variables and effective extension of Agroforestry : In this research, based on correlation results in table (1), variables such as extension agent's personal characteristics, way of presenting the service, economical characteristics, requirement, personal characteristics of clientele, cultural and social features of the area and policy making particulars have positive relation with Agroforestry effective extension and meaningful extension at the level of %99. As effective extension and independent variables of research is formed as range of 5 optional Likrets so adding results of questions from Pearson correlation coefficients is used.

Table 1-Pearson Correlations between Independent Variables and Agroforestry Effective Extension

Independent Variables	r	p
1-extension agent's personal characteristics	0.302**	0.003
2-personal characteristics of clientele	0.442**	0.004
3-economical characteristics	0.517**	0.000
4-Requirements	0.679**	0.000
5-cultural and social features of the area	0.383**	0.002
6-policy making particulars	0.611**	0.000
7-way of presenting the services	0.481**	0.003

**Correlation is significant at the 0.01 level

Third objective: Evaluating affective factors regression on Agroforestry effective extension from experts point of view: According to table (2), extension agent's personal characteristics, way of presenting the service, economical characteristics,

requirement, personal characteristics of clientele, cultural and social features of the area and policy making particulars in order with step to step(7 steps) way enter the regression deal. Finally with entering these variables coefficient of determination will be $R=0.863$. This coefficient shows that %86.3 of effective extension variance changes is related to these 7 variables and other (%13.7) relate to other factors that are not included in this research. Considering F test ($\text{sig}=0.000$) suitability of regression evaluation is confirmed.

Table 2-The Model summary of Stepwise Regression

Model	R	R Square	Adjusted R Square	Std. error of the Estimate
1	0.679	0.303	0.301	2.191
2	0.713	0.452	0.448	1.985
3	0.798	0.571	0.567	1.703
4	0.827	0.685	0.684	1.541
5	0.871	0.751	0.747	1.385
6	0.904	0.822	0.818	1.211
7	0.928	0.867	0.863	1.135

Entered variables in regression equation that is the main core of regression evaluation is in table (3). T test related to regression coefficient also shows that this coefficient is meaningful and is effective in calculating Y amount.

Table 3-Un-standardized and Standardized Coefficients of Stepwise Regression

Variable	Un standardized Coefficients		Standard ized Coefficients Beta	t	Sig.
	B	Std. Error			
Constant	12.485	3.237	-----	3.821	0.000
requirements(X_1)	0.865	0.081	0.514	19.724	0.000
policy making particulars(X_2)	0.802	0.070	0.498	17.628	0.000
economical characteristics(X_3)	0.769	0.061	0.324	15.144	0.000
way of presenting the services(X_4)	0.585	0.050	0.296	12.237	0.003
personal characteristics of clientele(X_5)	0.511	0.041	0.277	10.983	0.001
cultural and social features of the area(X_6)	0.391	0.038	0.254	9.861	0.004
extension agent's personal characteristics(X_7)	0.316	0.027	0.231	8.348	0.002

Based on table (3) in terms of B amounts, regression equivalent is written:
 $Y=12.485+0.865 X_1+0.802 X_2+0.769 X_3+0.585 X_4+0.511 X_5+0.391 X_6+0.316 X_7$

But judging about role and share of each one of dependent variables in clarifying dependent variable should be assigned to β amount. So the Standardized regression equation is:

$$Y=0.514 X_1+0.498 X_2+0.324 X_3+0.298 X_4+0.277 X_5+0.254 X_6+0.231 X_7$$

4. Discussions

Based on table (1) findings, there is a positive and meaningful relation between requirement variable and Agroforestry effective extension with intensity of 0.679 at the level of 99%. Also according to table (3) results, share of this variable in clarifying variance changes of dependent variable is the most shares and is equivalent to 0.514. So requirement affect on effective extension of Agroforestry is proven. Researches done by Reed (2007); Nair & Latt (1994); Scherr (1992); Hedge (1991) is compatible with mentioned result. Between policy making particulars and Agroforestry effective extension is a meaningful and positive relation with intensity of 0.611 at the level of 99% .Noting the results that share of this variable is 0.498 in clarifying dependent variable variance changes. Affect of this variable on Agroforestry effective extension will be proved. Done researches by Buyinza et al.(2009) ; Current & Scherr (1995) is compatible with current result. Between economical characteristics variable and dependent variable there is a positive and meaningful relation with intensity of 0.517 at the level of 99% of assurance. According to get result economical characteristics variable has share of 0.324 in clarifying dependent variable variance changes. So economical characteristics affect on Agroforestry effective extension is proven. This result is compatible with research findings done by Darvish et al. (2009) and Louis et al. (1999). Between way of presenting the services variable and Agroforestry effective extension is a meaningful and positive relation with intensity of 0.481 at the level of 99% of assurance. According to results, that share of this variable in clarifying dependent variable variance changes is 0.296 affect of this variable on Agroforestry effective extension will be proved. Done researches by Barrow (1991) and Scherr & Muller (1990) are compatible with mentioned result. Between personal characteristics of clientele variable and dependent variable there is a positive and meaningful relation with intensity of 0.422 at the level of 99% of assurance. According to results achieved, personal characteristics of clientele variable has a share of 0.277 in clarifying dependent variable variance changes so effects of this variable is proved on Agroforestry effective extension .These results is compatible with research findings done by Strong & Jackson (2006) and Bonnard (1995). Between

cultural and social features of the area and dependent variable there is a meaningful and positive relation with intensity of 0.383 at the level of 99% of assurance. According to achieved results this variable has a share of 0.254 in clarifying dependent variable variance changes so cultural and social features of the area affects on Agroforestry effective extension are proven. Done researches by Muneer (2008) and Waghmare (1998) is compatible with mentioned result. Between extension agent's personal characteristics and Agroforestry effective extension, there is a meaningful and positive relation with intensity of 0.302 at level of 99% of assurance. Considering achieved results, extension agent's personal characteristics have a share of 0.231 in clarifying dependent variable variance changes. So affect of this variable on Agroforestry effective extension is proved. Done result by Vandenban & Hawkins (1998) is compatible with mentioned result. Noting to 7 affective variables in Agroforestry effective extension it's recommended to assign some continuum educational program for extension agents in terms of their target population. And also more concentration are on less experienced people and for succeeding Agroforestry plans and preventing unpleasant experiences, increasing relation making hours between extension agents and people and presenting services and using ways of individual extension for receptive beginner of system apply. It's recommended in presenting extension, extension agents explain capability and benefits Agroforestry clearly, and they get interested and motivated in participating economical team works. It's also recommended programming be toward motivating local society, capacity making, improving the attraction of their partnership, clientele oriented and suitable with their life. Its recommended country's need for Agroforestry plan is specified with professional and precise surveys. And respective organizations get matched and co-work with each other. It's recommended with holding classes and using different extension methods start to make them familiar with economical advantages of Agroforestry. For the start, it's recommended to use big landlords. It's recommended to produce radio and television advertisement program, to improve public natural resource culture. And also for getting out of traditional and single cultivating, special privileges granted to for progenitor and receptive. So creating cooperative organizations of cultivating is useful in a way that both increase people partnership and gain economical benefits in order to divert traditional attitude to more and variable products.

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