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Full Length Research Paper

Effective parameters on farmers' participation in plans to combat desertification (PCDs)

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The aim of this survey was to analyze the effective parameters on participation of farmers in plans to combat desertification In Taraznahid located in state of Markazi, in which 179 farmers were selected as the sample through a multi-stage sampling applying Cochran's formula. The information were gathered through questionnaires and the validity of them was confirmed according to attitudes of the supervisors and consultants and the experts of Forests and Rangelands organization, and it's reliability which was calculated 0.72 through Cronbach's alpha, has been confirmed as well. The date was analyzed by SPSS software and the results indicated that the studied samples had low income and less-literate and they have rarely participated in training courses. On the other hand, there is positive relationship between the level of literacy, income, and participation in training courses, and participation in plans to combat desertification. The calculated correlation coefficient between the independent variables of psychological, cultural-social, economical, educational-extensional and legal parameters, and the dependant variable of participation, also indicated that except for psychological parameter which has no significant relationship with dependant variable, there is a significant relationship in level of 0.01 between the other parameters and the dependant variable. The results of regression analysis also indicated that cultural-social and economical parameters are the most important, which explained 36% of variance in dependant variables.

Key words: Participation of farmers, plans to combat desertification, desert greening, Taraznahid area.

INTRODUCTION

According to the attitudes of experts, today, the world is dealing with four serious and important problems including air pollution, water and soil pollution, Ozone depletion and land degradation or desertification, among which the desertification is more significant for us, because, in one hand, our country is exposed to it for its special climatic condition and geographic location, and on the other hand, desertification is a pain shared by third world countries (Sultanie, 2006). Desertification means the land degradation in dry, semidry and dry sub-humid zones caused by climatic changes or human activities (Mahar, 1998). Logo (2000) introduces desertification as lack of ecosystem in dry, semi dry or sub-humid areas which is a result of irregular activities of human beings and drought. Nateghi (2006) divides the effective parameters into two groups of natural (existence of salt formation susceptible to erosion, wind, flood and other natural disasters), and human parameters such as overusing groundwater, over pasturage of animals, non-normative change in use of forest and rangelands and etc. Desertification issue is a matter of significance in Iran which is caused by a number of parameter derived form special condition of each area such as natural characteristics or social and cultural structures which has effect on the performance and behavior of using water and soil recourses. Iran's Bureau of Desert Affairs has identified 17 provinces as having "desertified areas" which these provinces are home to nearly 70% of the total Iranian population (Amiraslani and Dragovich, 2011) and one of these provinces is Markazi Province which is the province under study in this research. Despite the fact

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that some of the deserts in Iran have been resulted from the effects of dominant natural condition, there are also other vast deserted parts which have been provided through the irregular and inappropriate interference of human being. Combating desertification in Iran is a complex combination of actions attempting to maintain non-desertified conditions in already-treated areas, advancing anti-desertification measures into untreated areas previously identified as desertified, and making long-term plans to anticipate and meet the needs of a growing population already placing pressure on fragile land and water resources (that is, prevention of further desertification) (Amiraslani and Dragovich, 2011). Countries that are party to UNCCD and affected by desertification agree to prepare a National Action Programme to combat Desertification (NAP) which will outline future short-medium-and long-term programmes, and the country's plans for preventing desertification and mitigating the effects of droughts. As Iran is a member of UNCCD, it has prepared a NAP. The framework of the Iran NAP consists of four pivots (NAP, 2005) which one of them is "Strengthening the role of rural communities" in terms of decision-making, planning, designing, implementing, monitoring and evaluation (Amiraslani and Dragovich, 2011). So it is clear that to resolve the desertification issue, it is necessary to provide a general view along with vast participation of native workers (Forests, Range and Watershed management Organization, 2007). Kamnap (2003) defines the participation as dividing an activity and Chowdhury (2004), defines people's participation as a procedure through which villagers would be enabled to organize themselves and recognize their needs, but, as to this survey, participation means that the members of each project, participate in different stages including planning, performance and evaluation actively, not that they just give the project from others. Of course, it does not mean that people are able to make decisions and plan for all stages, what is important is that individuals should believe the issue and participate in the program according to their apprehension and abilities (Malek, 1998).International experts suggest different solutions to improve the activities of desert management that one of the most important ones is to encourage and improve the level of public collaboration and environmental education while sustainable rating on controlling desertification and managing the consequences of drought (Samiei, 2008). The article 10 of international treaty to combat desertification has made the members committed to develop a general documentation named international preparation plan for performance of this treaty in their countries. In Iran, this documentation was developed after about ten years through the collaboration of responsible and influent organizations and the participation of civil societies; considering that this documenttation must be a simple morality that represents the national willingness to face the desertification issue systematically and the grand strategies to preserve, remedy and revive the destructed areas, it is formulated according to three principals, the third of which the real participation of people in planning and performance, what would be realized when people sea the qualitative and quantitative benefits of their participation objectively (desertification and sand fixation Office, 2005). According to the results achieved by various studies, different parameters influence on participation of people in plans to combat desertification. Shirazi (1995) mentions the effective parameters in attracting people in desert greening in Semnan including the rate of individual's income per month, literacy level, work experience, awareness of individual about the nature of desert greening plans, the level of participation in extensional classes and the rate of their contact with the propagator. He believes that there is a significant relationship between the mentioned parameters and participation in desert greening plans. Through investigating the role of women's participation in combating desertification and the effective parameters on their participation in desert greening of Hablerood River basin in Semnan, Bina (2003) concluded that there is a significant relationship between some variables including, age, literacy, participation in training courses, visiting the sample plans and the number of contacts with propagator, and the level of participation in plans to combat desertification. The studies of Hosseinpoor (2003) also indicated that there is a positive and significant relationship between the independent variables of literacy, range managing experience, using the press, participation in the classes, the number of contacts with the propagator, visiting the singular rangelands and being aware of the benefits and aims of range management plans and dependant variable of the level of participation in true performance of range managing plans, but as to variables of gender and marital state there is no significant difference. Also, through investigating the effective parameters on participation of women in northern forests protection plan, Varamini (2003) concluded that there is a positive and significant relationship between level of education, level of using extensional training courses, and the motivations of farmers, and level of their participation in protecting and reviving the rangelands, while, between the number of family members and age, and level of participation, the relationship is negative. Also the results of Heydarpoor's (2005) research indicated that there is a positive significance relationship between the level of education, active presence of experts in the area and the governmental support for plans to combat desertification, and the level of participation in protection, utilization and developing the rangelands. In addition to inland studies, foreign researchers have also performed various surveys on the effective parameters on people's participations in plans to combat desertification and they have reached some conclusions. For instance, in a research named effective parameters on the participation of farmers in

desert greening, Dolisca (2006) indicated that there is a positive relationship between the individual's incomes, being interested in protecting natural resources, participation in extensional training courses and financing the required inputs, and level of participation in desert greening, while there is a negative and significant one between the number of family members and the level of participation; and in a research named participation in desert greening, Chowdhury (2004) stated that a positive and significant relationship has been observed between age, the rate of required inputs and level of income, and level of participation. Maskey et al. (2003) and Atmis et al. (2007) also believe that there is a positive relationship between age and level of participation in the plans. According to this, the present survey also aims to analyzing the effective parameters on participation of farmers in plans to combat desertification in Taraznahid area located in the state of Markazi, so that it can indicate that considering the results of previous researches, what parameters affect the participation of farmers of this area in plans to combat desertification.

METHODOLOGY

According to the aim, the research method in this study is an applied survey, but as to rate of controlling the variables it is a field research; about data and information processing the descriptive correlational method have been used, and gathering information was through library study, using electronic resources, and field survey on studied area. The statistical population in this research included the habitant farmers in Taraznahid located in save in state of Markazi, which applied a total of 1167 households. Statistical sample calculated 159 households through Cochran's formula, which have been added about 10% to be more accurate. The sampling method was a multi-stage one, as firstly the villages to be studied had been chosen randomly and then the sampling of villagers was performed through stratified random sampling. In this survey, the information have been gathered through questionnaire and after performing pretests from the farmers who were the member of the cooperative society of the area, the sum of Cronbach's alpha was obtained at least 0.72 which represents an acceptable reliability. The validity of questionnaire is also confirmed regarding the attitudes of supervisors and consultants and the experts of Forest and Rangeland Organization, and the data was analyzed by SPSS software. In order to evaluate the dependant variable of level of farmers participation in plans to combat desertification, a scale has been designed including 16 items, then the scale was given to the farmers and they were asked to rank the level of their participation in the field issued through the items, from 0 (no participation) to 5 (most participation) in Likert scale. Some scales have been designed as well, including several items, to evaluate each of the psychological, cultural- social, economical, educational-extensional, and legal parameters, these scales were also given to the farmers and they were asked to rank the level of their participation in the field issued through the items, from 0 (no participation) to 5 (most participation) in Likert scale.

RESULTS AND DISCUSSION

Individual characteristics

Based on the gathered information, the majority of farmers (80.4) were men with an approximate age average of 49, that most were middle-aged (41 to 60) with a low level of literacy, as only 20% of them had a bachelor or higher degree and 22.84% were Illiterates. The average farming experience was about 29 years and the number of family members was 5 which indicated that the families of studied farmers are extended. The results of the survey also showed that the majority of farmers (about 61%), like or adore farming and as to participating extensional training courses, most of them (47.93%), have done it just once and about 25% have never participated in these courses so far, while the majority of them (37.7%) were slightly or very slightly agree with holding such courses. As to familiarity with the extension agent of the area, the majority of farmers knew the extension agent and normally relied on his suggestions, but a few had joint rural institutions as a member. Regarding the agronomic characteristics, most of the farmers (68.5%) owned the farms personally and (48%) used deep wells to irrigate their farms. Finally, the results indicated that the majority of farmers (26.6%), lived 6 to 8 km far from the service centre and the average distance was 7 km.

Ranking the effective parameters on the farmers' participation in PCDs

Cultural- social parameters

Farmers believed that the most effective cultural- social parameters on their participation in plans to combat desertification are "motivating the farmers for participation", "improving the level of their general awareness about deserts and desert greening", "considering the role of farmers in making decisions", "developing farmer groups in order to combat desertification", and "paying attention to Indigenous knowledge" in order of significance and influence. In other words, they believed that motivation should be arisen and motivating the farmers is a matter of high significance. The surveys performed by Varmini (2003) also confirm the positive relationship between the motivation of farmers and their participations in plans to combat desertification. He also strongly believes that farmers should be facilitated by more modern knowledge about desertification which should be performed by government. On the other hand, parameters such as "women's participation in desert greening activities", "charging the farmers with compulsory responsibilities to combat desertification" have the less effect on their participation in desert greening plans. For they believe that desert greening is a masculine work in which women cannot take parts (Table 1).

Economical parameters

From the stand point of farmers, ranking of effective

Table 1. Ranking the effective social-cultural parameters on farmers participation in PCDs.

No	Items	Mean	SD	CV	Rank
1	Motivating the farmers to participate	3.05	1.33	0.436	1
2	Improving public awareness about desert and desert greening	2.98	1.30	0.436	2
3	Considering the role of farmers in decision making	2.82	1.24	0.439	3
4	Forming farmer groups in order to combat desertification	2.93	1.36	0.464	4
5	Paying attention to Indigenous knowledge	2.89	1.36	0.470	5
6	Active presence of experts in the region	2.98	1.44	0.483	6
7	Performance and generalization of cooperative plans and also supporting participation of local societies	2.57	1.33	0.517	7
8	Participation of farmers in responsibilities charged to other villagers	2.81	1.46	0.519	8
9	Conflation of Indigenous knowledge and applied researches on natural resources	2.58	1.37	0.531	9
10	Identifying the drawbacks of farmer's participation	2.60	1.47	0.565	10
11	Decentralization from governmental decision making	2.27	1.31	0.577	11
12	Charging the farmers with compulsory responsibilities to combat desertification	1.97	1.54	0.781	12
13	Women's participation in desert greening activities	1.78	1.65	0.926	13

0 = None, 1 = rare, 2 = very rare, 3 = average, 4 = much, 5 = very much.

Table 2. Ranking the effective economical parameters on farmers participation in PCDs.

No	Items	Mean	SD	CV	Rank
1	Planning moneymaking projects to perform plans to combat desertification	2.74	1.33	0.485	1
2	generalization and development of insurance service and other social facilities for farmers and the users of national resources	2.70	1.36	0.503	2
3	income rate of farmers per annum	2.78	1.49	0.535	3
4	Financing the required inputs	2.68	1.49	0.555	4
5	Easy access to credit and banking facilities	2.45	1.42	0.579	5
6	Investigation of financial problems and suggestion of appropriate solutions	1.88	1.69	0.898	6

0 = None, 1 = rare, 2 = very rare, 3 = average, 4 = much, 5 = very much.

economical parameters on their participation in desert greening plans is as following in order of significance and influence: "designing money making projects to perform plans to combat desertification", "generalization and development of insurance service and other social facilities for farmers and the users of national resources" and "income rate of farmers per annum". In other words, farmers believed that these plans should be defined in a way that brings some income for farmers in order to motivate their participation. Farmers should also be protected through insurance services and other social facilities, that of course seem logical if they demand so and place this item at the second rank considering the existing dangers in the deserts such as snakebite, scorpion bite, heat stroke, falling into grave, etc. farmers also believe that their annual income is another effective item which is very important, that is, the more farmers earn per annum, the higher their level of their participation in such plans and the poorer they be, the more they tray to avoid having a role in such projects, for it has no financial benefit for them, ant these results are of course in accordance with the results achieved by Chowdhury (2004), Dolisca et al. (2006), and Shirazi (1996), ant they all confirms the positive role of income of farmers in their participation in desert greening plans through their results (Table 2).

Educational-extensional parameters

From the standpoint of farmers, ranking of effective educational-extensional parameters on participation in plans to combat desertification, is as following: "access to TV and radio programs", "the participation of farmers in desertification combating training courses", "holding training classes about combating desertification by related centers", "scientific trainings on rangeland protection", and "improve the awareness level of local societies about the advantages of such plans" were identified as the most important and effective parameters

Table 3. Ranking the effective Educational-Extensional parameters on farmers participation in PCDs.

No	Items	Mean	SD	CV	Rank
1	Access to TV and radio programs	2.97	1.43	0.481	1
2	The participation of farmers in training courses about combating desertification	2.83	1.41	0.498	2
3	Holding training classes about combating desertification by related centers	2.90	1.45	0.500	3
4	Improving the level of awareness in local societies about the aims and advantages of the plans	2.64	1.38	0.522	4
5	Scientific education about rangeland protection	2.70	1.37	0.508	5
6	Visiting the extensional successful plans to combat desertification	2.95	1.50	0.508	6
7	Retraining of managers and experts and changing their view about managing natural resources	2.73	1.39	0.509	7
8	Performing regular relationship between experts, people and users	2.63	1.40	0.530	8
9	Publishing extensional press with a context of reviving deserted areas	2.81	1.50	0.533	9
10	Substantial cultural change in natural resource issue trough education	2.72	1.46	0.536	10
11	Distributing video films about natural resources	2.73	1.51	0.553	11
12	Activating the libraries of the villages	2.70	1.54	0.570	12
13	using the programs of literacy campaign	2.01	1.57	0.781	13

0 = None, 1 = rare, 2 = very rare, 3 = average, 4 = much, 5 = very much.

on the participation of farmers in plans to combat desertification that should be paid enough attention in order of significance so that the participation of farmers in such plans can be improved. According to level of their literacy, farmers mentioned TV and radio as the best way to access information and communication channels, they also believed that holding training classes by related people in charge and the participation of farmers in such courses can be very effective according to inform people about the desertification condition in the area and the necessity of controlling such condition in order to motivate the farmers to participate plans to combat desertification, which is in accordance with the results achieved by studies such as Bina (2003), Hoseynpoor (2003), Shirazi (1996), Dolisca et al. (2006) and Varamini (2003) and the mentioned researchers have confirmed the positive relationship between performance of extensional training courses and participating them, and the participation in plans to combat desertification. On the other hand, farmers believe that improving the level of awareness about the aims and advantages of the plans, would cause an increase in their participation for the participation can be sustainable when the addressee choose and take part in it with full awareness about its context and aims; and the results of other studies confirm this as well. For instance, studies such as Shirazi (1996) and Hoseynpoor (2003) have also concluded that there is a positive significant relationship between the awareness of individuals about the nature of desert greening and range land protection plans, and their participation in such plans, so those who are responsible should inform the farmers about the aims and the nature of the plans. Farmers also think that the presented educations by the people in charge should not be confined to training courses and they should provide it scientifically and on a scientific base. They believed that merely theoretical educations is needed to increase the participation of farmers but not adequate, so the people in charge should hold some of the training courses in the farms and deserts, for example, Visiting the extensional successful plans to combat desertification, which is mentioned by the farmers as the next important parameter, and it indicates the fact that farmers believe in the importance and influence of scientific education to increase their participation, so those who are responsible should consider it as well (Table 3).

Legal parameters

The results indicate that legal-institutional parameters including “support of governments from plans to combat desertification”, “practical formulation of rules and regulations set related to desert and desert greening”, “supporting non-governmental institution in protecting the environment”, and “supporting jobs that don’t destroy the environment in rural and nomadic areas”, are the most important and effective ones on the participation of farmers in desert greening plans in their point of view. Farmers believe that at firstly, government should support the desert greening plans and if it doesn’t, even farmers wouldn’t be that much interested in participating such plans, so government should back up these plans both in organizational coordination and financing needed budgets. Also, the result’s of Heydarpoor’s research (2005), confirms the positive relationship between government’s support of plans to combat desertification and the participation level of individuals in such plans which reconfirms the results of the present survey. practical formulation of rules and regulations is also

Table 4. Ranking the effective legal-institutional parameters on farmers participation in PCDs.

No	Items	Mean	SD	CV	Rank
1	Government's support of plans to combat desertification	3.08	1.29	0.418	1
2	Practical formulation of laws and regulations related to combating desertification	2.81	1.28	0.450	2
3	Supporting NGOs in environment protection field	2.83	1.30	0.459	3
4	Supporting environmentally none destructive jobs in rural and nomadic areas	2.95	1.37	0.460	4
5	Providing legal encouragers for plans to combat desertification	2.97	1.37	0.461	5
6	Approving rules and regulations for plans to combat desertification	2.79	1.31	0.470	6
7	Operating tax activities for plans to combat desertification	2.89	1.33	0.480	7
8	Assignment the exploitation of natural resources to the people	2.67	1.37	0.510	8
9	Determination and confirmation of the ownership of forest, agronomic and range lands	2.21	1.51	0.700	9

0 = None, 1 = rare, 2 = very rare, 3 = average, 4 = much, 5 = very much.

considered by farmers as a very important parameter, for some of them have experienced unsuccessful performance of desert greening plans, so that they have lost their belief and reliance in such plans, as in many cases the existing rules and regulations are not executable and which ends in the failure of the plan; for example, if the farmers are compulsorily asked to be present in the such plans for some hours of their work time, the rule is not executable and the plan won't be successful what so ever, so as the farmers believe them selves, the rules and regulations should be practically executable. Farmers believe that in addition to the government, non governmental organizations or NGOs should also back up such plans. For instance, the presence of associations such as Sustainable development associations can be very successful in supporting such plans and provides the required motivation for the farmers to participate these plans. The jobs which are in accordance with Sustainable development and causes no damage to environment and rangeland should be also supported on the other jobs which accelerate the desertification process should be controlled. Supporting no destructive environmental jobs would cause the farmers to be adequately motivated to turn to these sorts of jobs which indirectly help desert greening plans and increases the participation of farmers in those plans, so the government should pay more attention to the jobs in accordance with sustainable development and provide the base of agronomic education and any other trainings according to the jobs which do not hurt the environment (Table 4).

The relationship between the personal characteristics and participation in PCDs

Considering the results of calculating correlation coefficient between personal and professional variables and the dependant variable of participation in plans to combat desertification with 95% confidence level, it can be said that more family members, longer distance from the service centre, and also more interest in agricultural activities, cause less participation in plans to combat desertification. The size of family has an inverse relationship with participation in plans to combat desertification and this result is in accordance with the results of studies such as Shaeri (2000), Varamini (2003), and Dolisca et al. (2006), for the mentioned studies have also confirmed the existence of negative and significant relationship between the number of family members and participation level. This inverse relationship might be because of the fact that a family protector who have many family members are usually poorer compared to those who for example have one or two family members under their protection, on the other hand, as participation in plans to combat desertification are not financially beneficial and they are mostly performed because of nature appreciation or constancy of range land, poor people are not motivated enough to take part in such plans. The distance to service center is also inversely related to participation in plans to combat desertification and the reason is almost clear, for the more distance between the farmer and service centre, the less familiarity with training courses and taking advantage of them, so the requires awareness and motivation to participate such plans is not provided, so according to results achieved by Varamini (2003) the less the farmers are motivated, the less they would participate the plans. On the other hand, too much interest in agronomic careers, also decreases the participation in plans to combat desertification, for farmers try to use the rangelands for their personal agronomic purposes rather than taking care of them. The results also indicated that with 99% confidence level, the higher the level of farmer's literacy and the more he participates in extensional educational courses, the higher the level of his participation in plans to combat desertification. The results achieved by other studies such as Heydarpoor (2005), Bina (2003) and Hoseynpoor (2003) also confirms the positive and significant relationship between literacy level and participation in the plans. The mentioned studies believe that the higher the literacy

Table 5. Correlation between the personal characteristics and participation in PCDs.

Variables	Correlation coefficient	Sig.
Age	0.069	0.359
Number of family members	-0.653*	0.044
Farming experience	0.086	0.253
The number of participations in extensional courses	0.806**	0.008
The longevity of habitation in the village	0.028	0.752
Distance to Services Center	-0.624*	0.048
Pierson's correlation coefficient $p \leq 0.01$ **, $p \leq 0.05$*		
Gender	0.012	0.868
Marital status	0.056	0.455
Literacy status	0.816**	0.003
Agreement with holding of extension-educational courses	0.127	0.090
The rate of interest in agronomic activities	0.457*	0.044
Familiarity with extension agent	0.089	0.239
Membership in rural institutions	0.062	0.411
Spearman's correlation coefficient $p \leq 0.01$ **, $p \leq 0.05$*		

level is, the more the participation would increase and this can be caused b6y the fact that higher literacy means more awareness about the nature and advantages of the plan for future and this awareness would help to motivate farmers to participate. Also, studies such as Bina (2003), Hoseynpoor (2003), Shirazi (1996), Dolisca et al. (2006) and Varamini (2003) have confirmed the positive relationship between holding and taking part in extensional training courses, and participation in plans to combat desertification and they believe that the more participation in extensional training classes, the more increase in taking part in the plans which is a confirmation for the results of the present survey. Certainly, participation in the plans, increase the awareness about the aims, nature and advantages of them and provides paves the way for more participation of farmers (Tables 5).

The relationship between psychological, cultural-social parameters, economical, extensional-educational and legal parameters with participation in PCDs

The calculated correlation coefficient between cultural-social, economical, extensional-educational and legal parameters, and parameter of participation indicates that except for psychological parameter which has no significant relationship with dependant variable, with 99% confidence level, the more attention paid to other parameters, the more participation of farmers in plans to combat desertification. Cultural- social parameters which include the social motivations, and economical parameters including financial motivations, would cause more participation of farmers in the plans, because as it has been confirmed in ranking part, farmers place the social and financial aspect of motivations in first steps of ranking of influence on their participation in plans to combat desertification. While issuing the ranking, they also pointed out the participation in extensional training courses, practical formulation of laws and regulations as the centre of extensional-educational and legal parameters, and placed the influence of them on participation level in plans to combat desertification in first ranks, so the significance of four mentioned parameters in participation level of farmers is entirely clear and people in charge should consider the planning and pay more attention to them in order to improve the participation of farmers in plans to combat desertification (Table 6).

Prediction of explaining parameters of farmers participation in PCDs

The results of regression analysis showed that according to dependant variable of participation level in plans to combat desertification, among 13 independent variables (number of animals, literacy level, the number of land fragments, participations in training courses, farming experience, interest in agricultural activity, water resources, cultural-social parameters, economical parameters, extensional-educational parameters and legal parameters) 3 parameters (participations in training courses, cultural-social parameters and economical parameters) had a significant effect on the dependant variable and generally, the mentioned independent variables explained 46% of variance in dependant variable,

Table 6. Correlation between effective parameters and participations in PCDs.

Effective parameter	Correlation coefficient	Sig.
Psychological parameters	0.143	0.057
Cultural-social parameters	0.581**	0.000
Economical parameters	0.523**	0.000
Extensional-educational parameters	0.448**	0.000
Legal parameters	0.390**	0.000

Pearson correlation coefficient P≤0.01**.

Table 7. The multi variable step by step regression coefficients- participation dependant variable**.**

Variable	Coefficients	Standard error	Standard coefficients	t	Sig.
Constant	14.237	2.671		5.329	0.000
Cultural-social parameters	0.558	0.103	0.481	5.732	0.000
Economical parameters	0.521	o.174	0.253	3.009	0.003
Participations in training courses	-2.026	0.765	-0.162	-2.647	0.009

$R = 0.681$, $R^2 = 0.463$, R^2 adj = 0.452, F = 41987**.

considering the coefficient of determination (R^2) (Table 7). Following regression equation extracted from Table 7:

$$Y = 14.234 + 0.588x_1 + 0.521x_2 - 2.026x_3$$

The variable of cultural-social parameter (X_1) with standard coefficient of 0.481, was known as the most important effective parameter on farmers participation level in plans to combat desertification and economical parameter, with coefficient of 0.253 was placed in the second rank, participations in training courses with coefficient of 0.162 was in the third level of importance. So it can be concluded that in order to increase the participation of farmers in plans to combat desertification, people in charge should pay more attention to cultural-social and economical parameters and participations in training courses.

Conclusion

The mentioned results of this survey indicated that the literacy level of farmers of the studied area is generally low and they usually do not participate in the extensional training courses; on the other hand there is a direct significant relationship between the level of literacy and participation in plans to combat desertification, so people in charge should firstly think of some ways to motivate the farmers to take part in mentioned courses and advertise them through more acceptable communication channels for farmers, such as radio and TV. The results also indicated that farmers believe that motivation and awareness improvement by people in charge can be effective in increasing their participation in plans to combat desertification. So it can be concluded that the held training courses is not appropriated to needs and literacy level of farmers, and the educational methods, context and communication channels should change to be in accordance with their level of literacy; it seams that practical trainings such as visiting successful extensional desert greening plans, can be very effective. The results also illustrate that financial motivation and social insurance which play a substantial role in increasing the participation of farmers in the mentioned plans, for the majority of them are poor and look at the mentioned plans from an economical point of view, so it is suggested to design these plans in a way that enables participant farmers to earn an adequate salary or be financially encouraged, so that in one hand they gain the required motivation to participate in plans to combat desertification despite of its risks such as snake bite, falling into graves, etc, and on the other hand, they would believe in more participation if they can use facilities such as social insurance; so it is recommended that people in charge, provide the full insurance coverage fro participant farmers in mentioned plans. The results also indicated that the longer distance from service centre means the less participation pf farmers in plans to combat desertification. Regarding that a long distance would cause less participation of farmers in training courses, it seams that service centers should hold their training courses in the villages and in other words, they should increase their distance from the farmers in order to widen their sphere of influence ; and, considering the positive and significant relationship between independent variables of number of participations in extensional training courses and literacy

level, and dependant variable of participation, people in charge are recommended to start the plans with participation of more literate farmers as the antecessors, so that through observing them, other farmers of lower levels of literacy get motivated in taking part in the training courses and plans. Regarding the results of regression analysis, it is also cleared that among different effective parameters on participation in plans to combat desertification, cultural and economical parameters are more important than the others and people in charge should firstly try to improve the awareness level of farmers, and in the second stage, they should design the plans in an economical style so that farmers can take financial advantages as well.

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