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Annals of Biological Research, 2011, 2 (5) :263-268
(http://scholarsresearchlibrary.com/archive.html)

Annals of Biological Research
Scholars Research Library
ISSN 0976-1233
CODEN (USA): ABRNBW

Affective Factors in Improving Sustainable Forest Management in Iran

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ABSTRACT

Forest and range managers were surveyed in order to explore their perception about factors improving the sustainable forest management in Iran. The methodology used in this study involved a combination of descriptive and quantitative research. The total population for this study was 154 manager of forest, range and watershed organization in which 105 responded to the questionnaire. Based on the perception of the respondents, providing material incentives to managers and knowledge about sustainable forest management caused 64% of variance on the perception of the respondents about improving sustainable forest management in Iran.

Keywords: Sustainable Forest Management, Iran, Forest, Indigenous knowledge.

INTRODUCTION

The growing world population increases the need for fuel, wood products, food, medicines and jobs. Natural Resource has an important status in fulfilling these needs. The survival of human is directly and indirectly related to natural resources such as forests and as a result, preservation, revival and development of forests are considered very important.

Unfortunately, in many countries especially in developing countries, increasing population, rapid urbanization, lack of knowledge about importance of natural resources along with inappropriate planning resulted in rapid degradation of forests and rangelands.

FAO reported that annually about 13 million hectares of forest in the world has been destroyed and converted to farming lands and human being has caused much of the destruction of rangelands and policy makers have realized that they should look for involving local population in protecting and revitalizing the natural resources [1}.

The total area of forests in Iran is 12.4 million hectares which constitute about 7.4 percent of total areas of the country. Iran is ranked 57th in forest resources in the world and this number is alarming for policy makers to emphasize more on preserving and restoring forests [2].

Based on the statistics by Forest and Range Organization in every second about 300 square meters of forest and 400 square meters of rangelands are destroyed in Iran and annually this is accounted the destruction of about one million ha of rangelands.

Governments throughout the world have been looking for different strategies to engage beneficiaries in protecting natural resources. Sustainable forest management is considered an important strategy to ensure participation of people in managing the forests.

Empowerment of people in rural areas should be one of the basic elements of sustainable forest management. It should include clear rules and guidelines for decentralization in decision making, participation and empowerment of local people, positive discrimination for marginal groups and institutional development to ensure good governance at local level [1].

Sustainable forest management aims to ensure that the goods and services derived from the forest meet present-day needs while at the same time securing their continued availability and contribution to long-term development. In its broadest sense, forest management encompasses the administrative, legal, technical, economic, social and environmental aspects of the conservation and use of forests. It implies various degrees of deliberate human intervention, ranging from actions aimed at safeguarding and maintaining the forest ecosystem and its functions, to favoring specific socially or economically valuable species or groups of species for the improved production of goods and services.

The paper examines the perception of Forest, Range and Watershed Organization (FRWO) managers about factors influencing the sustainable forest management in Iran. The findings would highlight the strategies for policymakers to support sustainable forest management.

The sustainable management of forest requires a greater understanding of current and potential future value of forest ecosystems as a complete chain of benefits for public and private sector, and this would limit utilization of forests for short-term benefits [3].

Increasing community knowledge and awareness about importance and benefits of forests in long term would have positive impacts in preserving natural resources and achieving sustainable development goals [4].

The participatory forest management project in Ghana has been implemented over a relatively short period, but there is some evidence of success in involving local people in sustainable management of the forest, with a positive impact on the environment as well as on the economy. Co-management of tropical forests has the opportunity not only to contribute to forest conservation but also to advance the process of governance [5].

Bare pointed out that sustainable forest management is a realm of activities and processes in providing services and products in long term and at the same time is considered a long approach

which brings a balance in comprehensive goals of social, economic and ecological in managing natural resources [6].

In order to achieve the goals of environmental, social, cultural and economic values of sustainable forest management, there is a need for a long term approach which emphasizes on participation of beneficiaries [7].

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MATERIALS AND METHODS

The methodology used in this study involved a combination of descriptive and quantitative research and included the use of correlation and descriptive analysis as data processing methods. The total population for this study was 154 managers in FRWO in Iran and 105 respondents completed the questionnaire. Data were collected through interview schedules.

A series of in-depth interviews were conducted with some senior experts in the Forest, Range and Watershed Organization to examine the validity of questionnaire. A questionnaire was developed based on these interviews and relevant literature. The questionnaire included both open-ended and fixed-choice questions. The open-ended questions were used to gather information not covered by the fixed-choice questions and to encourage participants to provide feedback.

Measuring respondents' attitudes towards sustainable forest management has been achieved largely though structured questionnaire surveys. The final questionnaire was divided into several sections. The first section was designed to gather information about personal characteristics of respondents. The second section was designed to measure the attitudes of respondents about factors that improve the sustainable forest management. The respondents were asked to indicate their agreements with 13 statements by marking their response on a five point Likert-type scale.

Content and face validity were established by a panel of experts consisting of faculty members at Islamic Azad University and experts in Forest, Range and Watershed Organization. A pilot study was conducted with 20 managers 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 91.0%, which indicated that the questionnaire was highly reliable.

Dependent variable in the study included factors improving the sustainable forest management. The independent variables in this research study were educational level, working experience, providing material incentives to managers, knowledge about indicators of sustainable forest management, participation in sustainable forestry projects and utilization of local resources and allocating appropriate financial resources for sustainable forestry projects. For measurement of correlation between the independent variables and the dependent variable correlation coefficients have been utilized and include Pearson test of independence.

RESULTS

It was reported that 96 percent of respondents were male and the average age of managers was 45 years. More than 50 % of the respondents had earned 4 year degree and 42% had earned a master degree. The average working experience in management position was 15 years

Response numbers for the 13 perception statements are displayed in Table 1. As can be seen from this table, the highest mean refers to participation of people in sustainable forest management (mean=4.41) and the lowest mean to conflict resolution among local population (mean=3.95).

Table 1: Mean score of the perception of managers about factors which improve the sustainable forest management (1=strongly disagree; 5=strongly agree).

Perception	Mean	SD
Participation of people in sustainable forest management	**4.41**	**0.65**
Developing the regulation regarding sustainable forest management	4.24	0.64
Knowledge about importance of forest	4.14	0.66
Using experienced managers	4.17	0.77
Providing resources for projects	4.09	0.79
Allocating financial resources	3.98	0.77
Increasing the decision making roles of managers	4.18	0.82
Conflict resolution among beneficiaries	**3.95**	**0.79**
Respecting to the local beliefs and habits	4.13	0.87
Increasing linkages between managers and local population	4.35	0.92
Emphasizing the utilization of indigenous knowledge	4.26	0.92
Material incentives for managers	4.07	0.85
Mutual trust between beneficiaries and authorities	4.36	0.93

In regard to perception of knowledge of managers about sustainable forest management indicators, the highest mean number indigenous knowledge (4.04) and the lowest mean number refers to available basic information about forests (mean=3.23).

Table 2: Means of respondents' views about their knowledge about sustainable forest management indicators (1= very little; 5=very much)

Perception	Mean	SD
Indigenous knowledge	**4.04**	**1.07**
Protecting water and soil resources	3.91	1.08
Systematic approach to sustainable forest management	3.66	1.19
Increasing coverage of plants	3.60	0.95
Participation and decentralization	3.73	1.04
Social and economical benefits of forests	3.48	0.98
Training foresters	3.60	1.07
Protecting ecosystems in forests	3.68	1.10
Available basic information about forest	**3.23**	**1.07**
Emphasizing on coordination among related organization	3.55	1.16
Protecting biodiversity	3.52	1.16

Spearman coefficient was employed for measurement of relationships between perceptions of managers about factors improving the sustainable forest management as dependent variable and independent variables. Table 3 displays the results which show that there was relationship between perception of respondents about factors improving sustainable forest management and educational level, working experience, providing material incentives for managers, knowledge of respondents about sustainable forest management indicators, participation in sustainable forestry management, providing resources for projects and allocating financial resources.

Table 3: Correlation measures between dependent and independent variables

Independent variables	Dependent variable	Agricultural professional	
		r	Sig.
Educational Level	Sustainable forest management	**0.334**	**0.00**4**
Working experience	Sustainable forest management	0.291	0.013*
Providing material incentives for managers	Sustainable forest management	0.576	0.000**
Knowledge about sustainable forest management indicators	Sustainable forest management	0.383	0.001**
Participation in sustainable forestry projects	Sustainable forest management	0.274	0.018*
Providing resources for projects	Sustainable forest management	0.373	0.001**
Allocating financial resources	Sustainable forest management	0.251	0.032*

**$p<0.01$, *$p<0.05$.

The result of regression analysis by stepwise method indicates that 64% of the variance in the perception of managers could be explained by two variables of providing material incentives for managers and knowledge about indicators of sustainable forest management. Based on the perception of managers, variables "providing material incentives for managers"(Beta coefficient: 0.40, sig.: 0.000) and "knowledge about sustainable forest management indicators" (Beta coefficient: 0.340, sig.:0.002) affect the sustainable forest management positively.

In the first step, the variable providing material incentives was entered and result shows that 46% of variance for perception of managers about factors which improve the sustainable forest management by this variable. In the second step, the variable knowledge about sustainable forest management indicators were entered and along with providing material incentives to managers, these two variables accounted for 64% of variance for respondents' perception.

DISCUSSION AND CONCLUSION

The perception of respondents about the factors which influence the improvement of sustainable forest management was discussed in this article. As the regression analysis showed, providing material incentives to managers and knowledge about sustainable forest management caused 64% of variance on the perception of the respondents about improving sustainable forest management in Iran.

The findings reflect an important fact that increasing knowledge of beneficiaries about importance of forest directly impacts the development of sustainable forest management. This has been pointed out by several authors including Demontalembert and Schmithussin [3] and Khosrowshahi and Ghavami [4].

The results of this study also show that available resources, in particular financial resources, would have impact on development of sustainable forest management. Forest is considered a common property resource which needs appropriate financial resources to achieve substantial benefits for stakeholders.

Based on the results of the mean score, respondents indicated that the main factor in improving the sustainable forest management was participation of beneficiaries in related projects and programs. The result is consistent with Blay [5] and Shifly [7] that sustainable forest management requires a long term approach which emphasizes on participation of beneficiaries.

Successful adoption of sustainable forest management will also depend on the utilization of indigenous knowledge. The findings highlight the need for participation of policymakers and managers in process of enhancing and encouraging the adoption of indigenous knowledge. Bridges indicates that indigenous knowledge could help beneficiaries to empower themselves and eventually may lead to development of rural areas [8]

The role of indigenous knowledge in the process of sustainable development should not be ignored. In fact, agricultural sustainability is not about technical fixes and expertise. It is development processes that need to integrate ecological and societal knowledge through changes in policy, institutions, and behavior [9]

Authorities should explore ways to increase participation of the beneficiaries in planning, implementing and evaluation of sustainable forest management. The success of sustainable forest management will depend on the informing population about benefits.

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