

A Study of the Impact of Exiting Cattle from Forests on the Local Communities in the Northern Part of Iran (A Case Study of Bandpei, Kiapei and Yakhkesh Regions)

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Abstract: Statistic figures show that 1.5 million hectares of the woods in the North of Iran have declined, since. Experts believe that it is because of the existing over 3401 villages with the population of about 464500, which keep and raise local livestock in 5797000 livestock unit and 33107 husbandry units. Solving this problem has been one of the preoccupations of the authorities who are in charge of natural resources at the national level. So far, many projects have been conducted such as the project of integration of scattered single units in one location and exit of cattle from the forest through legal methods and by approving laws. This research is an attempt to investigate the effects of exiting cattle from the forests on the socio-economic situation of those who deal with animal husbandry in the region. The research has been conducted on three areas of Bandpei, Kiyapei and Yakhkesh in 2007 year. The statistical community of this research was 1046 household living in Bandpei, Kiapei and Yakhkesh regions. In each region 32, 13 and 51 household chief as research samples, through systematic random sampling were selected respectively and handing out questionnaires, required information was gathered using description and receptive statistics methods and SPSS and Excel software's research consumption were tested. The results of statistics show that there is a significant difference between the gross and net income of the animal husbandry and agricultural activities before and after the execution of the project of cattle exit from the forests with a 95 to 99 percent of reliability ($p < 0.05$). There was no significant difference with other variables. Also, there is a meaningful difference at the level of one and five percent among the variable of age and other variables such as rate of education, area of pastures under ownership, number of indigenous cows, areas of joint lands and dry farming lands.

Key words: Exiting cattle from forest % Forest residents % Forest pastures % Traditional animal husbandry % Socio-economic situation of forest residents

INTRODUCTION

The issue of scattered villages in the forest areas of the northern part of Iran as one of the unique natural resources in the world and an environmental and socio-economic sources at the national level and has been the preoccupation of planners and a managerial challenge in the field of natural resources in the past decade. This is the fact that the villages are source of livelihood and in particular the symbiosis of cattle and human as a constant source of livelihood forms one of the most complex managerial dilemmas in this scene.

The presence of human in the forest, by itself does not create an environmental crisis but what gives rise to this crises is the presence of cattle in a scale beyond the capacity of natural environment Statistics show that since 1973 (the year of the nationalization of forests) up to present, there has been a decrease of about 1/5 million hectare of the forests in the northern part [1], but the estimation made by Glaeser shows that during the first 50 years of the twentieth century, more than two millions hectares of the Iranian North jungles have been either destroyed or converted into farming fields.

Heskeh and Uslu, in a project prepared for Turkey, believed that only with helping with the immigration of the villagers of forest areas, it will be possible to decrease the use of woods and prevent from the destroying the forests. And wherever, there is no possibility to move the place, coal, petrol and gas should be replaced with firewood [2]. Forest as a place for animal grazing was very important in the views of the Iranians and it was such that before its nationalization, 75 percents of it had been registered as pastures with trees in the notary offices under the name of their owners (ibid). According to the experts, the existence of more than 3401 habitable villages with a population of over 464500, having 5797000 cattle units within the format of 33107 animal husbandry stations has been a cause for such a reduction in surface [3]. The villager who is dealing with animal husbandry gives priority to his own and his family interests rather than that of the government. In the traditional animal husbandry, due to the fact they use the Jungle's fodder to feed their cattle free of charge, it is economic. And if the Jungle not to be in its ideal condition, then there will be no fodder for this type of animal husbandry and consequently, they will be forced to buy their annual fodder.

The results of the studies made by researchers in Iran also show the irregular and destructive exploitation of forest sources. It is such that according to a research in Bandpei forests of Babol in the northern part of Iran (one of the areas under investigation) the areas planted with trees and those without trees, in 6 height levels under the names of (Gheshlag, Mehsar, Raje, Pertas, Parekouh Sakouh, Sarkouh) in 9 months of the year are utilized to feed the cattle [4]. The results of studies in Albania shows that after the disintegration of Communism, the destructive activities in the area of natural resources was not stopped and since 1999 up to present, 15 percents of jungles have been destroyed due to the use of trees woods as fuel, unlawful cutting, lack of control on cattle grazing in forests and weak control of the government on utilization of forest resources (The International Land Coalition Community Empowerment Facility Program) 2001-2003. Also, in the south west part of Ethiopia, the rush of residents to forest lands and cutting trees and farming on the fields to produce coffee have caused the bareness of red soils and sands and have exposed them to degradation [5]. After people's huge protests within the format of Chipko movement and in order to prevent from the irregular cut of forest sources by companies utilizing forests, the Indian government approved the approval of contribution-oriented management (IFM) to protect and manage the forest lands with the people participation in 1990 [6].

Also, in Brazil, employing the policy of national forest and in order to reinforce and organize present dependence of industries on private forests, some measures were adopted to encourage the wood producing companies to create necessary roads and make contract with the local communities living in these forests to produce lumber [7]. Also another research executed in 14 watershed basins in the north of Iran in 260 samples showed that in 48 percent form these sample inhabited villages, animal husbandry activities was the first priority and in total, 67 percent were practicing animal husbandry [8]. According to another research in Vazrood watershed basin (in the Central Part of the Iranian Northern Forests) in 2005, the activities of the majority of the inhabitants were animal husbandry [9].

MATERIALS AND METHODS

Since one of the main goals of the project of exiting cattle from the jungle is to improve the living conditions of those involving in animal husbandry, so by using the assessment research methodology, the effects of this project on the local communities under investigation in the northern part of Iran has been assessed. With regard to the use of questionnaire instrument to collect data to describe and elaborate the views and behaviors of the statistical community, the survey research method has been employed. In this study, the socio-economic impacts of two methods of exiting cattle from the forests of Bandpei and Kiapei regions (implementation of project by governmental method through Organization of Forests, Pastures and Watershed Basins) and Yakhkesh region (executing the project with the contribution of people within the format of the World Bank project under the title of the Study of Agro-forestry Effects in Yakhkesh region) have been compared with each other. In this research, the descriptive and inferential statistical methods have been used to analyze data. The data has been collected by using the Excel and SPSS software and compared by using the correlation and through comparing variables with parametric and non-parametric statistics whose results are as follows:

Geographical Situation of the Research Limit: The executive scope of this research in accordance with the Figures 1-4 includes three regions (Bandpei, Kiapei and Yakhkesh) with the following specifications:

A. Bandpei Region-Diva Village: This village is located in 52^E, 40 and 36^E, 40 longitudes and latitudes and about 260 meters above from the free sea levels. The primary results of census on population and housing states that



Fig. 1: Geographical situation of the research limit



Fig. 2: The position of Yakhkesh village on satellite images of the year 2008



Fig. 3: The position of animal husbandry installations of the project of cattle exiting from Kiapeiforest of Sari city on satellite image of 2008



Fig. 4: The position of animal husbandry installations of the project of cattle exiting from Kiapei village on satellite image of 2008

in 2006 this village had 2119 people in 611 households out of which, 270 people were in the form of 32 household with animal husbandry profession.

B. Kiapei Animal Husbandry Complex: The longitude of this complex is located in $53^{\circ} 12'$ and its latitude is in $34^{\circ} 36'$. This complex is about 14 Kilometer far from Sari city. The process of its construction began in the Fall of 1989 under the title of the project of "Construction of Kiapei Animal Husbandry Installation of Sari", It consists of 13 animal husbandry units (3 units for 5 cattle heads, 8 units for 10 cattle heads, 2 units for 20 cattle heads) and has been used in practice since June 1993. The capacity of the animal husbandry installation of this complex is 135 half-breed cows or native cows. An area of 54 hectares has been allocated for fodder feeding and is

used for animal husbandry purposes. The populations inhabiting here include 13 household within the format of 90 people of which 46 people are male and 44 people are female.

C. Yakhkesh Region: The region is located in the heights of Hezar Jarib of Behshahr city in Yanesar region between Mazandaran, Golestan and Semnan provinces. Its areas are about 763 kilometers and its population according to the public census in 1996 is equal to 1888 people in the format of 2446 household units. This region contains 68 villages of which 18 villages are under the coverage of the project and review of the agro-forestry in Yakhkesh region. Of these villages, 5 villages (namely Yakhkesh, Pajim, Zelt, Pacht and Sheikh Mahleh) were selected randomly and studied.

RESULTS

The Main Results Obtained from this Study Are:

- C The average of all households under investigation is 7.90 people who most number are in Bandpei with 8.44 people and the least number in Kiapei with 6.92 people.
- C Of the total number of 732 people over six years and more in the sample families of the research, 226 people equal to 30.87 percent are illiterate and their average rate of illiteracy in the regions under the project is 2.35 people. Concerning the socio-economic conditions and unsuitable access due to topographical situation and linking roads in each region, this average differs. It is such that in Yakhkesh region, the highest rate is 2.76 people and in Bandpei region the least number is 1.75 people. At the same time, 58.33 percent of the heads of households were illiterate and 29.17 percent are literate at the level of elementary reading and writing. So, the biggest percentage of illiteracy is related to Yakhkesh region and the highest rate of reading and writing at elementary level was at Bandpei region.
- C The results of the extraction of data shows that the greatest percentage of individual under guardianship are related to the 8-10 people group and Bandpei region with 34.38 percent has the highest percentage of this class.
- C The results of extraction from tables show that only the cattle keepers of Bandpei region has forest pastures under their control with an areas of 10 hectares or more. The reason is that the cattle keepers of Kiapei region have delivered all areas under their ownership by accepting the project and settlement in animal husbandry complex.

As for Yakhkesh area, according to the results from the research samples, it was learned that all cattle breeders of Yakhkesh village (Olar-Zelt-Pagim) have left the forest following the implementation of the forest projects of Pajim, Tirtash–Galoogah.

- C The findings of the research on animal husbandry show that the highest percent of aboriginal cows in the regions under investigation are related to Bandpei region with 79.14 percent which form the highest percent of cattle units of each household. At the same time, in Kiapei region, 100 percent of cattle are half-breed cows and in Yakhkesh region also

11.49 percent of cattle are cross-breed cows. Comparing the two regions of Bandpei and Yakhkesh, the findings show that Yakhkesh region has had more advancement to convert the aboriginal cows into half-breed cows as compared with Bandpei region.

- C The results of data show that only cattle keepers of Bandpei region have had forest pastures with an average area of 10 hectares or more. Whereas, all cattle keepers of Kiapei, following the acceptance of project and settlement in animal husbandry units, have delivered their forest pastures. But in Yakhkesh region, all cattle breeders of the villages in the region have left forest following the implementation of Pachjim, Tirtash, Galoogah forest projects. Also some of the villages in the margins of the forest, where there have not been forestry projects, as a result of the project survey and review of agro-forestry impacts (Yakhkesh plan) have left the forest though people contribution and forest maintain projects.
- C According to the results of the research among the heads of households who believe government is unable to conduct the plan of cattle exiting from the forest, 52 percent of them consider the lack of giving appropriate land as the cause. So it can be concluded that these individuals are not satisfied with the conditions of project and settlement.
- C The findings of the research indicate that 78.43 percent of the heads of households from Yakhkesh region are so hopeful that through studying projects and review of agro-forestry effects in Yakhkesh region, they will find a better living condition. At the same time, in Kiapei, the cattle breeders with 7.69 percent have the least rate of hope in improving their living conditions through the project of exiting cattle from the forest.
- C Studies show that the income of the cattle keepers within the limit of the research with the exception of Bandpei, in other regions has been increases as the outcome of the project implementation and by changing the native cows into half-breed cows. In Kiapei region, in total, a 12.34 percent growth has occurred for the annual income of the household heads. The reason can be the higher output of half-breed cows as compared with native cattle in producing meat and milk. But in Yakhkesh region, a 31.48 percent increase of the household head can be referred to the studying project and review of the impacts of agro-forestry in Yakhkesh region. Because on one side, bran (part of cattle food) is presented to

them in subsidized rate and the poplar and alfalfa twigs are given them free of charge and this brings about the reduction of costs. Also by training and spreading change in the method of using the slope lands and with low cultivation and also using modified and safe seeds, the income of the villages has been increased and to this we can add the conversion of cows into half-breed cows

DISCUSSION AND ANALYZING THE RESEARCH FINDINGS

According to the results of the Table 1, there is a significant difference at the level of one and five percent among the variable of age of household head with that of the variables of the rate of education, area of forest pastures under ownership, areas of joint shared lands and dry farming lands. It can be concluded that to the extent that the age of the head of household is higher, to the same extent the is of forest pastures and also the area of farming lands with joint ownership and dry farming and number of native cows have been increased.

Comparing the variable of rate of literacy and age of the household head and lack of conversion of traditional animal husbandry into industrial one, there is a significant difference. It is such that with the increase of age and reduction of literacy rate, the rate of agreement to convert the native cows into half-blooded within the format of industrial animal husbandry units has been reduced. Consequently, the assumption of the research has been confirmed with 95 percent trust.

As for the comparison among the variable of forest pastures with other variables such as the age of household head, main actors of forest destruction, and the numbers of goat, sheep and native cows and field of water areas, dry farming areas, there has been a significant difference at the level of one and five percent. It is such that to the extent the areas of forest pastures under the ownership of forest residents are higher, to the same extent, the above mentioned variables have been increased.

Comparing the variable of the rate of ability of the government in implementing the project of exiting cattle from the forest shows that there is no statistical relation in this area, so that our assumption with 95 to 99 percent is not confirmed.

Table 1: Analyzing the research findings

Dependent variable	Independent variable						
	Age of household head	Literacy rate of household heads	Areas of forest pastures under control	Ability of government for cattle exciting project	Net income of agriculture	Net income of cattle	Sunrise net income
Age of household head	1	477/0 - **	208/0 *	N.S	N.S	N.S	N.S
Literacy rate of household heads	477/0 - **	1	N.S	N.S	N.S	N.S	N.S
Areas of forest pastures under control	208/0 *	N.S	1	N.S	N.S	428/0 **	N.S
Ability of government for cattle exciting project	N.S	N.S	N.S	1	N.S	N.S	N.S
Suitable solution for project of cattle exciting	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Hope in improving the living condition	N.S	238/0 *	N.S	N.S	207/0 - *	405/0 **	N.S
Main actors of forest destruction	N.S	N.S	262/0 - **	N.S	202/0 *	201/0 *	N.S
Satisfaction of habitation quality and present job	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Reasons for didn't converse of traditional animal husbandry into industrial one before habitation	N.S	228/0 *	N.S	N.S	N.S	N.S	N.S
Reason for project accepting and habitation in complex	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Having or not having of document for jugle	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Goat number	N.S	N.S	685/0 **	N.S	N.S	N.S	N.S
Sheep number	N.S	N.S	320/0 **	N.S	N.S	N.S	N.S
Indigenous cows number	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Half-breed cows number	N.S	N.S	N.S	N.S	N.S	563/0 **	272/0 - **
Aboriginal cows number	214/0 *	N.S	285/0 - **	N.S	N.S	621/0 **	N.S
Heritage lands à	N.S	N.S	N.S	N.S	N.S	250/0 *	N.S
Joint lands	272/0 - **	N.S	N.S	N.S	N.S	N.S	N.S
Reclamation lands	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Bought lands	N.S	N.S	N.S	N.S	N.S	N.S	N.S
Garden areas	N.S	N.S	N.S	N.S	754/0 **	N.S	N.S
field of water areas	N.S	N.S	306/0 **	N.S	N.S	N.S	243/0 *
Areas of dry framing lands	228/0 - **	N.S	466/0 - **	N.S	346/0 **	349/0	- **
	N.S						

*significant difference at the level of 5 percent, **significant difference of one and five percent and N.S. Lack of significant difference

In connection with the comparison between the variable of net income of agriculture with variables such as hope in improving the living condition with the completion of the project of cattle exit, factors of forest destruction and areas of garden areas and farm dry lands, there is a meaningful connection at the level of one and five percent.

There is a significant difference at the level of one and five percent between the miscellaneous net income with socio-economic variables. This indicates that to the extent the number of half-breed cows under the ownership of household increases, to the same extent the miscellaneous incomes increase.

Also, there was a significant difference with 95 percent reliability between the net and gross income of cattle after implementing the project and there was not significant difference as compared with other variables. Also, there was a significant difference of 95 percent reliability between the gross income of agriculture before the implementation of the project with net and gross income of agriculture after the implementation of the project.

SUGGESTIONS AND CONCLUSION

It is suggested that in all 103 watershed basin of the Northern part of Iran in which the project has been executed to be administrated within the format of watershed improvement organizations which have separate bodies and enjoy effective instruments. These organizations can be formed in the form of board of trustees or with a combination of administrators of villages located in these areas, district governors and representatives of the related executive bodies (environment, natural resources, housing foundation, regional water organization, agriculture and cultural heritage). While conducting the feasibility studies within the land use maps of the existing lands, any kind of demand for change in land use can be reviewed by this board. If agreed and after receiving the related tax, the government authority can be shifted to people under the principle 44 of the Constitution and to be monitored constantly and pursue it for the sustainable development.

One of the basic challenges ahead of the natural resources management of the northern part of Iran in the past decade is the presence of more than 5797000 animal husbandry stations which work in 33107 animal husbandry units in 3401 cultivated lands at the forests of this region. Despite spending billions of Rials of national and provincial credits of the legal articles of the second,

third and fourth Socio-economic Development Plans and also the Plan to Protect the Northern Forests of Iran, so far, they have not been well organized. It seems that lack of success in full implementation of predicted objectives refers to the lack of proper knowledge on the hidden corners of socio-economic structure of the communities inhabiting in these regions which has made a gap between the interests of people and government. In the last action to repair and reconstruct this space, the Islamic Parliament has obliged the government to exit the cattle which are grazing from the northern forests of Iran based on the Paragraph A of Article 69 of the act of the 4th Development Plan in a six-year program beginning from 2003 and ending in 2008 within the format of the project to protect northern forests from the source of national credits. In implementing this national plan, various methods have been used such as: Purchasing the cattle, shifting lands in harmony with the size of pasture delivered, establishing industrial animal husbandry, employment of the animal keeper and their members of household. But what has not been noticed in this plan is that the target groups under the plan are not specified.

Using the general term of forest inhabiting animal breeder to all those utilize natural resources in the north of Iran and given the various users with different structural difference, all has created a situation in which the facilities of releasing sources from traditional use to be even granted to those who are temporal inhabitants and have ties in urban and village areas. So, it is suggested that the executives of this national project identify all users and prevent from giving facilities to those who deal with animal husbandry temporarily by obtaining a grazing permit through government. If there is a plan to give land to anybody for industrial animal husbandry units in lieu of leaving the forest, it is better that the real and permanent residents of forest to be given such facilities. The reason is that these classes of people are aware of animal husbandry technical knowledge and if given land, they can reconstruct their animal husbandry activities.

In line with the reconstruction of socio-economic structures of the local communities inhabiting in the natural resources areas in the northern part of Iran and areas under investigation and in order to have a successful implementation of national project along with facilities given to the permanent residents of these areas to organize their livelihood from animal husbandry and for the purpose of decreasing their dependence on marginal forest sources of the villages in the depth of forest, it is necessary to identify the potentials for developing employment in coordination with the respective bodies.

Furthermore, it is proper to present pilot contributive projects with the help of innovative individuals and to fill the blank capacities. Considering this view, the followings are suggested:

A) the Execution of Agro-Forestry Plans: Due to low output of agricultural products in slope fields, it will be possible to increase the output of these lands by conducting special programs such as agro-forestry. Some of these programs include: Planting poplar with alfalfa or plantation of poplar with medical plants. According to the estimation made by researchers, the annual growth of poplar is something about 66/5 ton in hectare and alfalfa with the dry weight of 3.5 ton per hectares and rate of producing of medical plants is in average 6.5 tons per hectares.

B) Planting Fruit-Bearing Trees: One of the unsuccessful programs in the areas under investigation was the program of giving credits to some individuals to plant nut trees. Most of the nut trees have been unsuitable due to lack of attention paid by executives of the program.

Planting the dark root trees by the inhabitants near the permanent living places can prepare grounds for the shift from the economic dependence of families on activities linked to animal husbandry and to be replaced with that in the course of time.

C) Developing Bee-Keeping and Production of Honey: The area of research has a high capacity from the viewpoint of expansion of this industry, since it needs a low rate of investment. Developing it, it will increase the villagers' incomes.

D) Helping with the capable and interested students in these regions within the format of fast-output projects to breed fishes of cold waters given the constant water flows in these regions

It is suggested that with due attention to the livelihood dependence of these communities on keeping local big cattle, the concerned authorities in coordination of the Office of Deputy for Cattle Affairs at the Ministry of Agricultural Jihad of northern provinces of Iran, to introduce the applicants of loan for breeding original and half-breed cattle to the executive banks out of

administrative bureaucracy, so that it will help with the materialization of changes in traditional animal husbandry and reaching the macro objectives of national project of protecting the forests in the northern part of Iran.

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