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Assess the Success of Afforestation of the North Forests Preservation Program (Case study: Siahkal County)

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ABSTRACT: Comprehensive plan for the preservation of forests, including forests of Gilan, which are widely used for several years in the areas of natural resources as a key strategy for the preservation, restoration and development of the forest has been raised .Although a positive impact on the management and sustainability of the project stands up in the province, but for various reasons including lack of basic studies, lack of funds and implementation stage and in Conservation and organization studies have shortcomings and defects also. This paper evaluates a comprehensive plan to protect forests in forestry plan Shenrood Siahkal deals for analysis on topographical maps, three plantation area in dominant Maintenance Plan (Khoshkeab Rahdarkhanh, Fountain Head and Spill Series 7 Shenrood determined and in each of areas type and abundance of species, area of plantation areas, the topography, the fencing, surveillance operations, economic conditions - social situation, soil management, livestock and livestock allocation status assessed were. The results showed that the dry areas, water fountains and head towards the Spill reasons: the current project in the field of management, protection and restoration of function of the physical realm, timely planting and care, in appropriate circumstances the topography In terms of climate impact on the field, soil depth (80 to 120 cm), are more successful.

Keywords: Assessing reforestation, preservation of forests, Shenrood Siahkal

INTRODUCTION

During the past few decades that passes from the nationalization debate of forests and rangelands, different types and forms of objectives and policies, by selecting strategies and adopting strategies in terms of spatial and temporal location, are proposed in order to conservation and sustainable development of forest resources, and over time they have made changes. Preservation of the forests and grasslands, on the one hand represent the policies and strategies that at least at one period of time, reflect the management views on this resources and on the other hand represents the belief that preservation of natural resources as a national wealth is inevitable which its realization requires collective efforts and national determination (Razzaghi, 1382).

Comprehensive plan for preservation of the north forests including Gilan forests, have been proposed widely several years ago in the natural resources lands as a basic strategy in order to preservation, revival and development of the forest. Although implementation of this plan has many positive effects on the management and sustainability of forest biomass in the province, but for various reasons including lack of basic studies, lack of funds in study and execution phase as well as in the preservation and organizing, has deficiencies and shortcomings as well. Considering the importance of the revival and development of forests by performing various species plantation in preservation plan of north forests, this paper addresses the evaluation of afforestations carried out with various species in comprehensive plan of preservation the north forests in Siahkal County.

Axes of Comprehensive Program of Preservation the North Forests Determination the lands of national resources and issuance a government document over a 2-year program.

Reform of laws regarding the protection and exploitation of the forests by the Ministry of Jihad-e-Agriculture and coordinated by the Environmental Protection Agency.

Judiciary cooperation in punishing violators and aggressors Reform in conservation places and use of modern methods.

Reduce and halt the destruction of the north forests.

A) Exclusion of the livestock and foresters by using new strategies over a 6-year program.

B) Remove the destructive and incompatible construction activities except with the approval of the Supreme Council for the Environment.

Replacing fossil fuels instead of wood fuel within 4 years. Removing the import barriers of raw wood types.

Avoid licensing wood and cellulose industries except with permission of the EPA.
Compensation for damages caused by the stoppage of projects.
Increase the areas managed by the Environmental Protection Agency in order to conservation of biodiversity.
Reviving the degraded forests and Forest Development in forest habitats (such as in the upper strip and also on slope lands using method of incorporation the Agriculture - Forestry (Agro forestry) or outside the forest (wood farming)).
Execution of land use planning project within 3 years.
Review the services description of providing forestry projects based on the sustainable management.
Considering socio - economic conditions of the North Country forests, and respecting principles of participatory planning and management of foresters in executing forestry projects.
Using all the Catchment Potential with the goal of employment and income and reduce unauthorized harvests including fish farming, ecotourism and peripheral industries....
Specify harvest prohibited areas
Quantitative and qualitative trend of change in North Country forests to achieve sustainable forest management
A) Qualitative and quantitative monitoring project of the North Country forests.
B) Create forest database within 2 years.

Revival and reforestation operations in the preservation plan of forests

The operation has been considered in two plans namely the forest development, and revival and enrichment plan.

A - Revival and enrichment of existing degraded forests

In order to revival and enrichment of the degraded forests which due to the severity of livestock commuting and soil compaction, regeneration is not deployed on them and maternal trees are being deformed, forest arena and floor can be prepared with grazing and fencing operation and exclusion Forester ranchers, in order to establish regeneration. In this areas sometimes due to damage intensity, open spaces are created which transplant should be done to establish appropriate forest cover and to maintain the forest floor from direct sunlight. In fencing, afforestation, revival and enrichment operations, pastures grazing and organizing and exclusion of livestock from areas which will be conducted by the Department of Natural Resources, If there is not a harmony and attunement along with support of other organizations, especially organizations that have contact with people like the governorship, county seat, and security forces etc., province and county Department of Natural Resources never cannot achieve the goals set in the plan singly, because these issues are often associated with social tensions and protests of the area ranchers.

B) Forest development (afforestation and seeding)

afforestation: Forest Development in upstream lands (borderline areas of forest and pasture) which formerly has been a part of the forest zone and there is also the old maternal and single trunk tree, but given the severity of the damage and existing destructive factors, no regeneration is stationed on the area and maternal trees continues to moving toward the decline and destruction to extent which area has been bare of tree cover; in these areas, afforestation with tolerant and pioneer species such as: black pine (*Pinus nigra*), maple (*Acer pseudoplatanus*), alder (Alnus Sp.), wild pear (Pyrussyriaca), etc. will lead to prevent regressive evolution process and divert the forest into a progressive evolution.
Seeding: This program is considered in limited areas which there is no possibility to perform other operations, and is accounted as the only biological operation after the watershed operations (in Heights) and in the area with the potential (30 to 60 percent canopy cover) as an auxiliary program.This project is followed with aims to revival and conservation of soil and water in areas where climatic factors, provide the conditions for seed germination.Other objectives of the program includes: increase the percentage of vegetation canopy cover, soil and water conservation, flood hazard reduction, environment optimization, etc.In forested areas, seeding is done before falling leaves in autumn. The amount of seed according to the present vegetation cover, should be considered about 10 kg of beech (Fagusorientalis) per hectare, and for the altitude areas, after the watershed operations and fence construction at the back of them, have to considered as a mixture and more than needed, about 12 to 15 kg per hectare of wild pear and plum species, and should be manually stirred with soil and scraped.

Different methods of planting seedling in afforestation

1) Pure Planting: this type of Planting is used for specific objectives and certain purposes.
2) Mixed planting method (single trunk): This method is used in species which their growth and development is almost the same, such as black pine and oak (*Quercus sp*.).
3) Mixed Linear planting: two or more species are used and each species will be planted on one line.

4) Strip planting method: it is performed like mixed linear method with the difference that one species is used in a few rows.
5) Mixed group method (Patchiness or alveolar): In this method which inspired from the nature, the desired species are planted in cavities of 1 to 3 R (small group or single trunk), 3 to 5 R (moderate group), or 5 to 10 R (big group).

Planting space of seedlings

Every living creature, whether human or animal, or plant needs a realm for living which is called Vital Space and is an area where a living creature can do its vital functions and continue to live. Vital Space cannot be lower than a minimum, otherwise, some disorders may arise in living creature life or its life may be destroyed.
Planting spaces is determined 2 x 2 m in afforestation and enrichment and in the elevation areas (Forest Development) is 3 x 3 m.

Care and maintenance operations of the afforestation

After creating afforestation during the first 5 years, a number of care operations is necessary because some planted species are Intolerants against unfavorable nature' factors, so for the full success in afforestation, some following cares will be required.

1. Crust breaking: in the spring after spring rains, around the seedling will be soften and crushed with a trowel. This may be done 1 to 2 times.

2. Weeding and cutting weeds: weeds and volunteer plants are causing suffocation of seedlings by obtaining nutrients, and adumbrate on the seedling, and causing a great damage. At the time of weeds removal should be careful not to hurt the seedlings. In humid and semi-humid areas where habitat conditions are suitable, this operation should be performed 3 times in growing vegetative season (from late spring to late summer).

3. Gap filling: in afforestation, for various reasons 100% success may not be achieved, so the empty spots can be fill by gap filling.

4. Fencing repair: fencing around the afforestation is damaged in the passage of time, snowfall and atmospheric precipitation, thus each year defective ones are replaced and torn barbed wire will be repaired.

RESEARCH HISTORY

The Government boardin Tir 1380 adopted the policies of preservation north forests which are actually a turning point and a revolution in forestry history of these forests. In the first paragraph of this legislation, the Management and Planning Organization was obliged to prepare a comprehensive program of preserve and maintenance the north forests development in collaboration with the Ministry of Jihad-e-Agriculture and the Environmental Protection Agency, and present to honorable government board. This comprehensive program of preserve the north forests were prepared during a limited partnership process (without the participation of people and local communities) and were approved by the Government board on 5/6/1362.
Hemmati (2008), in his study titled: Assessment of forests preservation projects, is considered the deficiency of credibility, it's unfair division between counties departments of natural resources regardless of every county work, and lack of attention to the inflation rate in allocated budget, whether in the study or implementation stage, as the main problem of slow implementation of this National Plan.
Hemmati (2007), In his study titled: Comprehensive Plan of preserve forests and organizing ranchers residing in forests of Gilan, stated that national projects and plans that have been undertaken to date, has not been made based on customary system or customary ownerships, and not leaving the conservation and revival tasks to native peoples has led to some social conflicts in the project performing.
Liu et al, (2002), conducted a study to elucidate the complex ecological relationships in mountainous areas in wulong region Sichuan, China, and stated that during the time of the forest revival, soil characteristics will change. They suggested it is better that in mountainous areas, policy act in a manner which increase the forest areas and farm level, which requires very hard working in the region, decrease.
Goma *et al* (2008), were compared some characteristics of "Terminaliasuperba" afforestation with the natural forest in the mountainous area (in Ghana).They stated that the best planting distance in mountainous areas afforestation for enrichment is 2 x 2 m and in altitude areas in order to Forest Development is 3 x 3 m.

MATERIALS AND METHODS

Between the longitude 49°47' and the latitude 36°55'/Minimum and maximum height of 700 to 2,100 meters above sea level/Seri area is 3707 hectares/Study area has no weather station/Mean annual temperature of 16 °/No dry season/Soil type: brown forest, soil depth: about 90 cm.

Research Methodology

From the topographic Map of Siahkal forests, three afforested areas were identified in different years in the form of preservation projects located in Khoshkab, Cheshmesar and Spillitollman house from shenrod Series 7,and this points on the map, were harvested on Earth using GPS. Then the type and abundance of species, area of afforested points, topography status, fencing status, caring operations, economic - social conditions, soil conditions, how to manage, status of domestic animals and livestock and allocated credits, were evaluated in the form of field operations and recorded on pre-designed forms. Also to draw graphs and results output, after organizing data, EXCEL software was used.

RESULTS

Preservation projects in Spilli area - Noroozmahaleh identified in 1387 at the level of 66 hectares - due to social problems was performed in the 21 level. Specific circumstances of area led to limitations of species diversity and planting surface and transplant only was done in level of 7 hectares in the first year with ash (Fraxinus excelsior), wild pear, and Quercusmacranthera.

Graph: Regions studied-afforestation area (hectare)

(i) Khoshkab region has 9 households, with a population of 47 people and animal husbandry occupation (sheep and cow) which was afforested in the form of preservation plan after the organizing.

(ii) Cheshmesar region has 3 households, with a population of 11 people and animal husbandry occupation (sheep and cow) which was afforested in 1389 in form of the enrichment plan.

(iii) Spilli region has 4 households, with a population of 47 people and animal husbandry occupation (sheep and cow) which was afforested in 1388 in form of the development plan.

Graph: Regions studied - the number of households

(i) Khoshkab region has 850 animal unit (235 sheep and 515 cows)

(ii) Cheshmesar region has 220 animal unit (150 sheep and 70 cows)

(iii) Spilli region has 1,100 animal units (950 sheep and 150 cows)

Graph: Regions studied - Animal unit

(i) In Khoshkab region from 100 percent of planted seedlings on the first day, 59 percent of them stayed in the area.

(ii) In Cheshmesar region from 100 percent of planted seedlings on the first day, 68 percent of them stayed in the area.

(iii) In Spilli region from 100 percent of planted seedlings on the first day, 7 percent of them stayed in the area.

Graph: The frequency of afforested bases - planted seedlings - remaining seedlings

The overall result

The reasons of afforestation success of preservation plan (Khoshkab, Cheshmesar)

1. Project manager presence in Khoshkab and Cheshmesar regions.
2. Physical protection of the area (preventing animals from entering the area).
3. Timely perform of planting and care operations (weeding, cutting weeds).
4. The topography conditions of the area.
5. Soil proper depth (80 to 120 cm).

The reasons for the afforestation failure of preservation plan (Spilli)

1. The absence of the Project manager in Spilli region.
2. Lack of physical protection of the area (livestock within the area).
3. The topography conditions of the area (Steep slope - the amplitude direction - the height above sea level - windy area).
4. Shallow depth of soil (30 to 50 cm).
5. Region climate (premature and delayed cold in the region, seasonal droughts).
6. The presence of Noroozmahaleh village near the project site and being exposed to grazing throughout the year).

SUGGESTIONS

The problem of livestock and foresters single households organizing, due to the increasing rate of inflation and its impact on the increase in payments, placed in the main priority of comprehensive plan execution for the preservation of forests and pastures, in order to organizing in a 2 to 3 years program.

Efforts to establish a closer relationship with the residents of nearby villages for their participation through making right culture on radio and television and listening to their problems and solve them. Rural people will have participate actively in the planning and applying the measures of natural resources protection and conservation only when they feel modification of their living conditions in the short period.

Differentiation of rangers and protection guards shielding field on the topographic map and determine assigned tasks to them and then determine the timing tables in order to an annual assessment of the performance of the relevant security authorities on how to do protection executive operations, proportional to the scheduling of Plan Manual, in a committee composed of experts with executive records useful for forestry, Natural Resources Conservation, and forestry project supervisor.

One of the important factors in the acceptance of aggregation plan is lack of coordination and contradiction between the trustee of work organs and organizations. It is recommended that an independent council of Ministries of Energy, Agriculture, Education, Transportation, Construction Jihad and Housing Foundation be established and approved in the government board. Considering that the original trustee of the plan, is the country' forests and rangelands organization, leadership and guidance of activities should be delegated to the mentioned organization. Repetitive working between different organizations is not helpful in this project and they all need to work in a direction and consistent together.

Deficiency of credibility, it's unfair division between counties departments of natural resources regardless of every county work, and lack of attention to the inflation rate in allocated budget in the preservation plan, whether in the study or implementation stage, is one of the main problem of slow implementation of this National Plan. It is suggested that considering the importance of natural resources conservation, these deficiencies should be compensated. Proper management of watersheds can reduce a lot of losses incurred. Execute transplant operations with appropriate species and conservation and grazing suitable with zone vegetation.

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