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A STUDY ON FOREST PRODUCTS IN IRAN

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Abstract

Forest products are the connection between the forest as a supply of raw materials and the various markets that are the sources of revenue to the forest owner. There is strong evidence that forest products play a significant role in the livelihoods of the poor living in the rural areas of the world. Forest products are the main source of income for the forest dwelling population in many countries. In countries with industrial forests, the first resource for providing domestic timber is their productive forests. Iran is a country that holds a few timber forests in the north. The northern forests of Iran play an important role in the production and supply industry and they are the only permanent source of production of wood in Iran. Exploitation of these forests can be divided into four types according to forestry projects belonging to: administrations, co-operative companies, government and private companies. Exploitation of the northern forests is being done in four areas of Gilan, Nowshahr, Sari and Golestan. Forest products include: logs, lumber, sleeper, beam and mine woods, Katin, firewood and charcoal. In this study, the production of Iran's forest products was considered during a 10 year period (from 1997 to 2006). The results showed that the production of forest products had a downward trend and decreased from 1571796 cubic meters in 1997 to 836281 cubic meters in 2006, therefore this has reduced by 47 percent. The maximum volume of production was of firewood in 2006 with 682104 cubic meters and the minimum production was beam and mine woods in 1997 with 4998 cubic meters.

KEYWORDS: *Forest products, logs, lumber, sleeper, beam and mine woods, Katin, firewood , charcoal..*

INTRODUCTION

Wood has served man since he appeared on earth, and has decisively contributed to his survival and to the development of civilization. Moreover, wood continues to be the raw material for a large number of products even in modern times, although other competitive materials (metals, cement, plastics) are available. The value of wood is preserved in many traditional uses, and grows steadily with its use in new products to meet the increasing needs of man.

Hemmasi et al., 2007.In the whole management system of a country, the wood industry is considered to play a vital role in people's lives. Forest resources and their related macro policies are the key factors of optimal management to achieve a sustainable production that is in line with the demand of the timber market, known through economic analyses [Adeli et al. (2012)].

Nowadays, the industry and the trade attach a great importance to wood. In some countries such as Sweden, wood is an important source of income for the country and plays an important role in its development. When speaking about the wood, it is a source of debate which inevitably comes to the forest. Forests are the wealth of a country and need care and protection to survive. The industrialization and use of wood as a raw material leads to the destruction of forests. Currently, forests cover a third of the earth's surface.

Iran, a country with relatively poor forest resources, is ranked among the low forest cover countries (LFCC) , because its forests cover less than 10% of its total land area. Therefore, the main objective of forest policy is to protect forests in the natural ecosystem. The area of natural forest in Iran is approximately 12.4 million hectares, equal to 7.5 percent of the total area of Iran. Of this, approximately 1.9 million hectares are commercial forests called Iranian Caspian, Hyrcanian or Northern forests. Other forests are non-commercial forests. The commercial forests located in the northern part of Iran, north of the Alaborz Range and south of the Caspian Sea. These forests grow, like a thin strip. Industrial harvesting done only in the Caspian forest, and not in other regions, because of severe climatic conditions and forest degradations [Sarikhani N,1992].

These forests comprise of a mixture of beech, blue beech, oak, maple and alder. Fertile soil, proportionate

precipitation and high humidity have helped the development of various species of plants in this region, including about 80 species of trees mainly deciduous species as well as four species of conifers and 50 species of shrubs of which the most important are: Fagus orientalis, Acer insigne, Acer Cappadocicum,Ulmus glabra, Fraxinus excelsior, Tilia begonifolia,Cerasus avium, Quercus castaneifolia, Zelkova carpinifolia, Alnus subcordata and Carpinus betulus

In Iran, wood production, according to the rule of forestry plan provision which has been implemented since 1963, has had a deterministic schedule. Therefore, each compartment has a fixed and unchangeable wooden production and the companies have to follow the schedule in order to harvest the forests. Commercial logging in the Hyrcanian forests of Iran are accomplished within the legal framework of forestry management plan and annual remove in managed areas. The current forest harvesting method in these forests is mainly selective cutting. Exploitation of northern forests is done in four areas of Gilan, Nowshahr, Sari and Golestan. Forest products including logs, lumber, sleeper, beam and mine woods, Katin, firewood and charcoal. Hence, the only way for increasing profit in the Iranian commercial forests is decreasing the harvest and production costs.

Exploitation of from these forests can be divided into four types according to forestry projects: Administrations , co-operative companies, government and private companies.

The apparent role of mechanical production is generally investigated in this research. Mechanical production is the amount of wood distributed in markets for different applications expressed as wood exploitation and cutting EbrahimPour KJ, 2005.

Pourmohammadi (2008). investigated the wood market and wood products of Mazandaran province. He evaluated the effective factors on prices increase and production status of wood industry units and import and export amount. In The study has been tried that amount of production and consumption of wood would be identified using production and import data and its products during the past 30 years and proper strategies would be proposed for promoting internal market of wood in Iran.

Zahmatkesh, (1993) estimated the harvest amount of northern forests of Iran to be more than 44395972 cubic meters with the Rial value of 13320 billion Rials, from 1950 to 2000 (the annual average of 4.4 million cubic meters).

Naghdi et al. (2008) reported that the productivity rate of roundwood, pulpwood and fuelwood has had an upward trend, while the rate of traditional products has had a downward trend and the main cost is the opportunity cost. Hosseini (2010) studied on timber products in the Hyrcanian forests of Iran during 2000-2009. Kasmani et al. (2011) indicated that the product and supply volume in Sari district is more than others while Gilan, Nowshahr and Golestan and rated afterwards. Lotfalian et al. (2011) investigated the importance of forest products changes in Iran. Eskandari saeedeh and Adeli Kamran (2011) showed that the general consumption of wood is growing in Iran from year to year while the amount of wood production has been intensely decreased in recent years and country's dependence on imported wood has been increased.

Adeli et al. (2012) focused on the timber production of Iran’s northern forests in a 33-year period (from 1978 to 2010) using simple regression analysis and time series.

Zadmirza et al. (2013) investigated the effects of deflation and its impacts on net revenues and total costs in different productive lines of Mazandaran Wood and Paper Company.

MATERIALS AND METHODS

Study area

The commercial forests of Iran (Hyrcanian Forest) are located at 48° 30´ to 54° 30´ longitude and 35° 46´ to 36° 58´ latitude. Hyrcanian forest provides the areas unique richness of biological diversity, endemic and endangered species, natural beauty and masterpieces of nature’s creative genius in the form of an ancient forest.

North of Iran as along band has diverse natural, economic and social conditions. It is characterized by various ecological conditions from 550 to 2200mm precipitation, zero to 5671 m elevation and various vegetation landscapes from conifers to broadleaved to Mediterranean plants. These conditions caused great diversity of species. Due to its diverse ecological condition it is rich in relict species some of which referred to the Tertiary period.

Data collection

For this study has been used of collecting statistics and library information method and diagram analysis method. In the beginning, data the annual production rate of each of the forest products (i.e. logs, lumber, sleeper, beam and mine woods, kattin, firewood and charcoal) for the 10 years of Hyrcanian forests in the four regions Gilan, Nowshahr, Sari and Golestan were collected (work report of forests, rangelands and watershed conservation organization from 1997 to 2006) and then prepared in cubic meter. The charcoal is sold in tone and a tone charcoal is produced from each 6 m3 wood.

RESULTS AND DISCUSSION

Sustainable forest management in the northern Forests of Iran started years ago. The main objectives of this project are as follows: forestry management based on sustainable development; attending to all forest potential sources instead of timber products only, conservation

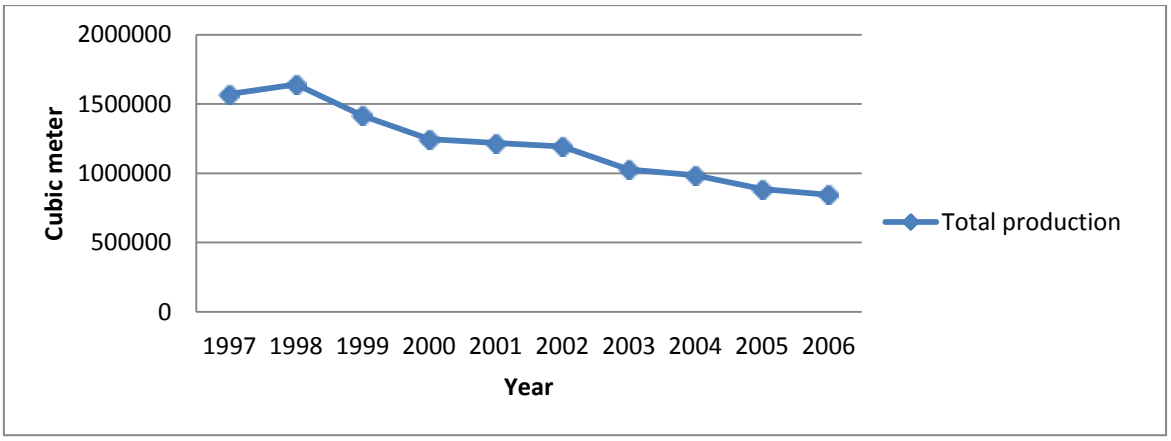

Figure 1: Total annual production of forest products in Iran, 1997-2006 (Source: research findings)

and mechanized harvesting operations. By this new situation, mechanized harvesting systems increased. Meanwhile, the quality of timber products during the non-mechanized logging systems were low quality like charcoal and firewood, while since mechanized logging systems were developed, high quality products like logs were increased. Due to limited area of forests and wood producing fields, low level of wood production per hectare, increase in waste, lack of proper technology, failure to implement forestry project precisely, inappropriate exploitation of forests and the governments new policies of reducing production of wood from forests, the domestic production of wood is insufficient and as a result traders are more willing to import it from abroad.

The results showed that, the total production of forest products in Iran during 1997-2006 period, after 1998 had a downward trend and decreased from 1571796 cubic meters in 1997 to 836281 cubic meters in 2006 (Figure 1).The decrease is due to Forests, Rangelands and Watershed Organizations of Iran (FRWI) goals in decrease of wood harvest from northern forests and preparation of wood needed industry and factories by import and wood agriculture.

The total timber production in Iran was highest in 1998 with 1640205 and lowest in 2006 with 836281. From 1997 to 2006, the average production of forest products in Iran was 1.2 million cubic meters. The governmental companies harvested the highest amount of forest products and the maximum production volume was firewood that the maximum volume was in 1998 with 670221 cubic meters which can be attributed to lack of optimal exploitation plans on the part of forest engineers and the minimum production volume was beam and mine woods that the minimum volume was in 2006 with 4998 cubic meters . The governmental companies can produce more than other companies because they have suitable equipments and skilled workforce. Because Sari region has more commercial and industrial forests with additional industrial units so the total production amount of forest products in Sari was higher than the other three regions. After Sari region, Gilan is in the second place. The amount of marked trees for cutting in the Nowshahr and Golestan regions are less than Sari and Gilan.

The log is the best type of harvesting wood in Iran's forests and it is in first stage of logging. Log is almost cylindrical and Length of it is usually three to four meters. Because due to the proper size and shape have many applications in the wood and paper industries factories. Figure 2 shows log production has decreased from 371108 cubic meters in 1997 to 249647 cubic meters in 2006. Percentage of log production in 1997 was 24 % while in 2006 this increased to 30 % of total products. Its maximum and minimum production volume with 409117 cubic meters and 249647 cubic meters which were related to 1998 and 2006,respectively . In Gilan, Sari and Golestan regions the production rate of logs decreased and In Nowshahr region production rate of logs increased from 1997 to 2006. Because high amount of logs produced by governmental companies located in Sari, it has the highest log production the others. Gilan is in the second place because of companies such as Asalem and Shafaroud that located there. Nowshahr and Golestan have lower production due to lack of suitable accessible roads, the lack of track machines and using traditional contractors in forestry projects. The lumber is produced to square form in the forest and it is in three stage of logging. It has a lot of losses because of lack of roads in some forest areas of northern Iran. Lumber production has increased from 94811 cubic meters in 1997 to 39622 in 2006. percentage of lumber production in 1997 was 6 % while in 2006 it decreased to 5 % of total products. Its maximum and minimum production volume with 94811 cubic meters and 39622 cubic meters which were related to 1997 and 2006,respectively. In each four regions the production rate of lumber decreased from 1997 to 2006 (Figure 3). The highest of lumber Production amount is in the Nowshahr region because Topographic conditions of its forests .

The sleeper is Pieces of wood of more or less rectangular section laid transversely on the railway road-bed to support the rails. Sleepers may be sawn or hewn. The sleeper is in three stage of logging.

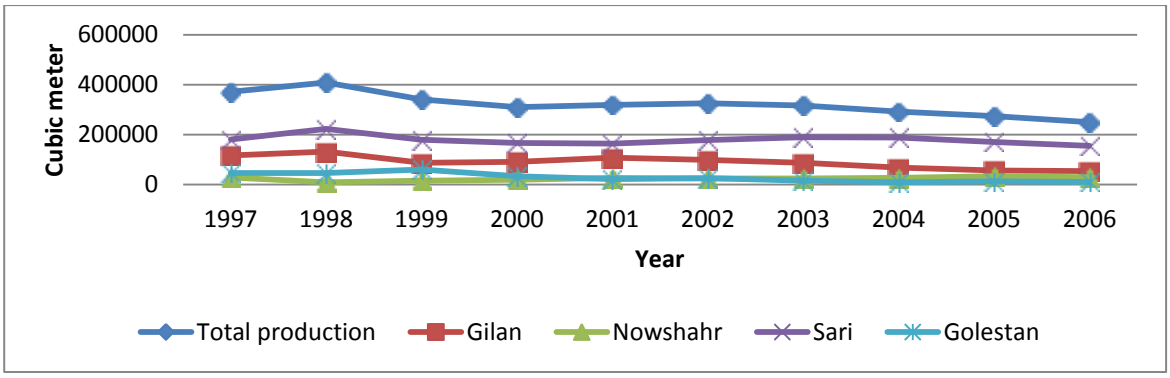

Figure 2: Annual logs production in Iran, 1997-2006 (Source: research findings)

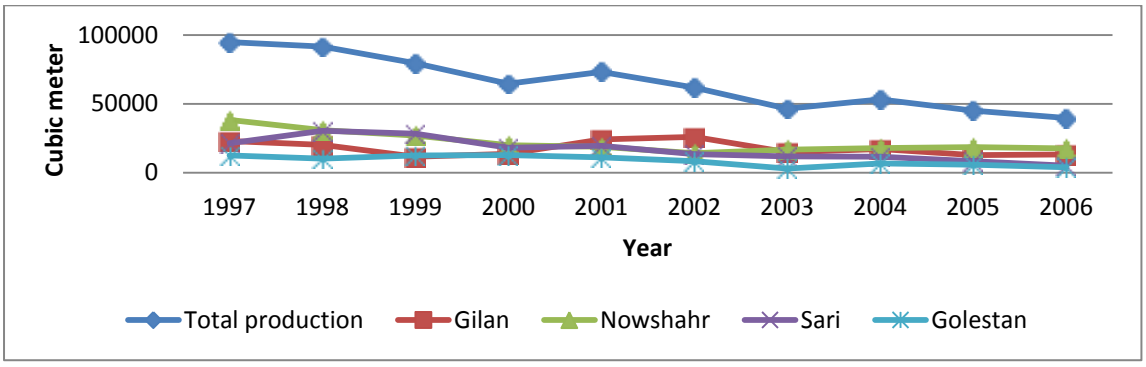

Figure 3: Annual lumber Production in Iran, 1997-2006 (Source: research findings)

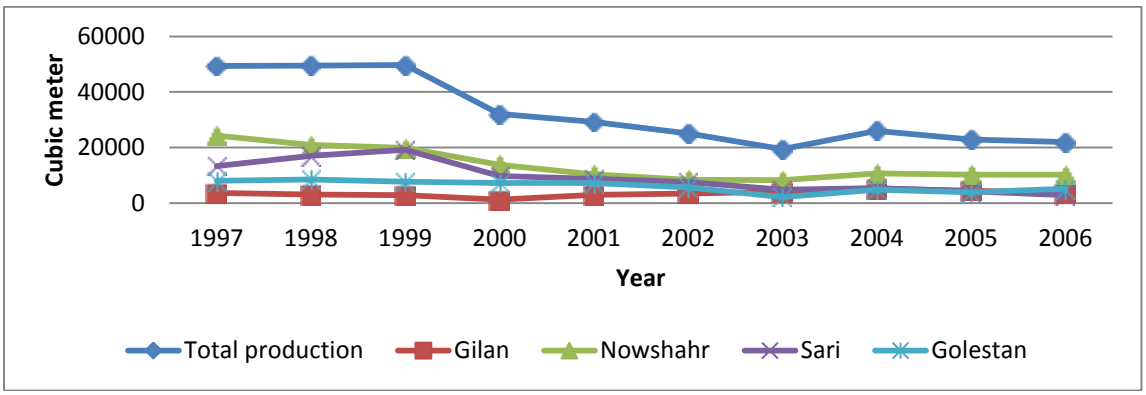

Figure 4: Annual sleeper Production in Iran, 1997-2006 (Source: research findings)

Production of this product is limit Because of specific consumption of this product.

Sleeper production has decreased from 49365 cubic meters in 1997 to 21946 in 2006. This decreased because of the need to replace this with concrete instead of sleepers for railways, because concrete is cheap and durable. Its maximum and minimum production volume with 49646 cubic meters and 19455 cubic meters which were related to 1999 and 2003, respectively. In Nowshahr,Sari and Golestan regions the production rate of sleeper decreased from 1997 to 2006 and In Gilan region production rate of sleeper increased from 1997 to 2006 (Figure 4).

Beam and mine woods are used in buildings roof and in the tunnels of mines. This product usually has various length low diameters. The mining industry uses timber as structural supports in mines. However, new technologies such as backfilling techniques and the use of hydraulic

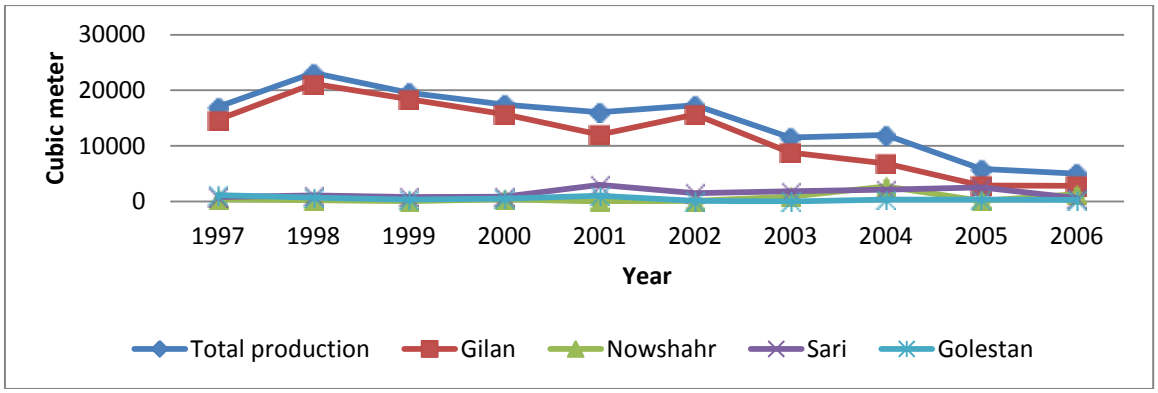

Figure 5: Annual beam and mine woods Production in Iran, 1997-2006 (Source: research findings)

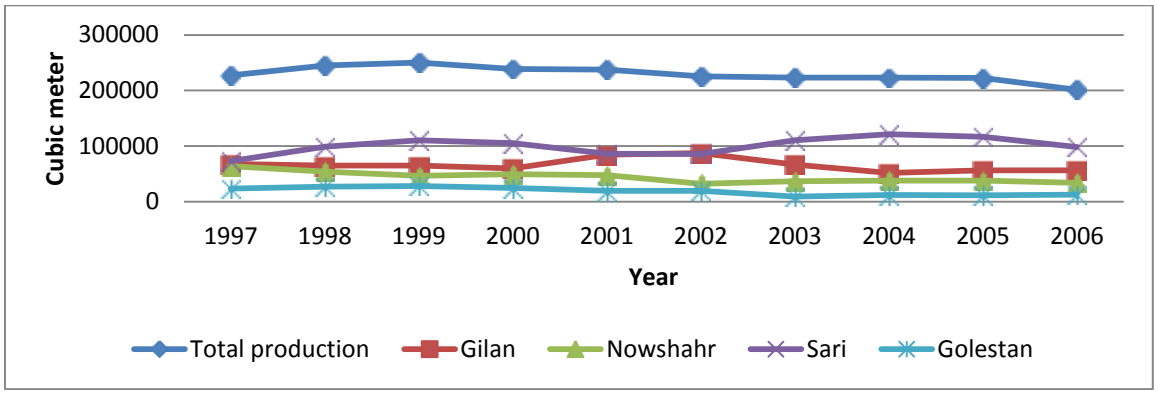

Figure 6: Annual Katin production in Iran, 1997-2006 (Source: research findings)

and mechanical props and packs rather than timber props have reduced the mining industry's need for timber. Beam and mine woods production has decreased from 17012 cubic meters in 1997 to 4998 in 2006. Its maximum and minimum production volume with 23096 cubic meters and 4998 cubic meters which were related to 1998 and 2006, respectively.

In Gilan,Sari and Golestan regions the production rate of beam and mine woods decreased from 1997 to 2006 and In Nowshahr region production rate increased from 1997 to 2006 (Figure 5). Beam and mine woods were produced in Gilan more than any other region although most of these products are supplied from the forested fields of Shafaroud Company.

Katin is the raw material of lignocelluloses used in box making, furniture, windows, construction woods, parquet, pallet, and in manufacturing particleboard and paper. Katin production has decreased from 227221 cubic metres in 1997 to 201409 in 2006. Percentage of Katin production in 1997 was 14% while in 2006 this increased to 24% of total products. Its maximum and minimum production volume was 250244 cubic metres and 201409 cubic metres, which were related to 1999 and 2006, respectively. In Nowshahr, Gilan and Golestan regions the production rate of sleeper decreased from 1997 to 2006 and in the Sari region the production rate of cutting increased from 1997 to 2006 (Figure 6).

The highest of Katin Production amount is in the Sari region because the existence of Mazandaran Wood and Paper Company in addition to many other particleboard companies.

Katin is also produced in Gilan more than in the other two regions, due to the Chuka Comapany located in the area.

Firewood is Wood to be used as fuel for purposes of cooking, heating, production of power, etc. Includes wood for charcoal pit kilns and portable ovens and may include wood from trunks and branches. The firewood has low lentght and diameter too.

Firewood production has decreased from 656343 cubic metres in 1997 to 307547 in 2006. Percentage of lumber production in 1997 was 42% while in 2006 this decreased to 36% of total products. This decreased is Because firewood and charcoal have been replaced by fossil fuels such as oil and gas in cities and some rural areas. Its maximum and minimum production volume with 670221 cubic meters and 299213 cubic meters which were related to 1998 and 2005,respectively. In each four regions the production rate of lumber decreased from 1997 to 2006 (Figure 7).

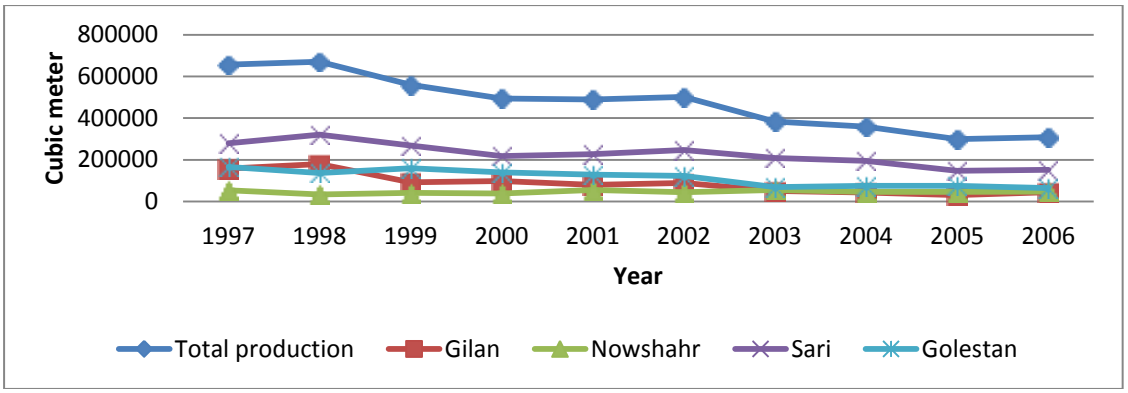

Figure 7: Annual firewood Production in Iran, 1997-2006 (Source: research findings)

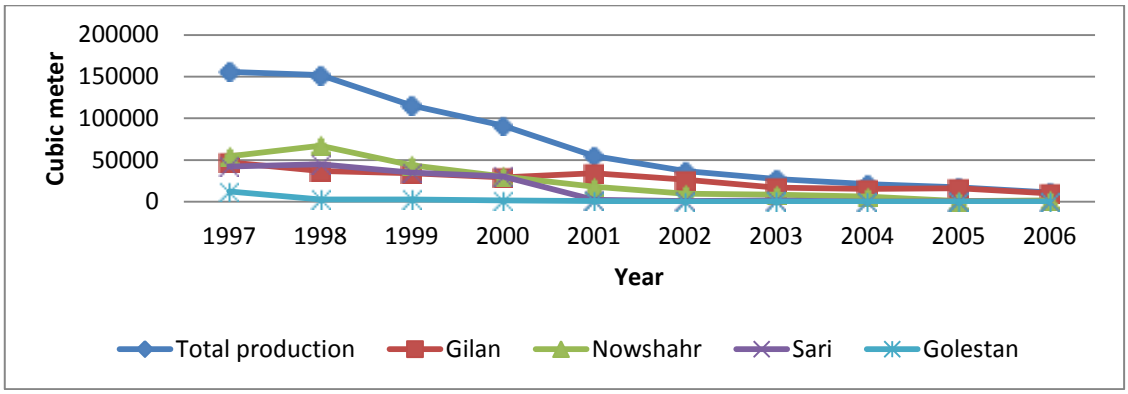

Figure 8: Annual charcoal production in Iran, 1997-2006 (Source: research findings)

The highest Firewood volumes were produced in the Sari region than all other regions because major paper and lumber wood manufacturing companies are established in Sari and The low quality of signed trees is another reason.

Charcoal production has decreased from 155736 cubic meters in 1997 to 11112 in 2006. Percentage of charcoal production in 1997 was 10% while in 2006 this decreased to 1% of total products. Its maximum and minimum production volume was 155736 cubic metres and 11112 cubic metres, which were related to 1997 and 2006, respectively.

In each four regions the production rate of charcoal decreased from 1997 to 2006 (Figure 8).

Charcoal production in Nowshahr and Gilan regions was more than other two regions which can be attributed to the special topographic conditions of forests in these regions.

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