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Forest governance and sustainable growth in the Hyrcanian mixed forests ecoregion, Iran

Rethinking the role of Civil Society Organisations to increase good forest governance practices in Iran

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Executive summary

Civil society organizations (CSOs) play a crucial role in shaping and strengthening democratic societies and building a participative sustainable growth. In Iran, they play a significant role in forest governance. They contribute to various aspects of forest management, conservation, and sustainable development through their activities, advocacy, and participation. However, they face several challenges that hinder them to develop their activities properly. This report analyses the situation in Iran and the Caspian region and provides some policy notes to rethink the CSOs' role and increase good forest governance practices in the country. This report has been elaborated under the framework of the HYRGROW project co-funded by the European Union.

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Contents

Introduction

Civil society organizations (CSOs) play a crucial role in shaping and strengthening democratic societies. They are voluntary, non-governmental entities that operate independently of the state and the market, driven by the interests and concerns of citizens. They give voice to marginalized communities, promote inclusivity and equity, and contribute to the overall well-being and development of societies. In Iran Civil society organizations play a significant role, despite operating under restrictions imposed by the government. These organizations are formed by individuals or groups of citizens who come together to address social, political, and cultural issues and work towards improving the well-being of Iranian society.

In terms of forest governance, CSOs play a significant role in Iran. They contribute to various aspects of forest management, conservation, and sustainable development through their activities, advocacy, and participation. For instance, they play a crucial role in raising awareness about the importance of forests, their ecological value, and the need for their conservation. They organize workshops, campaigns, and educational programs to educate local communities, policymakers, and the general public about sustainable forest management practices. Many CSOs conduct research and monitoring activities to assess the state of forests, identify threats, and propose solutions. They gather data on forest biodiversity, climate change impacts, illegal logging, and other issues, providing valuable information to policymakers and government agencies. Iranian CSOs advocate for policies that promote sustainable forest management and conservation by engaging with government institutions, participating in policy-making processes, and providing input on forest-related legislation and regulations. By voicing the concerns and interests of local communities and environmental stakeholders, CSOs help shape forest governance policies and practices. Moreover, CSOs work closely with local communities residing near forests, involving them in decision-making processes and empowering them to participate actively in forest governance. They facilitate community-based forest management initiatives, promote sustainable livelihoods, and support indigenous and traditional knowledge systems related to forests. In addition, CSOs in Iran often engage in capacity-building activities, providing training and technical assistance to local communities, forest managers, and government officials. They help enhance the skills and knowledge necessary for sustainable forest management, including topics such as forest restoration, agroforestry, and forest certification.

Other activities of Iranian CSOs are their active participation in forest restoration and conservation efforts. They collaborate with government agencies, local communities, and other stakeholders to implement reforestation projects, establish protected areas, and promote sustainable land-use practices. They play a crucial role in monitoring and combating illegal logging activities and collaborate with law enforcement agencies, conduct surveillance, and raise awareness about the negative impacts of illegal logging on forests, biodiversity, and local communities. CSOs in Iran often collaborate with each other, forming networks and partnerships to amplify their impact by sharing knowledge, resources, and best practices, strengthening their collective ability to influence forest governance and promote sustainable forest management.

CSOs contributions are vital for achieving effective forest governance, conservation, and sustainable development in Iran. However, they face several challenges that hinder them to develop their activities properly, such as restrictive legal frameworks, inadequate funding and resources, limited collaboration and coordination among CSOs, government agencies, and other stakeholders, political pressure or resistance from powerful interest groups, and a lack of awareness about the importance of forests in the

society. Efforts to address the challenges faced by CSOs involve strengthening legal frameworks, improving funding mechanisms, promoting collaboration among stakeholders, and raising public awareness about the importance of forests and their sustainable management.

This report has been developed under the framework of the project "*Enhancing CSO's capacities to contribute to forest governance and sustainable growth in the Hyrcanian Mixed Forests eco-region (HYRGROW)*" and the aim of the report is to provide a global vision of the context in Iran and, more specifically, the role of CSOs, and provide policy notes for decision-makers, based on the results of the project.

The HYRGROW project aimed at enhancing the knowledge and capacity of Iranian Civil Society Organisations (CSOs) to create and implement together with local authorities a sustainable and participatory forest governance and sustainable growth in the Hyrcanian Mixed Forests eco-region. Specifically, the project worked to strengthen and better engage environmental CSOs, formally organized as well as informal grass-roots local groups and networks, in decision-making and consultative provincial and local structures and in public control over the use of natural resources and empowering them with knowledge and resources on sustainable forest practices to improve the livelihoods of forest dwellers while connecting their voices/interests within the local and regional authorities.

The geographical scope of the project has been the Mazandaran province in Caspian costal area in north of Iran, including two counties (Savadkooh and Northern Savadkooh) and the activities were conducted in three pilot areas of these counties. This region covers an area of about 2,078 km2 and is characterized by several land cover types, i.e., forest (60%), rangeland (14%), farmland (11%), and orchard (8%) that exhibit quite a range of vegetation.

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First part: Natural resources in Iran and the Hyrcanian Forest Ecoregion

1. General Information about Iran[1]

Iran is a county in southwest Asian, country of mountains and deserts. Eastern Iran is dominated by a high plateau, with large salt flats and vast sand deserts. The plateau is surrounded by even higher mountains, including the Zagros to the west and the Elburz to the north. Its neighbours are Turkmenistan, Azerbaijan and Armenia on the north, Afghanistan and Pakistan on the east, and, and Turkey and Iraq on the west. Tehran is the capital, the country's largest city and the political, cultural, commercial and industrial centre of the nation. Iran holds an important position in international energy security and world economy as a result of its large reserves of petroleum and natural gas.

Alborz Mountain range in the northwest to the northeast direction of country and Zagros Mountain range in the northwest to the southeast direction are causing diversity of climate and vegetation cover in Iran. Center part of Iran is arid and semiarid because of low precipitation (rainy clouds could not pass over these two mountain ranges).

Temperature ranges from -20◦c to greater than 50◦c with maximum precipitation reaching approximately 2000 mm in the north, falling to a minimum precipitation of less than 100 mm in the central region of the country. The wrinkles of the Alborz in north, the Zagros in west, and the lowlands between these two mountain ranges encompass steep slopes, plains and playas. Each of these landscapes endure specific climatic and edaphically conditions including precipitation of varying distribution and volume, large temperature fluctuations in different regions, the formation and evolution of soil types with specific physical, chemical and biological characteristics, as well as a diversity of plant communities and ecology. As Iran is located in an arid belt of the world, approximately 85 % of the country has an arid, semi- arid or hyper arid environment. The peculiar features and location cause the country to receive less than a third of world average precipitation, with mean evaporation of more than 3 times higher than global figure. Only the Caspian plain receives more than 1000 mm of rain annually.

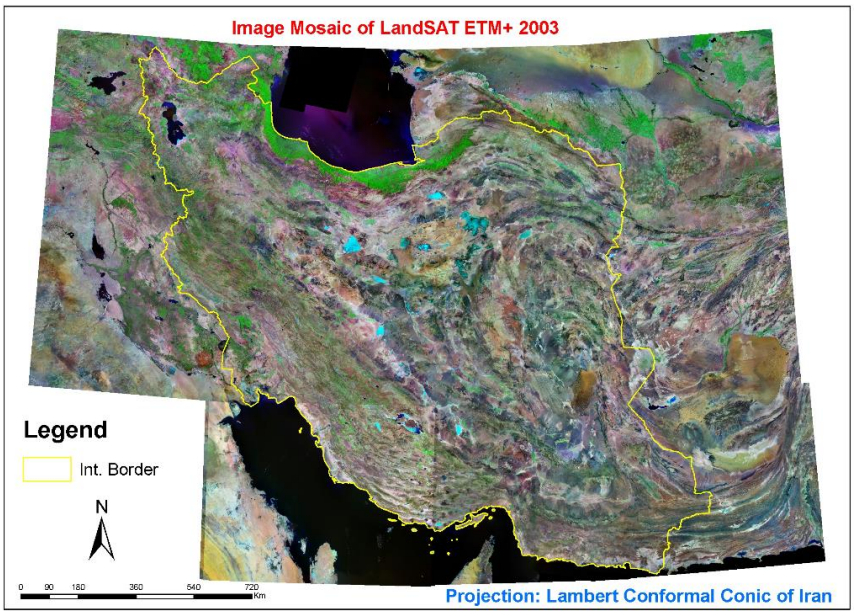
Iran divides into 31 provinces, each governed by a State Governor. Each province contains counties, and each county has few districts, which are then divided further into sub-districts.

Iran enjoys 8 major climatic regions and in such a climatic diversity, creates differences in northern and southern latitudes, and topographic features including internal plains that allows for five vegetation regions of which the Hyrcanian vegetation region is especially prominent from many aspects.

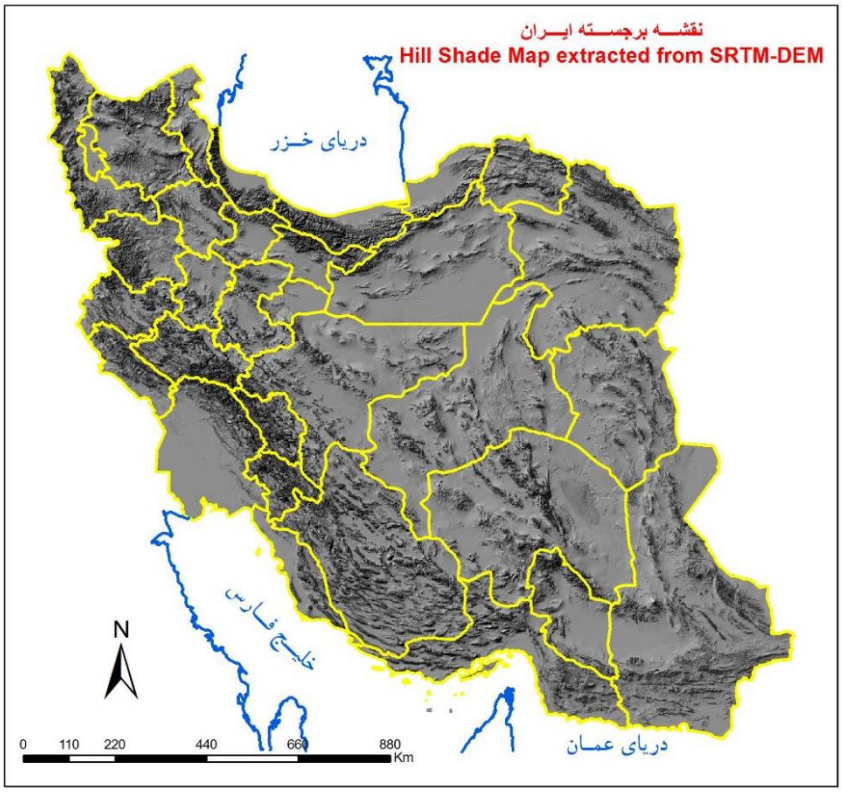
More than one-tenth of Iran is forested; however, since 1966 the total forested area has decreased by approximately one third from its original 18,000,000 ha. The major types of forest that exist in Iran and their respective areas are: the oak (*Quercus spp*.) forests in the central and western districts, comprising 3,500,000 ha; pistachio (*Pistacia spp.*) forests in the eastern, southern and south-eastern districts, 2,600,000 ha; Caspian Hyrcanian forests of the northern districts, 1,847,000 ha; limestone mountainous

[1] Website of Ministry of Foreign Affairs of Iran, http://en.mfa.ir/index.aspx?fkeyid=&siteid=3&fkeyid=&siteid=3&pageid=2140

juniper (*Juniperus spp.*) forests in the north-eastern districts, 1,300,000 ha; shrubs of the Kavir (desert) districts in the central and north- eastern part of the country, 1,000,000 ha; and subtropical forests of the southern coast, for example the Hara forests (Mangrove forests), 500,000 ha.



Map No. 1, The Photomosaic of Landsat Satellite Imagery of Iran (RGB:341, Year 2003)



Map No. 2, The Hillshade Map of Iran (source: SRTM data),
Yellow lines are administrative boundary (31 provinces).

2. Introduction to Hyrcanian Region

Hyrcanian region is located in the northern part of Alborz and the southern part of the Caspian Sea. These forests form a rather narrow green belt bordering the northern part of the Alborz Mountains and extend from Astara in the west of Gilan Province to Golidaghi in the east of Golestan province with an area of 2086371 ha.
Fertile soil, proportionate precipitation and high humidity have created a varied collection 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: *Fogus orientalis, Acer insigne, Acer Cappadocicum, Ulmus glabra, Fraxinus excelsior, Tilia begonifolia, Cerasus avium, Quercus castaneifolia, Zelkova carpinifolia, Alnus subcordata* and *Carpinus betulus*.

Hyrcanian forests belong to the end of the third geological era, are known as the oldest forests in the world, that due to environmental and economic values are considered as world natural heritage.

Photo from Hyrcanian Forest region (source: FRWO[2])

Photo from Hyrcanian Forest region (source: FRWO)

[2] FRWO: Forest, Range and Watershed Management Organization (under Ministry of Agriculture)

3. Some detailed information about the Caspian Hyrcanian landscape, Regional Context

The Alborz and Tallish Mountain ranges run for 1,000 km from the northwest of Iran to the northeast, separating the low-lying Caspian coast from the Iranian plateau. The cold northern front of the Alborz mountains meets the mild climate of the Caspian Sea coast and forms a warm and wet subtropical climate in summer and a cold humid climate in winter. This climate is ideal for deciduous broad-leaved forest, which covers the northern slopes from sea level to the timberline at 2,800 m.a.s.l., stretching 800 km from Astara to East Gorgan, in a belt approximately 110 km wide. The total forested region covers an area of over 1.8million ha, or 1.1% of land in Iran. It encompasses parts of five provinces of the northern border of Iran from west to east, including Ardabil, Gilan, Mazandaran, Golestan and North Khorasan. Historically Gilan, Mazandaran and Golestan, which make up most of the forested region, were known as Hyrcania; therefore, the area is now known as the Caspian Hyrcanian Mixed Forest Ecoregion and has been labelled a Global 200 Ecoregion by WWF[3].

In contrast to the southern slopes, which are dry and desert-like due to their proximity to the arid Iranian plateau, average annual rainfall in the northern area ranges between 530 mm in the east and 1,350 mm in the west, reaching up to an occasional record of 2,000 mm. Maximum precipitation occurs during spring, late autumn and winter, and includes heavy snow during winter. In the eastern part of the landscape the dry season can last for up to three months; however, further west towards Astara, the duration decreases, with a complete lack of dry season in the most western parts. Gilan has by far the heaviest rainfall in Iran, reaching as high as 2,000 mm in the southwestern coast and with an average of around 1,400 mm.

The average annual temperature in the Caspian Hyrcanian landscape varies between 15°C in the west to 17.5°C in the east. The warmest monthly temperature ranges from 28°C to 35°C while the coldest monthly temperatures range between 1.5°C and 4°C. Generally, the climate is warm Mediterranean in the east and temperate and semi-temperate Mediterranean, occasionally temperate xeric, in the central and western parts. Relative humidity is also constantly high with an average fluctuating from 74.6 % in the east to 84.6 % in the west, rarely dropping below 60% at the hottest hours. Similar to precipitation levels, humidity is highest in Gilan due to the marshy character of the coastal plains, reaching 90 % in summer.

The Caspian Hyrcanian forests contain remnants from the Tertiary period and are rich in relic and endemic species. Whilst in many parts of Europe and Siberia forests were unable to survive the cold temperatures, the climate near the Caspian Sea remained milder, which allowed the survival of much of the forest including some species which consequently became endemic to the Caspian Hyrcanian forests. There are currently around 150 endemic species of trees and shrubs in the Caspian Hyrcanian forests, including the Hyrcanian box tree (*Buxus hyrcana*), Caucasian pear (*Pyrus communis subsp. caucasica*), Caucasian oak (*Quercus macranthera*), Persian ironwood and Caucasian lime (*Tilia x Euchlora*).

A variety of tree communities have evolved according to the various altitudes of the ecoregion. Areas below 50 m.a.s.l. are dominated by Oak-buxus communities, although this area has been largely converted to agricultural land; Oak-Hornbeam (*Carpinetum Spp.*) communities grow up to 400 m.a.s.l. and are overtaken by Ironwood-Hornbeam communities, which have also been largely degraded. Hyrcanean

[3] 13URL: http://www.worldwildlife.org/science/ecoregions/global200.html accessed 12/09/2012

Beech (*Fagetum Hyrcanetum*) is found from 1800 m.a.s.l., with Hornbeam and Caucasian Oak dominating up to the timberline at 3,000 m.a.s.l.

The rich plant diversity of the Caspian Hyrcanian landscape has led to a high diversity of animals. Up to 60 mammal species plus 340 birds, 67 fish, 29 reptile and 9 amphibian species occur in various habitats of the region, including forest, rangelands and wetlands. The Caspian tiger, the largest carnivore of Iran, became extinct 20 years ago. Other mammals which still inhabit the area, but which have also declined dramatically include the Caucasus leopard (*Panthera parduscis caucasica*), Eurasian lynx (*Lynx lynx*), brown bear (*Ursus arctos*), wolf (*Canis lupus*), golden jackal (*Canis aureus*), jungle cat (*Felis chaus*), and common otter (*Lutra lutra*). The red deer (*Cervus elaphus*), once widely distributed across the Caspian Hyrcanian landscape, has reduced in number to 1,100 individuals, most of which are restricted to Golestan NP and Asalem forest in Gilan. It is mainly found in forest meadows, which serve as a good grazing ground for many mammal species including the brown bear and Indian crested porcupine (*Hystrix indica*).

The Caspian Hyrcanian forests are listed as an IBA. The landscape lies along an important migratory route between Russia and Africa and is a resting area for many birds as they migrate. A total of 340 bird species occurs in the region, with 53 % migrants and 47 % residents. 80 % are water birds, which are attracted to the region by its wetlands and extensive large water bodies with many permanent rivers. Some important indicator species of the Caspian Hyrcanian forests and confined to this region are the lesser spotted eagle (*Aquila pomarina*), Eurasian honey buzzard (*Pernis apivorus*), greater spotted woodpecker (*Dendrocopus major*), black woodpecker (*Dryocopus martius*), Caspian tit (*Parus hyrcanus*) and coal tit (*Parus ater*).

National Parks in the Caspian Hyrcanian landscape include the Boojagh NP in Gilan and Golestan NP in Golestan. There are also nine Wildlife Refuges, five National Natural Monuments and 21 other PAs.

3.1 The Caspian Hyrcanian Landscape of Iran

A total of 7.3 million people lives in the Caspian Hyrcanian landscape, with a population density of 126 people per km2, which is 2.7 times greater than for the country. The landscape is divided between five provinces: Ardebil and Northern Khorasan, which are located on the western and eastern edges respectively, and Gilan, Mazandaran and Golestan, which are allocated the central part of the area. Gilan Province, with an area of 14,042 km2, lies to the west of Mazandaran and has a population of 2,404,000 with a density of 170 people per km2, which is approximately one-third greater than the total average for Iran. Mazandaran, with an area of 23,842 km2, has a population of 2,922,000 and the population density in this province is 120 people per km2. To the east of Mazandaran lies Golestan, which was split off from Mazandaran in 1997. It has an area of 20,380 km², with a density of 80 people per km2.

Mazandaran has a diverse range of natural resources, including large reservoirs of oil and natural gas. It is also a fast-growing center for biotechnology and civil engineering. Being adjacent to Tehran, the province has good connections with the rest of the country, with three transit roads from Tehran, a railway and three domestic airports. Gilan's position on the Tehran-Baku trade route has established the cities of Bandar-e-Anzali and Rasht as ranking amongst the most important commercial centers in Iran.

High levels of precipitation, fertile soils, a temperate climate, and beautiful scenery invite attract many people to the Caspian Hyrcanian landscape via both tourism and agricultural opportunities. The denser population results in a more dramatic conversion of the land because of increased need for resources, including land for agriculture, animal husbandry and mining. The Caspian Hyrcanian landscape of Iran is

predominantly agriculture-based, and agricultural activities account for a large share of economic activities; they provide approximately 36% of total employment in the region and 20% of GDP.

Services provide 42% of the region's employment and 61 % of GDP, while manufacturing contributes approximately 10% of employment. Agro industries, including wood, pulp, paper and textiles, are the main manufacturing activities in the area. The remaining employment opportunities include construction, mining, water and electricity industries.

Agriculture and orchards play a dominant role in the production sector of Iran. The main produce of the region includes wheat, barley, rice, beans, alfalfa, and citrus fruits. Iran's long-grain rice grows primarily in the wet Caspian Hyrcanian lowlands, mainly in Gilan and Mazandaran. Wheat is mainly produced in Golestan and constitutes 50% of total domestic product. Golestan also produces grain, sunflower and silk, the latter constituting 10% of total domestic product. Mazandaran is a major producer of fruit but also grows grain, cotton, tea, tobacco, sugarcane, and silk.

Sericulture provides an important alternative source of income to many communities; women carry it out and harvesting can be timed for when other agricultural activities have subsided. Sericulture uses the leaves of mulberry trees, which are planted along roads, river channels and on farms. However, silk processing and textile facilities are not always accessible and so in many areas the harvested cocoons are sold to merchants who sell it to outside provinces. There is strong traditional knowledge of non-timber forest products (NTFPs) such as Barberry, Tamarind, Pomegranate, Raspberry and other wild fruits and vegetables. In addition, many grass species are used either for consumption or medicinal use. Beekeeping is also carried out but with low productivity. Similarly, to sericulture, there is currently low potential for creating significant livelihoods out of NTFPs due to the lack of knowledge and infrastructure needed for product branding and marketing.

Also, within the agricultural sector, there is the use of marine resources of the Caspian Sea, on which the livelihoods of thousands of people depend. Rivers that drain into the Caspian Sea are fished for salmon, trout, pike, and sturgeon. Mazandaran is a major producer of farmed fish, and aquaculture provides an important economic addition to the traditional dominance of agriculture.

Animal husbandry is the second greatest source of income for local families in the Caspian Hyrcanian forests. In 2003 the livestock population of the region constituted approximately 7% of the total for the country. Traditional husbandry systems involve the herding of livestock between lowlands, mid-altitude forests and upland forest and alpine pastures as the climate changes, meaning that all forest, rangeland and alpine landscape is used over the year. During the period that large landowners had control, the balance between livestock numbers and production capacity was relatively well monitored; however, following the nationalization of forests and rangelands the increase in small landholders has altered the balance and has resulted in the degradation of forests and rangelands, with adverse socio-economic impacts. The system has thus far been slow to utilize new methods and techniques, such as those for livestock keeping as well as product processing and selling, which would develop local and individual economy as well as putting less pressure on forests.

The use of forest resources is abundant in the Caspian Hyrcanian landscape. Before 2017, the Caspian Hyrcanian forests were Iran's main source of commercial timber production. Trees were also felled for poles, firewood and producing charcoal, with firewood being the main use, although the government strictly controls the felling of trees. Stricter regulations and increased enforcement resulted in wood extraction declining dramatically between 1991 and 2017: for example, timber production was reduced

from 172,700 m3 to 49,700 m3; fuelwood declined from 718,800 m3 to 294,900 m3; charcoal production was reduced from 36,600 tons to 1,000 tons.

3.2. Importance of the Caspian Hyrcanian Forests

The Caspian Hyrcanian Mixed Forest Ecoregion is located in northern Iran along the southern coast of the Caspian Sea and northern slopes of the Alborz Mountains. These ancient broadleaf and mixed lowland and montane forests covering 1.8 million hectares form unique and diverse communities and house many endemic and threatened tree, mammal and bird species. The area is listed by the World Wide Fund for Nature (WWF) as a Global 200 Ecoregion, and by Bird Life International as an Important Bird Area (IBA). Some key indicator and flagship species include:

- Trees: Hyrcanian box tree (*Buxus hyrcana*), Caucasian pear (*Pyrus communis subsp. caucasica*), Caucasian oak (*Quercus macranthera*), Persian ironwood (*Parrotia persica*) and Caucasian lime (*Tilia x euchlora*)
- Mammals: Caucasus leopard (*Panthera parduscis caucasica*), Eurasian lynx (*Lynx lynx*), brown bear (Ursus arctos), wolf (*Canis lupus*), golden jackal (*Canis aureus*), jungle cat (*Felis chaus*), and common otter (*Lutra lutra*), red deer (*Cervus elaphus*) and Indian crested porcupine *(Hystrix indica*)
- Birds: lesser spotted eagle (*Aquila pomarina*), Eurasian honey buzzard (*Pernis apivorus*), greater spotted woodpecker (*Dendrocopus major*), black woodpecker (*Dryocopus martius*), Caspian tit (*Parus hyrcanus*), coal tit (*Parus ater*) and many migratory species.

In addition to its key role for biodiversity, the high precipitation, fertile soils, temperate climate and beautiful scenery of the Caspian Hyrcanian Forests support many important ecosystem services for the 7.3 million people who live in the region. These include watershed services and climate regulation, tourism and agricultural opportunities. The Caspian Hyrcanian forests are also Iran's main source of commercial timber. Among those who depend directly on the forest resources, animal husbandry is the second most important source of income for local families. Traditional husbandry systems involve the herding of livestock between lowlands, mid-altitude forests and upland forest and alpine pastures as the seasons change, meaning that the entire forest, rangeland and alpine landscape is used over the year. There is also strong traditional knowledge of non-timber forest products (NTFPs) such as tamarind, pomegranate and other wild fruits and vegetables. In addition, many plants are used either for consumption or medicinal use. Beekeeping is also carried out but with low productivity.

4. Institutional and Governance Context

4.1. Major stakeholders in the forest sector including their roles and responsibilities.

The most relevant ministries and organizations are as followings:

- **Ministry of Jihad Agriculture** (MoJA), and organizations under MoJA.
    - Forest, Range and Watershed management Organization (FRWO) who is in charge of natural resource management (including forests) in Iran
    - Forest Guard (Protection of forest lands and forest fire control)
    - Watershed Management Department (soil & water conservation measures)
    - Nomad Affairs Organization (planning for better livelihoods of nomads housholds)

    - Livestock Affairs Department (use of natural resources for feeding livestock, in part of Iran they use leaves and young branches of Oak tree for animal feeding)
    - Soil & Water Department (improving water productivity and land productivity in agriculture sector will cause more income for farmers and less pressure on natural resources)
    - Plant Protection Organization (acting in controlling plant pest & diseases)
    - Range & Forest Research Institute (doing research for range & forest ecosystem)
    - Plant Pathology Research Institute (doing research for controlling plant pest & diseases)

- **Ministry of Power** (responsible for planning and management of water and Energy sector)
- **Ministry of Petroleum** (in charge of planning for oil & gas production and export, and also providing fossil fuel for rural area and reducing firewood use or bush cutting as fuel)
- **Ministry of Foreign Affairs** (MFA is in charge of any international communication, the focal point for GEF in Iran and also partner in leading the SDGs national committee).
- **Ministry of Interior** (includes administrative boundaries like province, county, district, and sub-districts. Planning, budgeting and managing of all of those units is under control of MoI. They are in charge of security & political issues as well).
- **Ministry of Industry, Mine and Trade** (damages to forest by mining operation, reducing pressure on natural resources by introducing SMEs and rural industries)
- **Ministry of Road and Urban Development** (damages to forest by road construction and urban development projects)
- **Ministry of Health and Medical Education**
- Islamic Council of Parliament (in charge of legislation and policy making and any policy reform, also supervising and control on implementation process of laws and regulations)
- **Jurisdiction System** (Directing Courts for fighting with corruption and illegal logging in forest area or any misuse or damages to natural resources, illegal land use change)
- **Department of Environment** (planning for protection and conservation of environment and biodiversity, 10% of whole natural resources is under control of DoE)
- **Planning & Budget Organization** (for providing the required financial support and also strengthening institutional coherence and coordination by having integrated planning system instead of the existing sector-based planning system)
- **Cultural Heritage, Handicrafts and Tourism Organization** (support for tourism and eco-tourism development. Reducing pressure on natural resources by introducing community-based sustainable tourism industry as alternative livelihood for local communities)
- **Iran Chamber of Commerce, Industries, Mines & Agriculture (ICCIMA)** as the representative of the private sector for involving in forest governance issue.
- **Natural Resource Management Faculties/Universities** (for scientific & technical support)
- Iranian Associations for Natural Resource Management (as an important CSO body)
- **CSOs, NGOs, CBOs** (advocacy, support for forest policy reform, using participatory approaches and involving in forest governance & preparation of SFM plan)
- **Private Sector Especially Non-Timber Forest Producers** (playing role of private sector in forest governance issue)
- **Islamic Republic of Iran Broadcasting center (IRIB)** for policy briefing, public awareness and information dissemination.
- **Local Communities/Utilizers** for involving in forest governance & preparation of SFM plan
- **Association of Forest Logger Companies** for involving in forest governance & SFM
- **Other Media** (Digital media, social media, newspapers, scientific/technical magazines, …)

- **Iran Metrological Organization** (providing climate data, climate change scenarios, drought)
- **Different coordination bodies** like the Environmental High Council or Water High Council

4.2. Role of key stakeholders

In the following section, there is a short explanation about the role of some of the key stakeholders:

The Environmental High Council

The ultimate decision-making and coordination mechanism for environmental affairs is the Environmental High Council (EHC), chaired by the President of the Republic. This multi-sectoral, governmental body meets regularly to approve environmental policies and legislation, and to ensure that environmental policies are integrated into social and economic policies and plans. One level lower, the National Council for Sustainable Development (NCSD) is responsible for policy development and implementation – including the mainstreaming of environmental issues into the work programs of all government agencies. The NCSD has 18 members, including academic and non-governmental Organization (NGO) representatives. The NCSD works primarily through its 11 Sub-Committees, of which one of the most active has been the Biodiversity Sub-Committee.

The Ministry of Agriculture

The Ministry of Agriculture was formed in 2000 by the merging of the Construction Jihad Organization and the Ministry of Agriculture and is the government body responsible for overseeing all agricultural, forestry and livestock activities, including aquaculture, beekeeping and sericulture. The Ministry of Agriculture activities include implementing well-funded physical infrastructure projects, controlling land-use on state-owned land – especially forest land – and projects providing technical support to communities to encourage rural development. For example, the Ministry assists farmers in maintaining a secure livelihood by buying products such as wheat at a guaranteed price, providing silkworms to rural farmers, promoting new and improved genotypes for higher productivity, providing pesticides and fertilizers, and giving training courses in agriculture. It has an office in each province and sub-province of the country. Key agencies within the Ministry of Agriculture include: the Research Institute for Forest and Rangelands (RIFR), responsible for research, monitoring and policy preparation; Nomadic Affairs Organization (NAO), largely responsible for overall policy regarding nomads' livelihood, for integrating nomadic concerns into other policies and related coordination, and for providing social services to nomadic communities; Department of Women and Pastoral Affairs, with programs to support women and women headed families in rural areas, including training and micro-credit programs; and the FRWO.

Forest, Rangeland and Watershed Management Organization

The FRWO was formed in 1928 and its main responsibility is to conserve, rehabilitate, develop and control the use of natural resources. It has four departments: 1- watershed management, range and Desert affairs, 2- Forestry Affairs, 3- Conservation and land affairs, and 4- Planning and logistics. It selects, establishes and defines the boundaries of PAs, as well as overseeing resource use and increasing awareness of legislation by local people. The FRWO controls three types of PA: protected forests for soil conservation; protected forests as forest reserves for biodiversity conservation and conservation of rare and endangered species; and sample compartments or witness compartments for studying forest succession and forest structure. It works at district and forest management unit levels; forests are managed as forest units and each unit has its own management plan. The FRWO provides information, financial support and the legislative contexts for land management strategies.

The total area of the Caspian Hyrcanian landscape under supervision of the FRWO is 1,967,315 ha. Before 2017, three groups of implementations of FMPs exist: government, private company and cooperative. Private and cooperative companies must meet the standards of the FRWO to win management of the forest unit. The government manages the largest total area of the Caspian forests (49%), equalling to 24% of the total number of management plans.

Since 1985, the FRWO has implemented a plan for the monitoring and assessment of the Caspian Hyrcanian forests, including Gilan, Mazandaran and Golestan provinces, with 10-year intervals. The main indicators of monitoring and assessment are forest composition, number of trees and volume of stands per hectare through fixed and permanent sample plots, but for monitoring and assessment of biodiversity (flora and fauna) there has not yet been any implementation due to limited capacity in biodiversity conservation methods. Although the FRWO has an intensive institutional network for the protection and supervision of forestry activities at the district and forest management unit levels, there are not any institutions for forest management at the watershed level.

The Research Institute for Forests and Rangelands.

RIFR was established in 1968 and is responsible for undertaking research into renewable natural resources. It consists of six research divisions including forest, rangelands, botany garden, desert, medicinal plants and wood science and forest products. There are four research departments, for forest and range protection, poplar and fast-growing trees, biotechnology, and mechanization.

Nomads Affairs Organization

The Nomads Affairs Organization (NAO) aims to provide services to nomadic pastoralists to improve their productivity and their socio-economic status. It works by introducing industrial methods of livestock production, helping to sedentary their activities and assisting with product marketing and with establishing cooperatives. It also gives technical support regarding fodder and water provision. The pastoral cooperatives are established through the NAO under the laws of the Ministry of Cooperatives and provide services to registered pastoralists who are currently restricted to selling food items and fodder to other pastoralists.

The Cultural Heritage, Handicrafts and Tourism Organization

The CHHTO is responsible for the development of all types of tourism and for the protection of natural and cultural heritage in Iran. It was established in 1985 through the merging of 11 research and cultural Organizations.

Department of Environment

The hunting control organization (HCO) was established in 1956 to control hunting and fishing in forests, rangelands and seas. It was then expanded in 1967 to take full responsibility for the protection of wildlife and the country's wide variety of ecosystems. In 1974, the HCO was reconstructed under the Environmental Protection and Improvement Act and changed to the Department of Environment of Iran to control environmental systems and create a balance between social development and environmental conservation. The DoE is responsible for the management of PAs in Iran. The DoE has a central or headquarter office in each province with specific experts for the implementation of policies and protection, and an environment office with field staff in each major town.

The DoE has overall responsibility for nature and biodiversity conservation, for implementing the National Biodiversity Strategy and Action Plan (NBSAP) and for meeting Iran's commitments to the CBD. DoE is headed by a Vice-President of the Republic, and reports directly to the President, placing it higher than

most line ministries in the government administration. This high standing reflects the fact that, in order to achieve its goals, DoE must coordinate with other agencies, and must be able to mainstream environmental objectives into sectoral development. DoE provides the Secretariat for the EHC and the NCSD. DoE has affiliates in each of the country's 28 provinces. The main responsibility of the provincial affiliates is to implement the national programs in the concerned province.

The DoE lead governmental policies for biodiversity, PA management and other issues. The head of the DoE directs the daily operations of the institution with regards to environmental issues, biodiversity conservation and PAs management. The DoE is currently managing over 10 % of the public land area in Iran under five categories, including National Parks, Wildlife Refuges, Protected Areas, National Nature Monuments and no-hunting areas. The DoE's current objective is to increase the size of its managed lands to 13 % of the total land area of the country. The PA Network (PAN) is, at present, the main tool for conserving biodiversity and nature in Iran. DoE is responsible for managing and implementing most of the PAN. The first PAs were established in the 1960's to protect game for hunting. There are now four categories of protected land: (in order of decreasing protection) National Parks (NA), Wildlife Refuges, Protected Areas (PA) and no-Hunting Zones. This system is managed through the DoE provincial offices, and in any county, this is the main activity and objective of the DoE office. The DoE manages the PA system in the Caspian Hyrcanian landscape where all forests are no-hunting areas. There are very few hunting-guards, who must be on permanent duty and have no fixed work program. In no-hunting areas, the DoE's only responsibility is for hunting-guards and the land is otherwise managed under the jurisdiction of FRWO.

The Ministry of Energy

The Ministry of Energy has the overall responsibility for the development, management and distribution of energy resources via the Water Resources Management Organization. The Water Organizations within the Ministry of Energy are responsible for water management, including construction of water management infrastructure, distribution of water to users and catchment protection. Only 10% of the country receives adequate rainfall for agriculture; most of this area is in northern and western Iran. The Karun River and other rivers passing through Khuzestan (in the southwest at the head of the Persian Gulf) carry water during periods of maximum flow that is ten times the amount borne in dry periods, and several of the government's dam projects are on these rivers. Dam and water diversion projects can negatively impact forests in the construction area as well as downstream by reducing inflow, altering hydrodynamics and reducing water quality. However, it also has the responsibility of monitoring water quality in rivers, forests and groundwater in order to ensure healthy water for local communities.

Infrastructure and Industry

The Ministry of Roads and Urban Development is responsible for the establishment of roads and transportation infrastructure. The National Iranian Oil Company is in charge of the development and exploitation of oilfields and the distribution of fuel. Oil infrastructure will impact on natural forest habitats and oil pollution may adversely affect water quality and ecosystem health. The Ministry of Industry, Mines and Trade controls the development of industry, mines and trade through policies, guidelines and laws.

The Planning and Budgeting Organization

The Planning and Budgeting Organization (PBO) is responsible for approving all major national plans and programs and for approving all budget allocations. The provincial PBO is responsible for allocations made from the provincial budget. Through this mandate, PBO is able, to some extent, to coordinate the many national programs and activities of various sector agencies. In addition, to facilitate coordination of land-use, at the national level the PBO recently established the inter-ministerial Land-Use Planning Group.

Financial resources in Iran are largely allocated through national programs. Initially, in close cooperation with the provincial PBO, the provincial line agencies submit proposals to their national agency. The national agency reviews and revises the proposal in cooperation with the national PBO. The PBO determines the distribution across agencies. PBO then allocates funding to programs in the provinces through the provincial PBO offices. Whereas programs are generally approved in principle for five yearly or longer periods, budgets are only approved annually in line with the existing annual budget.

Provincial and Regional Institutions

In line with the ongoing decentralization process, provincial governments play an increasing important financial, political and technical role in supporting sustainable development in Iran. The scale of this role, both overall and in specific sectors, varies from province to province in line with provincial capacity. The leading decision-maker at provincial level is the Governor-General (State Governor), who is the direct representative of the President. One Deputy-Governor General is responsible for economic development including natural resource management. Key responsibilities of the Governor General's office may include: allocation of the provincially generated budget; ensuring that programs funded by the national government are implemented appropriately; participating in the recruitment and management of human resources that are funded by the national programs. In each province, Governor Generals have established Provincial Planning Councils (PPC) to ensure the coordination of all nationally funded policies and programs. All main government departments, including FRWO, are represented on the PPC. In order to facilitate natural resources management and coordination across related sectors, PPCs have established Land and Agricultural Working Groups, in which the provincial FRWO and DoE take a leading role.

Village Islamic Councils

Islamic councils are traditional and social village institutions in rural areas. Islamic councils are elected every four years and are recognized by formal Organizations. They play a significant role in the mobilization of local people to take actions to solve any problems within the village, and provide them with a connection to governmental Organizations, helping to improve their standard of life. They enable communications between the rural village population and government activities and projects.

Rural Administration (Dehyari)

Rural Administrations are social institutions. They were officially formed just ten years ago but are based on a longstanding tradition of sheriffdom (Kadkhodaei) systems in Iran, which were common before the land reform of 1962. The Village Governor (Dehyar) tracks the village administration in formal governmental Organizations, providing social facilities for villagers; preventing any abusive activities in rural areas; controlling agricultural land use change; and pursuing and implementing the decisions of the village councils.

Civil Society and Development Partners

Although current state level policy puts emphasis on participation, one of the main disadvantages of planning in Iran is sectoral planning without active participation of the stakeholders. Recently CSOs have acquired a better role in planning, monitoring and assessment of environmental and forestry activities in Iran, that must be accommodated by state level policy and all sectors such as DoE and FRWO.

The Private Sector and Community Cooperatives

Privately owned forests are mostly composed of plantations established on private land. These have been on the increase, particularly in the west, due to government encouragement. Plantations are grown mostly for the construction industry as well as pulp and paper companies.

The privatization of land can be detrimental to forests if not based on a cooperative; if there are no incentives for afforestation or sustainable use of the forest then rural households are likely to deforest very rapidly to gain immediate income, particularly if socio-economic conditions have not improved.

Official cooperative management of Caspian Hyrcanian forests was established in 1986, following the FRWO Forest Dwellers Cooperatives (FDCs) program, to build joint participation between local communities living in forests and forestry industries. Before 2017, in total there were 18 FDCs with 6,945 members in the Caspian Hyrcanian landscape. They were managing 36% of the number, and 15% of the land area, of FMPs. In degraded forest areas, which were mainly in lowlands with high population densities, FDCs carried out various poverty alleviation activities with the cooperation of local communities within FMPs. These activities include rehabilitation of degraded areas; employment and income generation for local people; introduction of commercial timber use based on FMPs; enhancement of the provision of welfare facilities in forest villages. Local members of FDCs view the forests as a way in which to increase their own income, which provides the incentive to protect them. A study of 70 FMPs under FDCs showed reductions in illegal logging by 82 % and in forest trespassing 62 % over five years. An integrated forest management project was carried out in Mazandaran province in the late 1990s, supported by the United Nations Development Program (UNDP) and the Small Grants Program of the GEF. It aimed to introduce efficient and sustainable ways to use forest resources, increase public environmental awareness and interest in protecting forest resources, and improve local employment rates, in a mountainous area with degraded forest resources, widespread grazing, high population density and poverty. Over the seven years of implementation, the average net revenue in families increased by 31.4%; 34 permanents and 180 temporary jobs were created in a village of 707 residents; degraded forest areas were improved and deforestation was less than in other areas[4]. However, the project in Mazandaran was one of few successes and many FMPs have not been victorious in encouraging sustainable use or alleviating poverty. There is a need to improve project design and implementation.

Iranian policymakers and development agents tend to neglect the potential of traditional institutions in sustainable forest management; however, various traditional cooperation Organizations have survived over time and have adapted to new circumstances. Agricultural cooperatives include Mirab and Mirshek; the former involves farmers employing a Mirab who regulates the irrigation of agricultural lands and whose wages are paid by farmers after harvesting the crop. The latter involves employing a Mirshekar to protect farms, using firearms, against wild animals that destroy the crops, preventing a larger conflict with many people. Wages are paid by cash and a share of agricultural products. Agricultural cooperatives could be developed whereby equipment such as tractors are shared, increasing productivity and reducing pressure on forests.

Animal husbandry cooperatives include Hamkari, Choopani and Galeshi. The Hamkari system involves the cooperative use of pasture amongst herders, each being designated his own area of pasture within a wider area. This cooperative involves herders of a specific area of pasture rather than specific villages, whereas the Choopani Organization is made up of herders of a specific village. Herders whose cattle reach to the usual size of a herd (150-200) employ a shepherd (a Choopan) to oversee the grazing of the livestock. This strategy releases labour force within families and decreases the destructive effects of cattle in forests and on rangeland. Galeshi involves the hiring of a head shepherd, a Sargalesh, to manage other shepherds in herding livestock. Depending on the size of alpine pasture and wealth of owners, the Sargalesh can be

[4] Yachkashi, A. 2006.

responsible for more than 4,000 sheep and goat. This strategy involves the collective utilization of pasture that mitigates the destructiveness of intensive animal grazing, since no individuals interfere in the management and utilization of the pasture directly; all pasture is managed by a third person who can monitor the productivity of the whole area of pasture.

5. Natural Resources Management Policies and Legislative Context in Iran

A. The National Environmental Protection Act (1974) established the Department of Environment (DoE), which is one of the oldest environmental authorities in Iran. The Act is the major law regarding environmental conservation in Iran; under the Act various carefully selected sites representing every different major habitat in Iran have been put under protection.

B. Article 45 of the National Constitution, 1979 **[Public Wealth]**
Public wealth and property, such as uncultivated or abandoned land, mineral deposits, seas, lakes, rivers and other public waterways, mountains, valleys, forests, marshlands, natural forests, unenclosed pastures, legacies without heirs, property of undetermined ownership, and public property recovered from usurpers, shall be at the disposal of the Islamic government for it to utilize in accordance with the public interest. Law will specify detailed procedures for the utilization of each of the foregoing items.

C. Article 48 of the National Constitution, 1979 **[Resources for Regions]**
There must be no discrimination among the various provinces regarding the exploitation of natural resources, utilization of public revenues, and distribution of economic activities among the various provinces and regions of the country, thereby ensuring that every region has access to the necessary capital and facilities in accordance with its needs and capacity for growth.

D. Article 50 of the National Constitution, 1979 (**Preservation of the Environment**) is the highest-ranking legal reference addressing environmental conservation in Iran. It states that: "The preservation of the environment, in which the present as well as the future generations have a right to flourishing social existence, is regarded as a public duty in the Islamic Republic. Economic and other activities that inevitably involve pollution of the environment or cause irreparable damage to it are therefore forbidden."

E. National Development Plans (NDP). The protection of the environment has been addressed in Iran's 5-year NDPs since 1990 although limited to the DoE's mandates in the first NDP. This NDP from 1990 to 1995 contained, as part of the agriculture sector strategies, plans to develop appropriate systems to utilize renewable natural resources; increase public awareness of the importance of preserving renewable natural resources; increase investment and coordination of public and private sectors for renewable natural resources; develop Organizational management of the resources; and develop changes in traditional livestock systems in the Caspian forests by providing employment in modern livestock systems away from the forests. There were several articles in the second NDP (1995-1999) addressing environmental protection and focus on the environment increased through each NDP up until the fifth and current NDP.

F. The Fifth National Development Plan (2011-2015) contains plans for many environmentally beneficial activities under various laws, for example The Forest and Rangelands Protection and Utilization Law. These plans include preparing criteria and indicators and creating a database for the sustainability of natural resources; developing and implementing integrated ecosystem management plans and action plans for

biodiversity conservation and the sustainable use of fragile ecosystems; developing environmental criteria and standards to facilitate capital investment; raising public awareness about the environment in order to promote sustainable development; creating national environment information systems; revising criteria for the issue of firearms licenses in order to reduce illegal hunting; implementing Environmental Impact Assessments for national projects; estimating the economic values of natural resources and the costs of pollution and environmental degradation in order to strengthen management of natural resources and water basins; intensifying wood plantations and restricting forest and pasture encroachments; developing watershed and desertification projects; improving the means of utilization of forests, rangelands, pastures, water and soil.

Linked with these plans, also stated were preparations to replace the demand for fuelwood with renewable energies; remove import tariffs of timber; reduce livestock in forests by 75% and promote industrial livestock husbandry; systemize construction activities in forest areas; give priority to natural gas distribution systems in forest areas, with subsidized prices; implement afforestation plans; control the conversion of forest to arable land. A Land Use Planning and Development system with its own Council was also required to ensure proper planning and sustainability via decentralization and the equitable distribution of resources and opportunities.

Another requirement was that, in order to improve decision making and inter-sectoral coordination in rural areas and to reduce inequalities between cities and rural areas, the Government should: (i) create an inter-sectoral structure for integrated management of rural and nomadic areas; (ii) improve rural development indicators; (iii) support the development of small and medium sized industrial enterprises in rural areas; (iv) support micro-financing systems in local areas and establish a small-loan banking system that supports rural development; and (v) devise strategies that urge villager emigrants to return to their original villages.

G. National Biodiversity Strategy and Action Plan (NBSAP) (2006). The NBSAP focuses on linking research, uses and policies. It has four components: the promotion of public awareness and participation; the formation of biodiversity information systems; the sustainable use of biodiversity resources; and the integrated conservation of biodiversity. Many studies have been conducted regarding traditional knowledge and the policy encourages more sustainable management practices and management of biodiversity.

H. Cabinet Enactment of July 2001: The Comprehensive Plan for Preserving Northern Forests. This Plan described the facilities, credits and qualifications required for plantation development. The plan stated the following: policy-making with regard to any land use that might incur land conversion or decline in forest area are under the responsibility of FRWO and the Supreme Council of Environmental Protection; FRWO, DoE and the private sector are responsible for preparing resource use plans, protecting resources, organizing forest dwellers, relocating livestock outside forest boundaries, surveying and acquiring forest area deeds; Forest Management Plan (FMP) implementation is the responsibility of the State, cooperative and private sectors; FMPs must include increased local participation.

I. The Twenty-Year Vision Plan of Iran, incorporating the fourth and fifth NDPs, anticipates that by 2025 Iran will be the fastest progressing nation of the Middle East and South Asia in terms of the economy, science and technology; it will be fully advanced in terms of health, social welfare, judicial security, equal opportunities, equitable income distribution, a favourable living environment; it will be far from poverty, crime and corruption.

J. Approvals: General Policies for Natural Resources Management[5]

The general policies of the Islamic Republic of Iran regarding the "Natural Resources Management" approved in 1998, and endorsed by the Supreme Leader in 2000 includes:
1- Establishment of national will to revitalize renewable natural resources and develop vegetation cover to protect and increase appropriate productivity and speed up the production process of these resources and promote public culture and attracting public participation in this field.
2- Identification and protection of water and soil resources and genetic reserves of fauna and flora and enhancing the vital richness of soils and optimal utilization based on resource talent and effective support of investment in it.
3- Modifying the system of exploitation of natural resources and controlling the instability of these resources and efforts to maintain and develop it.
4- Extension of applied research and environmental and genetic technologies, and plant and animal species correction in accordance with the environmental conditions of Iran and the creation of the required databases and strengthening of education and information dissemination system.

K. General environmental policies
1. **Integrated, coordinated, and systematic management** of vital resources (such as air, water, soil and biodiversity) based on the potential and sustainability of the habitat, especially by increasing the legal and structural capacities and capabilities associated with the public participation approach.
2. Establishing an integrated national environmental system.
3. **Improving the living conditions** to enable the community to live up to the healthy environment and respect for intergenerational justice and rights.
4. Preventing and preventing the spread of unauthorized pollution and the criminality of environmental degradation and the effective and deterrent punishment of environmental polluters and destroyers and their obligation to compensate for damage.
5. **Continuous monitoring and pollution control** of sources, pollutants, air, water, soil, noise pollution, waves and destructive rays and adverse climatic changes, and the obligation to comply with environmental standards and indicators in the laws and regulations, land development plans and programs.
6. **Preparation of the Atlas** of the Earth's Natural Resources and the conservation, restoration, rehabilitation and development of renewable natural resources (such as sea, lake, river, dams, lagoons, underground aquifers, forests, soils, rangelands and biodiversity, especially wildlife) and regulatory restrictions Utilizing these resources in proportion to their ecological capability (sustainable capacity and rehabilitation capacity) based on sustainability criteria and indicators, management of sensitive ecosystems (such as national parks and national natural monuments) and conservation of genetic resources and upgrading them to international standards level.
7. **Managing Climate Change** and Addressing Environmental Threats such as Desertification, Dust storm, Particularly Fragrances, Droughts, Microbial and Radioactive Transient Factors, and Developing Prospects and Understanding Emerging Environmental Phenomena and its Management.
8. **The expansion of the green economy** with an emphasis on:
8.1. Low carbon industries, using clean energy, healthy and organic agricultural products, and managing waste and waste using economic, social, natural and environmental capacities and capabilities.
8.2. Modifying production patterns in different economic and social sectors and optimizing water use patterns, resources, food, materials and energy, especially promoting environmentally friendly fuels.

[5] http://maslahat.ir/index.jsp?siteid=3&fkeyid=&siteid=3&pageid=520

8.3. Development of public and non-fossil public transport, including electricity, and increasing public transportation, especially in metropolitan areas.
9. Balancing and quality protection of groundwater through the operation of watershed management, aquifer management, management of factors reducing the utilization of groundwater and evapotransition and controlling the entry of pollutants.
10. Establishment of the environmental auditing system in the country in terms of environmental values and costs (destruction, pollution and restoration) in national accounts.
11. Encourage and encourage environmentally friendly investments and technologies by using appropriate tools such as green taxes and duties.
12. Developing a charter of environmental ethics and promoting and institutionalizing environmental culture and ethics based on Islamic Iranian constructive values and patterns.
13. Promoting scientific research and research and benefiting from innovative environmental technologies and native constructive experiences in preserving the balance of ecosystems and preventing pollution and environmental degradation.
14. Promoting the level of knowledge, knowledge and environmental insight of the community and strengthening the culture and religious teachings of social participation and responsibility, especially the good and forbidding the environment to protect the environment at all levels and levels of society.
15. Strengthening environmental diplomacy by:
15.1. Efforts to create and strengthen regional institutions for dealing with dust and water pollution.
15.2. Developing relations and attracting mutually, multilaterally, regionally and internationally contributing partnerships and partnerships in the field of the environment.
15.3. Making effective use of international opportunities and incentives in moving towards a low carbon economy and facilitating the transfer and development of related technologies and innovations.

L. General Policies for Land Use Planning in Iran
General policies of the Land Use Planning of the Supreme Leader (2011)

a - Development of human resources as the main pillar of Land Use Planning through:
1- Training healthy, motivated, happy, religious, patriotic, collectivist, impartial and law-oriented people.
2. Promoting the level of education, research and labour productivity in order to increase the share of human resources in the combination of factors affecting the production of national wealth.
3. Establishing the quantitative and qualitative proportion of population and its balanced establishment in the territory of the land and generalization and expansion of communication and information networks.
4. Improving human development indicators, with emphasis on education, the flowering of talents and creativity, health promotion and the promotion of public knowledge.

b. Attention to national and territorial integrity and strengthening of Islamic-Iranian identity and land management through:
1. Effective use of the status, historical heritage and cultural and natural attractions of the country along the path of development goals, strengthening tourism and protecting historical records.
2- Regulating the Effective Relationship between the Government and the People and the Increased Organizational Phenomena of People in the affairs of the country, in accordance with the general policies enacted in the section "National Unity and Solidarity", "National Security" and ethnicities and religions. "
3. The constructive interaction between the values and advantages of different regions of the country, using cultural, educational, economic and national capacities, and taking steps to delegate appropriate legal authority to the regional and local levels, with due regard to the focus of policy and governance.

c. Improving the efficiency and economic returns and facilitating the internal and external relations of the country's economy with:
1- The division of national labour according to natural talents and the creation of new advantages in different regions of the country.
2. To co-operate with the advantages of the country, to modernize the agricultural sector in proportion to the sources of production and climatic zoning, to refine and complete the industrial production chains, to organize the modern services sector and to produce basic goods and services.
3. Providing appropriate managerial and infrastructure backgrounds in different regions and continuously improving the level of national productivity index and increasing the share of human resources in producing national wealth in line with the talents of the country's regions.

d. Achieve regional equilibrium in accordance with the capabilities and capabilities of each region, taking into account the following points:
1- Equitable opportunities and equal opportunities and the elimination of illicit discrimination in the country.
2- Determining the national and trans-national role of different regions of the country for achieving regional equilibrium and strengthening national unity and integrity.
3- Provide appropriate grounds for increasing population share and activities in low-density areas with priority for the eastern and southern regions of the country.

e. Organization of an appropriate space for living and working centres, especially in border areas, with emphasis on effective participation of people with:
1. Organization, management and continuous monitoring of the country's development and development by creating an interconnected network of residential areas and national activities and defining the role and transnational function of each of them in order to achieve the objectives of the land prospecting and principles of land use planning.
2- Reinforcement of the causative factors for progress and development in sensitive and special areas, considering the defence, security, cultural, social and environmental considerations and increasing the role and activities of the people in the development process.
3- Development of Coordination of the Peninsula and the coasts of the south and north of the country using the capacity of neighbouring provinces, geographical location, basic infrastructure, marine and oil resources, and the establishment of related industries, support and energy, and development of commerce, tourism, higher education, technical-vocational and research strengthening transnational engagement (in ten years in the form of two five-year programs).
4. Coordinated development of the border areas in the east and west of the country by strengthening the infrastructure and utilizing the relative advantages of developing the national capacity of tourism, education, commerce and transboundary interaction.

f. Observing security and privileges in the establishment of population and activities in the land based on:
1- Choosing suitable places and establishing centres of living and activity as well as vital and sensitive centres, in accordance with economic, social, political, cultural, especially security and passive defence.
2. Promoting national and provincial development activities in the border regions by providing economic incentives and strengthening the infrastructure and establishing a suitable population and strengthening the military and security forces appropriate to the threats.
3- Recording of service levels and population deployment in the country with regard to the management of natural disasters, incidents and water resources and the observance of geological conditions to increase the safety factor of infrastructure and vital and infrastructural facilities of population centres and towns and villages.

4. Strengthening convergence, national integrity, unity and social ties by promoting the level of development of different regions of the country and the creation of poles and centres of development.
5- Prevention of extramural migrations to provincial centres with necessary measures.

g. Use of a privileged geographic position in order to obtain a desirable regional and global position through:
1. Interaction and cooperation with the countries of the region and the world, especially the Iranian-Islamic civilization, with the strengthening of political, economic, cultural and security role of the country in order to provide national or joint interests.
2. Strengthening the main railways network and the main arterial routes of the land and turning the country into the air traffic control centre of the region for the transit of goods and passengers, as well as the central role of energy exchange (oil, gas, electricity) and telecommunications in the region in order to maintain security and national interests.
3. Involve regional countries in designing, investing and joint activities in various fields, especially economic and infrastructure, in order to provide common regional interests.
4. Creation and strengthening of regional institutions and organizations in various fields, especially scientific, cultural, economic, and environmental using elements of Iranian-Islamic identity.
5- Selection of a number of metropolises, ports and islands that are prone to the country and equip them with advanced communication and information services to accept the transnational role.
6. To play a pivotal role in scientific-technical interactions with the region and other countries by exporting technical services.

h. Preserving, restoring and optimizing productivity of capital, renewable natural resources and preserving the environment in development projects.

M. Legal Framework and Supporting Documents at National level
- Article 50 of National Constitutions of I.R. of Iran;
- Forest and Range Nationalization Law (1962);
- Outlook Program: Environment and Natural Resources Chapter (2005 - 2025);
- Comprehensive Forest Conservation Plan (2003);
- Forest monitoring, conservation, exploitation and management program (2013);
- Supreme Leader's Decree on National Environmental Policy (2015);
- Article 38 of the Sixth Five- Year Development Plan of I.R. of Iran (2015);

N. International Conventions and Commitments
-Law of adjoining the government of I.R of Iran to UNFCCC, UNCBD and UNCCD Conventions in line with the Government commitment for conservation of forests as carbon sinks and reduction of greenhouse gases, rehabilitation of biodiversity of threatened and red list species and prevention of land use change in forest areas;
- The United Nations Strategic Plan for Forests 2017-2030 (UNSPF) especially Global Forest Goal 1: Reverse the loss of forest cover worldwide through SFM, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change:
- Sustainable Development Goals (2016-2030);
- Paris Action Plan for climate change (2015);
- Land Degradation Neutrality (LDN) Target Setting Program of the UN Convention to Combat Desertification (UNCCD);

- Nomination of the Hyrcanian ancient forests to UNESCO as a World Natural Heritage site for present and future generation.

O. Conventions. Iran is a member of the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), the Ramsar Convention (which was hosted by Iran), the United Nations Convention to Combat Desertification (UNCCD), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the World Heritage Convention (WHC) and the World Conservation Union (IUCN).

6. Summary of Baseline Situation of Natural Resource Management Policy in Iran

The Government of the Islamic Republic of Iran is already undertaking a number of projects aimed at strengthening environmental management in the Caspian Hyrcanian forests. In addition, there are a number of new projects proposed in the 5-year development plan that will further fortify the baseline foundation of the project, such as the afforestation and reforestation initiatives. Government policy has become further orientated towards the protection and sustainable management of natural resources; however, biodiversity and its economic value is yet to be mainstreamed into policies and management strategies. Without the basic support of biodiversity within policies, action into increasing institutional capacity for appropriate biodiversity management has so far been inadequate.

There are several Articles within the 5th and 6th NDP regarding the management of forest and land resources: under Article 148 the government is mandated to substitute wood fuel with fossil fuel and renewable energies; expand the planting of fuel wood trees, intensify enforcement measures to reduce smuggling of forest and rangeland products, and eliminate timber import tariffs; support industrial animal husbandry to promote forest protection; expand rehabilitation and planting of forest lands; and ensure that all kinds of resource harvesting are conducted according to the carrying capacity of the ecosystems. According to Article 182, a Land-use Planning Council is responsible for the coordination and monitoring of regional development plans and activities. Under Article 192, the Government is mandated to develop guidelines for the economic valuation of priority resources including forest, water, soil, energy and biodiversity, and to internalize the economic values of environmental resources into national accounts.

In addition, there are several new projects proposed in the 5-year development plan that will further fortifies the baseline foundation of the project. Significant efforts have been made to manage fires across the entire landscape, albeit with a focus on firefighting rather than prevention.

New programs include a group of forest management activities, include:
a) fiscal reforms -waiving tariffs on imported timber to facilitate easier import of timber so as to substitute domestic production;
b) afforestation and reforestation initiatives in degraded forest areas; and
c) the promotion of renewable energy and substitution of fuel wood including for example through the development of woodlots of fast-growing species such as poplar.
This will reduce the threat on forests from illegal timber felling and firewood collection.

An additional baseline program will strengthen livestock management. This will seek to a) resolve land rights issues; b) promote stall feeding and c) support community cooperatives for permanent forest dwellers to manage pasture lands and fodder collection.

6.1. Policy Environment for Mainstreaming and Multiple Use

In the "business as usual" context, there is an insufficient regulatory basis for integrated forestland multiple use management with limited emphasis on Carbon Sink and biodiversity conservation. Currently 10% of public lands are under biodiversity set-asides, but there is no systematic management regime for biodiversity conservation. There are incidents of illicit felling in Caspian Hyrcanian landscape, involving high grading of commercially important species. FRWO and other partners have strong respective FMPs, however these are not coordinated and is missing inclusion of biodiversity conservation practices. There are a range of production sectors in the Caspian Hyrcanian Forests, including forestry, tourism and agriculture – yet a lack of a coordinated approach. Land use plans exist at the basin/catchment levels under FRWO management and similar plans exist for DoE[6] management of Protected Areas. However, a coordinated plan for production sectors does not exist. Ecosystem goods and services are utilized by production sectors; however, their true ecological value is not understood or incorporated into the economics of key production sectors.

6.2. Capacity of Forest Management

In terms of a business-as-usual scenario, there are currently technical capacity gaps within FRWO[7] to effectively address biodiversity management, facilitate community-based Forest Management Plans (FMPs) or wider inter-sectoral management strategies. Management of existing FRWO set asides is based on ensuring certain forests are conserved because of being on an extreme gradient, for replanting and to prevent harvesting endangered tree species. Zonation does not currently include biodiversity (including fauna) conservation measures. Different production sectors - like forestry and tourism - are managed in isolation to one another, even though biodiversity is being lost owing to the combined pressures posed by different land uses. The concept of a multiple use approach is not integrated into management thinking in key sectors. FRWO and other stakeholders engaged in the Caspian Hyrcanian Forests thus lack a coordinated approach to forest management. Although FRWO have management and monitoring systems in place for their own area, community-based forests require support to monitoring and enforcement. Indeed, understanding of multiple use approaches to forest management is generally limited. Land use planning exists at various levels within the governance of the Caspian Hyrcanian Forests but lacks coordination in general terms and as an extension of the baseline situation.

6.3. Community Engagement

The Caspian Hyrcanian region is predominantly agriculture-based, however there are latent opportunities to be found from forest-based activities that are not currently been seized. Forest degradation is leading to a loss of 0.5% of forests per year. Forests are managed by FRWO, with the opportunities for community management largely unexploited. In terms of training, there is a general lack of skills and capacities for adding value to the NTFPs harvested from the forest, constraining communities' ability to secure and retain a greater share of economic benefits. Further, there is inadequate community involvement and know-how for the management of multiple use of forests, with a lack of a participatory approach with FRWO and other stakeholders.

6.4. Long Term Solution

The long-term solution to the conservation predicament facing Iran's unique Caspian Hyrcanian Forest landscape proposed by this project is thus to build on the baseline and establish the necessary governance system and know-how for a landscape management approach to decision making and use of the Caspian

[6] DoE: Department of Environment

[7] FRWO: Forest, Range & Watershed management Organization (under Ministry of Agriculture)

Hyrcanian forests which nests PA[8]s within a matrix of conservation-compatible land uses in order to maintain biodiversity, ecosystem functions and resilience across the landscape as a whole. On the other hand, by implementing SFM[9], work on mitigation (increasing carbon stock) and adaptation aspects of climate change.

6.5. An enabling policy and regulation

The Caspian Hyrcanian forests are Iran's main source of commercial timber and make an important contribution to Iran's economy. As well as their economic importance, the forests provide crucial ecosystem services such as carbon sequestration, the regulation of water flow through the ecosystem, influencing processes such as infiltration, river flow, water sedimentation and soil erosion. These processes affect other land uses such as agriculture, livestock husbandry and orchards, which are the main sources of income for most people in the Caspian Hyrcanian landscape, and which produce exportable goods for the rest of Iran.

Sustainable management of these forests is therefore critical for both the livelihoods of the local populations and for Iran's economy as a whole and this importance needs to be reflected in the policies and regulatory frameworks guiding land use practices.

All productive sectors involving land use, including forestry, agriculture, livestock husbandry, water management, tourism and the development of infrastructure, can negatively impact on the natural environment if managed inappropriately. For example, traditional livestock practices, impacting on a vast area of land across altitudes and landscapes, are widespread in the areas and are damaging to forest habitats. Therefore, policies and frameworks for all these activities need to take into account the whole landscape and the environmental cost of the activity rather than focusing only on the activity itself. Mainstreaming the conservation of the forests and their biodiversity outside of PAs into government policies will help to ensure that all activities influencing the landscape are carried out in a way that minimizes their impact and sustains the health of the forest in the long term.

6.6. Institutional and staff capacity strengthening for forest management

With policies and regulatory frameworks in place to ensure the mainstreaming of best practices in biodiversity conservation, there needs to be the capacity to manage the land and resources accordingly. A significant investment needs to be directed towards activities involving the sensitization of local governments and authorities to the relevant policies and regulations and guidelines for enforcement. Capacity strengthening for law enforcement, including increased staff numbers, the provision of relevant management and communication systems, will enhance the ability of the authorities to take multiple use approaches, manage zones and seasonal changes to biodiversity, control illegal logging and inappropriate land use techniques.

Comprehensive management plans based on the policies and the use of appropriate management techniques will guide stakeholders towards best practices. Awareness raising of stakeholders about the science behind sustainable forest and landscape management, as well as training in techniques such as biodiversity monitoring, zonation, then use of biodiversity set-asides and appropriate growing and harvesting methods in forestry practices, will enable stakeholders to better implement their management plans. With the knowledge and skills base in place, practical tools to aid more efficient land use as well as

[8] PA: Protected Area (under control of Department of Environment)
[9] SFM: Sustainable Forest Management

enhanced communication between stakeholders will reduce conflict between land users, enabling the landscape to be managed sustainably as a whole.

6.7. Community engagement in multiple -use, integrated forest management

Multiple-use, integrated forest management will allow local communities more power over their land, a greater sense of ownership and therefore more reason to will for its protection. It gives local land users the knowledge and skills to manage the land themselves alongside other land users, increasing connectivity and reducing their dependence on external aid and services, for example, plantation managers, and thereby increasing their own gains. Establishing functional pilots involving community-engaged management will help to ascertain the best procedures to take and techniques to use for successful forest management, and lessons can be learnt, and the system replicated elsewhere.

7. Forest management in Iran

The Forest, Range and Watershed Management Organization (FRWO), a national state agency, has the responsibility for conservation, rehabilitation, restoration, development and sustainable use of forests according to the Forest and Range Nationalization Law (1962) in Iran. The first forest management plan was formulated by a joint Iranian and international expert team in 1959. The silvicultural method used at that time in forest management plans was Shelter Belt System coupled with clear-cutting aimed to achieve even aged and pure stands for wood production to meet the industrial needs, neglecting the criteria and indicators of sustainable forest management. During the past six-decade despite of considerable amendments happened in forest management plan and silvicultural method especially after introducing the "Close to Nature Forest Management Approach" two decades ago that emphasizes biodiversity conservation and reduction of wood harvest, little progress was made regarding sustainability factors in terms of qualitative and quantitative trends in forest resources in the Hyrcanian forests.

7.1 Forest management in Iran (1828-1978)

A look at the history of Iranian forestry, including forest management and policymaking, reveals a clear distinction between the beginning of the twentieth century and previous eras. Following the Treaty of Turkmenchay in 1828 (between Iran and Soviet Union), all Iran's commercial rights were ceded to Russia that resulted in an extensive exploitation of the natural resources of Iran. Among these, Hyrcanian forests and their valuable tree species (such as Oak, Yew, Buxus, and Walnut) considerably captured the Russian merchants' attention, which have been exploited locally. In 1891, the first official trade law was given to the Koosis Teofeelucktous company and granted the right to use the olive trees of the Gilan Province for a period of 25 years. According to the contract, the Russian company was obligated to operate the necessary factories and their associated equipment. Further, the company was tax exempt during the first two years, but from the third year, it would pay 1,000 Iranian Tomans to the treasury of the Iranian government. In the October 1891, under another contract, the exploitation of Buxus trees in the entire of the Hyrcanian forests was assigned to the Koosis Teofeelucktous company for a period of five years. The third contract between the Government of Iran and the Koosis Teofeelucktous company, was signed in January 1895. In this five-year contract, which was renewed in April 1900 for another five years, the Russian company was allowed to exploit the entire of the Hyrcanian forests and export the products. At present, the documents relating to these contracts are kept at the State Department's library of Iran.

In the early twentieth century, extensive degradation and destruction of Iranian forests continued for several reasons, such as road construction, establishment of sawmills and match factories, and growing

demand for charcoal and fuelwood by a rapidly increasing population. It is estimated that two to three hectares of forest were destroyed for each kiln in each season, reaching an overall annual consumption of 6 million m^3 of wood (Kernan, 1953). The inefficient and disorganized state of charcoal-making was not unique at this time; all other forest operations in Iran were similarly lacking in technology and policy direction. Some estimations based on the data for the annual per capita consumption of wood for Brazil in 1890 and for the United States in 1906 (Williams, 2003) suggest that If oil had not been discovered in Iran, the forested areas in 1850 would have disappeared by 2000 in the process of supplying fuelwood for a growing population (Amiraslani and Dragovich, 2013).

Constitutional Revolution (1905-1911) can be considered as a turning point in the management of the natural resources of Iran (Djavanshir, 1999). Before 1900, Iran was devoid of any organized management system, and scientific and technical utilization of natural resources. Following the Constitutional Revolution, Iran witnessed the gradual institutionalization of a modern structured forest management system with relevant laws and regulations. This began with the establishment of the Bureau of Roads and Railroads and Forests, later renamed the Bureau of Roads and Mines and Forests. In 1917, the Ministry of Public Benefits, Trade and Agriculture was formed by merging several bureaus including the Bureau of Roads and Mines and Forests. An office in the Northern part of the country was established, and foreign commissioners were recruited to survey forests, assess the organization of separate national and private forests, and identify both unspoiled and degraded forests (FRWO, 2018). In 1923, preliminary forest inventory and survey of the Hyrcanian forests started by Hans Schricker from Austria. At this time, Russian, English, French and Swedish companies were active in wood utilization from the forests of Iran, transporting valuable wood of boxwood, walnut, chestnut-leaved oak, elm and velvet maple trees. In 1924, Von Demhaagen, a German forestry expert, was employed to provide forest management plans. In that year the Central forest organization was established. Forty forest guards were trained for 6 months by Von Demhaagen and Schricker in 1930. At the same time, a French forestry expert, Louis Niquet, visited the Hyrcanian forests and suggested founding an organization with the following structure:

1. Central office with a person in charge.
2. The Gilan and Astara Forestry Administration comprising 20 foresters (the center of this office was in the Rasht city).
3. The Gorgan and Mazandaran Forestry Administration comprising 20 foresters (the center of this office was in the Shirgah city).

After that, gradually, key actions to conserve Iranian forests have been undertaken. This was followed by further legislation. In early 1931, Louis Niquet presented his plan for the management of the Hyrcanian forests, which was approved by the government in June 1932. The plan that was prepared in seven chapters provided guidelines to delineate industrial forests and non-industrial forests, set penalty for the conversion of forests into farmland, and define the amount and age of harvesting of the forest stands. To implement this management plan, a branch called "Forest Circle" was founded and Mr. Karim Saei took over as the manager. In 1940, the "Forest Circle" was further developed to a larger center called "Forestry Administrative Office". In 1942, the first law on forest management was adopted that consisted of 18 articles and 7 notes, leading to founding four sub-categories of "Forestry Administrative Office" as follows (FRWO, 2018):

1- Gilan and Astara unit in the Rasht city, comprising of four forestry offices.
2- Shahsavar and Noshahr unit in the Shahsavar city, comprising of three forestry offices.
3- Mazandaran unit in the Qaemshahr city, comprising of four forestry offices.
4- Gorgan unit in the Gorgan city, comprising of four forestry offices.

Even though not all forest laws were respected, the formal establishment of forest management was a significant step towards saving Iran's last remaining forests. However, Karim Saei passed away in a plane crash on December 24, 1952, and the management of the forests of Iran experienced many crimes such as illegal logging and encroachment. During 1953-1956, many parts of Hyrcanian forests were severely exploited mainly due to a serious mismanagement and the lack of capacity to enforce and administer the law. Pressures began to build up against the forest. Herds of goats, sheep, and cattle which grazed in the forest increased. Landowners and villagers, in need of more land, began to clear off the natural growth of trees.

As probably the first foreign forestry expert who lived in Iran for five years in the 1950s and wrote papers on the nation's forests, Henry S. Kernan described the situation at that time. He portrayed the Hyrcanian forests as unique in the Middle East. He blamed the impact of increased economic activities both in Iran and Western European countries that encouraged a primitive, illegal, inefficient and destructive forest industry to develop. It was reported that 90% of all charcoal kilns operated without permits, despite the enactment of the Forest Law (Kernan, 1953). Further, Kernan described the society of Iran up to the 1920-30s as being unaware of forestry problems and accepting "forests as part of the natural scene to be used exactly as the needs of the moment might dictate" (Kernan, 1953). In this situation, the armed forces took over the forest management of Iran. Several types of armed forces were stationed in all branches and subordinate units of the "Forestry Administrative Office" and reinforced the foresters' plans and commends. This type of management continued until 1959. Following enactment of the Forest Nationalization Law (FNL) in 1963, forest ownership was fully transferred to the government. This law was partially successful in reorganizing and regulating the industrial exploitation of the forests of Iran.

During 1960-1971 several types of organizations were founded to manage the forests of Iran. In August 1967, the Protection and Exploitation of Forests and Rangelands Law was passed at the national level and specifically addressed issues related to charcoal production. Provisions in this law included strict penalties from the Forestry Organization for cutting trees without permission, banning of all export of charcoal and firewood, and requiring all public and private establishments to replace wood-based fuels with other energy sources. The first local range management plan was also formulated in 1967 by students of Gorgan University of Natural Resources for 2,000 ha of rangelands in Firoozkooh. In the early 1970s, Iran began to show serious concerns about sound environmental practices, Parliament passed the Environmental Protection Act (Zekavat, 1997), and Forest and Range Management Organization was founded.

7.2 Forest management in Iran (1978 onwards, after the Islamic Revolution)

Forests and national development

The second phase of forest management in Iran, is followed by the Islamic Revolution, which took place in 1978, was immediately followed by the Iran-Iraq war. The war lasted until the end of the 1988 and absorbed national assets while destroying infrastructure. During the 1980s to 1990s, Iran's new Government faced a rapidly declining economy, brought on partly by falling oil revenue and the highly destructive war with Iraq (Esfahani and Pesaran, 2009). While the Iran-Iraq war negatively affected forests along the Western borders, the rangelands along the Eastern borders were infiltrated by Afghan refugees who contributed to vegetation destruction in their search for firewood and shelter (UNDP/GEF, 2009).

A period of gradual recovery in all economic sectors occurred after the Iran-Iraq war. The Five-Year National Development Plans (FYNDPs) begun in 1991 paid good attention to the conservation of natural resources and environment. Protection of the environment was highlighted as one of the most important

chapters in each of these plans and allocated significant budgetary support. For instance, the Second FYNDP (1995-1999) stated that all economic and social activities must be performed within the constraints of environmental and biodiversity conservation and management. The Third FYNDP (2000-2004) addressed issues such as sustainable exploitation of natural resources, environmental liability and redress, support of green industries, and environmental impact assessment. The Fourth FYNDP (2005-2009) placed emphasis on environmental protection as a means of achieving sustainable development.

In the early 1990s, a new era commenced for achieving rapid economic growth by construction of roads, dams, industries, expansion of oil and gas refineries and networks, development of communication systems to urban and rural areas, and exploitation of mineral resources. These efforts are inevitable for any developing country, although in some cases these projects have had adverse environmental impacts. For instance, The Tehran-Shomal (connecting Tehran city to Chalus city in North of Iran, in Caspian coastal zone) road project is one of the most controversial environmental issues in Iran. Its main aim is to link Tehran to the northern part of the country with a highway. In addition to forest destruction, this project has caused land degradation and other environmental problems such as disposing construction debris into rangelands, altering the Chalus river channel, and wastewater flowing into adjacent rivers.

Recent internal migration patterns (rural-urban and urban-urban) as a result of population growth, lack of job opportunity in rural area, rapid industrialization and urbanization have also increased the value of land and buildings, enticing the illegal occupation of national lands across the Hyrcanian forests. Not surprisingly, some building contractors have destroyed forest areas to develop houses (especially for construction of second houses for rich people) and businesses. Although there are no national statistics available for conversion of forests to urban land uses, reports at the local level indicate severe forest losses.

Expansion of farming is also exerting more pressures on forests of Iran which, with the exception of small patches of natural habitats, have been converted into agricultural use, mainly for rice paddies, tea plantations, and citrus and kiwi orchards. Illegal tree cutting is still prevalent in most forests with an estimated harvesting of 2 million m^3 per year (Arian et al. 2007).

One of the most important plans to preserve the national forests is a plan titled “Relocating or removing livestock from the Hyrcanian forest areas”. This plan, commenced in 2002, aimed to preserve forest plant species. Of the 5.7 million livestock scattered in the Hyrcanian forests, up to 1.16 million were relocated outside the forest areas by 2007. This plan was resulted in declining wood harvesting from the Hyrcanian forests from 1.44 million m^3 in 1995 to 0.87 million m^3 in 2004 (Arian et al. 2007). There are arguments that relocating livestock plan was not successful in practice because of corruption and less attention to socio-economic condition of local peoples.

8. Threats to Iran's Biodiversity (National Level Threats)

8.1. Deforestation and Land Degradation

Iran is a low forest cover country because its forests cover is less than 10 % of its total land area. However, Forests also hold a large amount of Iran's biodiversity: Iranian portion of the Caucasus hotspot covers the Caspian Hyrcanian forests of the northern slopes of the Alborz range; the Irano-Anatolian hotspot covers the deciduous forests of the Zagros Mountain range and the juniper forests of the southern slopes of the Alborz mountains. Iran is a home for most of the Irano-Anatolian hotspot; no more than 15 % of the native vegetation in the entire hotspot remains intact, meaning that many species will have declined.

In the past, forest loss and deforestation were driven by clear-cutting, undertaken by commercial logging companies. This practice has now been prohibited, which has significantly reduced pressures on the forest. However, timber continues to be harvested illegally both by commercial enterprises and local communities. These generally involve high grading of commercially important species such as Beech, Yew, Buxus, Oak, Siberian Elm (Ulmus Pumila), Maple and wild Cherry. As well as commercial harvesting, wood is also collected for subsistence purposes, mainly as a source of energy due to poor infrastructure and increasing prices of fuel. This increases the degradation of forest habitats.

More recently government-sponsored development programmes have focused on infrastructure, such as reservoirs and roads, and promoted mining and industrial development in ecologically sensitive areas. Road construction accelerate forest degradation by facilitating access to forest zone. Furthermore, tourism is an emerging threat—mainly arising because of associated infrastructure development.

Animal husbandry practices also degrade forested areas through intensive livestock keeping, which causes soil compaction in forests and damages shrubs, saplings and trees due to grazing on the vegetation. Due to poor agricultural knowledge and techniques, farming methods are inefficient, meaning that forest has to be converted as soils become less fertile.

Deforestation and land degradation lead to fragmentation of natural habitat, which reduces the connectivity between core areas of habitat for wildlife. It results in greatly reduced ranges for many species, which can threaten their survival. In turn, this leads to a decline in biodiversity. Many steppe species, such as the great bustard, have declined dramatically because of agricultural expansion. The Asiatic Cheetah, now critically endangered, declined dramatically during the late 20th century due to habitat reduction and fragmentation throughout its range, in combination with other factors such as poaching of its prey and the cheetah itself.

8.2. Hunting

The poaching of wild animals has increased significantly since the 1990s. The animals at the highest risk from poaching are leopard, brown bear, wolf and wild goat. Animals are poached either because of their meat or skin, or because of conflict with humans and crop damage (there is no natural equilibrium so sometimes rural livestock have been attacked by wild animals because they cannot find their food in the nature). Several CSOs are working in Iran to conserve flagship species such as the Persian subspecies of the fallow deer (Damadama mesopotamica), which was on the verge of extinction in the late 1980s due to extreme hunting of the species across its range. The Persian wild ass has also dramatically declined due to hunting.

8.3. Climate change

Much of the topography of Iran is mountainous, and alpine habitats are expected to be some of the most affected by climate change. As temperatures increase each habitat type will be pushed through increasing altitudes and species ranges will shift and decrease. Since endemism has been found to increase with altitude, this could lead to the global loss of some alpine species. Forested mountainous areas such as the Caspian Hyrcanian landscape, which is part of a biodiversity hotspot, could therefore lose many species.

The arid areas of Iran are likely to increase in aridity as the climate changes, which will cause species range shifts and put further pressure on the vegetation of these areas, which already experience stressful environments such as drought and high salinity. The effects of temperature and precipitation changes on crop species may also necessitate further conversion of forest to agriculture as productivity declines.

As well as increases in temperature and aridity, weather patterns are expected to become more erratic, with irregular rainfall both spatially and temporally and extreme weather events. Forest fires, already a major problem in northern Iran, are expected to increase in frequency and intensity. Wetlands are particularly susceptible to changes in precipitation, and drought has already prevented 40,000 pairs of greater flamingos (Phoenicopterus rubber) from breeding in Lake Urmia since 2000. This lake acts as the only breeding site between France and India. Adverse effects on behaviour such as this are likely to apply to many other wetland and migratory bird species. Climate change can disrupt the relationship between species, particularly of migratory species, as their behavioural patterns shift temporally and lose synchronization, or their phenology changes. This can threaten the survival of many species.

9. Threats to Biodiversity in the Caspian Hyrcanian Forest Region

9.1. Increasing population density

Despite their rich biological endowment, the Caspian Hyrcanian forests nearly halved in size between 1955 and 2000 (from 3.4 million hectares to 1.85 million hectares). This has caused significant loss of biodiversity not only through forest conversion and associated loss of habitat but also from forest degradation and habitat fragmentation. There are several main causes of deforestation, logging, land use conversion for agriculture and settlement, and livestock herding. With a population density of 126 people per km2, the natural land of the Caspian Hyrcanian landscape is under great pressure from these activities. Since 1976 the total population of Gilan, Mazandaran and Golestan has increased from just under four million to 7.3 million, dramatically increasing pressure on the landscape. This pressure is further increased in summer months when domestic tourism is also high. Gilan is the greater populated of the three provinces and as a result the forest is more degraded, and the landscapes are more fragmented.

9.2. Illicit felling for timber and firewood

Timber is harvested by local communities for domestic use, and illicit felling remains common. These generally involve the high grading of commercially important species for example beech, yew, box, oak, Siberian elm, maple and wild cherry. This in turn leads to forest degradation. Since 1991 wood extraction has declined dramatically, for example the extraction for fuelwood was reduced from over 170,000 m3 in 1991 to just 50,000 m3 in 2006 and has been stopped now. This has been due to increased law enforcement and the provision of substitutes: gas lines are now being installed to replace wood as the main source of fuel. However, the price of gas fuel is too high for many poor people, exacerbated by recent cuts in energy subsidies – meaning there is still great dependency on fuelwood, and this is likely to increase as long as energy prices remain high.

9.3. Unsustainable agriculture practices.

Forests continue to be cleared by small-scale farmers for agriculture. This is partly attributed to the fact that as land holdings tend on average to be small (e.g., in Mazandaran land ownership averages 6 ha per family), and families are large (average family size of 5.6 persons in Mazandaran), meaning that the land area is too small to provide for family subsistence. However, it is also attributable to weak enforcement of forest clearance regulations, which means that families do not need to manage by intensifying farming on existing plots; they clear more land instead. Agricultural techniques are fairly unsophisticated in terms of lack of expertise and modern techniques and equipment. As a result, extensive clearance of land is the main factor in increasing productivity rather than more efficient farming techniques. Out of a total land area of 5.8 million ha in the three provinces, 1.3 million ha is under cultivation of annual crops and orchards, and 1.9 million ha are forest-covered.

9.4. Overgrazing and damage to forest floor.

Many villagers across the Caspian Hyrcanian landscape rear cattle as well as sheep and goats. The region lacks natural rangelands, and these animals are pastured in fallowed farmland. However, the amount of grazing available is inadequate for the high numbers of livestock, and farmers allow their livestock to browse on shrubbery and tree shoots in forest areas, particularly in early spring and mid-autumn, which impedes the natural regeneration of tree species. In addition, herdsmen illegally cut trees and shrubs to create open spaces where ground cover of herbaceous plants quickly develops and forms new pastures. These activities serve to both deforest and degrade the area. Local governments, supported by the central government, have for a long time worked to reduce the deforestation; actions have included afforestation as well as limiting numbers of livestock to a sustainable level. Reports have stressed the point that grazing has to be planned and coordinated, should it be used as a tool for forest management, and the multi-use forestry concept is increasingly being pursued.

9.5. Uncoordinated/Rapid Economic Development.

In the majority of cases, economic development is leading to biodiversity loss because government decision making systems do not currently account for biodiversity values and management needs; similarly, they fail to account for the multiple ecosystem services provided by the Caspian Hyrcanian forests and to internalize the environmental costs of development. More recently government-sponsored development programmes have placed infrastructure such as dam reservoirs and roads and promoted mining and industrial development in ecologically sensitive areas. Road construction accelerates deforestation and degradation by facilitating access to forest areas while other developments have led to a population influx. Linked with this is tourism; unsustainable domestic tourism poses a significant threat to biodiversity in the Caspian Hyrcanian area through associated infrastructure development and widespread littering by tourists. A key challenge is to develop economically and financially feasible approaches to conservation and sustainable use of forest landscapes that address multiple competing sectors demands on forests. It is important that ecotourism activities, such as bird watching, are promoted, thus limiting negative impacts on the environment. Substantial global environmental benefits would accrue from enhanced biodiversity status and carbon sequestration, were this challenge to be successfully addressed.

Certain ecologically sensitive areas will need to be afforded the highest levels of protection owing to their habitat value. Some advances have been made in this sense. About 15 percent of the Caspian Hyrcanian forests have been designated as PAs to conserve biodiversity although the management effectiveness of many reserves is sub-optimal. These areas are legally under the jurisdiction of the DoE as part of the national PA estate, but many are managed on DoE by FRWO, which has a stronger field staff presence in

the landscape. Other areas across the landscape are designated as forest protection areas, mainly for watershed protection, falling directly under the administrative jurisdiction of FRWO. These cover some 10 percent of the forest (around 180,000 ha). What is important from a biodiversity point of view is that the effectiveness of these different areas in conserving biodiversity patterns and ecological processes is determined and that a system is put in place that can plan and manage a matrix of land uses that enables the conservation of critical habitat patches and maintains forest connectivity across the landscape.

9.6. Barriers to the Conservation of Biodiversity

Despite many successes, the forest management system for the Caspian Hyrcanian landscape still suffers from some shortcomings, which need to be addressed if the long-term solution is to be achieved such as inadequate policy and regulatory frameworks for landscape multiple use forest management. Currently, there is an insufficient regulatory basis for integrated forest land use management, covering multiple economic sectors, particularly for a central stakeholder in the management of the forestry sector:

FRWO. The forestry sector is managed according to the principles of production and consumption and forest management systems under FRWO oversight are focused on single usage: timber production.
Other management options and uses have not been prioritized (such as alternative livelihoods), biodiversity conservation measures are not sufficiently integrated into management practices and linkages between different production sectors - particularly forestry and tourism – are insufficient. Similarly, there are no guidelines for decision makers, to guide such management. Government planning procedures do not account for multiple ecosystem values and fail to internalize the environmental costs of economic development. Thus, different sectors are managed in isolation to one another-even though, in general terms, biodiversity is being lost owing to the combined pressures posed by different land and forest uses. Further, although there is now a greater acceptance within FRWO of the need to move towards greater community engagement in forest management, only a few attempts have been made to involve the local communities directly in forest management through the design of experimental "Community Forest" pilot areas. Furthermore, there are no established norms governing community involvement in forest management: largely because in the past, the focus was on utilizing contractors (both community and private sector) from the sole perspective of timber production rather than any multiple use approaches.

- Weak institutions and limited technical capacities at national local levels for enforcement of forest management and coordination reinforcement of forest management and coordination and coordination regulation of land uses.

The lack of adequate capacity within the FRWO for effective integrated, multiple-use management and for engaging with other institutions that have a jurisdiction or interests over the Caspian Hyrcanian forests is an important constraint. For example, FRWO staff have limited technical capacity to effectively address biodiversity management considerations in plans and activities, including in management zoning and the creation of biodiversity set-asides – namely areas where no production or utilization is allowed to conserve the biodiversity values therein. Although highly competent in terms of production forest management, FRWO staff also lack the skills to facilitate biodiversity mainstreaming into their management plans, to develop and implement community-focused FMPs or wider inter-sectoral management strategies to address threats to biodiversity and to effectively engage with local communities and other institutions to forge partnerships. There is an urgent need to strengthen forest monitoring and enforcement from the context of viewing forests for their biodiversity values in their own right, rather than solely for managing timber production. To address the current gaps in operational capacities it is important the staff avail opportunities to learn by doing.

- Inadequate community involvement and know-how for the management of multiple use of forests

Despite strong indigenous and local knowledge of the forest and its values, local communities have little knowledge or experience with mainstreaming biodiversity conservation objectives into resource use practices. Thus is because of forest management agency (FRWO) has taken a top-down approach, with low scale involvement of forest dwellers and forest adjacent communities. Communities typically lack the capacity to take-up forest management where such a role is assigned to them as part of any multiple-use plan. For instance, where limited community managed forestry has been allowed on an experimental basis, local communities have resorted to hiring of professional foresters to manage the areas, thus incurring huge costs in professional fees that make such enterprises less viable. There is also a general lack of skills and capacities for adding value to NTFPs harvested from the forest, constraining their ability to secure and retain a greater share of the economic benefits from resource extraction at the community level. Limited access to capital and technical knowledge of new livelihood options and access to markets also hinders adoption of viable alternative livelihoods. Further limited access rights and the low influence communities have in decision making on resource use and management have hitherto prevented them playing an active role in forest management.

Image No. 1. The Caspian Hyrcanian Forest Landscape (source: Google Map).

9.7. Threats to the Caspian Forests

The Caspian Hyrcanian landscape's natural assets in terms of climate, scenery and soils attract millions of people through tourism, agriculture and pastoralism – and these and other uses have become serious threats to the forest ecosystem. As a result, there has been a significant loss of biodiversity, not only through loss of habitat – between 1955 and 2000 the Caspian Hyrcanian forests were reduced from 3.4 million ha to 1.85 million ha - but also from forest degradation and habitat fragmentation.

There are several main causes of deforestation and degradation: logging, conversion for agriculture and settlement, and livestock herding. With a population density of 126 people per km2, the natural land of the Caspian Hyrcanian landscape is under great pressure from these activities. Since 1976 the total population of Gilan, Mazandaran and Golestan has increased from just under four million to 7.3 million, dramatically increasing pressure on the landscape. This pressure is further increased in the summer months when domestic tourism is also high. Gilan is the most populated of the three provinces and as a

result the forest is more degraded and the landscape more fragmented. The most significant threats are as follows:

- Illicit felling for timber and firewood
- Unsustainable agriculture practices
- Overgrazing and damage to forest floor
- Uncoordinated economic development
- Climate change

Despite considerable technical expertise and many years of activity, the Forests, Rangelands and Watershed Organization (FRWO), which is responsible for the management of the forests, has not been able to resolve the key threats to the Caspian Forests. Three main barriers are of overwhelming importance in driving forest loss and degradation:

a. lack of an integrated and coordinated approach to land-use planning and management that takes into account the values of biodiversity and ecosystem services;
b. inadequate capacity of the FRWO, as well as other sectors to integrate biodiversity conservation into their activities and promote multiple-use forestry;
c. Inadequate attention to community participation in the planning and management of forest resources.

In all these areas, the underlying requirement is to take environmental considerations into account alongside economic and social considerations. This is the basis of sustainable development – living on the income from natural resources, without destroying those resources in the process. Without this, future generations will not have the same opportunities for development that the current generation has had.

To address these issues, a new approach is required for the sustainable management of the Caspian Forests. Demonstrating and implementing a new approach, based on international best practice, is the aim of the Caspian Forests Project.

The significance of the Hyrcanian Forests for global forest biodiversity is unparalleled in the Middle East, with many threatened, endemic and flagship species. Iran has long-signalled its commitment to forest conservation. However, rapid development has put enormous pressure on forest resources in recent decades. Threats include over-grazing, over-harvesting of timber resources (logging and fuelwood), infrastructure development (dams and reservoirs, roads, power lines, quarries and mines), construction of houses and land-grab, fish-farms, unsustainable tourism developments, encroachment of agriculture, waste disposal, and human disturbance. As a consequence of these multiple threats the government has struggled to maintain the extent and condition of these internationally important forests.

In addition to their important biodiversity and landscape values, the Caspian Forests provide multiple environmental, social and economic benefits for the Iranian people – water supply and regulation, climate moderation, carbon sequestration, recreation and tourism, timber and many non-timber forest products, grazing; they are also of deep cultural significance and still exhibit many traditional ways of life among local communities. Together, these multiple services are of much greater value than the single value of timber harvest, which currently drives forest management. There is an urgent need to adopt and implement a new multi-purpose forestry approach according to the principle of ecosystem-based management.

9.8. Tourism Opportunities

Due to challenges in effective advertising, infrastructure, public image and a complex political situation, Iran's potential for international tourism is not being reached; however, Iran holds one of the largest domestic tourism industries in the world. Iran ranks 68th in the world in tourism revenues, currently receiving approximately $1 billion USD per year. The government hopes to gain 20 million tourists annually by 2025 and it is now investing over $32 billion into tourism as part of the 20 Year Vision Initiative. Possible avenues include ecotourism, historical relics, handicrafts, and health tourism. Whereas domestic tourists tend to visit areas of natural beauty, such as the Caspian Hyrcanian landscape, international tourists prefer to visit the cultural and historical sites. The most popular of these are the historical cities of Isfahan, Mashhad and Shiraz. Infrastructures such as roads, airports and hotels are now being developed in these areas.

The Caspian Hyrcanian landscape is very popular among domestic and international tourists due to its warm and lush climate in an otherwise arid and semi-arid country, together with a landscape of mountains, rivers and springs. Recently, many land plots are being bought to build holiday homes, although there are few tourism facilities. However, currently tourism activities are not regulated, and the industry is becoming a threat to the biodiversity of the area through infrastructure development and littering. The natural beauty of the Caspian Hyrcanian landscape provides the area with great potential for ecotourism; the Cultural Heritage, Handicrafts and Tourism Organization (CHHTO) manages ecotourism, but the industry is undeveloped here. Activities have so far included supporting handicrafts workshops, providing loans and training courses. With the expected increase in accommodation facilities in Gilan and Mazandaran, however, there should be many opportunities to create excellent ecotourism packages such as hiking, fishing, birdwatching, and health tourism; for example, Baliran holds a hot mineral spring, which residents already visit for medicinal purposes.

9.9. Livelihoods Alternative

In a situation of poverty and subsistence by rural communities on natural resources, but where those resources are over exploited, it is essential to be able to find a balance between poverty alleviation and the conservation of ecological resources. The diversification of livelihoods, including the introduction of alternatives where a particular livelihood involves unsustainable Utilization of natural resources, provides an opportunity to create an enabling environment where wealth is spread amongst various income-generating activities and develops through multiple income sources without over-Utilization of a particular resource. However, livelihood diversification is about more than multiple income sources, it relates also to the transformation of economies and to the complex nature in which people make decisions within those economies. In the case of the Caspian Hyrcanian Forest landscape, a number of options have been assessed.

Alternative livelihoods according to the natural condition of each watershed and local experiences of each activity could be used to reduce pressures on the natural forest area. According to the local experiences and natural potential of the area, a series of activities, which are expected to produce income for residents (forest dwellers), will be introduced.

Sericulture

Sericulture is series of activities including silkworm feeding on mulberry leaves, the production of cocoons, drying out of the cocoons and obtaining silk. In the Hyrcanian region, mulberry trees are planted along the roads and water channels and on farms, mostly to provide leaves for sericulture. The period of activity is short and seasonal. Sericulture starts in late April and ends in early June, needing a total of 40-50 days

from start to finish. It is carried out in residential rooms, warehouses and barns. In the past, it was common in most villages of the area and all members of the family participate in sericulture although mainly women carry it out. Each household is involved in the activity to varying degrees based on the amount of labour, available space and mulberry trees owned. In the past, sericulture was carried out for silk material, but today it is produced for the market to provide income. Harvesting time of the silkworm cocoons depends on whenever income is needed. It can be timed before the harvesting of wheat and rice, while family members are free from labour. Therefore, villagers do it willingly. Owing to the lack of silk processing and textile industries in the region, wet cocoons are sold to local merchants in the area and taken to industries in the surrounding provinces such as Gillan or Khorasan. Boxes of silkworm eggs are provided by agricultural Organizations, and each box contains 20,000 eggs. Doing sericulture activities for one box of eggs needs 40-50 square meters of breeding ground and 500 square meters of mulberry plantation and can produce 20-30 kg of wet cocoons. One kilogram of wet cocoons can be valued at approximately 150,000 Riall (in 2018).

Aquaculture

Farming of fish for food in freshwater rivers in the area is a potential alternative livelihood strategy. Both warm water and cold-water fish farming is possible in the area, especially in the villages that located in the river valleys. Aquaculture needs substantial money and natural facilities such as sufficient and permanent water.

Beekeeping

Traditional domestic beekeeping exists in the area in almost all villages, but productivity is low. However, most dwellers are familiar with this activity, so it could be possible with training courses and veterinary facilities. The eastern part is not as humid and cloudy as western parts of Caspian regions, and roads can facilitate transportation of beehives all through the year. Therefore, bees could be kept in the upland in summer and lowland in winter.

Handicrafts

Handicraft, especially for woody utensils, is possible in the area. This skill has existed amongst residents in the past, and there are some persons who still makes woody utensils and woody decorative equipment in different villages, which sell them to the tourists in the village. In addition, tourists may order the manufacture of specific items.

Second part: Forest governance in Iran and policy notes

10. The Natural Resource Governance Framework and the role of Civil Society Organisations

Governance is a critical determinant of the social equity, effectiveness and sustainability of natural resource use and conservation. Improving natural resource governance, including securing rights and sharing power and responsibilities, benefits both people and nature. Despite this, governance remains relatively poorly understood and weakly addressed in many natural resource and conservation contexts[10].

In forest governance, as in governance in general, there are three main players (government, private sector and CSOs) which all of them with crucial roles and responsibility for achieving sustainable growth in any region, like Hyrcanian forest located in Mazandaran province[11].

In a country like Iran, with top-down approach for management, planning and budgeting system, most of the economic power is in the hand of public bodies (about 70%) and private sector (about 30%). CSOs are very weak with a lower role in governance. As a result, most of the local beneficiaries active in different fields (such as agriculture, horticulture, farming, animal husbandry, bee keeping, NTFPs, tourism, rural industry…) are waiting for government policies and decisions and plans. Private sector has some voice because at the national level they have the "Iran Chamber of Commerce, Industries, Mines & Agriculture" (ICCIMA) and each province has its own Chamber of Commerce, but CSOs have very little influence in the planning system.

Iranian social capital is becoming weak and as a result, there is lack of trust among local beneficiaries and, between people and public body (Government officials). There are less incentives/motivations for active participation and cooperation of local beneficiaries in the measures related to conservation of natural resources.

Since 1962, in Iran, 83% of lands are public lands and are under control of Government. Public lands are mainly controlled and protected by FRWO (under Ministry of Agriculture) and about 12% of it are under control of Department of Environment (a department under Presidency office, Head of DoE is Vice President) as protected areas. There is a historical conflict in the field of land tenure and land ownership between government and local communities. This conflict of interest has caused many issues in terms of land degradation and land use changes, especially in Hyrcanian forest ecoregion with very beautiful landscapes and valuable lands suitable for construction of second houses (by rich people)[12].

It should be some policy reforms in forest governance in such a way that provides more role and responsibility to local communities and CSOs who are looking for public goods and general benefits of society[13]. It should be proper mechanism for engaging local communities in conservation of nature and sustainable use of natural resources by introducing alternative livelihoods like NTFPs development in Hyrcanian forest ecoregion.

[10] Springer et al., 2021
[11] Kusters et al., 2020
[12] Goushehgir et al., 2022
[13] Rajan et al., 2022

11. Rethinking the role of Civil Society Organisations to increase good forest governance practices in Iran

Governmental policies face the challenge to address deforestation and climate change. In many cases, government actions to protect forests exclude the poor and people living near the forests. In rural areas the forest plays a key role in poverty alleviation since poor and vulnerable populations often rely heavily on natural resources to support their livelihood. Since 2017, Iran has passed a law banning any forest logging for the next 10 years. Aiming at providing economic alternatives to local communities, CSOs are working to ease the establishment of businesses based on the use of non-timber forest products (NTFP) and eco-tourism. There are a multitude of activities under this umbrella that encompass the production of various products: such as honey, mushrooms, truffles, medicinal herbs (MAPs[14]), handicrafts, and ecotourism. In this, it remains unclear what the relationships are between CSOs, rural communities and government to foster rural development and the implementation of rural programs in the area.

We define CSOs as organized community members who voluntary lead different types of activities. They are either informal or legally registered, and traditionally can exist in the community or created intentionally by outsiders[15]. Outsiders can be CSOs operating at national level or funded by international donors.

This policy brief aims at addressing what the role of CSOs can be in mobilization, organizing (leadership) and networking with the main aim of promoting green jobs which can contribute to the long-term livelihood of local communities, whilst protecting the forests and their services.

We found an intrinsic interest and shared motivation between entrepreneurs and CSOs about NTFPs and environment (linking the livelihood of local communities to the health of environment/forest ecosystem). CSOs and local entrepreneurs share environmental concerns and activities supporting rural development in the study area. National NGOs concerns recall the strong link between land health and human health (e.g. waste of coal mine and environmental pollution), illegal hunting and the risk of biodiversity loss (fauna) and environmental education. Local CSOs contextualize such problems in actions such as removing litter or providing new opportunities to hunters (e.g.: working as a tour guides).

Methodologically, this policy brief has been written based on insights from European Union project: "*Enhancing CSO's capacities to contribute to forest governance and sustainable growth in the Hyrcanian Mixed Forest eco-regions-HYRGROW*", arising from two field trips which involved the attendance to several workshops and conducting 12 interviews with different types of stakeholders ranging from: different CSOs representatives, public officer, and local entrepreneurs in the study area. In addition, knowledge and experiences of TAKRA team was considered in this study.

We acknowledge that further depth could be done including scholarly literature on the topic of forest governance, participation and community-based development. But still, we hope it provides a good basis to identify areas for improving the role of CSOs in the governance of natural resources and development in Iran.

[14] Maps: Medicinal & Aromatic Plants
[15] Mansuri & Rao, 2013

- **Challenges for the creation of CSOs and local businesses in Iran**

In this chapter we have identified different types of barriers which hamper the effective development of social and economic organizations that could work towards green jobs and local development based on the use of NTFP. In addition to the main problem of weak social capital in Iran, we have identified three main challenges in the Hyrcanian region. This area of study is located in the northern part in Alborz Mountain range and the southern part of the Caspian Sea and counts with one of the largest forested areas in the Country.

- **High administrative complexity and uncertainty prevent local entrepreneurship.**

The interviews show that NGOs, CSOs and local business share many burdens when they initiate the process of creation and obtaining licences to legalize their official status. These burdens entail long highly bureaucratic processes and unclear procedures which require the approval of different ministerial departments operating in silos.

Moreover, licences are required not only for the establishment of the organization, but also to determine how these new businesses are to be run, their dimensions and other aspects related with health (e.g. pollution associated with the agricultural use of adjacent land).

Moreover, licencing processes are not a single stage, and sometimes involve different applications throughout all types of activities related to business promotion and marketing. For instance, to set up a fair, public banners, access from customers (tourists).

All these burdens stop investment and therefore growth and creation of new job opportunities. Licencing normally is disconnected from training.

- **Significant capital required and weak tenure rights are at the roots of conflict**

Setting up businesses requires significant capital to cover expenses such as a business plan, licensing, and other non-formal economic taxes. Economic investment is seen as desirable in rural areas. However, scholars (Wilkinson and Pickett 2009, Stewart 2009) point at social and economic inequalities as the main source of social unease and conflict. Consequently, those concerned with promoting development and reducing poverty should address what types of businesses are being promoted and what their social impacts are.

Moreover, in a context of weak tenure rights, uncertainty can trigger small landholders selling their lands to urban developers (or for construction of the second house for rich people who are living in big cities but they prefer to stay in rural area during the weekends or holidays). As a result, free land for setting local business is becoming more and more scarce.

An example of conflict found in the area is because of potential investors (that can afford land and licencing costs) and their clients come from urban and wealthier areas and therefore they are unaware of local needs and culture. On one hand, traditional practices (e.g. odour, livestock activities, etc…) can be perceived as huge inconveniences. On the other hand, the social unacceptance by the local communities of these activities which are seen as a threat to their cultural/social norms and quietness of rural areas (music, litter, their clothes/habits, etc..).

- **Current close networks can hinder innovation and open exchange of information**

Networks are key to support new businesses and civil society organizations. This support can take many forms being the exchange of information one key advantage. For instance, networks are key for sharing information about potential markets. Those networks can be formal or informal. Training and education are key to create and maintain these informal networks. Informal networks are key to support groups with high potential on innovation, usually excluded from those networks (e.g. woman and young entrepreneurs).

In some cases, CSOs integrate in their activity, the interested retired public officials. This fact could ease the process of expanding networks and trust building between CSOs and government. Literature shows that social innovation is more likely to get institutionalized in co-creation processes that bring together public and private representatives (based on the Interviews results).

In contrast, some CSOs prefer not to open their activity to State networks fearing to lose independence of action. Moreover, some local CSOs and businesses are reluctant to collaborate with governmental departments because the high transaction costs of changing the system without any guarantee of success.

- **Lack of participatory and collaborative culture**

The challenge is to build up collaboration in a fragmented administration and society. Traditional top-downs development programs, emigration and dissipation of the local knowledge are factors that have eroded self-confidence in local communities. One of the major challenges for CSOs is how to rebuild this trust.

Studies report that although some participatory projects assume world bank guidance principles such as community agency, participation, or social capital. Yet, there is a risk of "copy pasting" terms without considering how these principles can consider cultural and context specificities[16]. These context specificities entail the history of the site and their social norms and structures, existing local knowledge, existing local leaders that can promote collaborative processes internally.

Other studies report on a shared mentality of passiveness and neediness as some constraints to any attempt to promote agency from a bottom-up perspective[17]. Moreover, there is still a legal void to integrate participation in natural resource use and environmental legislation[18].

Over the past two decades some participatory efforts have been made to develop community-based practices supported by the state, CSOs, and foreign donor (based on the Interviews results). For instance, in the study area, the Integrated Watershed Management Plan, run by the local government (branch of the Forest, Range and Watershed management Organization) with support from the World Bank, provided a participatory methodology and the opportunity to give voice to communities in the planning of natural resources management in Lafour County. However, this initiative has found some criticism as local communities have not perceived any benefit from the implementation of the project because some bureaucratic barriers and the governing old fashion rules and regulations.

[16] Naficy et al., 2021

[17] Jütting, 2003

[18] Elham thesis, in progress

- **Corruptions, monopolies, negative competition, lack of standards in producing goods and local products**

Like other places in the world, there are some problems like: Corruptions, Monopolies, Fraud, negative Competition between local producers, lack of standards in producing goods/local products and so on, which cause some issues or barriers so there is less progress in the development plans.

12. Ways to go: What are the potential roles of CSOs?

- **Increase transparency and advocate for administrative simplification.**

In addition to trust building, education/training, capacity building and strengthening social capital, the role of CSOs could be assisting these new initiatives providing legal guidance and support. Moreover, CSOs can make recommendations to the governments on putting high in the policy agenda the issue of administrative simplification strategies to reduce this regulatory complexity and uncertainty (OECD 2009). This simplification strategy should aim at improving efficiency of the administrative processes needed to undertake economic and social activities and minimise costs to businesses and citizens.

CSOs' role could be giving support to ease the process of licences, reducing challenges associated to administrative complexity and uncertainty. Moreover, they could advocate for making the licensing process easier when someone enrols in a specific practice-based training.
CSOs could act as observers in the current land reform policies (Land Cadastre Maps) to increase transparency and accountability of this reform.
More sources of information and resources:

- The OECD Guiding Principles for Regulatory Quality and Performance, www.oecd.org/regreform/principles.
- OECD. 2009. Overcoming barriers to administrative simplification Strategies: guidance for policy makers. 47pp.
- FAO. 2018. Rethinking concessions: improving the allocation of state-owned forests for better economic, social and environmental outcomes. FAO. Forestry Paper Nº4, Rome. 84pp
- FAO and EFI. 2018. Making Forest concessions in the tropics work to achieve the 2030 Agenda: Voluntary Guidelines. FAO Forestry Paper Nº108, Rome. 128pp.

- **Increase the primary accumulation of financial, social and knowledge capital**

CSOs' role could be to support inclusive business models based on collective entrepreneurship principles whenever possible. There are many studies pointing at the high risk to reproduce inequality and individualism in bottom-up processes since these features are part of the political structure and the culture and attitudes of communities[19] [20].

In case collective entrepreneurship is not possible, at least a fair return needs to be provided to all community members. This return could be monetary but also increase local capacities through education (knowledge capital).

Harriss, 2002 [19]
Mansuri & Rao, 2013 [20]

CSOs can also guide about the opportunities that exist in public organizations to absorb funds and services (job training and marketing) and how they can advocate for their rights.

More sources of information and resources:
There are few successful cases in the country that can inspire collective and social action:

i) Nomadic Tribes of Iran – UNINOMAD;
ii) Work and Life clubs;
iii) Resalat Social Development Network.

- **Increase exchange of information and the communication between communities and government and market**

CSOs can act as connectors between civil society, government and markets. Enhancing governmental relations, creating spaces for constructive and innovative interactions could be helpful. For instance, during the project, TAKRA organized a policy-community dialogue with local CSOs and policy officers. At this event, everyone was encouraged to express and appreciate different views.

Dialogue can empower psychologically communities. Moreover, CSOs can support negotiation processes with CSOs or directly advocate for the rights of the local community before the State. For long term changes, CSOs training in soft skills as negotiation and facilitation is desirable.

Governmental relations with local communities might benefit if CSOs identify local entrepreneurs with experience and advocate for them to access state job opportunities, for instance as quality controller or helping cooperatives to get a certification on quality. These local entrepreneurs should have leading roles in local training (e.g.: NTFP production and distribution) and remunerate their work.

For enhancing the access to outside resources and markets, CSOs can elaborate and provide access to information about: i) Accessing market research and information; ii) Product distribution; iii) Micro-financing options; iv) Professional training and education.

- **Supporting the transition towards participatory governance at local level**

Cultural change should be taken as a long-term project which requires endurance and determination. CSOs could be part of this change by preparing the ground and increasing readiness for participation.

There is not a single formula for how to increase participatory governance at local level. Contextual understanding is key to adapt different models of participation to the existing social and political structures and the history of natural resource use and conflicts. if participatory methods take into account existing local structures and history, is more likely to be integrated into the social system and sustained on the long term.

There are different strategies to support participation: i) bringing new methods, prescription of frameworks and goals, fostering internal leaders and ii) supporting CSOs to identify their own ideas and leaders as well as enhancing their skills.

In order to regain trust with the communities involved, we suggest that participation methods and ideas must go hand in hand with implementation monitoring and evaluation. Only by ensuring a return to the communities involved in the process can trust and self-confidence be restored. Here, CSOs play a role in

helping these processes by analysing the problems and following up the decisions in terms of implementation.

An important aspect to consider in these participatory processes is gender and young people. CSOs can provide training and opportunities for increasing the visibility and recognition of youth and women in rural development (e.g., Young Leadership program promoted by the European Forest Institute). These new approaches are more likely to be successful if they are supported by traditional local leaders existing in the communities.

- **An enabling policy and regulatory**

The Caspian Hyrcan forests are Iran's main source of commercial timber and make a significant contribution to Iran's economy. In addition to their economic importance, forests provide crucial ecosystem services such as carbon sequestration, regulating the flow of water through the ecosystem, influencing processes such as infiltration, river flow, sedimentation of water and soil erosion. These processes affect other land uses such as agriculture, livestock and orchards, which are the main sources of income for most people in the Caspian Hyrcanian landscape, and which produce exportable goods for the rest of Iran.

Sustainable management of these forests is therefore critical for both the livelihoods of the local populations and for Iran’s economy as a whole and this importance needs to be reflected in the policies and regulatory frameworks guiding land use practices.

All productive sectors involving land use, including forestry, agriculture, livestock husbandry, water management, tourism and the development of infrastructure, can negatively impact on the natural environment if managed inappropriately. For example, traditional livestock practices, impacting on a vast area of land across altitudes and landscapes, are widespread in the areas and are damaging to forest habitats. Therefore, policies and frameworks for all these activities need to take into account the whole landscape and the environmental cost of the activity rather than focusing only on the activity itself. Mainstreaming the conservation of the forests and their biodiversity outside of PAs into government policies will help to ensure that all activities influencing the landscape are carried out in a way that minimizes their negative impact and sustains the health of the forest in the long term.

- **Strengthening the institutional and staff capacity for forest management**

With policies and regulatory frameworks in place to ensure the mainstreaming of best practices in biodiversity conservation, there needs to be the capacity to manage the land and resources accordingly. A significant investment needs to be directed towards activities involving the sensitization of local governments and authorities to the relevant policies and regulations and guidelines for enforcement.

Strengthening law enforcement capacity, including increasing the number of staff, providing relevant management and communication systems, will improve the ability of authorities to adopt multi-use approaches, manage the areas and seasonal changes in biodiversity, control illegal logging and inappropriate land use techniques.

Comprehensive management plans based on policies and the use of appropriate management techniques will guide stakeholders towards best practices. Stakeholder awareness of the science behind sustainable forest and landscape management, as well as training in techniques such as biodiversity monitoring, zoning, then use of the biodiversity reserve and appropriate cultivation and harvesting methods in forestry practices, will enable stakeholders to better implement their management plans. With the

established knowledge and skills base, practical tools to help more efficient land use as well as better communication between stakeholders will reduce conflicts between land users, allowing the landscape to be managed sustainably in its whole.

- **Community engagement in integrated and multiple-use forest management**

Integrated and multiple-use forest management will give local communities more power over their land, a greater sense of ownership, and therefore more reason to want to protect it. It gives local land users the knowledge and skills to manage the land themselves together with other land users, increasing connectivity and reducing their dependence on external help and services, for example plantation managers, and thus increasing their own earnings. Establishing functional pilots involving community-engaged management will help determine the best procedures and techniques to use for successful forest management, and lessons can be learned, and the system replicated elsewhere.

Conclusions

Forest governance in Iran involves the management and regulation of forest resources in the country. The Iranian government, through various agencies and policies, aims to protect and sustainably utilize its forests. The Forests, Rangelands, and Watershed Management Organization of Iran (FRWO) is responsible for overseeing forest governance and implementing relevant policies. The FRWO focuses on conserving forest ecosystems, preventing deforestation, promoting afforestation and reforestation, and controlling illegal logging. However, more efforts need to be made to balance economic development with environmental sustainability to ensure the long-term viability of Iran's forests and their ecological functions. The government encourages community participation and collaboration with local stakeholders in forest management, but the government should also work on trust building and strengthening social capital. However, there is a top-down approach in planning system and local communities and CSOs have a poor role and responsibility in forest governance. There is a need to involve them in forest decision making processes.

CSO roles should include increasing transparency and advocating for administrative simplification, supporting the accumulation of financial, social, and knowledge capital, facilitating information exchange between communities, governments, and markets, promoting participatory governance at the local level, advocating for enabling policies and regulations, strengthening institutional capacity for forest management, and engaging communities in integrated and multiple-use forest management. It is necessary to understand the context, and promote gender and youth inclusion, policy coherence, capacity building, and community engagement for achieving sustainable development and effective natural resource management.

Moreover, after trust building, it is necessary to mobilize CSOs, brief them and sensitize them that they should care about forest ecosystem and its ecological services (because part of their livelihood depends on forest resources in different form of NTFPs and also in some places, forest dwellers use forest fuel for cooking and heating their house). They need have a voice and they need to be involved in the planning process by establishing a proper CSO/institution based on their cultural and social conditions, they can decide which form of CSO is suitable and more reliable and more effective for them. Once CSOs are mobilized and recognise that they need to have a role in planning system for achieving a better life for them and their children, then they need support for organizing themselves in a CSO and learn leadership

skills. Finally, when they are better organised and capacitated, CSOs need to reinforce their networking. As one single CSO is not so powerful and has a weak voice, but if different CSOs have a good communication and agreement and cooperation in form of a network. Then, through cooperation, they have strong voice, more power, and more success for achieving their objectives.

HYRGROW project has taken a step forward to achieve a more participative society and enhance CSOs' capacities and role. However, further steps need to be done to involve local communities and beneficiaries in the process of forest governance and promote a transparent and democratic sustainable growth in the Hyrcanian forests.

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