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Plant Biodiversity Governance in Turkey

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Abstract

Biodiversity is an indispensable source to meet the basic needs of human being, notably food and nutrition. Turkish people traditionally depend on biodiversity and developed many traditions and customs associated with biodiversity. Therefore, its management and conservation is of particular importance for Turkey. Biodiversity is diminishing due to several reasons most of which are human-induced activities. Agricultural areas are shrinking, soil and water resources are rapidly being polluted. In view of the ongoing population growth, it's inevitable to encounter with more serious environmental problems in the near future. The concept of governance is relatively new for Turkey. It is possible to speak of management rather than governance. Due to strong centralisation in issue of conservation and management of biodiversity, state alone played the major role ignoring the participation of stakeholders. Rio conventions can be considered as the starting point for the governance practices. Following the ratification of the Rio conventions, governance concept began to take place and implemented in biodiversity related plans, programs and practices. Despite the implementation of many environmental protection programs in accordance with this understanding, local public segments at large that have traditionally been excluded from governing the sources seem to be sceptical to the new approach. On the other hand non-governmental organizations are playing more active roles today for public awareness activities and participatory resource management. For proper governance of biological sources, support of research activities concerning sustainable use of biodiversity at all levels, together with proper and effective environmental planning are needed.

Key words: Plant biodiversity, Turkey, biodiversity governance, natural resource management

Türkiye'de Bitkisel Biyoçeşitlilik Yönetişimi

Özet

Biyoçeşitlilik, özellikle de gıda ve beslenme gibi temel ihtiyaçlarının karşılanmasında insanoğlunun vazgeçemeyeceği bir kaynaktır. Türkler geleneksel olarak biyoçeşitliliğe bağımlı olup, bununla bağlantılı çok sayıda gelenek ve görenekler geliştirmiştir. Bu nedenle biyoçeşitliliğin yönetimi ve korunması Türkiye için özel bir önem arz etmektedir. Biyoçeşitlilik çoğu insan kaynaklı nedenlerden dolayı giderek azalmaktadır. Tarım yapılan alanlar daralmakta, toprak ve su kaynakları hızla kirletilmektedir. Nüfus artışı dikkate alındığında yakın gelecekte daha ciddi çevre sorunlarıyla karşılaşılması kaçınılmazdır. Yönetişim kavramı Türkiye için oldukça yenidir. Türkiye'de yönetişimden daha çok yönetimden söz etmek daha doğru olur. Biyoçeşitliliğin muhafaza ve yönetimi üzerinde mevcut olan merkeziyetçi yaklaşım nedeniyle devlet, paydaşların katılımını göz ardı ederek tek başına temel rolü oynamaktadır. Rio sözleşmeleri bu bakımdan yönetişim anlayışı için başlangıç noktası olarak kabul edilebilir. Rio sözleşmelerinin onaylanmasının ardından biyoçeşitlilikle ilişkili konularda hazırlanan plan, program ve uygulamalarda yönetişim kavramı dikkate alınmaya başlanmıştır. Birçok çevre koruma programlarının bu anlayışa uygun bir şekilde hazırlanmasına karşın, uzun yıllar boyunca geleneksel bir şekilde doğal kaynakların yönetiminden dışlanmış olan kamu kesimi, yönetişim kavramına hâlâ kuşkulu bir gözle bakmaktadır. Diğer yandan sivil toplum örgütleri günümüzde toplumsal farkındalık yaratma ve katılımcı kaynak yönetimi konularında daha aktif rol oynamaktadır. Biyoçeşitliliğin uygun bir şekilde yönetişimi için, biyoçeşitliliğin sürdürülebilir kullanımına yönelik araştırma çalışmalarının her düzeyde desteklenmesi yanında uygun ve etkin bir çevre planlamasına gerek vardır.

Anahtar kelimeler: Bitkisel biyoçeşitlilik, Türkiye, biyoçeşitlilik yönetişimi, doğal kaynak yönetimi

Introduction

Over the last two decades catastrophic changes took place in Turkey in the field of natural resource management. Turkey became more and more liberalised, politically and economically in this period. The role of state shifted from manager or operator to somewhat regulator and coordinator in many sectors. During this period, the state handed over several sectors to private companies including banking, production and construction sectors. Decentralisation attempts are still taking place in several other sectors. This trend showed its impact on biodiversity governance and natural resource management.

Turkey is located in the sub tropic zone, bordering the Black Sea, between Bulgaria and Georgia, and bordering the Aegean Sea and the Mediterranean Sea, between Greece and Syria. The area of Turkey is 779450 sq km (300947 sq mile). The Asian part (Anatolia) of Turkey accounts for 97% of the country's area. It is also known as Asia Minor, Asiatic Turkey or the Anatolian Plateau (Karagöz, 2000; Güner et al., 2012). The European portion of Turkey, known as Thrace, encompasses 3% of the total area but is home to more than 10% of the total population which is 78.741.053 as of first quarter of 2016 (TUIK, 2016). Growth rate of the population is around 1.3% (TUIK, 2016).

Despite increasing environmental problems, Turkey still retains most of its natural structure. There are many species, which survive through special artificial means in other countries, are found living in their wild and native forms in Anatolia (NBSAP, 2001). The topography of Turkey exhibits significant variety where ecological factors change frequently over short distance. Asian section is a large, roughly rectangular peninsula situated like a bridge between Europe and Asia. The term Anatolia is most frequently used in specific reference to the large, semiarid central plateau, which is rimmed by hills and mountains that in many places limit access to the fertile, densely settled coastal regions. Major part of the Asian section consists of a high plateau with mountain ranges along the north and south coasts. The plateau extends from west to Aegean coast, with many river valleys (Tan, 1995). The European section of Turkey is a relatively flat fertile hilly land. Entire land exhibits extraordinary ecosystem and habitat diversity which results in a considerable species diversity (NBSAP, 2007).

Three phytogeographical regions, Euro-Siberian, Mediterranean and Irano-Turanian overlap in Turkey. Euro-Siberian Region stretches along most of North Anatolia and European section. Climatically this region is the rainiest one. In the eastern part of the region, annual precipitation exceeds 2.000 mm where tea plant is grown there. Most of the region is covered with forests. Mediterranean Region covers all areas bordering Mediterranean and south western part of European Turkey. Evergreen shrubs, red pine and maquis vegetation dominate. Irano-Turanian Region is the largest of all. In a broad sense it extends from central Anatolia towards Central Asia. Climate is continental and generally step vegetation dominates in the region. This region holds the highest number of endemic plant species (Davis, 1965).

Turkey hosts 11707 plant taxa with 3649 endemic to Turkey (Güner et al., 2012). The total number of invertebrate species in Turkey is about 19000. The total number of vertebrate species identified to date is near 1500. The fact that Turkey is located on two major bird migration routes in the world makes it an important place as a feeding and breeding area for birds. Around 460 bird species, 161 mammal species, 141 reptile species, 480 sea fish species and 236 inland waters fish species are known to live in Turkey. The number of insect species identified in Turkey so far is about 30000, although the estimated number is between 60000 and 80000 (NSAP, 2007).

Challenges of plant biodiversity

It is assumed that present steppe dominant vegetation in great portion of the country is the result of long term anthropogenic effects. Majority of the area was covered with forests in the past. Historically Turkey has been a path way for many civilizations and hosted many of them. Movement of communities contributed to enrichment of genetic diversity by transferring mainly the cultivated species as well as the seeds of wild plants from one place to another. Threat to plant genetic resources begins as the population grows bigger than sustainable level. The changes have become faster in the last century due to reasons such as agricultural activities (e.g., plowing pastures for cultivation, over grazing in pastures, burning the stubble, excessive use of fertilizer and chemical, extension of high yielding cultivars); industrialization, urbanization and construction of highways and dams, over harvesting from nature, deforestation and forest fires, lowering of water table due to irrigation, amelioration of damp and saline areas, forestation activities carried out at unsuitable places and tourism activities particularly after 1950s (Tan, 1998; Karagöz, 2003; Şehirali et al., 2005; Karagöz et al., 2010; Karagöz et al, 2016). As a result of above mentioned and several other threats to biodiversity, significant portion of the endemic plant species are endangered. It was reported in The Red Data Book (Ekim et al., 1989)

that about two third of the plant species in Turkey is under threat at several levels.

Historical background

Before the Republic was declared, a first reform effort in the field of forestry coincides with the beginning of the structural reform attempts in Ottoman Empire by the year 1839. Initially the suggestions of forestry experts were not taken into consideration. However, a conscious policy of the forest is considered as the beginning of the year 1856 which resulted in positive developments. State allocated coppice for the villagers and put heavier restrictions on selected forests to save them for shipyards use (Güloğlu, 2010). In the meantime the state failed to limit the use of grasslands. For hundreds of years common grazing areas were grazed free of charge, therefore they are not managed properly. Consequently community grasslands even today suffer from overgrazing. This is because there are few incentives for individuals to reduce grazing pressure such as limiting number of animals, grazing period and timely grazing of pastures (Karagöz, 2000; Karagöz et al., 2016).

Declaration of the first National Park in 1958 is considered a milestone in Turkey for biodiversity conservation. During the period from 1958 until 1997, when the Convention entered into force in Turkey, 4% of the surface area of Turkey has been put under protection in various statuses. After the Convention entered into force, this ratio reached 6% (NCSA, 2011), and today it is 7.24% (MFWA, 2016).

Biodiversity conservation policies have been institutionalized in Turkey within Ministry of Forestry (MoF) and Ministry of Agriculture and Rural Affairs (MARA) since 1970, when human pressure on the environment began to increase in the world and in Turkey. On the other hand, *ex situ* conservation activities for plant genetic resources started in 1964 by MARA as one of the first countries in the world.

Legislative arrangements

Starting from mid-20th Century several laws concerning conservation and sustainable use of biodiversity have been issued. Among them are; Forestry Law (1956), Environment Law (1983), Forestation and Erosion Control Law (1995), Pasture Law (1998), Organic Agriculture Law (2004), Law on Soil Conservation and Land Use (2006), Agriculture Law (2006), Seed Law (2006). Besides these laws, many legal regulations in different categories were issued. Although there is no deficiency in the coverage, number and nature of the legal regulations, there are problems in their application and effectiveness. Overgrazing, poaching, illegal logging, construction of summer houses on sea shores and forest areas cannot be fully prevented. On the other hand industrial pollution has a negative impact on biodiversity.

Turkey ratified the Cartagena Protocol on Biosafety in 2004 and issued the Biosafety Law in 2010. This law contains strong provisions on restrictions on genetically modified organisms (GMO) cultivation within Turkey. This law anticipates the establishment of "The Biosafety Committee", which was active since mid-2011. This committee is authorized to allowing products to be imported as animal feed. Even though the NGOs organize campaigns against GMO feed, importation of GM corn and soybeans is increasing with each passing day.

Excessive exploitation of natural resources without paying a fee has been practices for hundreds of years in Turkey. It includes almost all the areas of biodiversity including hunting, fishing, logging, grazing, collecting from nature, as well as biodiversity related elements such as soil and water resources. In many cases state turned a blind eye on invaders of sea sides, forests and pastures which are the main habitat types to host biodiversity elements. From time to time the settlements built on such areas have been legitimized by special laws passed for these purposes. The practices that have adverse effects on biodiversity such as construction of dams and highways have always been priority investments of the governments for sake of development. Although the NGOs are pushing the governments to concern long term environmental impacts of such investments, they generally failed to change the ideas of the past and present governments.

Stakeholder participation

The Ministry of Environment and Urbanization[i], Ministry of Forestry and Water Affairs[ii], Ministry of Food, Agriculture and Livestock[iii] are directly involved in conservation business. Other key organizations with this regard are state planning organization for financial issues, Ministry of Foreign Affairs for international agreements and the Prime Ministry for overall arrangements. Research institutes of the related ministries, Customs Department, Maritime Affairs Department, the Coast Guard and the General Command of Gendarmerie are other key state organizations. The Ministries of Culture and Tourism, National Education, Industry and Commerce, Energy, Transport as well as the academia are among indirectly related institutions.

Historically conservation work has been undertaken by the state. Public sectors have not

been actively included in conservation for many years. NGOs' contribution to the protection of biodiversity is relatively new for the country. Although the public sectors have been included in conservation and management of biodiversity at a limited scale since early 1900, ratification of the Rio Conventions is regarded as milestone with this regard.

There are numerous international, national and local non-governmental voluntary organizations which contribute to the conservation and sustainable use of biological diversity and notably to raising awareness of the public. Turkish Natural Heritage Foundation for Combating Soil Erosion, Reforestation and Protection (TEMA) is the best organized, oldest local NGO in Turkey. It is mainly concentrated on public awareness on soil protection and forestation. However, inadequacy of financial resources is a limiting factor for NGOs, especially operating in rural areas. Professional organizations in general are well-organized. Private sector's interest in biological diversity-related issues is low. As a result, the private sector's capacities are below the desired level. State involves the NGOs as one of the key actors in preparing legislations, management plans and organization of public awareness activities for biodiversity conservation (NBSAP, 2007; NCSA, 2011; Karagöz et al., 2016).

Contribution of the private sector to the protection of biodiversity is almost negligible. However, presence of privately owned *ex-situ* conservation areas such as, Nezahat Gökyiğit Botanical Garden, Hayrettin Karaca Arboretum and Darıca Botanical Gardens are promising contributions of the private sector to conservation efforts.

Capacity gaps relating to management and governance of plant biodiversity

Although several official institutions and NGOs operate for the protection and sustainable use of biodiversity, there are serious capacity gaps in Turkey that led to failure. Not enough importance is attached to the issues on the protection of environment and natural resources in planning at macro-level. Sanctions of the obligations that will implement the legal measures for the conservation of biological diversity in activities relating to the sectoral, regional economic and social development, plans, and programs are not satisfactory enough. Institutions are not equipped enough to implement the strategies, plans and programs prepared. There is a lack of communication and information exchange between subject matter specialists and the administrative staff on fulfillment the commitments.

There are difficulties in systematic compilation and management of environmental data. The data in various institutions and civil society organizations prepared for different purposes need to be transferred to the national data base. However, the exchange of information between the national data base and universities in this regard is extremely weak. Lack of coordination and cooperation between the national data base is conspicuous although it is important for effective use and updating of the data of biodiversity (NBSAP, 2007; NCSA, 2011; Karagöz et al., 2016).

Identification of living things other than plants, fungi, algae, yeast, aquatic products and bacteria has not been completed yet. Number of experts in these areas is sufficient, but the animal kingdom lack in terms of infrastructure and logistic support for identification. Inter-agency cooperation and financial support are also needed. Identification and prioritization issues are closely related to individual capacity and location of the experts. Although academic level of taxonomy capacity is sufficient, individual capacities of officers working in local agencies need to be improved through training. There are not sufficient specialized and qualified staffs for the protected areas and for preparation and implementation of national biodiversity inventories.

Fulfillment of this obligation is connected to more than one institution and to cooperation between the institutions. Crimes committed against biodiversity are often considered faults rather than crimes, consequently, the penalties are not dissuasive. The issue of collection, conservation and use of traditional knowledge is neglected.

Research activities directed to conservation and sustainable use of biodiversity are generally conducted by research institutes of the related ministries. The academic world is either not involved in such issues or the researches are on individual basis to result in publications. NGOs do not have enough capacity to do research. On the other hand necessity of getting the approval of several government bodies for biodiversity related research studies is another factor hindering research studies. In some cases researcher need to get access permits to biological resources from 5 different government bodies.

Most of the studies on this matter are about adding new records to the inventory. Institutional capacity need to be improved on biosafety, biotechnology, conservation of biodiversity and geographic information system and remote sensing (GIS&RS) issues. Research studies need to be

expanded to include those on alien and invasive species, indicators, bio safety, data management, GIS, modeling, mapping, climate change, impacts of biological diversity and adaptation to climate change, methods and technology development on sustainable use of biological diversity, and identification of endangered species. The fulfillment of this process depends on the development of infrastructure and human resources. Equipment and trained personnel are not enough to fulfill all the commitments. Research results cannot be transferred to decision makers and to the related personnel.

Regarding the challenges faced in implementation of the provisions of the Rio Conventions, several common points and synergy areas have been identified. The biggest constraints are reported as lack of financial support and scarcity of trained staff. The following synergy areas were identified with this regard; generating data base system within the scope of Rio Conventions; establishing national monitoring and assessment system for desertification, climate change and biological diversity, and forming a reporting system related to the obligations within the scope of Rio Conventions (NCSA, 2010; NCSA, 2011).

Discussion on the future of plant biodiversity governance in Turkey

Above mentioned conditions indicate that biodiversity loss will continue in Turkey unless drastic measures are taken to curtail unsustainable resource use. It is quite clear that training in all sectors of community is of crucial importance. Another essential point is the research issue. For proper governance of biological sources, support of research activities concerning sustainable use of biodiversity at all levels, participation of researcher into governance, together with proper and effective environmental planning are needed. Awareness on necessity to conserve and sustainably use the biodiversity elements should be spread all the segments of society including children at lower level to policy makers to the top. Public should be included in biodiversity management and policy making.

NGOs should actively contribute to create more legitimate governance setting by increasing awareness within the public and ministries by working more closely with resource users, develop the context of biodiversity governance. Such efforts are expected to stimulate an improved collaboration between the resource users and resource managers, which is an important basis for an environmentally and socially sustainable development. Public participation through training seems to be the number one priority.

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[ii]Previously “Ministry of Forestry”, renamed and reorganized as of 08 June, 2011

[ii]Previously “Ministry of Agriculture and Rural Affaires”, renamed and reorganized as of 08 June, 2011