

Biodiversity and natural resource management in Turkey

Suade Arancli

Introduction

Turkey is one of the most biologically diverse countries in the temperate zone. More than one third of species found in Turkey are endemic, native to the region.

Its diverse habitat types, ranging from coastal to Alpine, contribute to the rich biological diversity of the country. The biodiversity resources include a number of agricultural species, their wild variants, commercially important forest species, medicinal and aromatic plants, animal species and migratory birds, to mention a few.

The Mediterranean ecosystem is species rich and contains a number of endangered endemic floral species. In the Eastern Mediterranean, especially in Turkey, the conservation situation is somewhat better due to strict forest management activities. Lack of full-scale survey on endangered forest ecosystems in the area, however, makes exact estimation difficult. Examples of endemic conifers in the Mediterranean basin are some firs, cypresses and pines (e.g. *Abies pinsapo*, *Abies marocana*, *Cupressus atlantina* and *Pinus nigra* subsp. *dalamatica*) and examples of endemic *dediduous* species some oaks (*Quercus euboica*, *Quercus vulcanica*, *Quercus aucheri*) as well as *Liquidambar orientalis* in Turkey (e.g. Quezel, 1998; Barbero *et al.*, 1990; Akman *et al.*, 1993).

The responsibility for conservation and management of forests rests entirely within the State and belongs to the Ministry of Forestry (MoF) in Turkey. One quarter of Turkey's land area is classified as forestland. One of the main tasks of the MoF, in addition to sustainable management of forests, erosion control,

re/afforestation, and rural development of forest villagers, is to conserve the nature and manage the wildlife and hunting. The General Directorate of National Parks and Game Wildlife (GDNP), within the MoF, is responsible for establishing and managing the majority of Turkey's various categories of protected areas and has a nationwide network of field based staff. It also implements *ex situ* programs for wild fauna. Protected areas under the direction of GDNP are 2.6 percent of the forestland.

Participation in Biodiversity and Forest Ecosystem Management

The Government of Turkey has ratified the Convention on Biological Diversity and has participated in several European activities related to the implementation of the convention into forestry and forest biodiversity. There is greater awareness about conservation of its rich and diverse biological resources and the need for their sustainable management. The National Environmental Action Plan and National Biodiversity Strategy and Action Plan (BSAP) emphasis the importance to integrate biodiversity needs into development and implementation of relevant sectoral policies, and also envisages involvement of all stakeholders such as government, non-government organizations, private sector, the international community and most importantly the local communities who live in villages either in the protected areas or non-protected areas.

Experience in Turkey has also shown that success of natural resource management and biodiversity conservation programs lie in taking people living in the forest village into confidence and by improving their livelihoods. This is being done through the creation of employment and income generation through a system of participatory, sustainable and shared natural resource management. Including development, marketing, transport and credit facilities for small-scale forest based enterprises based on non-wood forest products.

The lack of legal framework for integrated management, with the involvement of the forest communities in forest development plans, has been a major bottleneck in evolving truly participatory forestry practices.

Another problem has been the continuing emphasis in the Turkish forestry on timber production. According to management plans for forest areas, the majority of the area is managed with wood production as the main objective, and minor

role is assigned to other primary uses. It has also led to the widespread view of forest as trees rather than as integrated eco-systems. As a result, neither the forest flora nor the fauna has been optimally conserve or utilized.

Lessons from experiences in forest ecosystem

In Turkey in the 90's several externally aided community based projects were implemented in the forestry. These projects have provided valuable experience to the forestry professionals and to the non-governmental organizations working in and around the forest areas. This is especially important an extensive *in situ* practical training program for forest villagers which was the most effective method for stopping the illegal felling, grazing and afforestation. By developing link between income generation and sustainable management of forests, and by giving the villagers the knowledge-based tools to achieve this, the education program provides substantial incentives for reducing biodiversity loss and other negative environmental effects in unsustainable forest practices in both protected areas and unprotected areas.

Wildlife Ecology Planning and Management Project implemented in Kure Mountains Natural Park of GDNP, best illustrates how project outcomes can be jeopardized by insensitivity to local needs and perceptions. An evaluation of the project shows that resources were steadily decreasing while local communities had difficulty in their survival. In the longer term returns to the villages would be improved by adopting a conservation and sustainable approach to the use of resources. Included in this would be a cash return from the resources and visitors.

Then, understanding the linkages between environmental, economical and social development will assist in developing conservation programs, and approaches and techniques for monitoring which will help to improve sustainable ecosystem management.

However there is a growing emphasis in the Government on integration of conservation programs and activities on social development with forestry and environmental conservation programs. There is an awareness and commitment towards the changing role of forestry sector, wherein involvement of all the stakeholders, more particularly, of the primary stakeholders, that is, the forest villages communities, are considered essential.

Primary stakeholders in natural resource management

One of the major threats to Turkey's biodiversity and ecosystems is the unsustainable use of natural resources by resource poor people living in the forest villages.

In Turkey, 10% of the population living in forest villages is in the lowest level income group, heavily dependent on forests and natural resources. They are therefore the primary stakeholders in sustainable management of forestry and other natural resources such as grazing, non-wood forest products, wildlife, ecotourism, soil and water etc.

The existing policy of the Government ownership of the forests allows very limited benefits to the local people and serves as disincentive for community participation. Most of the policies have been framed in the past, without consultation with the stakeholders. These policies are however, under review with the aim of providing a greater income share to this group.

Biodiversity and natural resource management project- GEF

The government recognizes the importance of the country's biological heritage. It has taken steps to reverse the effects of unsustainable resource use. In 1991, a Ministry of Environment was established and a National Environmental Action Plan and National BSAP were prepared. The Biodiversity and Natural Resource Management Project, identified in the BSAP, is an expression of Government determination to improve management of the country's biodiversity.

The project supports a strategy based on conserving biodiversity, and promoting the sustainable use of biological resources. This will be achieved by building institutional capacity and implementing effective and sustainable protected area and natural resource management plans at four priority conservation sites. The principal action to be adopted is developing mechanisms and priorities for replication of this experience to establish an effective network of protected areas throughout Turkey. A significant aspect of the project is therefore to support all mechanisms that help national and local stakeholders participate in decision-making, including government agencies, non-governmental organizations, community representatives, and others in the private

sector. This approach helps to build some of the new skills in inter-sectoral and participatory planning and management.

Priority conservation sites are representative of Turkey's four major biogeography zones. These include the Black Sea and Caucasian mountain region; the Central Anatolia Plateau and the European and Mediterranean regions.

The project is charged to determine; legal framework, institutional needs, capacity building, put in place planning and management system, establish biodiversity monitoring system, enhance community participation, improve public awareness and find mechanism to promote the financial sustainability of protected area and biodiversity conservation.

One of the project site in the Mediterranean forest - Koprulu Kanyon National Park

The Park is at the high alpine ecosystem of the Taurus mountains in Southern Turkey (approximately, 36,614 ha., altitude 400-2,500m).

Koprulu Kanyon was designated as a National Park in 1973. However, after designation of the park, no remedial or development work has been done in the area. The Canyon has its ancient ruins, and Roman settlement of Selge, which is located within the protected area and designated as protection status (SIT) by Ministry of Culture.

Key features are the canyon of the Koprulu River, 400 ha cypress forest which is a biogenetic reserve, the maquis formation, the monumental trees, the water resources, geological and land scaping features with unusual rock formations, and ancient ruins (theatre, castles, aqueducts, bridges, roads) scattered through out of the Park, including the Roman city of Selge. There are seven villages and hamlets in the park with total population about 5000.

Tourism is the key activity with roughly 350-500,000 visitors per year. Tourism is centred on the unmanaged rafting activities, which is a major area of concentration for management plan activities in the park. There are 26 rafting operators in the area, which attract about 4,000 rafters daily. During the peak season, it exceeds 5,000 per day. Rafting currently generates about US \$17.5m per

annum to the operators. There is no system to charge fee from the visitors for the park. Rafting companies do not pay. Currently the Government (GDNP) does not collect fees from rafting companies and they have not permission from the national park organization in order to operate business, construct buildings in the park. Regarding the control of rafting activities there are conflicts between villagers as well as local rafting companies and rafting companies from outside.

Biodiversity in the Park

Vegetation is characterised by the Mediterranean *maquis* (below 400m), the *Pinus brutia* forest (400-1200m), the *Cupressus sempervirens* forest (650-950m), the *Pinus nigra* forests (1100-1500m), the *Cedrus libani* forests (1400-1800m), the *Juniperus excalse* forest (600-1500m) and the sub alpine belt (1700-2500 m.) (OGM, 1986).

The park is rich in flora and fauna. Some of the important fauna short-toed eagle (*Circaetus gallicus*), golden eagle (*Aquila chrysaetos*), sparrowhawk (*Accipiter nisus*), kestrel (*Falco tinninculus*), buzzard (*Buteo buteo*), long-legged buzzard (*Buteo rufinus*), eagle owl (*Bubo bubo*), Little owl (*Athene noctua*), rock nuthatch (*Sitta neumayer*), krupper's nuthatch (*Sitta krupperi*), brow bear (*Ursus arctos*), lynx (*Lynx lynx*), caracal (*Felis caracal*), wolf (*Canis lupus*), badger (*Meles meles*), wild boar (*Sus scrofa*), red fox (*Vulpes vulpes*), eurAsian otter (*Lutra lutra*) (OGM, 1986).

Threats in the Park

- *Lack of Trust*; between GDNP and communities who live in and around the park.
- *Overgrazing*; there is considerable number of goats scattered over the entire region. The present utilization of the area by goats is a threat to vegetation and ecological system in the park.
- *Illegal cutting*; unmanaged utilization area in the park. There is timber and fuel cutting for subsistence use. The high pressure on the cypress forest is a particular concern.
- *Wildlife poaching*; despite wildlife being protected with in the boundaries of national park, it suffers mainly from poaching and competition with livestock.

- *Unmanaged utilization of non-wood forest products*; data on the non-wood forest products are limited.
- *Inadequate management and control of tourism activities*; have a direct impact on the biodiversity.
- *Illegal construction and cadastre*; Illegal construction in the park and the varying claims and conflicts over settlement in the protected area are critical threats to the ability to form collaborative partnerships with local residents.
- *Environmental pollution*; in the natural park in general and water resources.
- *Degradation of cultural sites and landscape*; the ancient city of Selge is not properly manage and maintained. Ruins are degraded by public use, illegal construction and inappropriate restoration.
- *Outdated Master Plan*; the management plan developed in 1971 with the assistance from USAID. Although the plan is solid technically, due to staffing constrains and lack of staff in the park, the plan has been only partially implemented. Master Plans for National Parks in Turkey primarily developed by technical staff in the GDNP in the central level along with consultation, individuals, private companies and University Professors. The process is mainly drive from the central level. The plans are very detailed and result in large documents, additionally because of the lack of technical experienced staff in the provincial level; the park's master plans are hardly implemented.
- *Overlapping jurisdiction in the park* between the Ministries of Tourism, Culture, Environment and Forestry leads to confusion and inappropriate action.
- *Picnic area in the park*; unmanaged and over utilization.
- *Fire risk*; an important risk of fire exists by tourism development activities.

Achievements up to now

Under the project Koprulu Kanyon has focused on a variety of activities, which relate to community utilization of the area, community relations and mechanisms for enhancing community involvement in planning and management of the area. Grazing and the utilization of timber and non-timber forest products are of particular importance.

Priority conservation targets have been identified under the development of threat-reduction strategy and action plan have been prepared.

In order to help goals and purposes, field staff developed mission statement in Koprulu Kanyon National Park. A training needs assessment was conducted for field staff and park guards. Based on the initial needs assessment, training was provided for staff in participatory approach methods and tools, stakeholder analysis, problem solving, facilitation, conflict management, communication, public relations, ecotourism, team build, protection included a field site practicum.

Long-term protection status threat and opportunity subjects developed, under this program include:

- Sustainable tourism development plans focused on the tourism development plan.
- Potential conservation-linked product and services for marketing are being assessed.

Multiple stakeholder meetings were held to pursue and develop a common vision for collaborative management of the rafting activities in the area. Community participation; National and international experiences of community based participants and collaborative management were shared. Community participation strategies action plans were designed. Forms of organization presentation of users and communities in management plan development for the promotion of collaborative management system. Collaborative management planning was prepared.

Similarly, for planning and strategy development baseline biodiversity assessments is conducted.

On the other hand, Small Grant Program offers additional flexibility to respond to community needs. Before the implementation of the grants, Draft Operational Manual prepared by project field staff and meetings with communities are continuing, next steps will be establishing committees and preparing projects for grants.

In order to encourage sustainable resource use and promote park friendly business activities social assessment is important. It gives opportunity for starting concrete activities in cooperation with different communities, focusing on the major areas of threats and opportunities as drivers of decision-making process.

In relation to financing mechanism, including procedures for revenue collection, retention and distribution for Koprulu Kanyon developed under this mechanism, potential contribution of revenues from rafting activities established; legal changed are identified; and a time plan developed.

In order to increase social awareness, public awareness programs are organizing for different stakeholders. Public awareness programs in the park increasing support has a link with the financial sustainability and collaborative planning and management by showing that protecting the areas can generate sustainable benefits and provide local stakeholder participation in the management in the park. Also, and in order to develop a park identity, a park logo has been prepared as well as activities to design entrance gate, visitor and training centre, have been started.

Finally, environmental education programs for school children have been prepared and the education program in the schools have been given.

Conclusion

There is a long history of over-dependence on centralized governments, which has not encouraged the development of self-reliance and initiatives.

However the experiences revealed that lack of participation by the local people led to widespread illegal use of resources, loss of biodiversity and waste of potential economic benefits. Moreover, as the views of the local people were not taken into consideration conflicts were inevitable and reduced project benefits.

In order to take steps toward a socially and ecologically sustainable solution to these problems, creating a common vision is the necessary tool for mutually agreeable strategies together with relevant stakeholders for co management of natural resources.

Policies and structures should be revised and developed to better integrate environmental, biodiversity objectives as well as to meet the needs of the local communities in designing natural resource activities and programs.

Effectiveness of the biodiversity and natural resource conservation need long-term commitment and vision instead of focusing on short-term results. In reality participatory approach takes time but the result is much more effective than the conventional approaches used in Turkey.

In conservation projects monitoring of the activities is a major need in order to develop new projects in the future. Both the project activities as well as monitoring of the biodiversity values should be considered from the first step in a conservation project and activities should be built on the monitoring programs.

The holistic approach of assessing environmental problems includes not only the monitoring at several scales and by using a variety of different parameters but also an integrated analysis of ecological, social and economic phenomena. Only an integrated approach in understanding the complex interdependencies between the socio-economic development and natural component would allow a proper understanding of the processes underlying the depletion of biodiversity (UNECE/FAO, 2001).

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