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Role of Local Knowledge in Nature Conservation and Restoration: Experience of GEF SGP UNDP in I.R. Iran

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Abstract

With a civilization that is thousands of years old, culture and nature have formed close linkages in Iran that are more complex than commonly recognized by mainstream environmental institutions and programmes. Cultural tradition and living tradition have been part of people's lives and how they related to the environment. In fact, the relationship between people and nature cannot be separated from their knowledge and how they behave. The landscape/seascape approach embraces this complexity and recognizes that cultural and natural values are interlinked. Landscapes and seascapes encompass tangible and intangible heritage, and in pursuit of environmental sustainability, it is important to recognize the role of intangible cultural heritage. A thriving socio-ecological production, a landscape/seascape is where the local communities are actively involved in the sustainable management and the use of natural resources; where cultural sensitivities, heritage, and knowledge shape the core of where land and nature management come together. Therefore, intangible cultural heritage and knowledge of land/sea management need to be recognized and find its place in the decision-making processes on environmental sustainability. This article summarizes some of the GEF SGP UNDP Iran program experiences since its inception in 2001, by elaborating on a few case studies where local knowledge has contributed to environmental sustainability.

Keywords: Knowledge, Landscape, Socio-ecological systems, Heritage, GEF SGP UNDP.

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Introduction:

A Diverse Natural and Cultural Heritage

Comprising a land area of 1,648,195 km^2, Iran is the second-largest country in the Middle East and the 17th-largest in the world (Figure 1). Iran is surrounded by three large water bodies, the Caspian Sea in the North, and the Persian Gulf and Oman Sea in the South. Despite a general perception of Iran as a desert country, over half of it is mountainous, with an average altitude of 1200m and the highest mountain peak (Damavand) in the Alborz Mountain Range and over 50 peaks in the Central Zagros Mountain of above 4000 m. While the topography of the land is varied, forming landscapes that are connected along an Upland-Lowland continuum, the diversity in the biophysical environment is closely matched with cultural diversity (Figure 2).

Figure 1. Natural diversity of Landscapes/Seascapes in Iran.

The population of Iran according to the latest census was estimated at 80 million, with an uneven distribution in the peripheral mountain regions and the central desert regions.

Figure 2. Cultural diversity in Iran.

About GEF SGP UNDP Iran and its approach

Launched in 2001 in the Islamic Republic of Iran, GEF SGP UNDP has been globally supporting activities of non-governmental and community-based organizations in developing countries (120) towards climate-change abatement, conservation of biodiversity, protection of international waters, reduction of the impact of persistent organic pollutants and prevention of land degradation. To date, GEF SGP Iran has funded over 240 projects covering four GEF focal areas and various geographic and thematic areas. (Figure 3)

Figure 3. Thematic and geographic clustering of GEF SGP UNDP projects in Iran.

Fifteen years of experience working with local communities in Iran has shown that the GEF SGP approach is different and more efficient than the conventional approach towards environmental sustainability (Figure 4). The GEF SGP approach is demand-driven (based on community and NGO needs and aspirations), integrated (since it includes ecological, economic and socio-cultural aspects), focused on capacity building (awareness raising and training are an integral part of project activities), and based on building networks (including key stakeholders). While the conventional development approach is supply driven with projects and budgets approved in advance and at the sectoral approach (i.e. promoting only one sector of economy such as agriculture, fisheries, forestry).

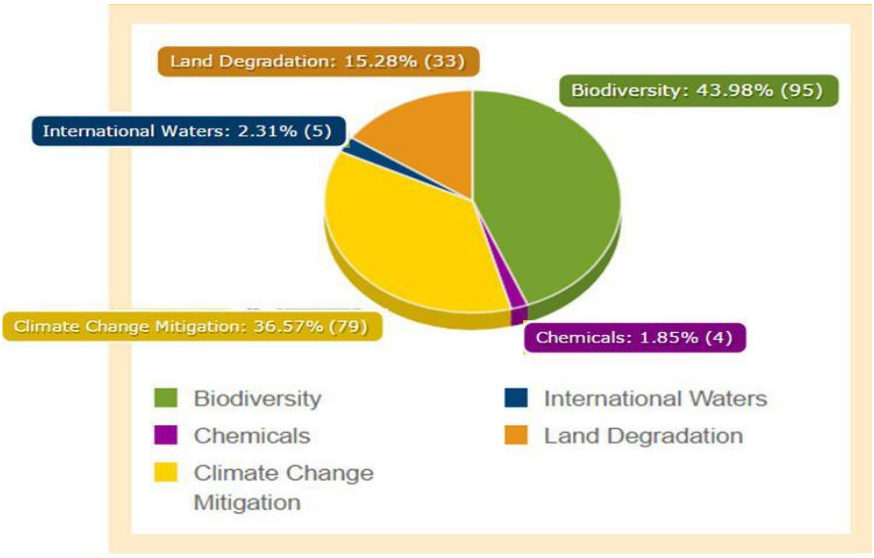

Figure 4. GEF SGP approach for promoting environmental sustainability.

In addition, one of the key elements which has contributed to the successful implementation of GEF SGP projects is due to its multi-stakeholder approach, which tries to involve key stakeholders in decision-making from the very early stages of projects. The National Steering Committee of the programme is also composed of representatives of government, non-government, academia and local communities.

Role of Local Knowledge in Environmental Sustainability

By elaborating on fifteen years of GEF SGP UNDP programme experience in I.R. Iran, a few projects have been selected here as case studies to show how local knowledge can contribute to environmental sustainability:

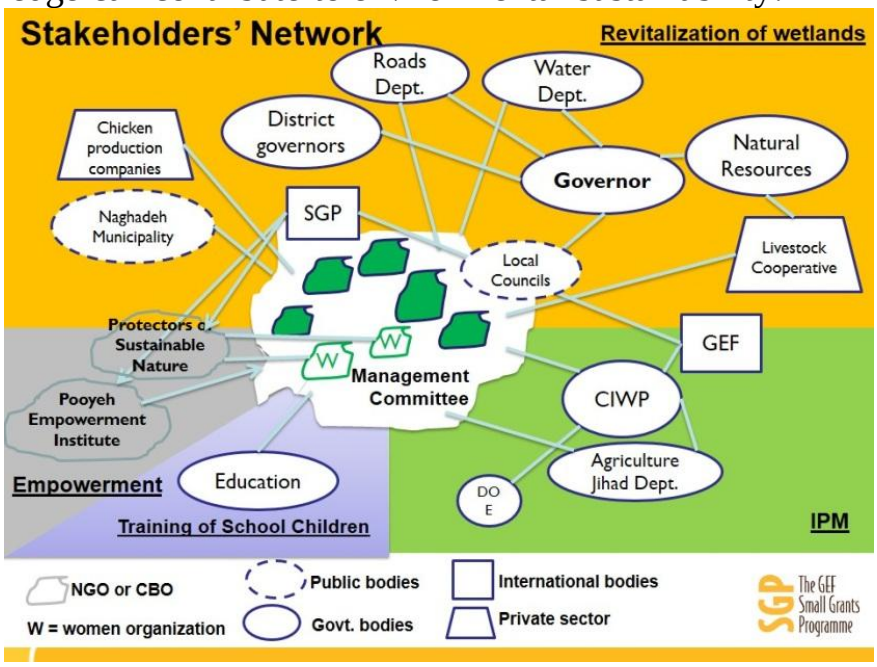

Figure 5. GEF SGP's multi-stakeholder approach.

Climate Change

Lake *Urmia* is one of the world's largest hyper-saline lakes, which has been shrinking dramatically during the past decades, which could be partially due to mismanagement of water resources and partially due to climate change. As this large lake is declining, the surrounding freshwater wetlands (known as 'satellite' wetlands) are gaining increasing importance both for wildlife and for sustaining livelihoods of local communities. In 1996, *Sirangoli* wetland (south of *Urmia* Lake) completely dried out. However, some local community members who still remembered *Naghadeh* Plain as a "Green Belt," lush with vegetation and rich in wildlife, took action and formed the *Soldouz* Friends of the Environment Cooperative in 2004. During field surveys, they discovered that the degradation of the wetland was the result of various factors, including drought, unsustainable water irrigation, digging of too many water wells by farmers and lastly but most importantly, neglect and sedimentation in upstream traditional canals, which stopped water from flowing into the wetland.

After forming an alliance with three other NGOs and with support from GEF SGP Iran, 18 km of traditional canals from Godar River were dredged to maintain the flow of unused farming water during winter to *Sirangoli* wetland. After three years, *Sirangoli* was filled with water again and local livelihoods such as herding and livestock breeding as well as agriculture were improved. This project, in fact, showed that through community efforts and knowledge, wetlands could be restored. A concept that was later used to help revive other satellite wetlands in the region (incl. *Hassanloo*, *Dorna* and *Zinevar* wetlands). In 2007, the local representative of the Umbrella Group of *Naghadeh* NGOs was recognized as a National Wetland Champion and, in 2015, this project won the UNDP Equator Prize.


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BIODIVERSITY
CLIMATE
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Figure 6. *Naghadeh* NGOs receiving the Equator Prize from UNDP Administrator
and UN Assistant Secretary-General, Assistant Administrator and Director of the Bureau
for Policy & Programme Support.

Based on the previous successful efforts in this region, in 2012 GEF SGP, in collaboration with the Conservation of Iranian Wetlands Project (CIWP), supported local communities in Sirangoli and Ghori Gol wetlands to apply IPM/IPCM methods and move towards more sustainable agriculture practices, drawing on local knowledge. As a result, chemical inputs were reduced on average by 40%, and agricultural water consumption was saved by about 35 to 50%. In fact, agriculture is one sector, which suffers most from climate change and is a high demand in terms of water usage.

Biodiversity Conservation (1992)

Plant diversity in Iran is high and local communities have been using them for thousands of years for various purposes such as medical and nutritional purposes. However, prolonged periods of drought and lower rainfalls, have pushed farmers to find more resilient crops. For this purpose, local farmers from

Garmsar region with support from GEF SGP have been working on Participatory Plant Breeding (PPB) and Evolutionary Plant Breeding (EPB) based on local knowledge. In EPB, farmers exchange a small amount of seed and plant and harvest the sample of seed in the first year, yielding in the 2nd year and 3rd year. The frequency of genotypes with adaptation to local conditions gradually, increases and farmers collect the best seeds and establish their own seed bank, which later they can share among themselves.

Wetlands

Iran has a diversity of wetlands some of which are the important bird areas (IBA) and are registered as Ramsar Sites. Due to lower rainfalls as well as mismanagement of wetlands (e.g. drainage, the infilling for land reclamation, agriculture, dams, over-fishing, and pollution), the ecosystems of wetland are on the decline. However, in Fereydunkenar Wetland Complex which is the only wintering habitat for the Critically Endangered Siberian cranes, it is through the local knowledge and know-how of local of rice farmers that the habitat is preserved. In fact, the farmers use their own lands in summer for rice cultivation and in winter for duck trapping. For the same purpose, they know how to prepare and maintain the wetlands. As a result, in 2001 a project was supported by GEF SGP to build on local knowledge and engage the farmers in the protection of the Siberian cranes, the last remaining western flock. As duck trapping was socioeconomically and culturally important for locals, the project had to act as a bridge between the governments (DoE) and the local trappers and help them to be recognized officially. In 2004, these wetlands were registered. In addition, follow-up projects were supported to promote sustainable agriculture, through Integrated Pest Management (IPM) in nearby villages (e.g. Souteh and Ezbaran). These initiatives were undertaken by applying Farmer Field Schools (FFS) methodology and encouraging the farmers to use their local knowledge to help reduce pesticide use in one of the most important rice cultivation areas of Iran.

Forests

Zagros Mountain is known for its unique Oak Forest. In fact, millions of hectares of forest (accounting for approximately 40% of all Iran's forests), is found in the Zagros mountain range. In past decades, multiple factors have contributed to the degradation of this unique landscape such as drying of its native Oak Forest, over harvesting, overgrazing, and land degradation. These are some of the reasons for which GEF SGP has been supporting local community initiatives towards environmental sustainability in the Zagros region. One of these projects was in Haverh-Khol Village near Baneh (Kurdistan Province) where *Galazani* was practiced to sustain and regenerate fodder yield for livestock, each *Galajay* (management unit) being divided into four parts (annual cutting areas) in which all the branches of tree, and some of

the young trees are cut on a four-year rotation. Through this traditional forestry technique, each extended family managed custom defined territory of forest or *Galajay*. Families took turns to manage territories, and each territory was exploited once in three years. In fact, the project was able to influence National Forestry Policies in 2003, and Havareh Khol project achievement was a platform for a second project entitled "Organizing and managing *Galazani* in Armardeh area (same region)", designed and implemented by North Zagros Research and Development Centre to promote sustainable livelihoods and reduce the pressure on Oak Forest.

Rangelands

Rangelands in Iran have historically been managed by tribal communities Some of the most important community-conserved areas in Iran belong to the tribal communities There are many tribes, including the Qashqaies, Shahsavans, Bakhtiaris spread all over Iran. Tribal communities are highly organized in terms of social structure. Customary territories of tribal communities comprise summer and winter territories as well as migratory corridors. In the past, decisions about the timing of migration were taken by the tribal elders, who were appointed based on merit and trust, and based on their deep knowledge of nature. For example, in times of extreme drought when rangelands could only support the limited number of livestock, the community took an adaptive approach by selling out the extra number of livestock. However, today, as rangelands are more degraded, migration starts earlier to get better access to resources. One of the recent projects that focused on restoration and management of rangelands based on local community knowledge was implemented in the territory of Tackle tribe (Shahsavans). The project was initiated in 2011 and aimed to revive some animal species (e.g. rainbow trout and brown bear) and plant (medicinal plants) biodiversity. In fact, biodiversity contributes to local livelihoods and welfare. Therefore, during the project, local communities used their traditional and local knowledge for the restoration of the biodiversity in this area, establishing a Community-Conserved Area (CCA) to be able to promote community-based tourism projects.

Marine & Coastal Environment

The coastal communities of *Qeshm* Island in the Persian Gulf are highly dependent on marine resources. However, industrial fishing (trawling), the overuse of these resources, pollution and environmental degradation have caused a considerable decline in marine resources, namely affecting fisheries and local livelihoods. To ease this problem, in 2002, a local fishing cooperative along with *Salakh* Village Council proposed a project to GEF SGP to revive fisheries through rehabilitation of coral reefs. The project created a forum for discussion and exchange of valuable local knowledge and technical advice from academia, which resulted in a modulated pyramid-shaped structure that was

designed and made from local materials and inserted into the sea by local fishermen. In fact, one hundred pyramid-shaped structures were produced by May 2004 and another hundred in spring 2005. Monitoring of these structures showed that new coral ecosystems had been formed. This community-led initiative also generated interest among other stakeholders too (e.g. Fisheries Organization and the Department of Environment) to investigate the possibilities of expanding this project to other areas.

Desert Environment

The *Abolhassani* nomadic tribe has lived and migrated seasonally in *Touran* area of the Central Desert, one of Iran's nine UNESCO Biosphere Reserves. The ancestral domain of this small tribal group comprising about 200 households covers about 61,000 hectares within the Reserve. In recent years, *Abolhassanis* have witnessed and suffered from increasing frequency and severity of droughts, while historically they knew how to live with droughts. Through support from GEF SGP, the community identified land degradation and climate adaptation strategies both through strengthening customary laws and practices and engaging in more innovative ways. Throughout the project, the local community could cope with the lack of water, and elaborated a plan for coping with the drought. In addition, they secured a project called "Drops for Life" from a government rural development agency for repairing their *qanats* and building water storage systems.

Nomadic people's traditional subsistence farming is typically limited to some rain fed wheat and barley. However, the *Abolhassanis* have learned to use agriculture as a supplement to their migratory herding of sheep and goats, reducing grazing pressure on natural rangelands. They have also reintroduced drought-resistant local breeds of animals and cultivated several new crops.

Conservation Art

Qashqai designs are categorized into Mythical, Paisley, Janavar (animal creatures), Margin and Bergamot patterns. These patterns are all created by Qashqai women's obsersations and perception of things from inside open tents, learning from one another, weaving, and evolving the art of weaving based on living in nature. Nowadays, most Qashqai tribes migrate to big cities while their own lifestyle is being undermined. Some of them live in a terrible economic and environmental situation in city margins. To alleviate this problem, Parvin Darehshouri the author of the book *Qashqai Designs*, who is herself originally from a Qashqai tribe, gathered a Qashqai women's group and encouraged them to produce handicrafts designed using those indigenous patterns to generate additional income that could have a positive effect on their family's livelihood. By carrying out such an impressive activity among tribal communities, young girls were encouraged to learn about their cultural past, not only for a better livelihood but also for conserving these worthy patterns that are unfortunately

being forgotten. In 2014, these women released some of their work as leather bags and other products as a new collection to the market.

Community-based touism/ecotourism

Concern about the decline of the tribal lifestyle, made an elder of the Heybatlu sub-tribe of Qashqai nomads look for solutions. Previous efforts by GEF SGP in promoting Community-Conserved Areas (CCA) provided the basis for a project on community-based tourism (CBT), in support of territorial integrity and biodiversity conservation in summering grounds of the Heybatlu sub-tribe. The bottom-up approach of this project involved local community from very early stages, conducting a participatory feasibility study. Through close collaboration with experts and the local community, baseline information was gathered and relevant advocacy materials were produced. Also, necessary training was provided to local community members on handling tourists. As a result, the community gained recognition by visitors and government for implementing the first tribal tourism site in Iran and conservation of 8000 ha of the *Heybalu* summering ground of pasture. As a result of the project, in the *Abbas Abad qanat* and in *Chavoush* areas, the vegetation was regenerated by tribal standards (the grass reached knee height, which is the highest expected level of grass in this area). The quality of pasture improved over four years of *ghorogh* (by 25%). The Cultural Heritage Organization introduced the site as "good practice" to include in the UNWTO top stories database. Recently, an article in the *Travel Book* introduced this site as one of the 100 top tourism destinations and won the Kinary International Prize for tourism.

Children & Youth

Since 2013, GEF SGP Iran has supported projects for producing local toys and games. This initiative aims at raising awareness of youth and children about local cultures and natural ecosystems and the wildlife of Iran. By engaging rural women in this process, not only local art and culture are revived but also awareness about endangered species increases and income is generated for local women. Most of these toys are accompanied by a manual which explains how to make them, allowing everyone to take part in the process. It is interesting to note that local toys reflect natural forces. For example, by using *gherghereh* one can learn about gravity and by using *ferfereh* one can learn about the force of the wind. Therefore, locally made toys and games could be used in promoting local cultures and enhance cultural diversity. Through the project, a book was published on *Games of the Children of Qeshm* which reflects the close relationship between children and the sea. Therefore, toys and games have a very important role in children's learning process. Although there are many modern toys around, those that were used in the past, allowed children to be more innovative in their games. They were produced based on traditional games using simple available materials, by playing with these kinds of toys and games;

children used to be closer to their environment and their local cultures. In fact, some of the games helped in building team work such as *Ye Ghol Doghol* that is a traditional game played with stones.

Concluding Remarks

When GEF SGP UNDP started work in 2001 in Iran, there were few development projects using a participatory approach. This programme, therefore, has played a key role in implementing projects through a learning by doing the process that involves directly the local communities and their knowledge to promote environmental sustainability. The program has focused on the following principles:

1. Nature conservation
2. Culture-based knowledge
3. Alternative livelihoods for local communities
4. Participatory approaches

While being sensitive to the following aspects:

- Planning should be based on diversity and lack of uniformity
- Attention to landscape/seascape upstream and downstream connections
- Attention to diversity based on people and their know-how and heritage in the landscapes/seascapes

In fact, the collective experience of the GEF SGP projects has shown that change comes community by community; it does not come through a top-down approach. When development takes shape from the grassroots and based on local knowledge and know-how, it is more sustainable; and when the communities are empowered to be part of the solution, then innovative solutions arise. Participatory assessments, planning, and implementation are what GEF SGP and the grantees in Iran have been doing. This article reflects some project experiences where local knowledge was the key to move towards environmental sustainability, which could be the basis of registering some local knowledge as intangible cultural heritage.