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The Conformity of Iran's Protected Areas with IUCN Categorization System

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Abstract: The main object of this research is to define the real status of the 4 category (the protected areas) in Iran compared with IUCN categorized system. So, the protected area of Maracan with an extension of 103983 hectares situated in the northwest of the country was selected as a case study. The methodology is as soon as the ecological and socio-economical resources which led to the supplement of the resources base map (scale:1:50000) were identified the mapping and zoning processes founded on an analytical system resulted in the grasp of the environmental unit. At the final stage, the zoning model was ascertained. This study intends to find out whether the protected of Maracan matches with one of 4, 5 and 6 categories of IUCN or not. Its consequences indicated that the protected, the recovery, the buffer, the intensive and other zones in Maracan have allocated 52, 8.27, 11.35, 1 and 27% of the plane region to themselves coming one after the other. At the end, the research is suggestive of the 4 category management to protected area of Maracan and the Environmental Conservation Organization of Iran must conform all of protected areas to IUCN categorized system with mentioned methodology.

Key words: Protected areas, zoning, protected area of Maracan, IUCN, systematic analysis

INTRODUCTION

IUCN has precisely defined the protected areas as follows: protected areas are a part of the land or marine dedicated to conserve the biodiversity, natural resources and cultural inheritances pertinent to the resources; besides, they need to be managed through the law and other effective means (Philips, 2002).

The world conservation union was founded in 1948 and Iran, as a new member, joined the IUCN in 1974. The union has brought together 140 countries and achieved 6 commissions. One of its main commissions runs and administers the national parks and the protected areas so well that it could make chief references to the activities of national parks and protected areas permanently (IUCN, 2000).

As soon as the protected areas were constructed by the member states, IUCN published its first package on the guidelines and instructions so as to build the concept for the sustainable management of the protected areas. As the circumstances suggested Miller Kenton supervised and monitored the instructions entitled as the management goals and criteria for the area selection based on 10 differing categories (IUCN, 1994).

The IUCN category system of the protected areas was widely implemented from 1980 up to the 14th world conference on national parks (Bruner *et al.*, 2001), however, it was revealed through the long years of experience that the IUCN system required revisions and reconsiderations. Accordingly, the IUCN general meeting import, Australia 1990 set its first item on the agenda to review and transform the category system (Dearden *et al.*, 1998).

The IUCN new category system was presented in 1992. Following the same year, it established the basis for the categorization of areas in different countries. Based on the system, one can specify the protected areas as follows:

- **Category 1:** Strict nature reserve wilderness area
- **Subcategory A:** Strict nature reserve
- **Subcategory B:** Wilderness area
- **Category 2:** National parks
- **Category 3:** Natural monuments
- **Category 4:** Habitat species management
- **Category 5:** Protected landscapes and seascapes
- **Category 6:** Managed resources protected areas (IUCN, 2003a, b).

Table 1: No. and range of Iranian protected areas and their conformity to IUCN category system

Row	Category name	No.	Ratio to the total area (%)	Range (ha)	Ratio to the total area (%)	Conformity to ICUN
1	National park	19	10.60	1751427	14.40	2
2	National monument	20	11.24	20907	0.17	3
3	Wildlife habitat	35	19.66	3874701	32.00	4
4	Protected areas	104	58.50	6452545	53.40	4, 5, 6
5	Total	178	100.00	1209957	100.00	

Owing to the foundation Of Game Hunting Institute, the first bill for the conservation was passed in Iran in 1956. The law provided an infrastructure to the purposeful program and planning of the wildlife conservation; the Iranian environment conservation organization divided its protected areas into 4 categories. Table 1 shows the number and range of the four areas and their corresponding conformity to the IUCN category system (Madjnoonian, 2002).

The 1st, 2nd and 3rd protected areas in Iran conform to the 2, 3 and 4 categories in the IUCN category system; whereas, the fourth area may conform to the 4, 5 and 6 categories in IUCN categorized system. With due regard to Table 1 the most number and area of Iran protected areas locates in 4 category but unfortunately it has not conformity to any category system of IUCN directly. Because of it we can not act optimum management in these areas. To this reason 4 category has faced to the most destruction. With due regard to fact that the land protected areas ought to be given a worldwide network till 2010; accordingly, the marine protected areas should as well be in possession of the same kind of network till 2012 (IUCN, 2005). The main goal of this study is to define genuine stand of 4 category. Therefore, protected of Maracan is located in the northwest of country was selected as a case study to conform it to one of category system of IUCN for better protection. The research is also intended to define and elaborate the genuine stand of Maracan protected area in the country. In conformity to the IUCN instruction, the investigators are willing to select and manage the category easily because the category of the protected area in Iran has been vast and outnumbered; as a result, the researchers anticipate exploiting the expertise and experience of the other countries to improve the protected areas management in Iran (Environmental Conservation Organization of Iran, 2006).

MATERIALS AND METHODS

Maracan with an area of 103983 hectares is located in the west province of Azerbaijan to the southwest of Jolfa between 38° 37' 11½ to 39° 06' 52½ altitude in the north of 45° 0'5 48" to 47°37'11" longitude in the east of the country. The area is bound northerly to the borderline Aras River, southerly to the erosive plain and river of

Ghatorchai, westerly to the Agricultural plateau of Ghareziaedin and easterly to the main road way branched off Jolfa. It further has a borderline with Azerbaijan Republic in the north. With regard to the height, the area differs from 720 m up to 2100 m. The field of study is naturally mountainous and steeply. The average rainfall is 282.1 mm per year and 44.2% of the rain falls during the spring time. Its annual average temperature is 11.6°. Ecologically, Maracan pertains to the cold region where 120 days of freezing weather have been recorded. On the basis of Amberje's ecological categorization, the area is dominated by the dry and cold or semidry and semi cold climates.

The Aghchai River is the most popular river of the region while, hydraulically, the Aras river is filled with the most brimming surface water even though the use of its water for different purposes is very restricted because it demarcates the area. In fact, concerning its underground water Maracan is in a better state than the other streams because environmentalists have already identified 71 springs and a chain of aqueducts. The pedology studies have further revealed that there exist nine types soil in the area of which 59.88% is mountainous. Generally speaking, 14 land regions and 21 tracts of land forms have been recognized in the area, there exist 7 hydraulic groups in basis of hydrological conditions that only 59.88% of the region belongs to the hydraulic group of D.

It is possible to observe various traces of soil erosion due to the absence of vegetation or the existence of less condensed plantation, steeply land and variations of human exploitation in different parts of the area. One may as well witness samples of the layered, furrowed and ditched soil erosion in the area in accordance to the PSIAC procedure which depends upon the soil attritive categories. The altitude variations and the diverse microclimates and spices dispersion are responsible for the luxuriant vegetation of Maracan so that 299 plant species have been labeled in the area. In sum, the soil involves 10 variant herbal types: 78.58% of the area is of grassland, 21.28% cultivated land, 6% rocky land and only 8% urban property land.

Eventually, Maracan is a reserve for the preservation of wildlife because it is filled with numerous kinds of wild animals. The zoologists have introduced 28 mammals, 128 birds, 21 reptiles, 4 amphibians and 33 fish species in the area. *Ovis orientalis gmelini* is the most known

species in the area, *Panthera pardus saxicolor* and *Lynx lynx* are the most important carnivore of the region. According to the IUCN red list, 7 mammals, 2 fowls and 2 reptiles species of the area are in danger of being totally extinct. Based on animal's habitat, the area can be divided into 10 habitats and there is no definite urban district in the area to be socio-economically significant. 2005 statistics suggests that 1393 families with 7644 members live in the rural districts of Maracan (Environmental Conservation Organization of Iran, 2006).

The procedure used in this study that conducted between 2004 till 2006 is as follows: firstly, it was found that the ecological and socio-economic resources of Maracan resulted in the provision of resource zones with the scale 1:50000. Secondly, an analytical system was utilized to be indicative of the extent in the ecological resources of the area (FAO, 1988). To incorporate the ecologically stable resources into the body of the present attempt, the researcher decided to employ the categorized zones and the Arc view software in the Geographical Information System (GIS).

The step by step phases of the procedure consist of the following stages:

- Overlaying map of steep with the map of altitude based on the sea level (first map of the land from)
- Overlaying map of land form with map of geographical directions
- Overlaying map of land form with those of the soil types and the provision of the first map of the environmental unit
- Overlaying the first map of environmental unit with map of vegetation and the plant concentration (the map of environmental unit)
- Supplying and designing the table for the environmental unit's specification by gathering the ecologically unstable resources together (including: climatic, water supplies, soil erosion and wild life) (Madjnoonian, 2002).

Thirdly, after determining the ecological models which are the settlements during the decision making for the ecological capability evaluation, the inquirers carried out a capability assessment. The use of the models in forecasting the geographical information system was not possible because there existed a lot of disputable controversies over how to use the models. Therefore, they were arranged in a manner in order that the researchers could easily conduct a thoroughly ecological capability evaluation based on SQL (A-question and answer language) (Vitousek *et al.*, 2000). Then to prioritize and organize the zones, the zoning enterprise was

performed on the basis of socio-economic parameters and protected areas management goals (IUCN, 1994).

The two principles of land ecology preservation and expansion of carrying capacity were constantly taken into consideration. Finally, the zoning map was deduced as a result of incorporating the co-leveled zones. Then, the area of Maracan received specific treatment to comply with the IUCN category system in accordance to the number and percent of the zones and the protected areas management goals.

RESULTS

Every protected area requires having the fewest numbers of necessary zones in order that will be able to envisage its management goals. It may well sound feasible to place the area in the six categories of the universal union of preservation (IUCN, 1994); otherwise, the area would not have the capability to maintain its position.

The common zoning in Iran stems from the FAO zoning. Table 2 shows the 11 zones of which zones 1 to 7 belong to the national parks while zones 8 to 11 are applied to the biosphere reserve (Madjnoonian, 2002).

The Iranian fourth category has to necessarily guarantee the preservation goals to gather with variant human activities. The kind of zoning is similar to the biosphere reserve. Table 3 shows the zoning process, the extent rate and percent of each zone in the protected area of Maracan.

The possession of 2, 4, 5, 6, 7, 8 and 11 zones were assigned during the zoning process of Maracan area; nevertheless, it behooved the inquirers to plan vastly with an emphasis upon the more extensive zones of the area due to the small extent of the 4, 5 and 7 zones which totally involved an equal surface of 1041.46 (1.0005% of the total area) meanwhile, the coefficient index of the 2, 4, 4 and 11 was pervasive in comparison to the rest of the zones. The finding indicates that more than 50% of the area is capable of being protected and the buffer zone encompasses one-tenth of the whole area. In fact, it overlaps with the protected zone. For this reason, with an

Table 2: Kind of zones

Zone category	Zone name
1	Strict nature zone
2	Protected areas
3	Extensive use zone
4	Intensive use zone
5	Historical zone
6	Restoration zone
7	Special use zone
8	Buffer zone
9	Transition zone
10	Research zone
11	Other zone

Table 3: The surface measure of zones in the protected area of Maracan

Zone name extent	Zone 2	Zone 4	Zone 6	Zone 7	Zone 5	Zone 8	Zone 11
Hectare (ha)	84119.23	1012.93	8602.60	23.470	5.460	11805.90	28413.32
Percent (%)	52.02	0.98	8.27	0.018	0.005	11.35	27.33

estimate of the buffer zone, the extent of the protected zone practically covers 63.4% of the whole area after the zoning process; consequently, the great extent is because of the valuable existence of animal species in the area. A comparison of Maracan zones which are of great capability with the IUCN six categories places the Maracan category under the management of the area's habitat-species (6 category) because this category entails a great care of the species preservation genetic diversity and the species preservation genetic diversity and the species preservation, genetic diversity and the continuation of the environmental services that are primary goals of the area kinds. The scientific research, training and the sustainable use of the resources and the natural ecosystems are the secondary goals. Instead, the safeguarding of the virgin land, natural and particularly cultural appearances, tourism and recreation are counted as the potential goals which are attainable in Maracan. Thus, the protected area of Maracan can be placed within the IUCN's 4 category since it has got the required zones and management goals; therefore, the management of the 6 category may be exerted upon Maracan.

DISCUSSION

Owing to the fact that zoning process was done by an analytical system derived from the FAO model, the protected area of Maracan possesses the potential of being placed in the IUCN's 4 category. This category of IUCN is area of land/or sea subject to active intervention for management purposes so as to ensure the maintains of habitats and/or to meet the requirements of specific species and is recognized with five characters included: definition, goals of management, guides for selection, organizational responsibility and conformity of category with system of 1978. Therefore we must do zoning processes for all protected area such as protected of Maracan to define their real stand in IUCN categorized system in order to manage desirability of protected areas of IRAN. So to approach to main goal, the researchers have found the following discussions proper:

- The category of protected area may well be allocated to Iran. It is not probable to see any country be in possession of such a category and it is less likely to conform it to the IUCN categories in its present state. Therefore, it is further less likely to exchange information and experiences between Iran and other countries in equilibrium and equation. It is interesting

to find out that of all the 178 Iranian protected areas in aggregate, 104 areas are located at the protected areas' category moreover; they comprise 58.4% of the areas number and 53.3% of areas' total extent in Iran. As a result, more than 50% of the Iranian protected areas do not match with those of IUCN in equation and quality. So it is rarely plausible to benefit from the modern universal management in the treatment of the Iranian protected areas.

- The game and hunting organization, as a governmentally responsive office, was replaced by the Iranian hunting institute in 1966. The institute clarified and ratified the legal concepts of the protected habitats under the titles of wildlife parks and protected areas. It is clear that the preliminary measures to formulate the categorization of the protected areas in Iran were taken 40 years ago. Even though the categorization was reviewed and revised in 1974, the general rules were maintained therefore, with due respects to the fact that human understanding of the environment in particular changes as human interaction with nature changes; it is necessary to coordinate the category with the latest findings of the recent decades.
- The current category system of the Iranian protected areas does not define and detail an alternative guidelines or books for the fourth category; it is basically difficult to distinguish the third category from the fourth one in an Iranian category system. People place these areas in the frame of either the third or fourth category because of their personal intuition. Of course, the personal preference may lead to the mal management of the category.
- In Iranian protected areas category, it is not customary and determined where the local communities and native groups stand in the proper authorization of the areas.

At present, one of the most fundamental problems encountered in the Iranian protected areas is related to the native and local communities; whereas, according to IUCN category system, except in the sub category, a man has no power and right to exploit and benefit from the fourth category. So the role of the native communities has been defined in the other categories. However, the Iranian protected areas management does pay a proper notice to where the local communities should stand and the preserved areas problems still become further enumerated and enhanced in Iran.

- IUCN greatly encourages and advises all member states to take sufficient and efficient measures to provide their land reserved districts by 2010 as well as their marine areas by 2010 with an equation and equilibrium to the standards of the IUCN areas. With a quick glance to the fact that the national parks, natural monuments and wildlife habitats categories are in equilibrium and equation with the IUCN category system, the respective department of environment ought to take basic and immediate steps to equate and liken the Iranian protected areas with those of the IUCN ones.
- People give less or no heed to the significance of conducting scientific research in the preserved area of Maracan; in addition, the scientific research is not believed to be among the goals of the category, yet it is always implied that scientific researches and the permanent monitoring of the environment ought to be viewed and respected as the rudimentary activities to exert a sustainable resources management of the IUCN's 4 category.
- It is maintained that 1000 ha are the least amount of land required to keep an area in the red list of protected areas category in Iran. Nonetheless, based on the IUCN's 4 category, no limitation is to be exerted upon the land extent. In fact, a great many Iranian areas can not be inserted in the category due to the extent restriction. Thus, if the real stand of the protected areas is well defined and drawn up, it will be easy to include a great deal of the areas in the list for the preserved areas in our country. Since this is the only choice left to increase the number of the protected areas in Iran.

CONCLUSION

Finally the researchers suggest the department of environment specify the real position and stand of the protected areas transparently when a clear zoning process

of the four category is carried so skillfully that the environmentalists are enabled to benefit and use the expertise and experiences of the other nations in the field of managing the preserved lands.

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