



A management Plan model for Omayed Biosphere Reserve

Within the activities of SUMAMAD International Project held at the department of Environmental Sciences Faculty of Science- Alexandria University, OMayed Biosphere reserve was the focus of activities and a management plan for this protected area was implemented.

The plan is explained in the following 5 levels and is adopting two policies that can be used to deal with the impacts of climate change - mitigation and adaptation in OBR. Mitigation policies attempt to limit further changes in global climate. Mitigation policies either focus on reducing the cause of emission of greenhouse gases through, for example, enhancing greenhouse gas sinks which includes land use, land-use change. These comprise a) conservation of existing carbon pools, i.e. avoidance of overgrazing, clearance of vegetation cover and uprooting, b) sequestration by increasing the size of carbon pools, e.g. through ecosystem rehabilitation and restoration, and propagation of native species. r and c), capacity building/technology transfer, research/observation and training and education”.

The current ecological conditions in OBR indicate that the present level of human pressure is leading to significant deterioration of its environment and calls for an urgent plan for conservation and development. The consequences of different scenarios are:

- (a) Impacts on main ecological features,
- (b) Effects on the future of resources,
- (c) Exacerbating climate change impacts, and
- (d) Results concerning socio-economic situation of land-users.

The proposed model simulates trends of variation in ecological conditions due to different land uses.

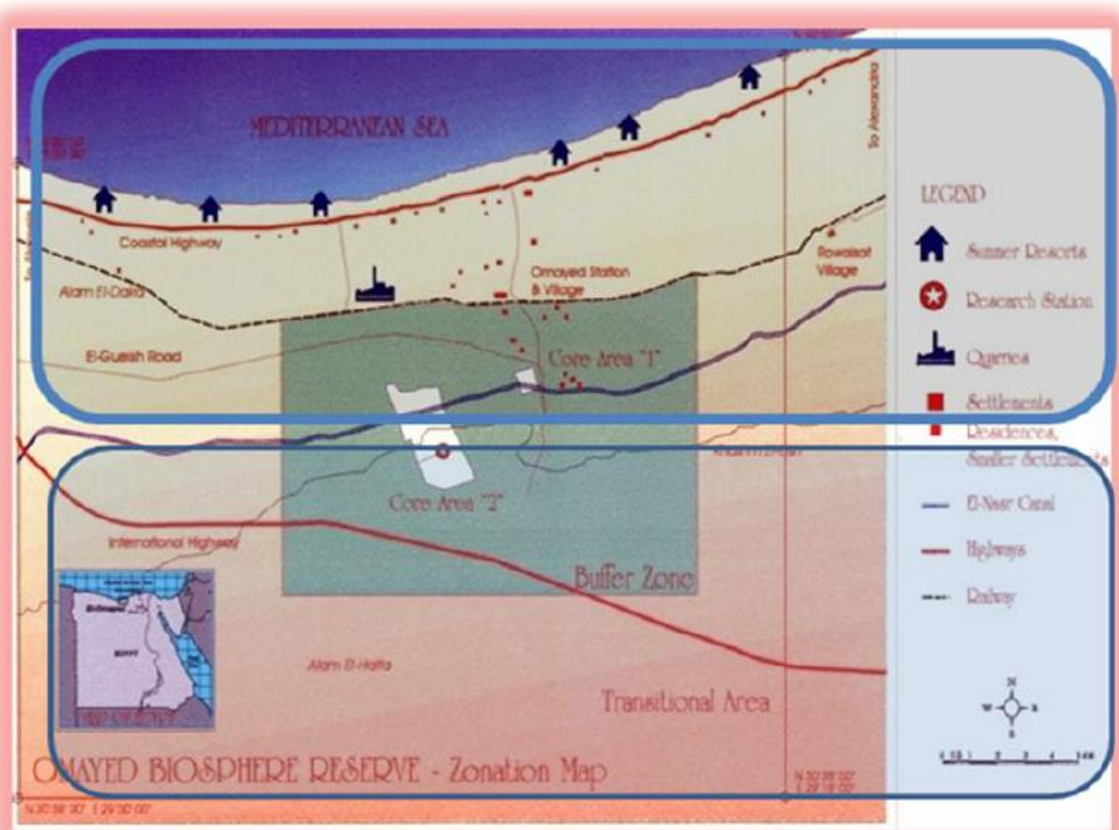


Figure 3. OBR divided into a northern and southern areas.

Level 1: Full protection, which is unrealistic, but is proposed only for the comparison of economic values with other scenarios. It is assumed that such scenario could be implemented in the core areas of the Biosphere reserve, and would call for established of more core areas in the biosphere, since there is only one core area (only 1m²), which is currently functioning, and would not suffice such scenario. The consequences of this scenario is: that each unit would evolve according to its regenerative capacity. Units where agricultural practices are suddenly abandoned are progressively invaded by plants of the type which gradually rebuild the native vegetation cover corresponding to the ecological conditions.

Level 2: Rangeland development and limitation of the ploughed fields, this scenario implies that annual crops cultivation and tree plantations would be limited only to suitable areas. This scenario implies also the adjustment of stocking rate on the ranges to the present grazing capacity, and to ensure the recovery of the plant cover by rotation in depleted areas. In this case, it becomes necessary to have supplementary feed during the transitional period of preceding the complete restoration of ranges. The consequences of such scenario with rational use of rangelands, is a biological recovery and satisfactory control of degradation. This is an aspect which is rarely taken into consideration by economists.

Level 3: Continuation of present practices and maintenance of present land-use system, Current practices indicate that with the present system of annual crop cultivation and tree plantation yields will remain low. Locations used for grazing will be gradually overgrazed and will decrease in area. Continuation of the present practices means in fact more ploughing for cropping and extension of orchards and annual cropping of cereal and vegetables, particularly after the extension of the supplementary irrigation canal from the Nile. This scenario means also an increase in the number of animals and means no planning management of rangelands (e.g. limitation of stocking rate according to the level of production of rangelands). Although

this scenario is the most probable, it will result in immediate limitations for land use .For instance, the harvesting of large areas of low yield cereals by hand is a bottleneck, since it will be difficult at present to visualize the introduction of mechanized harvesting in such low yield conditions. The Consequences of this scenario is a realistic hypothesis according to the actual degrees of attractiveness of different units for grazing (and wood cutting) and ploughing. It may also result in an acceleration of the clearing of more attractive areas for ploughing. An associated constant decrease of areas used for grazing provokes permanent overgrazing during certain periods. Extension of cereal and vegetable farming and fig plantation in addition to overgrazing and severe uprooting promote an increase of degradation processes.

Level 4: Intensification of present practices, This scenario postulates that: the recent fast extension of orchards for economical reasons will still increase during the next twenty five years, that socio-demographic conditions necessitates new extension (due to possibility of mechanization) of cropping for human consumption and for feeding of animals and that investments are made for promoting the use of resources (e.g.) increase the number of watering points) with no acceptance by population of the principle of rational range management .The Consequences of this scenario is all possible misuses of the area accumulate with the mechanization of ploughing and other agricultural practices, and the creation of watering points without limitation of size of herd or of grazing period. Regeneration of vegetation becomes low or negligible everywhere, and the progressive reduction of the yield of all types of production leads necessarily to heavy investments for reclamation, less employment opportunities, and to limiting rural depopulation. At this level, we consider that the sensitivity will reach what we have referred to as the potential sensitivity; all areas being at their highest level of attractiveness for grazing and ploughing.

Level 5: Extension in land reclamation using the supplementary irrigation canal as a source of irrigation water, such scenario of development must be evaluated according to the environmental potentials and availability of the local labour force. This scenario may provide a possibility for regional development if good yields are attempted for cereals and various feeder crops ,and if a limitation of animal stocking rates on rangelands is achieved. Simultaneous environmental conditions must be considered very carefully in order to avoid salinization and water logging. The consequences of this scenario are the use of heavy investments for introducing such level of intensity of human pressure. Such pressure should be conceived as rational management taking into account possibilities of irrigation according to soils and water resources, and according to the restriction of cereal and trees farming to suitable areas which benefit from direct run-off water as a result of natural topographic conditions. This system has the same results as those of level 2, but with the highest agricultural production due to the extension of irrigation.

It is important to take into account that there are several inter-correlated factors: predictable increase of population, socio-economic changes, trends in land management, variability in dynamics of ecosystems, evolution of renewable resources, and variability of rain. It is difficult to take care of such various factors at the same time. It appears however, that an optimum level of land use intensity should be determined on the basis of ecological considerations (in order to maximize resources, and to ensure a progressive recovery of soil and vegetation. Meanwhile, the management must take care of two main factors:

- (a) traditional life style of local population, and
- (b) socio-economic needs of the population, looking for progressive improvement in their standard of living.

Activity 6: selection of new core areas for the OBR

The selection of a new core areas has been implemented after updating the geodatabase that was generated in the first phase of the project. The geodatabase was extended to include a map

of all the protected areas in the western desert of Egypt, the existing core areas, the location of villages, and a more detailed digital elevation model. All these maps are included in the annex. It is proposed after consultations with the manager of the OBR that his proposal to the Ministry Environment included the suggestions that came out from SUMAMAD project. The suggestion is to divide the OBR into a northern area, which is currently land transformed into summer resorts and quarrying, and a southern area which is relatively still pristine and may serve for the selection of core areas. This is clear in the following Figure 3 below.

Figure 3. OBR divided into a northern and southern areas.

- The North coastal sector is 300km², and starts from the sea shore to Khashim El Eish Ridge with 5 core areas, with 3 alternative areas (7km²)
- The Southern sector is 400km² and starts From Khashim El Eish to the southern area of the Biosphere reserve
- Field investigation showed that grazing is carried out haphazardly, in different and distant areas in the Southern sector of the Biosphere, which might occupy the whole area of this sector (about 400km²).
- Observation showed that wild vegetation is highly degraded, due to haphazard grazing that is uncontrolled, and undefined timely. Indicator of such degradation is the observed reduction in plant cover,
- Overgrazing process has resulted in the reduction of palatable species populations. and the extinction of other important species used in grazing in the reserves. Previous Surveys in the Reserve recorded about 30 palatable species, the majority of which became extinct or of restricted distribution due to the current overgrazing process. The incomplete life cycles of these plants that do not reach the seed shedding stage that supports that development of these plants for the next season. It is also to be mentioned that the reduction in rain has highly affected this process. (160mm)
- Inventorying of animal counts that graze in Omayed area and classifying them into two categories, the first of which is owned by the local community of Omayed, and graze in its rangelands. This category reached about 8000 heads of sheep, goats and camels. The second category is owned by outsider herd owners but temporarily graze in rangelands of Omayed during their journey to neighboring areas. This category reached about 10000 heads.

The accurate locations of the core areas are under investigation with the state ministry of Environment. This work is to be continued in the next year. There is also a suggestion that a new core area could be added at Moghra lake, but this needs further work hopefully in the next phase

Activity 7 : Provision of income generating activities for men and women.

The income generating activities for women has started last year with provision of material and dies for producing handicrafts. This work has been extended this year to include the production of small carpets, hand bags, small carries bags. The quality of the products were checked and sold in the local market to tourists, visitors and local people. The revenues produced were used by the handicraft project members to buy more material. This activity has been so far successful, however more support is needed to produce new attractive products, to meet the market needs. This activity will be followed up in the activities of the next year. The following are some photos of the products produced and some members of the NGO giving advices.

Regarding the income generating activities for men, multipurpose olive propagates has been purchased and distributed to selected members from the four villages. These propagules are still in plastic growing on bags as they were purchased, and is expected to be transplanted to the appropriate fields at the appropriate time around the houses of the members of this practice. This activity will be continued in the next year of the project