



Management Plan for

Wadi Al-Quff

Protected Area

May 2014

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Title Photo: The Egyptian Fruit Bat, a potential flagship species of Wadi Al-Quff Managed Reserve (Photo: M. Qumsiyeh). The Red Fox (Photo: Anton Khaliliyah), The Honey Buzzard (Photo: Anton Khaliliyah), The Oriental Viper's Grass (Photo: Mohammed Mahassneh), The Two-Lip Sage (Photo: Mohammed Mahassneh), The Persian Cyclamen (Photo: Mohammed Mahassneh), The Chukar Partridge (Photo: Anton Khaliliyah), The Palestine Yellow Scorpion (Photo: M. Qumsiyeh), The Palestine Sunbird (Photo: Anton Khaliliyah). The side view of Wadi Al-Quff PA (Photo: Mohammed Mahassneh).

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List of Acronyms

ARIJ	Applied Research Institute - Jerusalem
CBD	Convention on Biological Diversity
CEPA	Communication, education and public awareness
CMP OS	Conservation Measures Partnership Open Standards
CMS	Convention on Migratory Species
CPA	Candidate Protected Area (see Garstecki et al., 2010)
EIA	Environmental Impact Assessment
EQA	Environmental Quality Authority
GPS	Global Positioning System
IUCN	International Union for Conservation of Nature
MoA	Ministry of Agriculture
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-governmental Organization
NIS	New Israeli Shekel
oPt	occupied Palestinian territory
PA	Protected Area
PAPP	UNDP's Programme of Assistance to the Palestinian People
PCBS	Palestinian Central Bureau of Statistics
PNA	Palestinian National Authority
PWLS	Palestinian Wildlife Society

RSCN	Royal Society for the Conservation of Nature (Jordan)
SIA	Social Impact Assessment
SWOT	Strengths, Weaknesses, Opportunities, Threats
TEMATEA	Not an abbreviation – see www.tematea.org
TRO	Threat Reduction Objective
UNCCD	UN Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	UN Framework Convention on Climate Change
USD	US Dollars
WAQ MR	Wadi Al-Quff Managed Reserve (recommended name)
WCPA	World Commission on Protected Areas
WHC	World Heritage Convention
WAQ (NR)	Wadi Al-Quff (Nature Reserve)



Summary

This management plan represents the main output of the assignment *“Management Plan for Protected Area in the West Bank”*, which has been conducted by IUCN ROWA under contract from the UNDP Programme of Assistance to the Palestinian People. The first objective of this assignment is to *“..develop a comprehensive management plan for a selected protected area (the selection will be made by MEnA), including but not limited to developmental needs and investment plans; which will be a cornerstone of the national protected areas system management in State of Palestine”*.

This management plan has been developed based on a literature review of relevant documents of the State of Palestine as well as scientific articles and reports, a baseline field survey in June-August 2013 (report available on request at EQA), a national framework analysis and a total of three participatory planning and consultation workshops conducted in Hebron, near Wadi Al-Quff Nature Reserve, the protected area that was chosen by EQA as the pilot area. Management planning has followed the IUCN protected areas management planning framework (Thomas & Middleton, 2003). The situation analysis, identification of conservation targets and long-term goals, as well as the management strategy development and definition of short-term management objectives, has been based on the Open Standards for the Practice of Conservation of the Conservation Measures Partnership (CMP, 2013), and has been conducted using the adaptive conservation management planning package Miradi.

Based on a description of the area and its surroundings (**Section 2**), which has been kept as concise as possible by referring to the preparatory studies and analyses as listed above, the management plan comprises an analysis and evaluation of the information collected, including a Miradi conceptual model to synthesize the situation analysis (**Section 3**). This conceptual model includes nine primary conservation targets and six associated human wellbeing targets, of which two (recreation and education/knowledge generation) will be supported by protected area management on site.

The Management Strategy (**Section 4**) defines the vision, management goals and objectives for PA management at Wadi Al-Quff, thereby setting the overall strategic framework. Twelve specific management strategies to reach the objective and

work towards reaching the long-term conservation goals, as well as two immediate emergency strategies addressing important external threats to its values, are also defined and explained in this section.

The Implementation Strategy (**Section 5**) sets out the institutional setup, governance and participation arrangements, staffing guidance, zoning and other operational aspects that are needed to initiate PA management at Wadi Al-Quff. A Work Plan consisting of eight management programmes (**Section 6**) and an Investment and Financial Plan (**Section 7**) for the first management cycle of Wadi Al-Quff Nature Reserve (five years) are derived from the Management and Implementation Strategies. The total estimated budget for the establishment of WAQ as a PA and the implementation of the first 5-year management plan is estimated at ca. USD 335,000, plus ca. USD 94,000 of core operational costs per year from Year Tow onwards.

Wadi Al-Quff shall be managed as a ***State-governed Managed Reserve (IUCN PA Management Category IV)*** by a small professional management authority, which reports either to an existing Government organization of the State of Palestine or to a National Supervisory Board for Protected Areas, depending on the provisions of the upcoming Bylaw on nature conservation and protected areas.



Description of the area

2.1 General information

2.1.1 Location

The location of the area is described in detail in the Baseline Field Study Report.

2.1.2 Legal and administrative framework

The legal and administrative framework of WAQ is described in detail in the National Framework Analysis.

2.1.3 Land tenure and rights

The land at Wadi Al-Quff Nature Reserve (hereafter WAQ) is State owned. This land ownership is not contested by any stakeholder to our knowledge. However, there is a reported conflict on land ownership between Tarqumia Municipality and the Ministry of Agriculture regarding some areas in the forest surrounding the reserve. Additional information on Palestinian land tenure history and traditions is summarized in Tamin (1995).

While the land ownership and tenure at WAQ is undisputed, the same is almost but not entirely true for the demarcation and boundaries of the PA. While there are reportedly some cairns and other markers on the ground demarcating at least part of the area, these are likely to be incomplete and could not be systematically recorded during the baseline field study. The official GIS demarcation of the area according to the Spatial Plan of State of Palestine could therefore not be compared with the demarcation on the ground. In areas where the PA directly borders agricultural areas e.g. on the lower and upper edge of the section that runs along the northern slope of Wadi Hasqa, this means that there may have been encroachment from the bordering agricultural areas. It is unlikely that these are very large areas as the steepness of the slopes of the wadi tends to naturally protect them against encroachment.

A relatively regular traditional use practice of natural resources but no generally accepted traditional use *rights of specific individuals* inside WAQ were documented by the baseline field study and during interviews with local stakeholders.

2.1.4 Local stakeholders

National and local level institutional stakeholders of WAQ are discussed into details in the National Framework Analysis. In addition, there are the following local stakeholders:

Local resource users: One of the most important stakeholder groups at WAQ are local natural resource users from Halhoul, Beit Kahel, Tarqumia, and Beit Ola in the vicinity of the PA. They benefit from the reserve through different uses, such as:

- 2-3% of total inhabitants (total around 62,548) living in the surrounding communities collect different types of plants used for traditional medicine and collecting, as well as edible plants and mushrooms for general consumption. This percentage has reduced dramatically according to local community members from 15 -20 years ago, as many species already disappeared from the PA. This was connected with intensive use and uprooting of plants while collecting, as well as a change in rainfall and general climatic conditions, according to members of surrounding communities met during the field work. They said that previously this percentage was not less than 40-50% of the inhabitants.
- 10% of the approximately 880 farmers in the area sometimes graze their animals (mainly sheep and goat) inside the NR. This percentage decreased compared to the previous 5 to 8 years, as a result of reduced local livestock numbers. Over the last five years, livestock numbers declined, with the biggest ownership of animals in the surrounding communities now at about 160 to 140 sheep, and the average ownership of one farmer 25-30 animals. This reduction in the ownership has been the result of a number of reasons, such as :
 - Reduction of rangelands as a result of the construction of the separation wall and the confiscation of communal lands by the Israeli military that was used for grazing animals;
 - Change in animal breeds from grazing-dependent traditional breeds to hybrid breeds, which are more productive but do not graze outside, rather depending on fodder;
 - Change of lifestyle: many of inhabitants prefer to work as employees in the public sector to continuing work as pastoralists;
 - Fluctuation of animal prices and increase in fodder prices: 1 ton of fodder reached USD 610 last year, up 35% from USD 400 five years ago.
- 1% of total inhabitants living in the surrounding communities (about 600 families in total) have obtained fuel or timber from cutting trees, or collecting falling trees & branches as source of wood for heating during winter.



Municipalities and village councils of the surrounding communities: Two local authorities manage a recreation area within or immediately adjacent to the reserve (Beit Kahel & Tarqumia), as the Ministry of Agriculture granted them the use of land as recreation parks for 20 years without changing the nature of the area or cutting any type of trees there.

Visitors to Wadi al-Quff: The regular and numerous visitors from the immediate vicinity, Hebron City and beyond are another key stakeholder group of this NR. The estimated number of visitors reaches 100 to 200 visitors per day during the days of the week, while this number reaches sometimes (during peak season from March to September) up to 2,000 visitors during weekends (Friday & Saturday). This is the record number for organized visitors to Beit Kahel recreation park, to which the number of unofficial visitors must be added. These unorganized visitors go directly to the PA for barbecues, collecting herbs or just enjoying the Nature.

Hebron branch office of MoA: The Hebron branch office of MoA runs a tree nursery at WAQ and also employs a number of rangers (both full time and temporal, total ca. 5 full time equivalents) there. The capacity of this ranger presence to contribute to the management is discussed in Section 3.6 below.

Hebron branch office of EQA: The Hebron branch office of EQA is currently not conducting specific activities at WAQ. Depending on what institutional arrangement is chosen for allocating the various roles and responsibilities related to PA management and PA system development among Palestinian institutions, the Hebron branch office of EQA could take over some responsibility for PA management at WAQ and other surrounding PAs.

Hebron branch office of the Ministry of Tourism and Antiques: This Ministry is interested in the PA as one of the main places for recreation and tourism in Hebron Governorate. In addition, the ministry has recently developed an interest in developing a project to establish ecotourism trails at WAQ.

Private nurseries at WAQ: In addition to the MoA nursery, there are an additional two private nurseries located in the valley. They use spring water. The springs are owned by the owners of the nurseries. These nurseries mainly produce different types of tree seedlings (for plantation in gardens) as well as flowers.

Recreation park at WAQ: The investor who is renting the recreation park from Beit Kahel Village Council (and running it on behalf of it) has an important interest in the area. He runs this business through getting entrance fees from visitors (2 NIS for children), a small restaurant/kiosk and recreational games for children. The project mission was informed by the investor that he plans to upgrade his park, by modernizing the games and attractions and giving the park more the character of an amusement park. He has also asked for an extension of the area of his park. The Beit Kahel Village Council has passed on his request to the MoA, asking for an additional 0.5 ha of land (location unclear) to be given for use of the village.

It is unclear if the recreation park is inside the PA or bordering it on the outside, as the MoA maintains. This has to do with the incomplete overlap of the extent of forest and WAQ in this specific area (Figure 1).

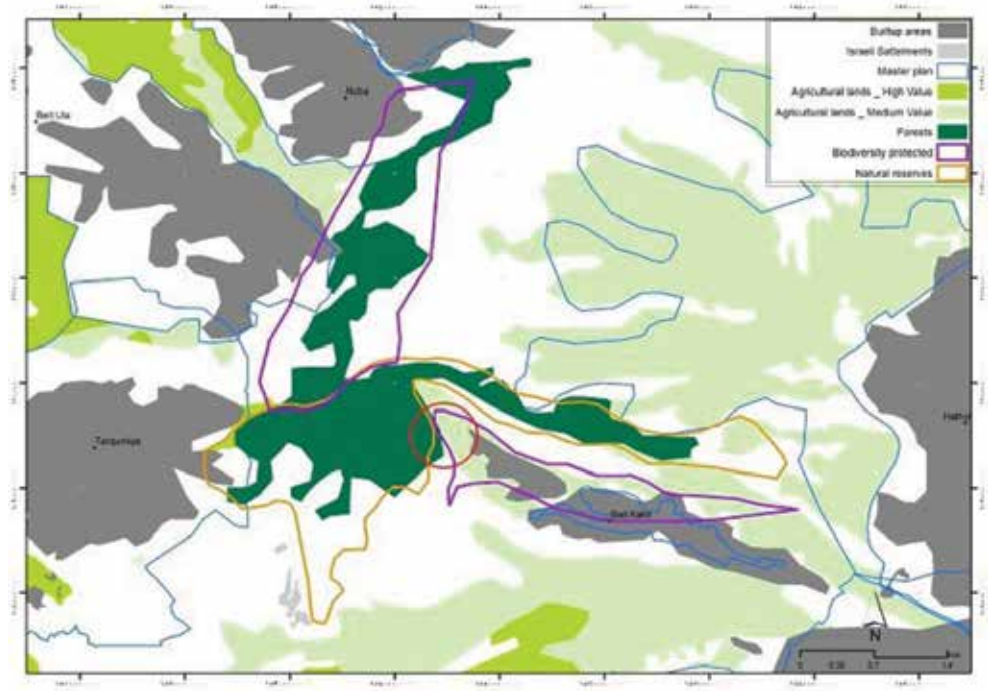


Figure 1. Map showing the relative border of WAQ and the forest in the surroundings of the recreational park (red circle). Data source: Spatial Plan of oPt.

2.1.5 Current resources for administration and management

The PA is currently managed by the MoA through their rangers (2 rangers responsible for WAQ but additional rangers present at WAQ nursery), whose task is observing and preventing any type of violation or damage to the PA from local or outside inhabitants. They report to the Hebron branch office of the MoA.

The rangers are paid approximately USD 500-600 per month (near the poverty line) and have no personal equipment (cars, communication equipment, uniforms, computer or such). They use their personal mobile phones for communication. There is a small room available for the rangers at the State-owned Wadi Al-Quff nursery, which is used to store some simple firefighting equipment and as a basic office.

The qualification and educational background of the rangers differs. The head ranger has a forestry background but the other rangers have no relevant higher education.

Some have occasionally been to short training courses, on an opportunistic basis, but there is no planned training relevant to their tasks as rangers at WAQ.

The MoA also runs a nursery in the valley, which uses the water of one of the main springs which is owned by Beit Kahel village and leased to the MoA. Work at the nursery may in fact take up a large part of the working time of the rangers. This nursery mainly produces forest trees, pastoral seedlings, and seedlings of some trees including wild relatives (olive, almond, pistachio) by using seeds collected from the nearby protected area.

2.2 Natural environment

The natural environment at WAQ including geology and geomorphology, hydrology, climate, soil/substrate, biogeography, ecosystem and landscape units, as well as flora and fauna are discussed in detail in the Baseline Field Study Report.

The Baseline Field Study report also reveals the most important knowledge gaps that need to be addressed in order to complete a comprehensive picture of the natural environment at WAQ.

2.3 Socio-economic environment

2.3.1 History, culture and traditions

Hebron, in the vicinity of which WAQ is situated, is one of the first cities to develop the oPt in the early Bronze Age. According to Islamic tradition, this was the first human establishment, where Adam and Eve lived after being driven from the Garden of Eden. The founding date of Hebron is 1730 BC, according to the Old Testament (ATG, 2008).

The area around Hebron including the surroundings of Wadi Al-Quff have been inhabited and partly cultivated since that time, and throughout the Persian, Hellenistic, Roman, Byzantine, Islamic, and Ottoman periods until the modern age. The area around WAQ has a strong tradition in horticulture and particularly grape production.

Like all West Bank areas, the Hebron area received high numbers of refugees as a result of both the Nakba (1948) and the Naksa (1967). These refugees contributed to overall population growth and the corresponding pressure on natural resources in the area.

Especially older people from the surrounding communities feel a strong spiritual link with the reserve, and particularly with Alsafa (Bat) Cave. For inhabitants of Beit Kahel, Tarqumia, Beit Ola and Halhoul, WAQ has social and cultural significance as there used to be a custom to celebrate with the bride and groom inside the WAQ to bless their wedding and wish the bride and the groom a long and peaceful life.

People would celebrate the wedding by taking a green branch with them and give it to the bride.

2.3.2 Communities and population

Wadi Al-Quff Nature Reserve (WAQ) is surrounded by four villages: Tarqumia, Beit Ola, Halhoul and Beit Kahel. These surrounding communities are lead and managed by village councils and municipalities¹. Village councils and municipality boards are elected each four years by community members, as they are responsible for managing daily issues and providing these communities with services, such as water, electricity, licensing of houses and collecting of solid waste.

Essentially, these four local authorities have no sources of income except what is charged for previous services, so much debt is accumulated on their shoulders. For example, the dept of Beit Kahel village council to the Palestinian Authority reaches seven million NIS (approximately USD 2 million). Because of these limitations, local authorities direct their effort to forest areas, including WAQ, to benefit from the recreational aspect there. They reportedly see this as a permanent source of income to invest in different sectors such as education, road maintenance and other services. This attitude toward forests and nature reserves is particularly obvious at Beit Kahel, where a recreational park has been leased by the Village Council to an investor for approximately NIS 100,000 per year. Other villages reportedly aim to replicate the approach taken at Beit Kahel, to varying degrees (Source of information: Beit Kahel Village Council).

The population of the four villages in 2007 and 2012 is summarized in Table 1.

Table 1. Population in the four villages near WAQ in 2007 and 2012. (Data source, PCBS reports for the years of 2007 & 2012)

Community	Population (2007)	Population (2012)	% Increment
Tarqumia	14,357	16,671	16.1
Beit Kahel	6,526	7,578	16.1
Beit Ola	10,885	12,640	16.1
Halhoul	22,128	25,695	16.0

The average population increase of 16% over five years shown in Table 1 is likely to also have resulted in an increased pressure on natural resources. This is particularly true as agriculture including livestock rearing continues to be a major economic sector in the area.

¹ The type of local management authority (village council or municipality) depends on the number of inhabitants. Where the population is less than 6,000 inhabitants, it is managed by a village council, whereas communities with higher population are managed by municipalities (Source of information: Beit Kahel Village Council). However, this is not always the case as there appears to be no clear rules or legislation to differentiate between different types of management authorities.



2.3.3 Local impacts of Israeli military occupation and settlements

As explained in more detail in the baseline field study report, there is one Israeli military base (Farsh Alhawa) and one illegal Israeli settlement (Telem) situated in the immediate vicinity of WAQ. Another settlement (Adora) is situated further to the south. No direct use of or systematic interference with the WAQ area by settlers has come to the attention of the baseline study team.

Most of WAQ is situated within Area B, whereas its southernmost part from somewhere along the southern slope of the Wadi (south and upwards from Road 3556) belongs to Area C. The exact border between Areas B and C in this zone is not known or delineated on the ground, but apparently is situated a few hundred meters south of Road 3556 (ARIJ, 2009).

2.3.4 Livelihoods and local economy

General information about the local economy in the four communities surrounding WAQ of direct relevance to PA management is provided in Table 2 below. This information has been provided by the Palestinian Central Bureau for Statistics.

Table 2. Main Economic activities on the four communities (% of population living in the community). Some families engage in more than one activity, which results in totals of more than 100% (Data source: ARIJ, 2009).

Main economic activity	Halhoul	Tarqumia	Beit Ola	Beit Kahel
Agriculture	50%	20%	44%	45%
Industry	3%	0%	1%	1%
Trade	5%	5%	3%	10%
Services & public sector	27%	45%	10%	34%
Israeli labour market	15%	20%	40%	30%

Additional data on the socio-economic makeup of the area are summarized below:

- **Plant production:** The percentage of plant production among the agricultural sector in the area surrounding WAQ is 39.75%. The highest percentage is found in Halhoul as this municipality has a strong tradition of grape, apple, peach and olive production. This type of vegetation may have a certain effect on WAQ as farmers mainly spray these trees with pesticides, fungicides and herbicides. This may affect the wildlife with in WAQ.
- **Labour force participation:** Available data about the whole governorate, which should be applicable to the surrounding communities of WAQ as well, indicate that 76.4% of those economically active are employed

whereas 23.6% are unemployed. Average daily wages: Average daily wages in the governorate are NIS 75.8 (USD 21.2), compared to NIS 85 (USD 23.8) on the national average.

- **Predominant species of livestock:** The main species of livestock are sheep and goats as outside grazers and cattle, which is kept permanently in stables and fed high-energy fodder.
- **Number of heads of livestock:** 17,224 head of sheep and goat are kept in total in the surrounding villages, with the highest abundances found in Halhoul, Tarqumia and Beit Ola (6,373, 5,380, 5,285, respectively, according to the Veterinary Service of the Government of Hebron). Only 186 heads of sheep were registered in for Beit Kahel village (where livestock numbers declined significantly since 2010) according to MoA records. This has reduced from past numbers, mainly as a result of increase prices of fodder, limited range lands and bad economic status.
- **Percentage of poor:** According to the last publication of the Palestinian Central Bureau of Statistics (PCBS, 2012b), the highest poverty² percentage among governorates was found in Hebron Governorate (32%). Among the villages surrounding WAQ, this percentage was highest in Beit Kahel and Beit Ola (35.9% and 49.2%), respectively, with lower levels of 20.6% and 27.7% given for Tarqumia and Halhoul, respectively.
- **Family size:** Family sizes in Beit Kahel reach 6.9 individuals per family and in Beit Ola 6.4 individuals per family. The average family size in the West Bank is 5.5 individuals. Family size tends to be positively correlated with poverty rate.

2.3.5 Natural resource use

Grazing: This activity has become less important recently, as the number of animals raised by surrounding communities has declined, and most of the remaining animals do not graze on rangelands but are fed in stables. In addition, there is a lack of interest among the young generation to raise animals. Grazing directly at WAQ mainly happens in winter and spring, according to rangers. The effect of grazing during low rainfall years on WAQ has been worse as vegetation cover in the surrounding areas was reduced and herders searched for any green area to feed their animals, including inside the reserve.

Herders from surrounding communities come to graze their animals all over the PA and this activity is spread and not concentrated in one particular area. Sometimes Bedouin herders from outside the area come to graze their animals (Source: Mr. Althahreieh & Bani Naeem), as witnessed by the field study team in June 2013 and

2 According to PCBS publications the relative poverty line and the deep poverty line according to consumption patterns (for a reference household consisting of 2 adults and 3 children) in the Palestinian Territory in 2012 were 2,293 NIS and 1,832 NIS per month, respectively.



confirmed by rangers and inhabitants of surrounding communities. The study team saw the Bedouin pastoralists near WAQ outside the breeding season, but reportedly they also visit the season for grazing in winter and spring.

Regarding the exact contribution of fodder to animal nutrition in the area, no exact data has been available or could be obtained from herders, as they told us that even if animals occasionally (depending on whether and the time available for pastoralists) go outside to rangelands for grazing, they are nevertheless fed after return.

Logging and fuel wood collection: According to representatives of local authorities and inhabitants from the surrounding communities, logging of trees for fuel (particularly during winter) or timber is an uncommon activity but does occur at WAQ. It arises because of high prices of petroleum fuels and the increase of the poverty rate among local inhabitants. According to the above sources, part of the population - especially low-income people – depends on collecting dead or falling cypress and pine trees inside the NR. Trees are cut for domestic use or for selling, with the price per ton of pine wood between between NIS 500 and 600 (USD 140-170). There are no exact statistics how much wood has been removed from WAQ, and the local inhabitants – being aware that this is illegal – would have no incentive to disclose any details even if they were engaging in large-scale cutting.

Logging has reportedly been controlled more effectively in the recent past, owing to improved enforcement by the local rangers: They allow the collection of fallen and dead trees – which is also degrading the forest habitats at WAQ as dead wood is an important component and micro-habitat in forests – but prevent logging of living trees, especially of native species. The extent and effect of dead wood removal from WAQ will need to be assessed both from a fire risk reduction and a nature conservation perspective as part of the further management planning process.

Wild plant collection: Some households still use wild plant species and various edible mushrooms from WAQ, but this activity has been classified as one of the least commonly practiced activities during the last few years. Merely 1% of inhabitants from surrounding communities depend on WAQ to cover their needs from these wild plants, which they use for traditional medicine. Only small amounts of plants and especially mushrooms are sold within the same communities, to improve the cash income of people who collect these plants. One of the reasons for this is that the intensive collection of some species has caused their disappearance from WAQ, according to interview results.

Poaching: Poaching is currently hardly practiced at all at WAQ, according to interview results and the findings of the mission. No gun cartridges were observed at WAQ. However, in the past it has been practiced more regularly, and has reportedly contributed to the decimation and local disappearance of some species, such as gazelle *Gazella gazella*.

2.3.6 Infrastructure

The area is well-connected to Hebron and Tarqumia, through Road 3665. This road is in a good state generally. There is also a secondary branch road to Halhoul.

2.3.7 Tourism and recreation

Recreation is a strong activity at WAQ as the recreational park near Beit Kahel on the border of the PA is one of the most important recreation areas for surrounding communities, the entire Hebron Governorate (particularly Hebron City), and even beyond. This is partly because a small amusement park was erected at the site by Beit Kahel Village Council. A second smaller recreational park of merely local importance is operated directly by Tarqumia Municipality, which only sub-contracts a small kiosk there.

According to Mr. Najeeb Alaatawneh (licensed holder of Beit Kahel amusement park) the number of visitors to the park ranges from 100 to 200 visitors by day during spring and summer, while during weekends this number increases and reaches up to 1,000 to 2,000 visitors per day. Summer and spring are the most active seasons for visitors (including school trips). The area is particularly popular among families, who come to spend time with children in an open space and at a relatively low price, compared to other recreation places such as restaurants and resorts.

Mr. Najeeb Alaatawneh pays NIS 100,000 (USD 28,000) annually to Beit Kahel Village Council as lease fee. He is responsible for the management and maintenance of the playground and games, and he is allowed to charge NIS 2 (USD 1.36) per visitor as entrance fee. He also generates income from a small kiosk/restaurant inside the park. The lease fee has increased over the last 5 years, as Mr. Najeeb Alaatawneh has been given a five-year contract (as opposed to annual contracts in the past), which will give him the safety to invest more in the park, e.g. by adding different types of amusement attractions.

In addition to the considerable numbers of visitors that go to the amusement park, there are also a smaller but as yet un-quantified number of scattered or random visitors to WAQ, which visit the Bat Cave or have barbecues and picnics outside the amusement park.

2.3.8 Availability of information, education, awareness and attitudes

Education: WAQ is considered the Palestinian PA that is used most intensively for environmental education or environmental trips by schools (coordinated by the Ministry of Education³ branch office of Hebron Governorate). This is partly due to the presence of the park, which offers basic services to the students when they are camping in its vicinity.

3 Activities department within Ministry of Education was the responsible department for school trips, overnight trips inside the PA (camping trip) and other activities held by schools.



According to the manager of the recreational park, school trips of 300 students frequently visit the area during March, April and May. With the guidance of their teachers, they enter the PA and receive some explanations regarding species and biodiversity. In 2012, there was also a camping trip for three nights arranged by the Ministry of Education, and there have also been multi-day school trips from further away, including from Ramallah Governorate.

Attitudes to WAQ: Following discussions regarding the attitude towards WAQ with local authority's representatives, we conclude that local authorities see this area as a shared wealth among surrounding communities, and that each village intends to make use of their part, especially after the establishment of a recreational park at the site by Beit Kahel Village Council.

According to interviews with representatives from the four village councils and municipalities, all of them look to WAQ as an important area for them. It is also important as the only green area for recreation, especially for those with limited sources of income. Most of the stakeholder interviews see WAQ as a type of park, and not so much as an area rich in biodiversity.

Among the uses of WAQ suggested by local community/municipality representatives, we were told about potential use as a recreational park, potential for establishing a swimming pool, a zoo with different types of animals and birds, etc. Through this type of investment, the representatives appear to hope they will increase their institutions' income in a permanent way following the example of the recreational park at Beit Kahel .

Just one of the four community representatives interviewed in-depth on this issue saw it as acceptable to join the efforts of each community, aimed at establishing one joined nature or recreational park owned by the four communities jointly.

The Consultant recalls that protected areas are primarily managed for nature conservation (Dudley, 2013), and that they should exclude activities that compromise biodiversity conservation. While a limited degree of sustainable nature-based tourism and recreation can be accommodated by this relatively small area, an expansion of commercial amusement parks, the construction of swimming pools or similar activities would certainly be in fundamental conflict with the use of the area as a PA.

2.3.9 Research

There are currently no significant research activities being carried out at WAQ. A few recent activities are reported and the potential of the area for extended research in the future is discussed in the baseline field study report.

2.3.10 Recent management

WAQ currently has no management plan and no dedicated PA management authority. Recent management by forest rangers of the MoA has been limited to some guarding (as is also the practice in Palestinian forests, but helped by the ranger presence at the WAQ MoA tree nursery), fire fighting, as well as the removal of dead pine trees such as those fallen under the weight of snow during occasional snow winters. The Mayor of Tarqumia also informed that adjacent communities have conducted at least one solid waste cleanup along the border of WAQ in the past.

- **Guarding:** During an interview held with the Hebron branch office of the MoA regarding the main threats affecting the NR, the study team was provided with statistics on the main infringements that have been recorded by MoA rangers at WAQ over the last five years (Table 3). The documented number of infringements of all types is surprisingly low for a five-year period, and considering the densely populated surroundings and high border/area ratio of the PA. The guarding effort (e.g. as documented by tracks from handheld GPS or through systematic guarding protocols of rangers) has not been documented. No ranger was encountered in the field (i.e. outside the MoA nursery at Wadi Al-Quff) during the baseline field study by the management planning team.

Table 3. Types and numbers of recorded infringements at WAQ in 2008-2012. (Data source: MoA Hebron branch office).

Number	Threat type	Number of infringements	Notes
1-	Grazing	10	Grazing of new branches and seedlings, estimated area affected by grazing was 3 ha.
2-	Fire	4	Estimated area affected by fire was 3.1 ha, with minor effects on ca. 50 trees.
3-	Cutting trees	5	
4-	Cutting branches of trees	11	
5-	Encroachment through plowing of the land	2	

- **Fire fighting:** According to Table 3, there have been three incidents of forest fires at WAQ between 2008 and 2012. These have affected only 1.2% of the reserve, which reportedly was due to the rapid fire fighting response of WAQ rangers and additional helpers.



- **Removal of dead trees:** Particularly the pine trees at WAQ are susceptible to collapsing under the weight of snow during occasional snow winters. Some snow falls in the area approximately every three to four years, with 1992 and 2013 being examples of particularly heavy snow winters in the wider area. The MoA rangers allow the removal and utilization of collapsed trees and the MoA branch office in Hebron. No statistics about the number of trees or volume of wood removed could be obtained from MoA.
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3 Synthesis, analysis and evaluation of available information

3.1 Conceptual model of WAQ

In order to synthesize, analyze and evaluate the information gathered during the baseline field study, national framework analysis and local socio-economic appraisal, a Miradi conceptual model based on the Conservation Measures Partnership's (hereafter CMP's) Open Standards for the Practice of Conservation (CMP, 2013) has been compiled by the Consultant. This corresponds to the evaluation of information (Step 3) of the IUCN PA management planning guidelines (Thomas & Middleton, 2003). This conceptual model forms the first step in the CMP's project management cycle (Figure 2) and has subsequently been used as a basis for strategy development, goal and objectives setting, the testing of assumptions and the definition of indicators for PA management at WAQ.



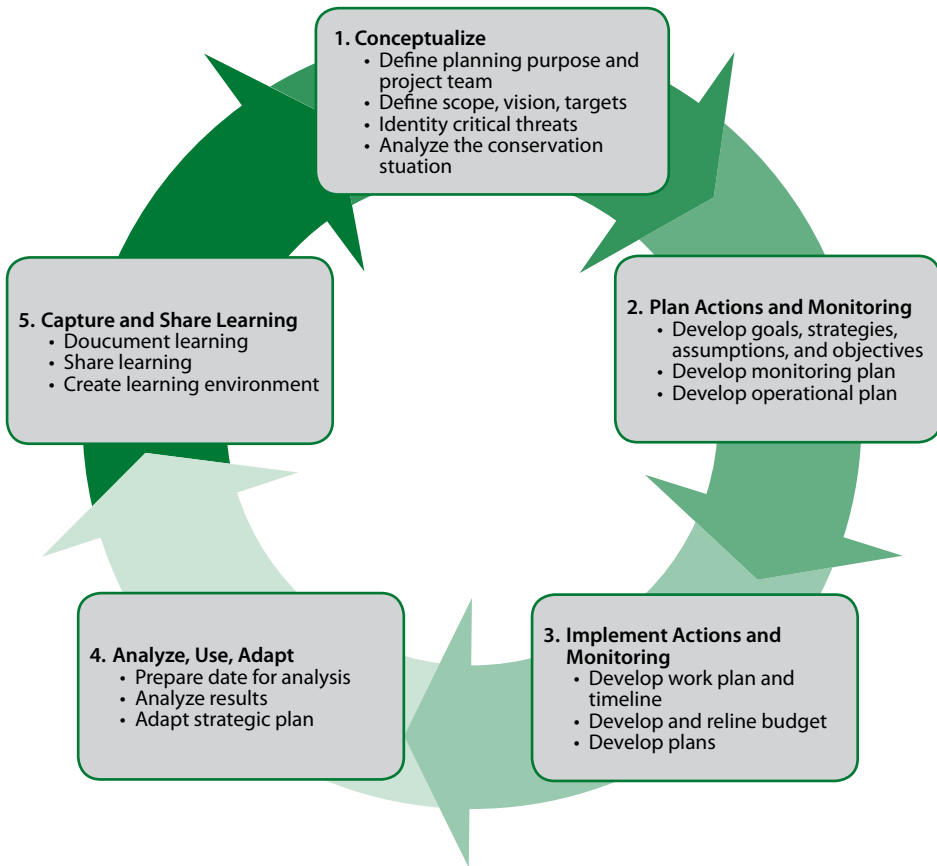


Figure 2. The CMP project management cycle (CMP, 2013).

In the WAQ management planning process, the CMP Open Standards have been used for the following purposes, in line with the general CMP (2013) methodology:

- Identification and description of the **geographical scope** and **conservation targets** (i.e. elements of the biodiversity at WAQ that the PA shall conserve) and analysis of the relationship among these conservation targets,
- Identification of **human wellbeing targets** (i.e. aspects of human wellbeing that depend on ecosystem services provided by the conservation targets of the area, and which should be optimized through PA management at WAQ),
- Mapping and prioritization (according to severity, scope and irreversibility) of **direct threats** to identified conservation targets (i.e. anthropogenic factors that directly affect conservation targets, in a negative way), with their relationship to the various conservation targets,

- Identification of **contributing factors** or drivers of direct threats (i.e. those socio-economic, legal, enforcement related or other factors that bring about the direct threats), and
- Identification of **opportunities** for reducing direct threats.

The conceptual model thus compiled has been used as a basis for PA management strategy development, which is explained further in Section 4 below.

3.2 Identification and evaluation of conservation targets

The geographical scope of conservation planning for this assignment has been Wadi Al-Quff Reserve within the boundaries defined by the Palestinian National Spatial Plan (Figure 1). Based on the more detailed analysis of the baseline field study, the following conservation targets were identified and evaluated within this area.

3.2.1 Mediterranean forest (partly degraded/replaced by *Pinus/Cupressus*)

The ca. 150 ha of forest areas within WAQ represent the central conservation value of the PA, because the existence of most of the other conservation and human wellbeing values (i.e. most landscape values, parts of the flora, breeding and migratory birds, small fauna) depends on the forests (Table 4).

The vast majority of the forest of WAQ (ca. 145 ha – see baseline field study report) consists of *Pinus halepensis* and *Cupressus sempervirens* plantations that date back to the 1960s. However, a typical Mediterranean forest is found interspersed and in some areas mixed with these plantations. This forest represents a much higher conservation value than the planted forests, because of its representativeness and biodiversity. It has been reported to have extended its area gradually over the last years, particularly along the southern (north-facing) slopes of Wadi Al-Quff and Wadi Hasqa and wherever *Pinus* trees have fallen or been felled. No exact quantitative data on this extension trend is available, however.

Because of this observation (and pending additional feasibility studies), the Consultant assumes that the entire forest area of WAQ can be considered potential Mediterranean Forest, and that the entire forest of WAQ can therefore be accommodated within one conservation target. The areas that are currently planted with *Pinus* and/or *Cupressus* are considered “degraded by introduction of *Pinus/Cupressus*”, and hence in need of interventions to restore a more typical and diverse Mediterranean forest composition, in the long term. The specific vision for this conservation target is of a gradual transition of the forest at WAQ from a *Pine/Cupressus* dominated state to a typical Mediterranean forest.

Throughout this process, the forest as such – and irrespective of its composition at any given time – needs to be protected against catastrophic destruction by fire,



conversion to agricultural lands, overuse for fuel wood and timber, overgrazing with its negative effects on natural rejuvenation, etc.

3.2.2 *Grass and shrub lands*

While the forests are the central conservation target at WAQ, the area also comprises approximately ca. 100 ha of potentially valuable grass and shrub lands. These are concentrated primarily in the southern part of the reserve between Wadi Al-Quff and Telem settlement, as well as above, below and east of the forest strip that runs along the northern slope of Wadi Hasqa (Figure 1).

The baseline field study report has shown that these grass and shrub lands offer habitat to a considerable range of fauna (including invertebrates, herpetofauna and some bird species, such as several species of Wheatears *Oenanthe* spp.). The contribution of these areas to the overall diversity of flora of WAQ needs to be confirmed through additional study. In any case, these areas complement the range of habitats comprised by the reserve and are of particular importance for species that need a mosaic of forest and open landscapes for survival, as is the case with many songbirds, raptors and small fauna. Therefore, conservation management at WAQ needs to explicitly include the identified grass and shrub areas.

3.2.3 *Rock formations and Alsafa (Bat) Cave*

Forests and grass as well as shrub lands together comprise more than 95% of the area of WAQ. However, there are a number of small rocky areas of a few ha in total, as well as one large cave, which is named Alsafa or Bat Cave. Only the cave with its fauna could so far be studied into more detail, and was found to house several bat populations including one of the Egyptian Fruit Bat *Rousettus aegyptiacus* (see baseline study report for details). Both the rock formations and the cave also contribute to the scenic beauty and hence attractiveness of the area to visitors. As this attractiveness entails a strong visitation pressure including potentially harmful activities (e.g. fires in the cave's entrance), targeted conservation management of the rock formations and Alsafa Cave is clearly warranted.

3.2.4 *Springs*

Apart from the springs that feed nurseries at Wadi Al-Quff and Wadi Hasqa, there are also openly accessible springs near Telem Settlement and to the east of Beit Kahel (see baseline study report Section 5.2.1, Figure 49, for a map). These are important conservation targets as they provide water for birds and other biota.

3.2.5 *Flora including threatened, endemic and economically valuable species*

The baseline field study could so far only give a very partial picture of the flora of WAQ including species of particular conservation interest. This is because only a

limited and sub-optimal part of the seasonal cycle could be covered as part of the survey. As a result, no globally threatened species were found during the botanical survey. However, Section 5.2.2 of the baseline study report lists the following plant species of national conservation interest that were documented at WAQ: *Coridothymus capitatus*, *Micromeria fruticosa*, *Teucrium polium*, *Crataegus aronia*, *Pistacia palaestina*, *Allium truncatum* and *Cosentinia vellea*. The full importance of WAQ as a reservoir of Palestinian flora diversity cannot be assessed without further in-depth study.

In addition to specific suggestions to address the data deficiency of the local flora, the Consultant has included this conservation target in the overall conceptual model, assuming that at least some plant species of national or global conservation concern will be found in due course. This assumption will need to be re-examined once additional information about the area's flora is available.

3.2.6 Small terrestrial fauna

No signs of artiodactyls (e.g. gazelles *Gazella gazella*) or large carnivores (e.g. Striped Hyena *Hyaena hyaena*) were detected at WAQ during the baseline field study although the Consultant received reports about past sightings of both groups from local inhabitants. The Consultant concludes that there are currently no significant populations of these larger mammal species at WAQ and that no conservation efforts should be specifically targeted at these species unless their continued presence is proven through additional field work. Given the typical individual territories and/or migration ranges of these species, it would be unfeasible to attempt conserving them at an area as small as WAQ alone.

In contrast to these groups, a relatively rich community of small terrestrial fauna (invertebrates, herpetofauna and small terrestrial mammals) was encountered by the baseline field study team (see report for details). This included the only globally threatened species in evidence at the reserve, the Mediterranean Tortoise *Testudo graeca* (IUCN Red List category: **Vulnerable** – IUCN, 2013), as well as many other species which have undergone significant declines in oPt in the recent past. Because of this, small terrestrial fauna is included as a separate conservation target in the conceptual model of WAQ. Although taxonomically heterogeneous, these faunal elements can be grouped together for practical management purposes since they are affected by similar pressures, and can be conserved through similar strategies and activities.

3.2.7 Egyptian Fruit Bat

The herbivorous Egyptian Fruit Bat *Rousettus aegyptiacus* cannot be grouped with the terrestrial fauna because of its diet, way of life, and because it is particularly closely associated with the Alsafa (Bat) Cave at WAQ. Although not threatened globally, this species has declined in oPt because of the fumigation of its caves. It is also of particular interest for WAQ because its size, appearance and strong



population at Alsafa Cave (100-150 individuals) could make it a **flagship species** of this PA. Flagship species are species that – because of their appearance, lifestyle or the way in which they are perceived by people – can mobilize support for conservation not only of themselves but also of the areas that they inhabit with their entire biodiversity.

In addition to the Egyptian Fruit Bat, five insectivorous bat species have so far been found at WAQ (see baseline field study report for details): *Pipistrellus kuhlii*, *P. pipistrellus*, *Myotis myotis*, *Eptesicus serotinus* and one unidentified species). Insectivorous bats would be a separate conservation target from *Rousettus*, because of their distinct food and habitat requirements. The species found at WAQ so far generally use either buildings or natural structures (trees, rock fissures) as roosting sites and typically forage in mosaic landscapes which include agricultural areas, similar to the wider area of WAQ. This means that their dependency on WAQ may be less than that of the fructivorous bat *Rousettus aegyptiacus*, and needs to be studied further before these species can be included as a specific conservation target of Wadi Al-Quff. In addition, insectivorous bats are also conserved by strategies aimed at insectivorous songbirds (e.g. limitations on pesticide use) and on their potential habitats (forest, grass/shrub lands, cliffs and cave). Because of this umbrella effect, insectivorous bats are not included as a separate conservation target in the conceptual model of WAQ.

3.2.8 Breeding birds

The avifauna survey at WAQ took place after the breeding season. Nevertheless, 33 species of birds including the nationally rare Syrian Woodpecker *Dendrocopus syriacus*, a tree-dwelling species, were detected during this survey, and a total of 42 potential breeding species was estimated for the area (baseline field study report, Appendix II). No globally threatened breeding species were found at the site during the survey. In any case, the relatively high species richness and high visibility of avifauna renders this group a distinct conservation target of Wadi Al-Quff, also in relation to human wellbeing targets including recreation and education. A number of species of particular conservation interest which occur at WAQ are listed in Section 5.2.3 of the baseline study report.

3.2.9 Migratory soaring birds

Wadi Al-Quff is located along the globally highly important **Black Sea-Mediterranean Flyway** of migratory soaring birds (raptors, storks, cranes) (BirdLife International, 2010). Up to 2,500 White Storks *Ciconia ciconia* were reported above WAQ in 1999 (PWLS, 2010 - http://www.wildlife-pal.org/wadi_al-quff.htm). Egyptian Vulture *Neophron percnopterus* (**Endangered**), Spotted Eagle *Aquila clanga* (**Vulnerable**) and Pallid Harrier *Circus macrourus* (**Near-threatened**) (IUCN, 2013) are believed to frequent the PA during migration. It has also been reported that some raptors use WAQ as a roosting site during autumn migration. While these reports need to be

updated and expanded through targeted surveys during the migration season, the Consultant deems migratory soaring birds a relevant conservation target at WAQ.

3.2.10 Interdependence of conservation targets

The nine specific conservation targets that have been defined for WAQ are highly interdependent. Table 4 maps this interdependency in a general way, and without claiming to account for every interaction (related e.g. to pollination, seed dispersal etc.) within the WAQ ecosystem. This is a broad mapping for practical purposes, which highlights once more that among the conservation targets at WAQ, the habitat related targets (particularly the forest and grass/shrub lands) stand out because so many of the other targets depend on them. This means that habitat related conservation targets there should have priority within the overall conservation strategy for the reserve. In other words: ***If the forest (and to a lesser degree the grass and shrub lands) at WAQ are conserved effectively, this will already go a long way towards conserving all other conservation targets of the area.***

In conclusion, the analysis of data from the literature and the baseline field study revealed the above nine primary conservation targets, on the conservation of which PA management at WAQ should concentrate. In the Miradi conceptual model (Figure 4), the geographical scope of this management plan (Wadi Al-Quff Nature Reserve as defined by the National Spatial Plan of Palestine) is symbolized in dark green, whereas the nine individual conservation targets are shown in light green.

Table 4. Conservation target interdependence matrix for WAQ. Dependent targets are listed in rows, the targets on which each of them depends in columns. Dependence is semi-quantitatively scored from 0 (no dependence) to 3 (high dependence).

	Forest	Grass/ shrub	Cliff/ cave	Springs	Flora	Terr. fauna	Fruit Bat	Breeding birds	Migr. birds
Forest	-	0	0	0	1	1	0	1	0
Grass/ shrub	0	-	0	0	1	1	0	1	0
Cliff/ cave	0	0	-	0	0	0	0	0	0
Springs	0	0	0	-	0	0	0	0	0
Flora	2	2	1	1	-	1	1	1	0
Terr. Fauna	2	2	1	2	2	-	0	1	0
Fruit Bat	1	1	3	0	1	0	-	0	0
Breeding birds	2	2	0	2	1	1	0	-	0
Migratory birds	2	1	0	0	0	2	0	0	-
Sum	9	8	5	5	6	6	1	4	0



3.3 Identification and evaluation of human wellbeing targets

Section 5.3 of the baseline field study report identified the following human wellbeing values associated with WAQ:

- **Natural resource use:** grazing, fuel and timber wood collection, wild plant collection.
- **Recreation:** both concentrated on recreational parks at beit Kahel and Tarqumia, and informally throughout accessible parts of the forest.
- **Education:** Some educational school visits and camps already and significant potential for extended educational use by various target groups.
- **Scientific research:** Potential for botanical, zoological, ecological and other related research, including in relation to the impacts of climate change.

The existence of these uses was confirmed by local inhabitants, village representatives, rangers and other stakeholders during the local framework appraisal conducted as part of this assignment (see Section 2.3.5 above). Therefore, they were included (light brown ovals) in the conceptual model (Figure 4).

However, the importance of WAQ as a source of wood and wild plants seems to be very limited currently, and its importance as a grazing area limited in all but the driest years, according to local inhabitants. The infringements detected by MoA staff within WAQ (Table 3) suggest a very low level of natural resource use there. Even if these underestimate the importance of natural resource use at WAQ, which appears possible, natural resources from WAQ cannot possibly play a major role in supporting the livelihoods of local inhabitants or the local economy. The small size of the reserve (250 ha) in relation to the total population of the neighboring villages (ca. 60,000) alone means that – even if WAQ would be systematically exploited for natural resources – it would only marginally contribute to the supply of such resources. ***The Consultant concludes that WAQ does not play a major role (at the level of the entire surrounding population) as a source of energy, construction materials, wild plant and animal resources and livestock pasture to support local livelihoods and the local economy. Therefore, there is no overriding public interest to protect and optimize natural resource use at WAQ.*** This does not exclude the possibility that informal/illegal resource use by a limited number of individuals from neighboring villages contributes to their livelihood and income. However, it has been impossible to identify these individuals within the timeframe and seasonal window available for the baseline field study and local framework analysis.

In addition to the human wellbeing values already identified through the baseline study, local framework analysis and participatory workshops, an additional value is the genetic information contained in the biota, and particularly the plants, of the reserve. The economic value of this information is currently unknown but its potential should nevertheless be kept in mind, not least in the context of the

possible development of local Access and Benefit Sharing mechanisms on the basis of the Convention on Biological Diversity and its Nagoya Protocol (CBD, 2013). Therefore, “potential economic benefits from genetic information” has been added to the biodiversity-dependent human wellbeing targets of WAQ (see Figure 4).

Although there are also several springs at Wadi Al-Quff itself and also in upper Wadi Hasqa, the area appears to be too small to contribute significantly to the hydrological system of the western aquifer which feeds these springs, which means that “water provision” is not listed as a separate human wellbeing value of the reserve. However, this preliminary conclusion might change with further hydrological study of the area.

Four of the identified human wellbeing targets (i.e. human wellbeing values generally worth conserving) including “recreation” and “education/knowledge generation” strongly depend on the integrity of the forest at WAQ (Figure 4). This underlines once more the central importance of conserving the forest for the overall management of the reserve.

3.4 Evaluation of direct threats to the conservation values of WAQ

Within the conceptual model of WAQ, direct threats are human-made processes or activities that directly and negatively affect the conservation status of one or several conservation targets. Section 4.5 of the baseline field study identified (and discussed into more detail) the following direct threats to the conservation targets of WAQ. Some additional information has been added about some of them, to provide a better understanding of their contributing factors:

- **Illegal overgrazing:** Inferred from state of vegetation and soil, animal droppings, as the baseline field survey took place outside the main grazing season.
- **Uncontrolled and irresponsible visitation:** Inferred from waste accumulations, confirmed by ranger reports.
- **Illegal wood cutting:** Inferred from numerous tree trunks, confirmed by ranger reports.
- **Agricultural encroachment:** Mainly in Wadi Hasqa.
- **Solid waste disposal:** In the vicinity or along the margins of the reserve, but also by visitors inside the reserve.
- **Industrial waste burning:** According to articles published by the MAAN Center (2010) through its electronic publications, many scrap traders in different parts of the West Bank, especially in Hebron governorate burn



electronics waste, tires and wires coated with plastic in order to recycle metal components (copper, iron and aluminum) under contract from commercial dealers. This phenomenon is centered upon the towns of Beit Awwa, Deir Samit and Ithna, all in the vicinity of WAQ. The fires are typically made at night in the open countryside, in agricultural lands, forests, along roads and tracks (usually in areas C and sometimes B). The field study that was part of this assignment found some evidence of waste burning in the periphery of WAQ, including along the dirt road through Wadi Haska. It is difficult for citizens (and indeed law enforcement agencies) to intervene and stop these fires because of the large and organized scale of the operation, its socio-economic importance in the region, and also because many of the scrap dealers are armed (see box) (MAAN Development Center, 2008). Scrap dealers exploit the bad economic situation of local inhabitants and have been reported to employ children in the highly hazardous recycling process, paying them just NIS 20 (USD 5.60) per day (Environment and Development, 2008). Industrial waste burning has many negative environmental effects. With particular reference to WAQ, negative impacts include fire risk, contamination of soils and water with toxic residues of the burning process, disturbance to wildlife at night, and negative aesthetic impacts.

- **Climate change:** See baseline study report for further details.
 - **Illegal quarry in immediate vicinity of the reserve:** There is an illegal quarry adjacent to the NR. This is discussed in more detail in Section 4.4 below. This quarry has been established on the land of Halhoul Municipality on land owned by a resident from Halhoul, who leases it to an investor from Hebron. This investor has established the quarry without a license from Halhoul Municipality, EQA or MoA. This quarry releases massive amounts of dust into the air, damaging a wide range of agricultural lands when the dust falls on agricultural crops and trees, and also damaging the PA with its biodiversity. In addition to these effects of releasing dust into the air, the study team observed dumping of waste produced by the quarry and apparently also transported from elsewhere into the NR. There is also the effect of noise, which may disturb wildlife and also impair the recreational value of the site.
 - **Use of agrochemicals in vicinity of reserve:** According to interviews with WAQ rangers and the agronomist at the Hebron Governorate branch of MoA, various pesticides are used in agricultural areas surrounding WAQ, particularly in the relatively small areas planted with grape. Grape needs to be sprayed between three and six times per season with fungicides and insecticides, to control diseases. These pesticides may have an effect on insectivores feeding in the vicinity of grape plantations, although these are restricted to the area along upper Wadi Hasqa. In addition to the above, pesticides have also been used to control outbreaks of pests at WAQ,
-

including locusts. Sometimes, herbicides are sprayed to control weeds along the main roads through the forest, to reduce the amount of highly flammable dried weeds during summer, in order to reduce fire hazards. All in all, this is a minor and rather localized threat, primarily in upper Wadi Hasqa.

- **Feral dogs:** One pack observed, need for verification of the observation through further study.
- **Fragmentation:** Effects of the numerous roads and tracks, crossing WAQ and other infrastructure on the functionality of the areas ecosystem and populations of mobile terrestrial fauna. The damage from existing roads is already done, no further roads are currently planned, and no need for wildlife bridges or similar engineering structures to mitigate fragmentation impacts was detected during the baseline field study.

In addition to these, the following threats were identified through interviews with rangers, local community representatives and inhabitants (see also Table 3):

- **Forest fires:** As a result of random recreation inside WAQ and other factors, there have been fires inside the reserve. Burning of waste mainly has caused fires at the border of the reserve, which may have lead to the disappearance and the elimination of a number of plant and animal species.
- **Poaching:** While poaching allegedly has caused the disappearance of animal species such as *Gazella gazella* and *Lepus capensis* wild rabbits from WAQ in the past, during the last few years this activity become very limited, as a result of law enforcement and reduced number of wild animals in the reserve.
- **Wild plant collection:** There has reportedly been regular wild plant collection at WAQ in the past, including uprooting practices, which even lead to the local disappearance of a number of plant species (no names were provided by interlocutors when asked). Partly as a result of a decline in wild plant yields following past overuse, local community representatives now characterize the intensity of wild plant use as low.
- **Accidental poisoning of birds of prey and terrestrial fauna from poisoned baits against feral dogs:** Municipalities and village councils in the vicinity of WAQ lay out poisoned bait to suppress feral dogs, which are considered a threat to livestock and humans and disease transmitters. The significance of this threat is unclear.
- **Groundwater pollution:** Wadi Hasqa is a long wadi with several natural springs. Its freshwater is used mainly for agricultural irrigation along the wadi and for drinking, but also sustains the vegetation along the Wadi. About two years ago, farmers from the wadi observed the beginning of



water pollution at the springs, reportedly by sewage water from halhoul/ Hebron and hydrocarbons from the Zaid gas station at Halhoul. They have reportedly raised many official complaints to MoA, Ministry of Health, and the Water Authority to assist them in solving this problem. Until now it appears that this issue has not been addressed, partly because of a lack of evidence linking the observed pollution to its suspected sources. Polluted water may also poison wildlife which drinks from it, as well as vegetation.

Table 5. Application of evaluation criteria for threats to the 16 threats initially identified in the field. (Scale from “-“... criterion not met to “XXX”... criterion fully met)

Threat	Significance	Management relevance	Intervention specificity	Comments
Overgrazing*	XXX	XXX	XX	Included
Over-visitation*	XXX	XXX	XXX	Included
Wood cutting*	XX	XXX	X	Lumped1
Encroachment*	X	XX	XX	Included
Waste disposal*	X	XX	XX	Included
Waste burning*	X	XX	XX	Included
Climate change	XXX	X	-	Excluded2
Quarrying	XX	-	-	Enabling action3
Agrochemicals	X	X	X	Excluded2
Feral dogs	X	XX	XX	Excluded2
Fragmentation	XXX	X	X	Excluded2
Fires*	XX	XX	XXX	Included
Poaching*	X	XXX	X	Lumped1
Plant collection*	X	XXX	X	Lumped1
Bird poisoning	XX	-	-	Excluded2
Groundwater pollution	XX	-	-	Enabling action3

Notes: 1Since illegal wood cutting, poaching and plant collection require very similar PA management interventions (improved enforcement and demand reduction), they were lumped as “illegal resource use” in the conceptual model. 2Climate change was excluded from the conceptual model because good PA management in general will also contribute to good climate change resilience of WAQ (lack potential for specific interventions), while the other threats were excluded because they have only limited impact and/pr originate outside WAQ. 3The threats from the illegal quarry and groundwater pollution originate from specific activities outside WAQ and should be addressed as one-off enabling interventions outside the scope of the PA management plan by EQA, as discussed in Section 4.4 below.

In order to focus future PA management at WAQ at the most important threats, this list of 16 threats of varying importance has been evaluated by the Consultant, based on the following criteria:

- **Significance:** Overall impact of each threat on conservation targets (in terms of spatial scope, severity and irreversibility).
- **Relevance to PA management at WAQ:** Tractability of threats with PA management interventions – some threats originating outside the PA are outside the scope of PA management, and should therefore be addressed through additional enabling interventions.
- **Scope for specific management interventions:** Extent to which PA management will differ as a result of a specific threat being taken into account (see below for explanatory example).

As a result of this evaluation, the seven most important threats to the conservation targets of WAQ (three of them lumped to one threat) have been included in the conceptual model of the reserve, as a basis for further management planning. They are shown in the model as pink boxes, with an additional marker denoting their priority. The most important threats so far are written in capital letters (Figure 4).

3.5 Identification and evaluation of contributing factors

Contributing factors (also called indirect threats or drivers) are those socio-economic, technological, political etc. factors that combine to produce the direct threats to the conservation targets. In order to base PA management planning on a correct understanding of the situation in which a given PA will operate, it is necessary to understand these factors as much as possible (CMP, 2013), primarily because of two reasons:

- **Contributing factors as intervention points:** Often it is more effective to design PA management strategies that address contributing factors than strategies that attempt to address conservation targets or direct threats directly. This is because the latter strategies will always have to override the impact of contributing factors if those are not addressed at the same time.
- **Contributing factors in feasibility analysis:** Some contributing factors cannot be addressed by PA management interventions, or not at all. When this is the case, it sometimes means that a PA management strategy is not feasible at all, and should not be attempted in order to avoid wasting resources.

An example of the range of contributing factors producing a direct threat at WAQ is shown in Figure 3. This example shows factors that can be addressed through PA management interventions; those factors that cannot are in parentheses.



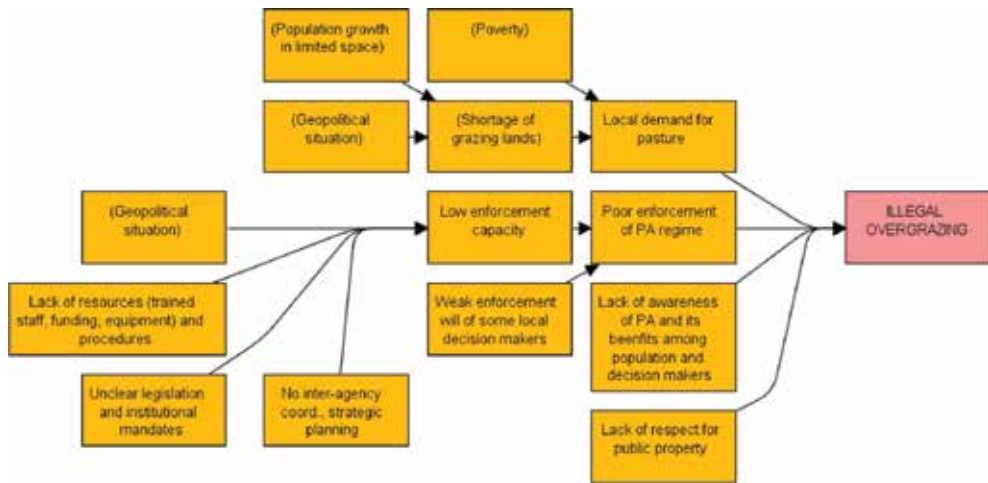


Figure 3. Example of a range of contributing factors of illegal overgrazing at WAQ. Contributing factors in brackets are not tractable at the individual PA level.

In order to develop the PA management strategy, the Consultant focused on interventions for tractable – at the level of an individual PA – contributing factors only, for instance those addressing enforcement capacity, lack of awareness or local demand for pasture.

However, the future management authority of WAQ should keep in view also the factors beyond its practical reach (e.g. general socio-economic and geopolitical framework) as future changes in these factors may alter the enabling environment for PA management at WAQ to an extent where new PA management strategies become feasible (or existing ones unfeasible). A more extensive (and hence complex) conceptual model including an analysis of contributing factors to many of the 16 identified direct threats is included as Annex 1.

3.6 Current management capacity

The current management capacity of the MoA presence at WAQ is described in more detail in Section 2.1.5. In general, current management capacity is characterized as very weak, because of the following factors:

- **Weak legal framework:** Currently there are only general and partly contradictory provisions for PA management in the palestinian environmental and agricultural laws of Palestine. A bylaw on nature conservation and PAs is still in preparation. This weakens the basis for effective PA management in a similar way as the lack of a legal designation of the area.
- **Lack of formal PA designation:** WAQ has not officially been designated as a PA yet, which limits the legal basis for the implementation of an effective

PA management regime. Part of the reserve is protected in general terms (through Article 44 of the 1999 Environmental Law and corresponding paragraphs of 2003 Agricultural Law) as a forest, but this does not apply to the extensive non-forested areas (ca. 100 ha) in its southern and eastern parts.

- **Lack of an agreed vision of WAQ:** Before the initiation of the management planning process for WAQ and the participatory planning workshops conducted within this framework, the various stakeholders of WAQ have not come together to work on an agreed vision of WAQ. As a result of this, visions of the various stakeholders for the area differ, and there is no coordinated approach to its management by the various relevant institutions and organizations.
- **Lack of management plan:** This is the first effort to develop a management plan for WAQ.
- **Lack of conservation and PA management qualification of rangers:** The MoA rangers at WAQ have not been trained in PA management. One has a forestry background but not all forestry practices currently conducted (e.g. removal of all dead wood) or suggested by some stakeholders (e.g. cutting of firebreaks in the forest) can be reconciled with the goals of nature conservation.
- **Lack of incentives:** The rangers are relatively poorly paid, which does not incentivize them to take maximum efforts to protect the area. At this pay level, it will be difficult to attract well-qualified staff to complement the management authority of WAQ in the future.
- **Lack of resources:** As detailed in Section 2.1.5, the current resources available for the management of the area are inadequate and almost non-existent.
- **Lack of procedures:** Procedures and technical guidance for the various aspects of PA management (e.g. guarding, visitor management, monitoring and reporting, communication, education and public awareness raising) are currently absent.

In conclusion, the management plan developed through this assignment is an establishment management plan, which will address the development of PA management capacity at WAQ (almost) from zero.

3.7 Financial situation

The total annual budget of WAQ (including salaries) was reported to the Consultant at ca. USD 15,000. This is extremely low even for such a small PA.



Opportunities	Threats ¹
<ul style="list-style-type: none"> - initiative of EQA and support of MoA - decreasing livestock numbers in the wider area due to fodder prices and other factors - switch to stable-based sheep breeds reducing need for pasture area in the wider area - international donor interest in nature conservation and support from relevant multilateral environmental agreements - existence of a multi-stakeholder support network for PA establishment and management planning, as shown in participatory workshops as part of this assignment - upcoming PA bylaw 	<ul style="list-style-type: none"> - geopolitical situation - unclear mandates and roles of EQA and MoA in the field of PA management and system development - strong economic interest in the development of (non-nature based) recreational park at Beit Kahel - challenging financial situation of the State of Palestine, which may constrain the possibilities to source State funding for management plan implementation - unclear availability of qualified staff to implement management plan, and unclear availability of funds to create incentives to attract such staff

1 In this case, "threats" has a different meaning than in the other sections of this management plan. It means factors outside the control of the project core team that might affect (negatively) the establishment and management of WAQ as a PA.





Management strategy

The management strategy for Wadi Al-Quff Reserve builds on the results of the situation description and analysis as well as the evaluation of conservation targets, threats and contributing factors as synthesized in the conceptual model (Figure 4) and SWOT analysis (Table 6). It determines the main directions that the management of the area will take in order to:

- Fulfill the functions and obligations of the protected area,
- Maintain, protect and enhance the values,
- Reduce or manage the threats,
- Make use of the opportunities, and
- Ensure effective and efficient management.

In order to develop this management strategy, a stepwise approach has been taken by the Consultant, following the methodology of the CMP Open Standards (CMP, 2013) and using the conservation planning software Miradi:

1. Proposal of a general long-term (2035) **vision** for WAQ as a PA that can be shared by all key stakeholders.
 2. Definition of long-term (2035) **goals** (i.e. desired conservation states) for each conservation target as identified in the conceptual model for the site.
 3. Identification and viability check – in terms of impact and feasibility – of **strategies** (i.e. specific courses of action addressing conservation targets, direct threats, indirect threats).
 4. Construction and critical examination of the **results chains** that link each strategy with its intervention point in the conceptual model (i.e. conservation targets, direct threats and contributing factors).
-

5. Formulation of SMART short-term (five year) **objectives** for threat reduction, target restoration and intermediate steps in the results chains.

These steps in strategic plan formulation are discussed in more detail below. The specific definition of each of them has been based on input from the baseline study report, national and local framework analysis, as well as stakeholder inputs received during the planning missions and workshops in June and August 2013.

As an additional step that belongs to the work planning, this approach will also allow the elaboration of indicators that can be used to check the effectiveness of PA management at WAQ during the implementation phase of the management plan.

4.1 Vision

Based on input from the participatory and consultation workshops and the input received from local and national stakeholders, the Consultant proposes the following long-term (2035) vision for WAQ:

Wadi Al-Quff Reserve is a well-managed protected area with healthy Mediterranean forest, shrub and grassland areas harboring a rich flora and fauna of healthy populations of typical Mediterranean species, and being visited, studied and enjoyed as a flagship example of Palestinian nature by locals, Palestinians and international visitors.

4.2 Long-term management goals

The following goals have been formulated for the identified conservation targets at WAQ, based on information received during the strategic planning workshops and derived from discussions with EQA staff:

- **1A** (Conservation target: Mediterranean forest): *The area extent and density of forest (measured as % coverage and/or number of trees per ha) at WAQ is maintained at 2013 levels or increased until 2035.*
- **1B** (Conservation target: Mediterranean forest): *The proportion (in terms of %coverage) of Mediterranean deciduous forest consisting of typical native species is increased to 25% by 2035.*
- **2A** (Conservation target: Grass and shrub lands): *The area extent of grass and shrub lands in the locations where it currently exists at WAQ is maintained until 2035.*
- **2B** (Conservation target: Grass and shrub lands): *The species richness of grass and shrub lands at WAQ is increased by 25% by 2035.*
- **3A** (Conservation target: Rocky cliffs and Alsafa Cave): *The overall extent and*



quality (e.g. habitat quality for bats, invertebrates, flora) of rocky areas and Alsafa Cave is maintained at its 2013 level or improved until the end of the first management plan.

- **4A** (Conservation target: Springs): *Water quality and discharge of the two open springs at WAQ (near Telem settlement and east of Beit Kahel) are maintained at 2013 levels or increased/improved until 2035. Hydrocarbon and domestic sewage pollution are reduced to levels suitable for human consumption by 2035.*
 - **5A** (Conservation target: High conservation value flora): *The populations of all endemic (to historical Palestine), nationally or internationally threatened and (economically) useful plant species recorded at WAQ are maintained at the 2013 level or increased until 2035.*
 - **5B** (Conservation target: High conservation value flora): *The species richness of high conservation value flora at WAQ is increased by 15% by 2035.*
 - **6A** (Conservation target: Terrestrial fauna): *Populations of terrestrial fauna, particularly of endemic (to historical Palestine), as well as nationally or internationally threatened species of small fauna (mammals, herpetofauna, invertebrates) at WAQ are maintained at their 2013 abundance or increased until 2035.*
 - **7A** (Conservation target: Egyptian Fruit Bat): *The population of the Egyptian Fruit Bat at Alsafa Cave is maintained at the 2013 level or increased until the end of the first management plan.*
 - **8A** (Conservation target: Breeding birds): *All breeding bird populations, and particularly those of endemic (to historical Palestine), as well as nationally or internationally threatened species at WAQ are maintained at the 2013 level or increased by 2035.*
 - **8B** (Conservation target: Breeding birds): *The species richness of breeding birds at WAQ is increased to at least 35 by the end of the first management plan.*
 - **9A** (Conservation target: Migratory soaring birds): *Migratory raptors passing through the area continue to use WAQ as a roosting site at at least the average level between 2009 and 2013, and do not suffer losses to poaching, persecution (e.g. poisoning) or other causes at WAQ, until 2035.*
 - **10A** (Human wellbeing target: Recreation): *By 2035, WAQ has all necessary infrastructure and procedures in place and is used for visitation and recreation, by the maximum sustainable visitor number (TBD).*
 - **11A** (Human wellbeing target: Education): *By 2035, WAQ supports nature based education visits, classes and camps for Palestinian students and adults, at the maximum sustainable intensity (TBD).*
-

- **11B** (Human wellbeing target: Knowledge generation): *By 2035, WAQ has all necessary procedures in place and is used by Palestinian (and, to the extent appropriate, international) researchers in a way that does not compromise its conservation targets.*
- **12A** (Human wellbeing target: *Potential economic benefits from genetic information*): *By 2035, access to genetic resources based on the biota of WAQ is regulated in an equitable, transparent and practicable way, aimed at supporting research and development activities in the common interest. (No specific actions are foreseen in the first management plan in relation to this goal, but it should be kept in consideration for subsequent management plans).*

These goals are cross-referenced in the Miradi output of the completed strategic planning overview, and symbolized by light blue ovals associated with the various conservation targets (Figure 5).

No separate short term conservation goals have been formulated for the conservation targets by the Consultant as no visible impact on the target level is expected during the time span of the initial management plan, due to the time it will take to establish an effective management regime at WAQ and the lags expected in the response of the ecosystem and individual species to management interventions initiated during this period. However, the management authority of WAQ should formulate more specific medium and short term conservation goals for subsequent management plans of the reserve (e.g. the 2019-2023 management plan etc.) because at this stage measurable impacts on the status of the conservation targets can already be expected.

Even without specific short-term conservation goals for the first management plan, the long-term goals can be compared to monitoring results, in order to check if the general trend of the conservation targets goes into the intended direction.

4.3 Conservation strategies and objectives

Based on the identified direct threats and their contributing factors as identified in the conceptual model (Figure 4), eleven specific threat reduction strategies aimed at reducing threats and conserving the conservation targets at WAQ were identified by the Consultant (Figure 5). One additional strategy (Mediterranean forest restoration strategy) does not address any specific threats, but is aimed to directly contribute to the long-term management goals 1B (see Section 4.2 above).

These strategies, the core substance of the management plan, were then grouped into three management phases:

- **Phase 1 – creation of enabling framework:** Several strategies do not deal with PA management at the site level, but address the need to first create an enabling environment for this at the national level. These strategies



need to be implemented before site-level activities can commence. They are not usually considered part of a PA management plan but are included at the strategy level here, because of their relevance to the initiation of PA management at WAQ. The work plan (see Section 6 below) only addresses the one site-based strategy (clarification of boundaries) as the others concern predominantly administrative acts at the national level. However, the Consultant considers the completion of all enabling strategies an essential prerequisite of the initiation of PA management at WAQ.

- **Phase 2 – establishment phase:** Once an enabling environment for PA management at WAQ, a PA management authority can be established in practice, and its capacity developed. Infrastructure for enforcement, recreation and education can also be constructed and local level mechanisms to support stakeholder participation in PA management can be gradually developed.
- **Phase 3 – remaining part of the lifespan of the first 5-year management plan:** These are activities that commence in parallel with or after the establishment of the PA management authority and continue as regular elements of PA management until the end of the first management plan, as well as beyond.

There are two types of short term objectives for the first five-year management plan of WAQ: **Threat reduction objectives** (TROs – see Table 7) define intended changes regarding the intensity or impact of the identified threats, whereas **intermediate objectives** define the intended states of specific intermediate results in the results chains of individual conservation strategies (see CMP, 2013, for details).

Table 8 summarizes and groups the conservation strategies for WAQ. Each strategy with its rationale, results chain, objectives and overall timetable is then discussed in more detail. Since most conservation strategies contribute to more than one threat reduction objective, the threat reduction objectives for PA management at WAQ are separately listed in Table 7.

In addition to the core enabling and management strategies for the reserve, two emergency strategies to address important external threats to the integrity of WAQ are also listed as part of Phase 1.

Only the strategies of Phase 1 and the emergency strategies (see below) have objectives timed by year (usually 2014). The remaining objectives are timed relatively (e.g. “by the end of Year 1 of the management plan”) in order to allow for delays in the creation of an enabling environment for PA establishment at WAQ and in the official approval of the management plan.

Table 7. Short term threat reduction objectives for PA management at WAQ.

No.	Threat reduction objective	Direct threat addressed	Contributing strategies (see Table 8)
TRO 1	<i>By the end of Year 3, illegal grazing inside WAQ has been reduced to a level where it is no longer detected during ranger patrols and does not prevent the natural rejuvenation of native Mediterranean forest inside WAQ. This will need to be checked through a survey of rejuvenation on-site.</i>	Illegal unsustainable grazing	0, 1, 2, 4, 7, 10
TRO 2	<i>By the end of Year 4, annual additional damage (littering, fires, damage to vegetation, disturbance by people outside designated recreational areas or trails) to WAQ from uncontrolled and irresponsible visitation is reduced to 10% of Year 1 levels.</i>	Irresponsible recreation	0, 1, 2, 4, 5, 7
TRO 3	<i>By the end of Year 3, illegal natural resource use (wood, wild plants, wild animals) inside WAQ has been reduced to a level where it is no longer detected during ranger patrols. The level of illegal natural resource use stays at this level from Year 4 onwards.</i>	Illegal natural resource use	0, 1, 2, 4, 7, 10
TRO 4	<i>From Year 2 onwards, no more than one forest fire of more than 1 dunum per year and no forest fires of more than 1 ha occur at WAQ. If lit, fires are effectively and quickly controlled by WAQ rangers so that they affect only the maximum area as indicated above.</i>	Forest fires	0, 1, 2, 4, 7, 8, 9
TRO 5	<i>From the end of Year 1 onwards, there is no further agricultural encroachment onto the territory of WAQ.</i>	Encroachment	0, 1, 2, 3, 4, 7
TRO 6	<i>From Year 2 onwards, no more industrial waste is burned along the Wadi Hasqa agricultural road.</i>	Waste burning	0, 4, 2, 1, 5, 6
TRO 7	<i>From the end of Year 2 onwards, there is no more long-term waste accumulation inside WAQ along Road 3556, the branch road to Halhoul, or the agricultural road through Wadi Hasqa.</i>	Waste disposal	0, 4, 2, 1, 5, 6



Table 8. Overview of management strategies for WAQ.

No.	Strategy	Associated strategic objectives	Grouping
0	Legal establishment of WAQ as PA	0.1	Phase 1
1	Legal and institutional amendments to support PA management at WAQ	1.1	Phase 1
2	Support to inter-institutional cooperation and communication	2.1 – 2.2	Phase 1
3	Clarification of boundaries of WAQ on the ground and through GIS	3.1	Phase 1
4	Establishment and capacity building of WAQ management authority	4.1 – 4.5	Phase 2 – 3
5	Reduction of car access from road	5.1 – 5.2	Phase 2 – 3
6	Establishment of a visitor management, information and interpretation system ¹	6.1 – 6.3	Phase 2 – 3
7	Establishment of communication, education and public awareness raising programme ²	7.1 – 7.6	Phase 2 – 3
8	Purchase of adequate firefighting equipment	8.1 – 8.2	Phase 2 – 3
9	Development of firefighting capacity	9.1 – 9.3	Phase 2 – 3
10	Promotion of alternative resource use areas to reduce pressure on resources at WAQ	10.1 – 10.4	Phase 3
11	Mediterranean forest restoration	11.1	Phase 3

1 This strategy also directly contributes to Goal 10A on optimizing the use of WAQ for sustainable nature-based recreation.

2 This strategy also directly contributes to Goal 11A on optimizing the use of WAQ for education and knowledge generation.

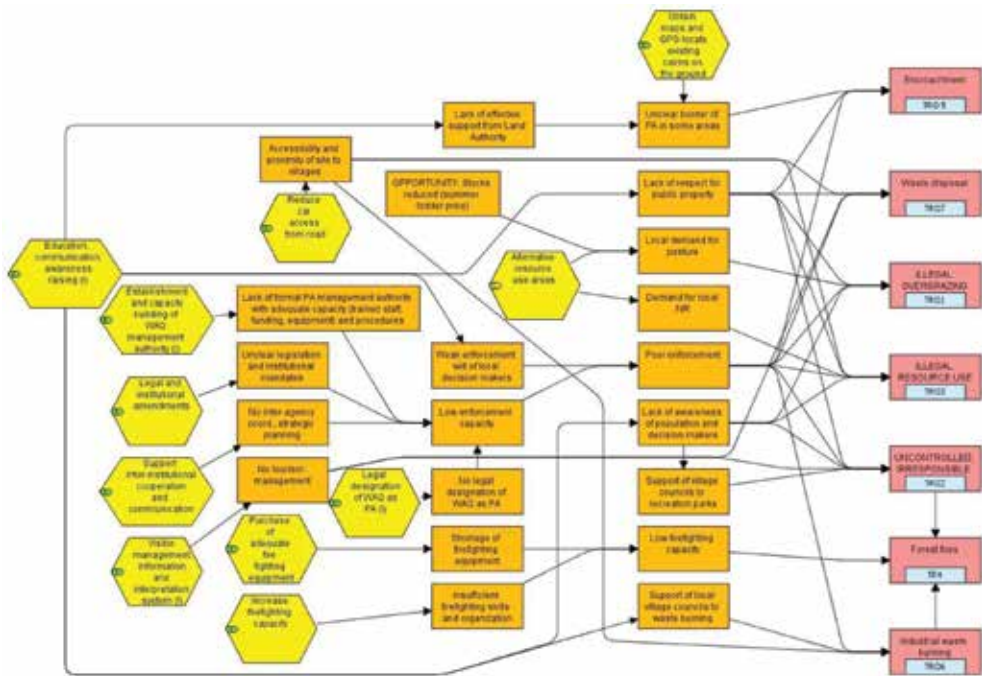


Figure 5. Intervention points of PA management strategies in relation to the conceptual model of Wadi Al-Quff Reserve. (■ ...direct threat, ■ ...contributing factor, ⬡ ...strategy, □ ...threat reduction objective). Key strategies are marked (!). See text for details.

4.4 Phase 1 - creation of an enabling framework for PA management

4.4.1 Strategy 0: Legal establishment of WAQ as PA

Rationale: In order to reduce most of the threats to the biodiversity targets of WAQ, an effective PA management authority needs to be officially established and its capacity developed. In order to officially establish a management authority, in turn, the PA at WAQ itself first needs to be legally designated. This will lay the foundation for setting up a management authority, creating the necessary management and enforcement capacity and ultimately reducing identified threats to the conservation values of WAQ (Figure 6).

Grouping and timing: This is a necessary prerequisite to create an enabling environment for the establishment phase of PA management at WAQ. The strategy should therefore be completed as soon as possible after the management plan is approved and before it commences implementation.

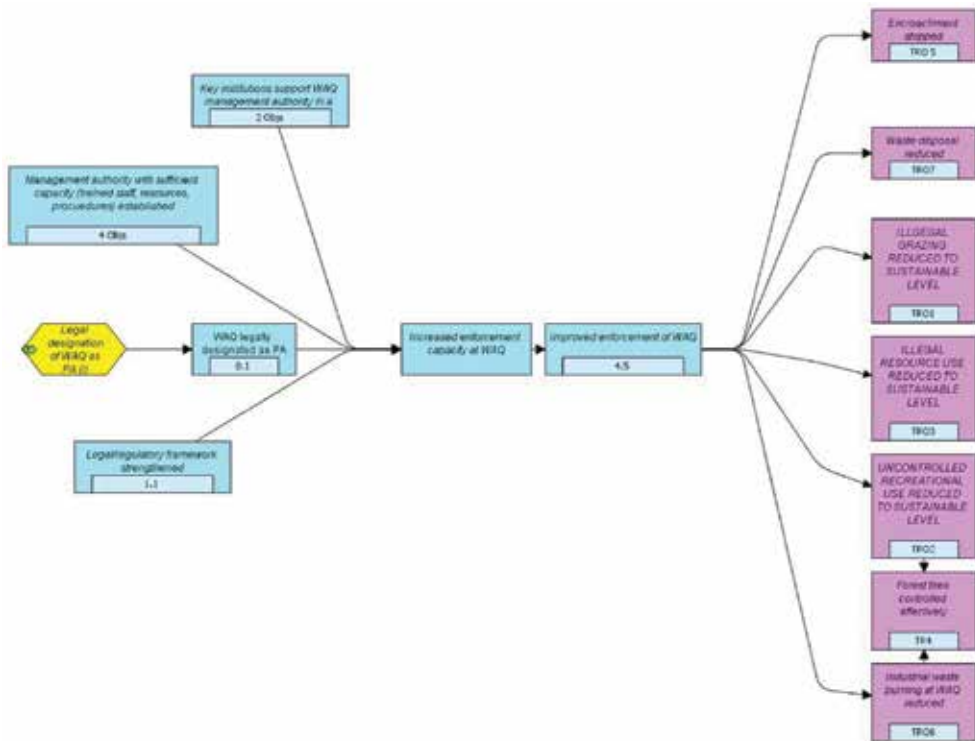


Figure 6. Results chain of Strategy 0. (⬡ ...strategy, □ ...intermediate result, □ ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 0:

- **Objective 0.1** – *By the end of 2014, WAQ has been legally designated as a Nature Reserve according to the Palestinian Environmental Law, corresponding to a State-governed Managed Reserve (Category IV) according to the IUCN system of PA management categories and governance types.*

Complementary strategies: This strategy is the foundation of creating management and enforcement capacity at WAQ, and is therefore complementary with strategies 1, 2, 4, 5, 7 and 8.

4.4.2 Strategy 1: Legal and institutional amendments

Rationale: The management regime for WAQ will be challenged by interests that are in conflict with biodiversity conservation interests. In order to stand up against such challenges, it needs to be constructed on a firm legal basis. The current legal basis for PA management in the State of Palestine is very general and does not include very specific provisions for banning or limiting certain activities, enforcement mandates and powers of the management authority, adequate fines etc. This is discussed in more detail in the national framework analysis for WAQ. In order to create the

necessary legal basis for PA management at WAQ, the ongoing development of a nature conservation and PA bylaw needs to be completed (Figure 7).

Grouping and timing: This is a supporting strategy to create an enabling environment for the establishment phase of PA management at WAQ. The strategy should therefore be completed as soon as possible, and before the management plan commences implementation.

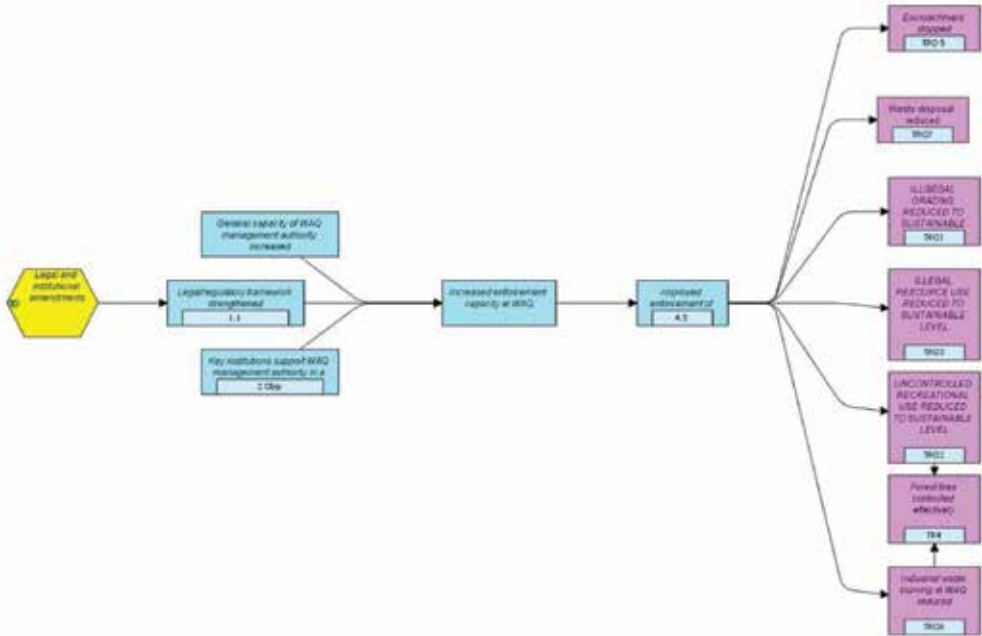


Figure 7. Results chain of Strategy 1. (...strategy, ...intermediate result, ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 1:

- **Objective 1.1:** *By the end of 2014, a new PA bylaw taking into account the recommendations of the management plan (particularly of the national framework analysis) has been drafted and approved by the responsible legislative institution of the State of Palestine.*

Complementary strategies: This strategy is an auxiliary strategy for the establishment of the PA management authority at WAQ and is therefore complementary with strategies 0, 2, 3, 4 and 7.

4.4.3 Strategy 2: Support to inter-institutional cooperation and communication

Rationale: The management of WAQ will need the backing of all institutions of the State of Palestine, including the EQA and MoA but also the Ministry of Local Government and others. In order to facilitate this, EQA needs to intensify its efforts for inter-institutional cooperation and communication with regard to PA system development in general (as described into more detail in the national framework analysis), and with regard to WAQ (Figure 8).

Grouping and timing: This is a supporting strategy to create an enabling environment for the establishment phase of PA management at WAQ. The strategy should therefore be completed as soon as possible, and before the management plan commences implementation.

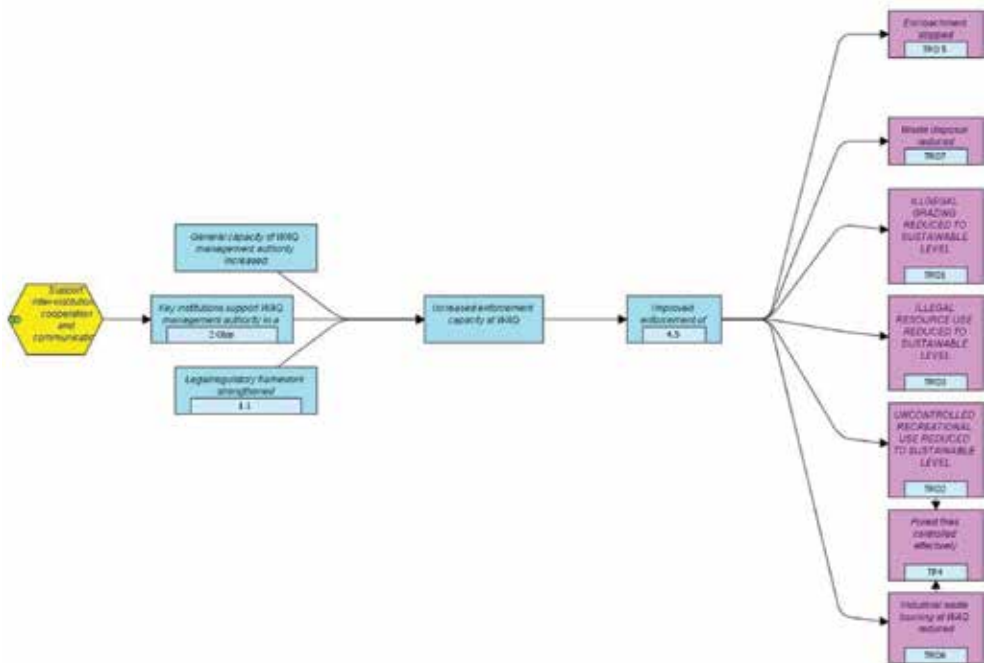


Figure 8. Results chain of Strategy 2. (...strategy, ...intermediate result, ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 2:

- **Objective 2.1:** By the end of 2014, a comprehensive formal agreement has been reached between EQA, MoA and other relevant institutions and organizations to the extent necessary (Land and Water Authorities, municipalities, Ministry of Local Government etc.) regarding the roles and responsibilities of the various entities related to PA management.

- **Objective 2.2:** *By the end of 2014, a regular (at least twice per year) communication and coordination mechanism (e.g. a joint committee) has been established at the national level, in order to facilitate communication and coordination between all PA stakeholders at this level, as identified in the national framework analysis.*

Complementary Strategies: This strategy is an auxiliary strategy for the establishment the PA management authority at WAQ and is therefore complementary with strategies 0, 1, 4, 7 and 8.

4.4.4 Strategy 3: Clarification of boundaries

Rationale: In order to stop encroachment onto the territory of WAQ in the future, there will be a need to eliminate all controversy about its exact boundaries. There is also a good opportunity for this as reportedly, there are still some older markings in place along the border of WAQ that could be GPS-located, and there are also relevant maps with the land authority. This strategy aims at border clarification as a necessary step to prevent future encroachment, the outcome of which will also help to improve general enforcement at the reserve (Figure 9).

Grouping and timing: This is a necessary prerequisite for the legal establishment of a PA at WAQ. The strategy should therefore be completed as soon as possible, and before the management plan is approved and commences implementation.

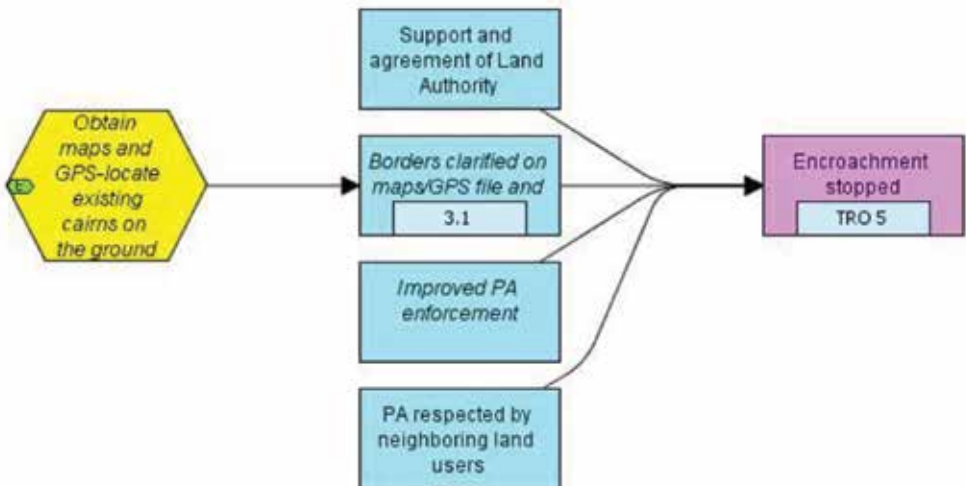


Figure 9. Results chain of Strategy 3. (⬡ ...strategy, ...intermediate result, ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 3:

- **Objective 3.1:** *By the end of 2014, an official and agreed map of WAQ has been produced, based on available land use maps stored at the Land Authority and other sources, and the borders of WAQ according to maps and to existing markers on the ground have been clarified using GPS technology.*

Complementary strategies: This strategy is complementary with all strategies on improved enforcement and communication in relation to WAQ (i.e. strategies 0, 1, 2, 4, 6 and 7), although it primarily focuses on the threat of encroachment.

4.5 Emergency strategies to address critical external threats

The baseline field study and the participatory planning and consultation workshops identified two specific threats to the conservation values of WAQ, which originate at specific locations outside the reserve and are not tractable by standard PA management approaches and methodologies. These threats are the illegal quarry north of Wadi Hasqa and the groundwater pollution that affects at least one spring, also in Wadi Hasqa. Details on these threats are provided in Section 3.4 above.

While strategies to address these threats fall outside the scope of a PA management plan, they nevertheless need to be developed and implemented as part of the creation of an enabling environment for PA management at WAQ, because their continuation would seriously (quarry) or significantly (groundwater pollution) compromise effective PA management at WAQ. Therefore, immediate emergency strategies to address these threats are presented below.

4.5.1 Emergency Strategy 1: Closure of illegal quarry

Rationale: The illegal quarry to the north of Wadi Hasqa produces noise and dust, which affects both the ecosystem/wildlife and the visitors to the PA. In addition, it is a highly visible example of non-obedience to the law which would also undermine enforcement efforts inside the reserve: If a large illegal quarry can be operated just outside the reserve and in plain view of it, it will be difficult to convince visitors and illegal natural resource users, which individually will have a lesser impact on the reserves conservation values, that they have to stick to the law (Figure 10).

Therefore, EQA and MoA should take urgent steps to have this illegal quarry closed, by taking its operator to court and in parallel engaging decision makers to support closure of the quarry.

Timing: This emergency strategy should be initiated as soon as possible, irrespective of the approval of the overall management plan.

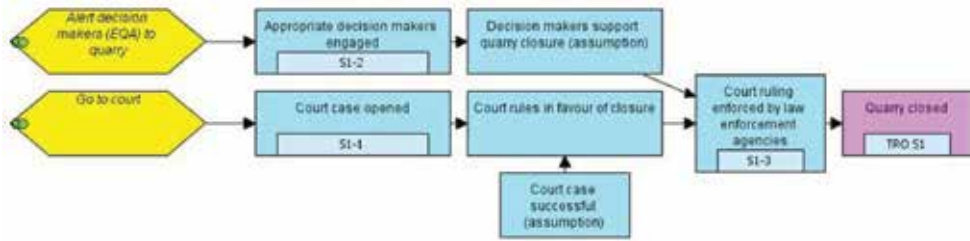


Figure 10. Results chain of Emergency Strategy 1. (Yellow hexagon ...strategy, Light blue rectangle ...intermediate result, Purple rectangle ...threat reduction result, White rectangle ...objective, TRO... threat reduction objective)

Specific threat reduction and intermediate objectives of Emergency Strategy 1:

- **Threat Reduction Objective TRO S1:** By the end of 2014, the illegal quarry to the north of Wadi Hasqa is closed.
- **Objective S1.1:** By end of June 2014, a court case has been opened against the operator of the illegal quarry north of Wadi Hasqa.
- **Objective S1.2:** By the end of June 2014, key decision makers at the municipal, governorate and national level have been alerted of the existence of an illegal quarry at WAQ and the need to close it.
- **Objective S1.3:** As soon as a court decision on the closure of the illegal quarry has been reached, law enforcement agencies are engaged to facilitate the immediate implementation of that decision.

Complementary strategies: This strategy is complementary with all strategies aimed at improved law enforcement at WAQ.

4.5.2 Emergency Strategy 2: Measures against groundwater pollution

Rationale: Groundwater at WAQ and the water of at least one spring in Wadi Hasqa is polluted by a petrol station at Halhoul, and reportedly also by domestic sewage from the Hebron area. This affects the quality of the water available for wildlife but also that used by agricultural businesses in Wadi Hasqa. This problem is known and there would be legal mechanisms to force the operator of the petrol station to eliminate this problem, but reportedly the causal link between contamination from the petrol station and the observed hydrocarbon contamination has not been proven to date. This is the intervention point of Emergency Strategy 2 (Figure 11).

Timing: This emergency strategy should be initiated as soon as possible, irrespective of the approval of the overall management plan.

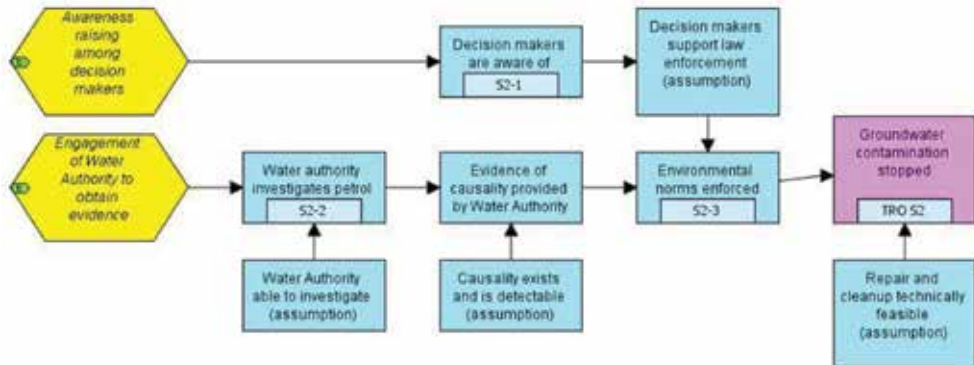


Figure 11. Results chain of Emergency Strategy 2. (...strategy, ...intermediate result, ...threat reduction result, ...objective, TRO... threat reduction objective)

Specific threat reduction and intermediate objectives of Emergency Strategy 2:

- **Threat Reduction Objective TRO S2:** By the end of 2014, no new groundwater contamination with hydrocarbons occurs from Halhoul petrol station.
- **Objective S2.1:** By the end of June 2014, key decision makers at the municipal, governorate and national level have been alerted of the existence of hydrocarbon groundwater contamination at Wadi Hasqa and its likely cause.
- **Objective S2.2:** By the end of June 2014, the Water Authority has started the process of checking the possible causal link between the halhoul petrol station and the observed hydrocarbon pollution at Wadi Hasqa.
- **Objective S2.3:** As soon as evidence on the cause of the hydrocarbon pollution at the spring in Wadi Hasqa has been established, law enforcement agencies are engaged to facilitate the immediate discontinuation of the contamination at its source.

Complementary strategies: This strategy is complementary with all strategies aimed at improved law enforcement at WAQ.

4.6 Phase 2 – initiation of PA management at WAQ

4.6.1 Strategy 4: Establishment/capacity building of management authority

Rationale: Once WAQ is legally designated as a PA, a management authority needs to be established to take responsibility for the implementation of the management plan and the enforcement of the protection regime at WAQ. In order to do this effectively and in a resource-efficient way, the capacity of this management

authority needs to be developed, particularly regarding the recruitment and training of staff, establishment of formal protection and management procedures, acquisition of equipment and infrastructure, and the creation of a financial basis of all the above (Figure 12).

Details on the recommended institutional setup, organizational chart, and job descriptions in relation to Strategy 4 are included with the Implementation Strategy (Section 5 below).

Grouping and timing: This strategy needs to be initiated as soon as possible after the approval of the management plan, but will continue over its entire duration of five years. It is also possible that its implementation will involve a certain degree of trial and error and adaptive management, in order to define an adequate institutional setup and procedures.

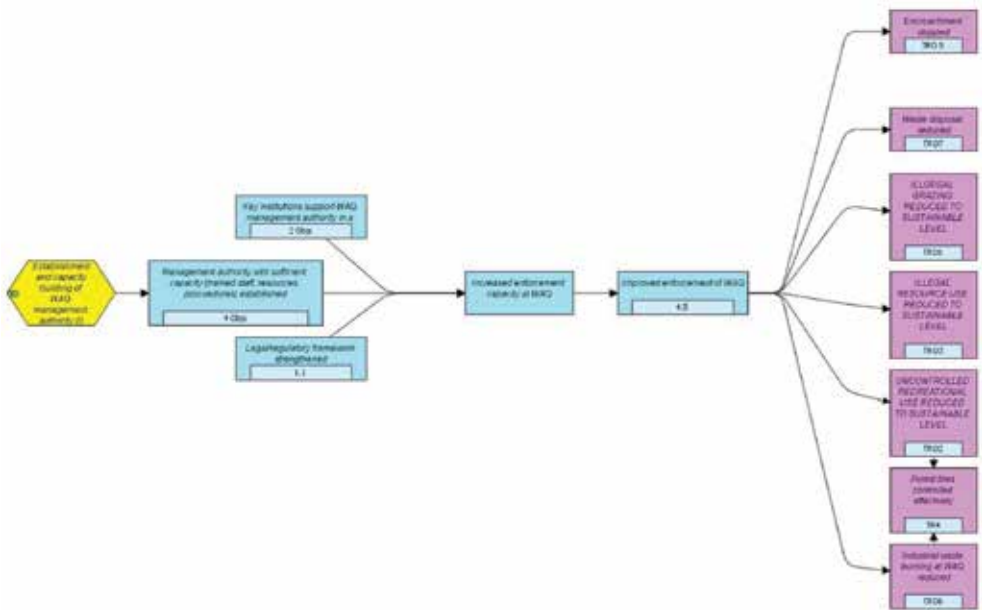


Figure 12. Results chain of Strategy 4. (...strategy, ...intermediate result, ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 4:

- **Objective 4.1:** By the end of Year 1 of the management plan, a PA management authority for WAQ has been formally (legally) and factually (office, staff, budget, etc.) established, with a setup agreed by MoA and EQA, and following the recommendations in the management plan (Implementation Strategy).
- **Objective 4.2:** By the end of Year 2 of the management plan, the core staff of the WAQ management authority has been identified, employed and trained.

This shall include training of adaptive conservation management based on the CMP Open Standards and the software Miradi.

- **Objective 4.3:** *By the end of Year 1 of the management plan, the procedures and technical guidance for the management of WAQ by its designated management authority are in place, based on agreement between MoA and EQA, and following the recommendations in the management plan. This includes adequate procedures and mechanisms for continued stakeholder participation as detailed in the Implementation Strategy.*
- **Objective 4.4:** *By the end of Year 2 of the management plan, the necessary infrastructure (office and workshop) and equipment (office, transport, communications, monitoring related, interpretative) for the management of WAQ are in place at the management authority, following the recommendations in the management plan.*
- **Objective 4.5:** *By the end of Year 3 of the management plan, ranger patrolling intensity at WAQ has increased to 25h in the field per week (of which at least 5 at night); an on-site protocol system for patrolling activity following the recommendations of the management plan exists and is continuously updated.*

Complementary strategies: This strategy is the core strategy for creating management and enforcement capacity at WAQ, and is therefore complementary with strategies 0, 5, 1, 2, 3, 5 and 7.

4.6.2 Strategy 5: Reduction of vehicle access from road

Rationale: Two of the identified threatening activities to WAQ (waste disposal and industrial waste burning) often happen at night and are therefore difficult to control even with increased ranger patrolling activity. However, these activities require vehicle (usually at least pickup truck) access and are concentrated in a few small areas (Wadi Hasqa agricultural road for waste burning and additionally the shoulder of Road 3556 for waste disposal). Therefore, these threats can be reduced by reducing car access to these rather small areas. Vehicle access to the deposition areas along Road 3556 can be reduced by constructing a low barrier that stops trucks from pulling onto the shoulder in the area of WAQ, and access to the Wadi Hasqa can be reduced by constructing gates at the lower end of the valley, on a connection track to Beit Kahel and ca. 2 km west of Hasqa. Owners of plantations who need to use this road can be issued keys to these gates (Figure 13).

Grouping and timing: This strategy belongs to the establishment phase of WAQ (Phase 2) but is not of immediate priority.



Figure 14. Proposed location of barriers along Road 3556 (blue lines) and gates along the Wadi Hasqa agricultural road (red arrows) to limit car access to some areas of Wadi Al-Quff. All locations are indicative only.

4.6.3 Strategy 6: Visitor management, information and interpretation system

Rationale: Recreation is a legitimate human wellbeing target of WAQ, which needs to be supported through PA management. However, at the same time, unorganized and often irresponsible visitation of the area has led to damage (fire, littering) and disturbance to wildlife. In order to reconcile recreation with the management of the area for nature conservation, a visitor management, information and interpretation system is needed. On the ground, this system will consist of a small information centre, a walking and sightseeing trail, designated picnic areas, information boards, toilets, waste bins, parking opportunities and a signposting system. This will be underpinned by a more education oriented information and interpretation concept, aimed at optimizing visitor experience while minimizing disturbance. Thereby, this strategy also contributes directly to human wellbeing goals 10A and 11A of this management plan (Figure 15).

Details about the necessary infrastructure are included in the five-year work plan.

Grouping and timing: Since the threat from uncontrolled visitation is relatively serious, the visitor management, information and interpretation system should be put into place as soon as possible during the establishment phase of the PA management authority (Phase 2). It then will need to be implemented and perfected, based on an adaptive management approach, for the rest of the lifespan of the first management plan.

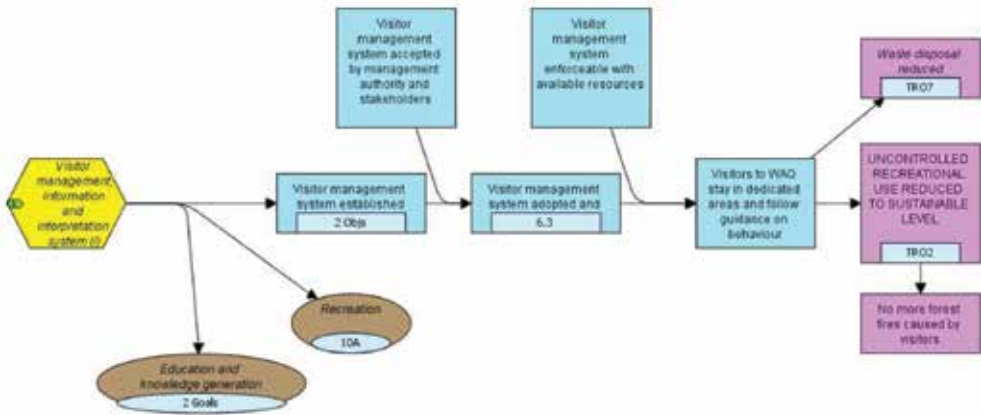


Figure 15. Results chain of Strategy 6. (◊ ...strategy, □ ...intermediate result, ▭ ...threat reduction result, □ ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 6:

- **Objective 6.1:** By the end of Year 1 of the management plan, design (in a detailed way) a visitor management system for nature based, sustainable recreation and interpretation at WAQ, based on the recommendations of the management plan.
- **Objective 6.2:** By the end of Year 1 of the management plan, establish visitor rules, and an interpretation and education programme for WAQ, based on the specific recommendations of the management plan.
- **Objective 6.3:** By the end of Year 3 of the management plan, all visitor management and interpretation infrastructure (trails, boards, information points, picnic areas, signposts etc.) as foreseen by the visitor management system design (Objective 6.1) are in place and all rules, interpretation programmes and other Outputs under Objective 6.2 are being implemented and observed.

Complementary strategies: This strategy is complementary with all other strategies aimed at reducing threats from irresponsible visitation, i.e. with strategies 0, 1, 3, 4, 6 and 7 on enforcement as well as strategies 8 and 9 on fire risk reduction.

4.6.4 Strategy 7: Communication, education and awareness raising

Rationale: The local and national framework analyses have shown that PAs are a relatively new and partly discredited concept (because of the past experience with “nature reserves” as part of the Israeli occupation) among many of the stakeholders. Therefore, all efforts to establish a conservation regime at WAQ will need to be

accompanied by targeted communication, education and public awareness raising efforts, which will be bundled in one programme. This programme will have multiple target groups, including:

- General public (local) including occasional resource users
- Local decision makers (municipalities and Beit Kahel village council) and institutional stakeholders
- Students and school children
- Visitors to WAQ

Strategic communication messages will be developed for each of these target groups (see Annex 6 for general proposed messages and themes by target group). The programme will have a twofold aim: on the one hand, it will support all other programmes of the management plan by building stakeholder support for it. On the other hand, it will use WAQ as an educational resource on the nature and biodiversity of oPt, thereby directly contributing to Human Wellbeing Objective 12A (Figure 16). The latter function will also partly be fulfilled through the interpretation and education sub-programme (Sub-programme 3.3) of the management programme on visitor management (Programme 3).

Grouping and timing: This will be a continuous core strategy of the management plan, which will need to be initiated as soon as possible after the approval of the plan.

Specific intermediate objectives of Strategy 7:

- **Objective 7.1:** *By the end of Year 1 of the management plan, the Land Authority is fully supportive of management of WAQ as PA and supports the management authority in all relevant matters, particularly regarding the boundaries of the PA.*
 - **Objective 7.2:** *By the end of Year 4 of the management plan, WAQ is respected by relevant local stakeholders (particularly resource users and recreational visitors) as a PA.*
 - **Objective 7.3:** *By the end of Year 2 of the management plan, WAQ (including the provisions for its protection as detailed in the management plan) enjoys the full support of local decision makers (particularly Hebron Governorate and MoA branch office, Municipalities and Beit Kahel Village Council).*
 - **Objective 7.4:** *By the end of Year 3 of the management plan, key local decision makers are aware of the socio-economic benefits of sustainable nature-based recreation and education at WAQ.*
 - **Objective 7.5:** *By the end of Year 1 of the management plan, key local decision makers (in three municipalities and one village council, as well as Hebron*
-

Governorate) are aware of the public health as well as environmental risks of waste burning at WAQ and support the management authority in stopping waste burning in the immediate vicinity of the reserve.

- **Objective 7.6:** By the end of Year 2 of the management plan, an environmental education programme for all relevant target groups - following the detailed recommendations of the management plan - is being implemented effectively at WAQ.

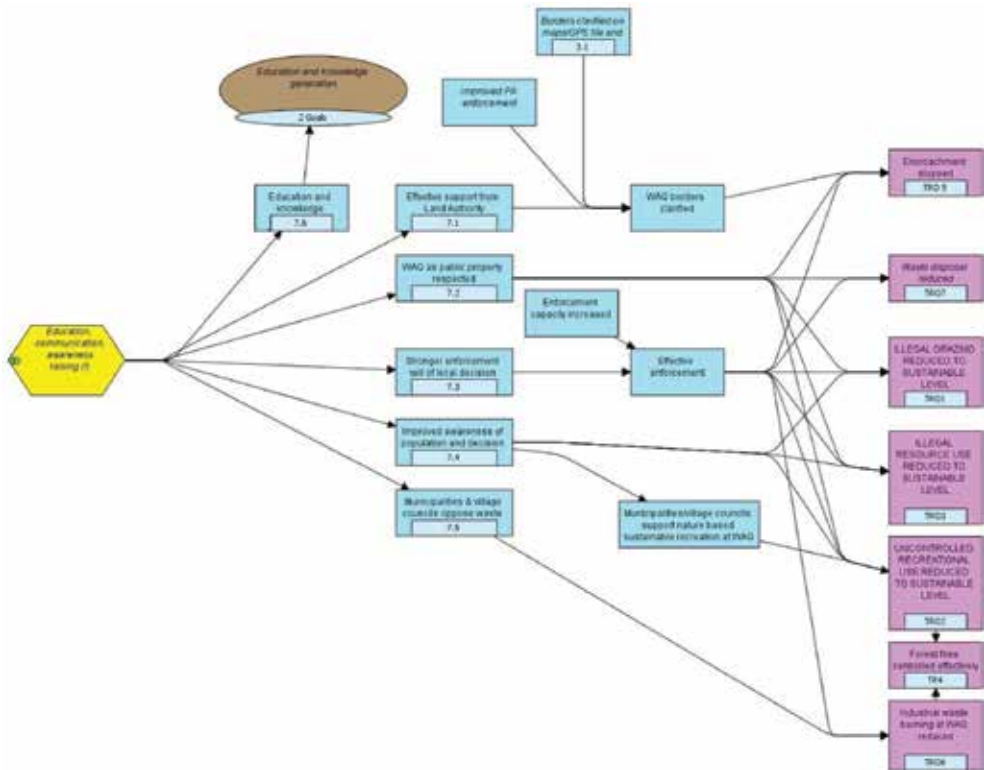


Figure 16. Results chain of Strategy 7. (◀ ...strategy, □ ...intermediate result, ▭ ...threat reduction result, ◻ ... objective, TRO... threat reduction objective)

Complementary strategies: This strategy is complementary with all other strategies aimed at reducing threats from irresponsible visitation, i.e. with strategies 0, 1, 3, 4, 6 and 7 on enforcement as well as strategies 8 and 9 on fire risk reduction.

4.6.5 Strategy 8: Purchase of adequate firefighting equipment

Rationale: Forest fires remain a significant albeit not the main threat to WAQ, which calls for an increase of the firefighting capacity of the management authority there. Equipment is an important aspect of this capacity. The exact range of equipment needs to be determined through a needs assessment (Figure 17).

Grouping and timing: This strategy needs to be initiated in the establishment phase of the management authority of WAQ (Phase 2), and then continued for the rest of the lifespan of the first management plan. The needs assessment should be accomplished first.

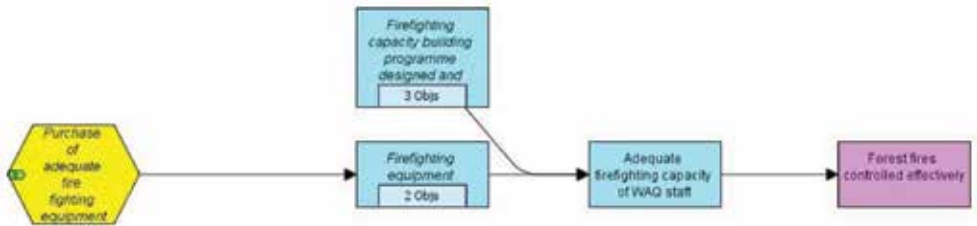


Figure 17. Results chain of Strategy 8. (▣ ...strategy, ▣ ...intermediate result, ▣ ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 8:

- **Objective 8.1:** *By the end of Year 1 of the management plan, the specific needs for new firefighting equipment for WAQ have been determined and documented in a needs assessment report.*
- **Objective 8.2:** *By the end of Year 2 of the management plan, the necessary firefighting equipment as identified in the firefighting equipment needs assessment report has been purchased and made available for immediate use (when needed) of the WAQ management authority.*

Complementary strategies: This strategy is complementary with the other strategy on fire risk reduction, Strategy 9. It is indirectly supported by all strategies contributing to reducing the potential causes of fire, including strategies on waste burning and irresponsible visitation.

4.6.6 Strategy 9: Development of firefighting capacity

Rationale: The rationale of this strategy is similar to that of Strategy 7. Besides equipment, firefighting skills support firefighting capacity, and need to be developed through a targeted programme (Figure 18).

Grouping and timing: This strategy needs to be initiated in the establishment phase of the management authority of WAQ (Phase 2), and then continued for the rest of the lifespan of the first management plan. The needs assessment should be accomplished first.

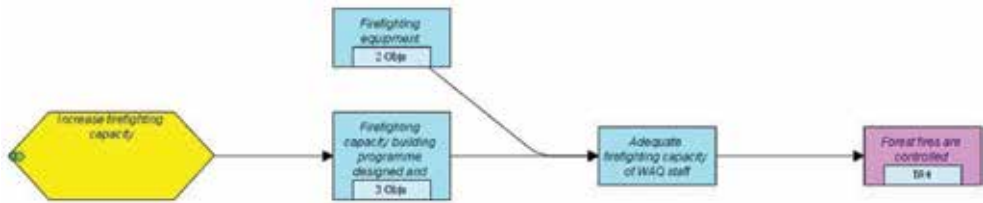


Figure 18. Results chain of Strategy 9. (...strategy, ...intermediate result, ...threat reduction result, ... objective, TR... threat reduction objective)

Specific intermediate objectives of Strategy 9:

- **Objective 9.1:** By the end of Year 1 of the management plan, conduct a firefighting skills needs assessment for WAQ and document it in a firefighting needs assessment report.
- **Objective 9.2:** By the end of Year 2 of the management plan, design (or preferably source externally, if possible) a practical firefighting training course for WAQ rangers.
- **Objective 9.3:** From Year 3 of the management plan onwards, train WAQ staff in firefighting (using output of Objective 9.2) at least once per year for at least one week.

Complementary strategies: This strategy is complementary with the other strategy on fire risk reduction, Strategy 8. It is indirectly supported by all strategies contributing to reducing the potential causes of fire, including strategies on waste burning and irresponsible visitation.

4.7 Phase 3 – post-establishment phase

4.7.1 Strategy 10: Promotion of alternative resource use areas

Rationale: Illegal unsustainable grazing and unsustainable natural resource use (primarily wood and wild plants) are among the most serious threats to the conservation targets of WAQ. While most of the strategies addressing these threats (strategies 0, 1, 2, 3, 4, 9) aim at improved enforcement and thereby suppression of unsustainable resource use, enforcement alone may not be sufficient to meet the corresponding threat reduction objectives. A complementary approach, which is the basis of this strategy, is reduction of the demand for pastures and natural resources from WAQ by identifying alternative resource use areas (at least for grazing and wild plants) in the vicinity of WAQ and promoting their use (Figure 19).



The feasibility of this strategy may require additional testing.

Grouping and timing: This will be a continuously implemented management strategy, which should commence once the PA management authority is legally established.

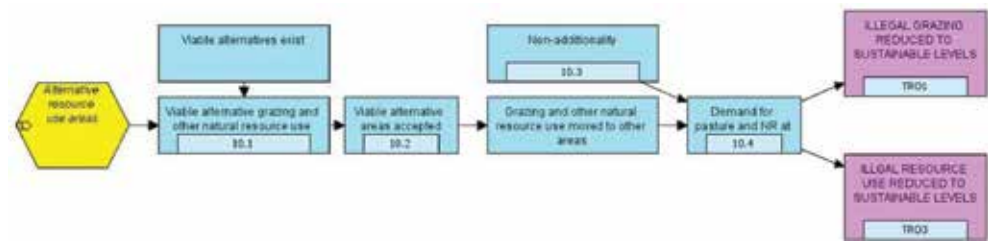


Figure 19. Results chain of Strategy 10. (▬ ...strategy, ▬ ...intermediate result, ▬ ...threat reduction result, ... objective, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 10:

- **Objective 10.1:** By the end of Year 2 of the management plan, the seasonal use of WAQ as a grazing and natural resource (wood, wild plants, wildlife resources) collection area has been studied in-depth, and the potential for the use of alternative areas has been clarified. Specific suggestions have been elaborated with regard to the use of such alternative areas for the various natural resources for which there is demand.
- **Objective 10.2:** By the end of Year 3 of the management plan, all local resource users who have regularly used WAQ in the past have accepted alternative use areas (to the extent that outputs under Objective 10.1 identify such areas) and started using them.
- **Objective 10.3:** By the end of Year 4 of the management plan, it has been proven through a systematic survey that alternative pasture and other NP use areas are used in a non-additional manner.
- **Objective 10.4:** By the end of Year 4 of the management plan, demand for - and consequently use of - pastures and all other natural resources that were shown by the Outputs under Objective 10.1 to have been used at WAQ has been reduced by 75%.

Complementary strategies: This strategy is complementary with all strategies on improved enforcement and communication in relation to WAQ although it primarily focuses on the threats of illegal grazing and illegal natural resource use.

4.7.2 Strategy 11: Mediterranean forest restoration

Rationale: Management of WAQ will not only need to reduce threats, but also support the development of the PA towards a desired state. A shift from the current coniferous-dominated forest state to a more natural Mediterranean forest state is the most important aspect of this development, according to the planning workshops and EQA. The shift of the forest towards its native composition can be achieved based on the natural tendency of Mediterranean forest to become dominant if coniferous forest is not regularly replanted. This is the core of Strategy 11. By not replanting coniferous trees and at the same time safeguarding the natural rejuvenation of already existing nuclei of Mediterranean forest within WAQ, a gradual long-term shift towards a dominance of deciduous Mediterranean forest will be achieved. This is (almost) a non-intervention strategy, which makes use of the natural resilience of the local ecosystem and has the added benefit of being very cost-effective (Figure 20).

Grouping and timing: Strategy 11 is a continuous long-term strategy, which will need to be continued beyond the lifespan of the first management plan of WAQ.

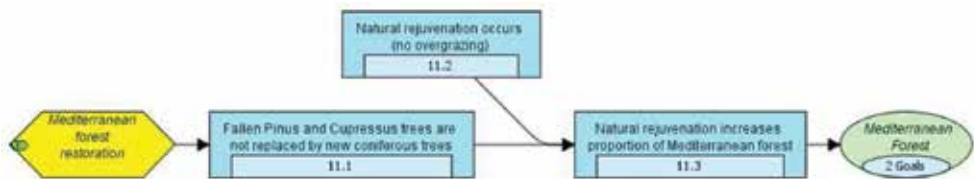


Figure 20. Results chain of Strategy 11. (...strategy, ...intermediate result, ...threat reduction result, ... objective, ...conservation target, TRO... threat reduction objective)

Specific intermediate objectives of Strategy 11:

- **Objective 11.1:** By the end of Year 1 of the management plan, there is an agreed policy in place not to replant any coniferous or otherwise non-native trees inside WAQ.
- **Objective 11.2:** By the end of Year 4 of the management plan, field surveys show that the level of natural rejuvenation of Mediterranean forest species has increased by at least 50% on average, throughout the forest part of WAQ, in comparison to 2014 levels.
- **Objective 11.3:** By the end of Year 4 of the management plan, field surveys show that there is an increase of the proportion in young Mediterranean forest species as a result of natural forest rejuvenation.

Complementary strategies: This strategy is complementary with all strategies that protect the Mediterranean forest at WAQ, particularly with those that are aimed at the reduction of grazing pressure.



4.8 Zoning strategy

With its 250 ha overall area and in the absence of an obvious need to define sustainable natural resource use zones within WAQ (no significant role contribution of local pasture, energy, food and material supply), the reserve is far too small and of too little importance in terms of resource use to warrant an extensive zoning scheme.

However, visitor management requires the definition of a recreational zone and related infrastructure, to segregate the conservation function of the PA spatially from its role as a place for recreation.

The main recreational zone of WAQ will be established west of the Beit Kahel recreational park in a plain pine forest area of relatively limited conservation value but good scenic quality, and excluding the slopes of this small plateau to the north, south and west (Figure 21). This will also form a buffer area to the existing recreational park.

A small information and interpretation point will also be established in this area, and the main tourist trail (a round trail of about 2.5 km length following existing trails and forestry tracks) will leave from there, descending towards Wadi Hasqa near its junction with Wadi Al-Quff and then ascending again along a rocky cliff on the northern slope of Wadi Hasqa. This trail will return to the agricultural road on the bottom of Wadi Hasqa and then to the starting point.

A short trail to the secondary recreational zone at Alsafa Cave will branch from the visitor trail just beneath the cave, and a second visitor trail of about 2 km length will link the reserve to Tarqumia via the southern slope of Wadi Al-Quff.

The recreation zone as shown in Figure 21 will have an area of approximately 3 ha, and will therefore fall well below the maximum area dedicated to uses other than nature conservation that can be reconciled with IUCN's definition of a PA (Dudley, 2013). An information point, picnic benches, waste collection point and toilets, but no buildings or other large infrastructure will be constructed there. The ranger office will remain near the MoA nursery inside the wadi. Camping but no barbecues will be allowed inside the recreation area.

The locations of the recreational zone and infrastructure items are indicative only. The management authority will have to make a detailed geo-referenced infrastructure development plan once the exact borders of WAQ have been determined on the ground (cf. Strategy 3).



Figure 21. Location of proposed recreation zone (pink circle) in relation to interpretational visitor trails (light blue), access trail to Alsafa Cave (dark blue), information point/centre (yellow cross) and information boards.

4.9 Implementation of strategies through management programmes

The management strategies identified by strategic conservation planning using the CMP Open Standards and Miradi (Section 4 above) – with the exception of the national enabling Strategies 0, 1 and 2 – are implemented through management programmes. Rather than developing one management programme per management strategy, some strategies have been lumped to form a total of seven management programmes. An additional cross-cutting programme on monitoring has also been added (Table 9).

The overall justification and aims as well as the specific short-term (five year) objectives of the management programmes are the same as those of the strategies on which they are based. Section 6 contains sub-programmes (where appropriate) as well as detailed five-year work plans for each management programme.



Table 9. Management programmes in relation to strategies, intermediate objectives and phases.

Management programme	Strategies	Objectives	Phase
<i>1. Demarcation</i>	3	3.1	2
<i>2. Establishment and capacity building</i>	4, 5	4.1 – 4.5, 5.1, 5.2	2-3
<i>3. Visitor management and interpretation</i>	6	6.1 – 6.3	2-3
<i>4. Communication, education, awareness raising</i>	7	7.1 – 7.6	2-3
<i>5. Fire risk control</i>	8, 9	8.1, 8.2, 9.1 – 9.3	2-3
<i>6. Socio-economic support</i>	10	10.1 – 10.4	3
<i>7. Biodiversity conservation and restoration</i>	11	11.1	3
<i>8. Monitoring</i>	See 5.5.1	See 5.5.1	2-3

5 Implementation strategy

The implementation strategy that forms part of the management plan of WAQ defines how implementation of the management plan for WAQ will be organized, and how the protected area will be institutionally established.

5.1 IUCN PA management category

WAQ conforms to *IUCN PA Management Category IV (Managed Reserve)* as it is mainly managed (if largely through non-intervention management) for the restoration and conservation of Mediterranean forest with its associated biota. Apart from this main reason, it is not a strict reserve (IUCN Cat. I excluded), too small for a national park but too big for a natural monument (Categories II and III excluded), and neither a cultural landscape nor a resource use area (Categories V and VI excluded). Additional details on the IUCN PA management categories are provided by Dudley (2013).

It should be noted that the international PA category of WAQ has no official meaning in oPt as no PA categories are currently defined by Palestinian legislation. This may change once the new nature conservation and PA bylaw will be passed.

5.2 Governance and institutional setup

Based on the land ownership at WAQ, the history of PA management in oPt and the established understanding among counterpart representatives of PAs and nature conservation as primarily a State responsibility, the logical governance type for Wadi Al-Quff Managed Reserve should be ***governance type A: Governance by Government*** (see Dudley et al. 2013 for details). The bylaw on biodiversity conservation and PAs, which is currently in preparation, will clarify the exact institutional affiliation of the management authority of the reserve.



In this context, the Consultant recalls a recommendation from the second participatory planning workshop for WAQ on 26 August 2013 to establish a **National Supervisory Board for the PA system of oPt**. According to workshop attendees, this committee should have the following characteristics:

- **Established** not by one Ministry but at the level of the cabinet of ministers or by the President of the State of Palestine;
- **Participation** of key national stakeholders: Ministries and authorities, academic institutions, NGOs and individuals with a proven track record in the field of practical biodiversity conservation and/or biodiversity research;
- **Tasks:** approval and revision of management plans, monitoring and evaluation of PA management, recruitment of management staff, inter-institutional coordination, fundraising and resource mobilization, exceptional decisions on emergency issues, etc..

It is beyond the scope of this management plan to establish such a national level supervisory board. However, the Consultant notes that such a board would be in agreement with the general recommendations of the national framework analysis that has been conducted in preparation of this management plan.

The **Management Authority of WAQ Managed Reserve** will be a small professional institution, which will be staffed according to qualification in relation to established job descriptions and located at Wadi Al-Quff or – partly – in Hebron. It will be headed by a PA Director, who may in the future also take over the same responsibility of additional nearby PAs (such as Al Qarrin or Suba). An organizational chart is proposed in Figure 22.

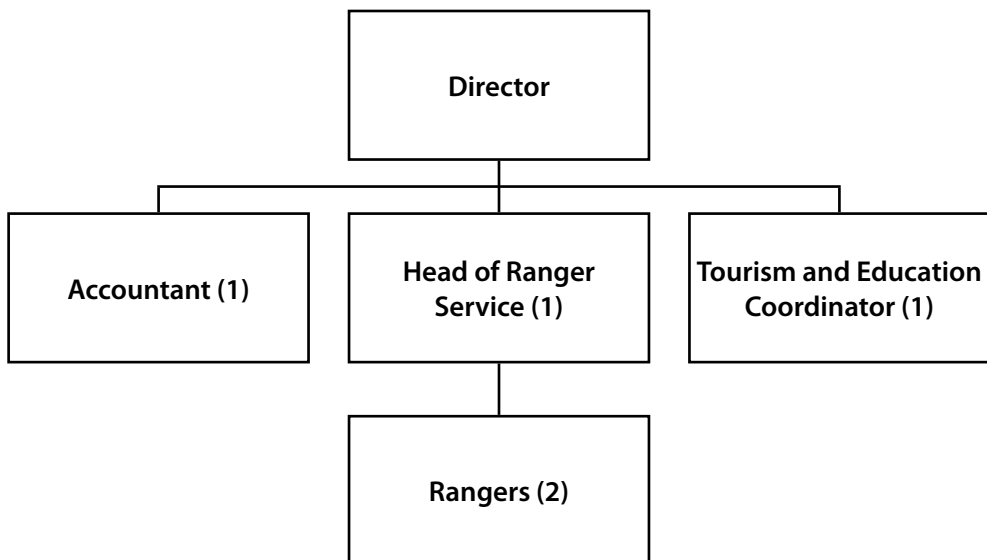


Figure 22. Proposed institutional setup of the management authority of Wadi Al-Quff Managed Reserve.

5.3 Stakeholder participation

Objective 1.3 under Strategy 1 of the Management Strategy (see Section 4.2 above) prescribes that establishment of adequate stakeholder participation mechanisms as part of the institutional setup of WAQ Managed Reserve. The following participation mechanisms shall be established:

- **Local stakeholder consultation board:** The local stakeholder consultation board will be an advisory and consultative board that consists of representatives of the main local stakeholders of WAQ, including local municipalities and Beit Kahel Village Council, the governorate level branch offices of relevant Ministries (Ministry of Tourism and Antiquities, Ministry of Local Government, Ministry of Education etc.), Hebron governorate, relevant local businesses (e.g. Beit Kahel recreational park, tourism operators, private nurseries), local agricultural businesses, and other important local community members. EQA and MoA will also participate in this board, irrespective of any more direct responsibility for the reserve's governance. The board will meet the Director of WAQ and representatives of its line-managing institution at least twice a year and discuss all matters of interest among the stakeholders, in relation to WAQ. Detailed ToR for the board will be developed by EQA, on the basis of the new nature conservation and PA bylaw.
- **National support network:** The management planning process for WAQ has already convened an extended network of national nature conservation stakeholders to support the development of a viable management regime there – including representatives of State institutions and nature conservation NGOs, academic institutions and individual experts. This network shall be institutionalized as an expert support network for WAQ, with the task to contribute expertise and advice for the implementation and adaptation of the reserve's management plan, the monitoring of the biodiversity values, threats and the effectiveness of conservation activities, education and communication, etc. A detailed list of national level institutional stakeholders that qualify for this network is included in the national framework analysis. The administration of the reserve will engage individual members of the expert support network for specific tasks where external expertise is needed, on a case by case basis. This may take the form of consultancy assignments or voluntary contributions.

Both the local stakeholder consultation board and the national support network for WAQ are integral parts of Objective 1.3, which shall be implemented during the establishment phase of the management authority of WAQ.



5.4 Human resources

Staff shall be hired based on their professional qualification, not on their affiliation with relevant institutions. Job descriptions for core staff as shown in the organizational chart are compiled in Tables 10-14 below.

In order to attract suitable candidates to fill the positions at the WAQ management authority, the responsible institution will need to set salary ranges for each post that are competitive at the national level.

Tables 10-14. Job descriptions of WAQ staff.

Job Title	<i>Director of Wadi Al-Quff Managed Reserve</i>
Nominated by	To be determined by PA bylaw
Reporting to	To be determined by PA bylaw
Line management responsibilities	<ul style="list-style-type: none"> • Direct line manager of WAQ Accountant (Deputy Director), Head of Conservation and Ranger Service, Tourism and Education Coordinator • Indirect line management responsibility for all other WAQ staff
Tasks and responsibilities	<ul style="list-style-type: none"> • Implementation of the management plan of WAQ • Compliance with the legal framework of oPt, policies and plans of EQA in relation to PAs • Coordination and guidance of the activities of all WAQ staff through written instructions, regular staff meetings and individual meetings • Drafting of annual work plans based on the management plan • Financial planning and management for the implementation of the management plan and annual work plans • Monitoring of WAQ budget expenditure • Support to the Human Resources Officer at the responsible institution in the identification and hiring of candidates for posts in WAQ • Identification and use of income sources for WAQ that are in line with the management plan • Liaison with the regional Governor and with all relevant regional Government Agencies and municipalities/village councils in the vicinity of WAQ, the Advisory Council, as well as relevant local, national and international NGOs and development cooperation organizations • Representation of WAQ in the public • Regular reporting to the Palestinian PA Steering Board as defined by the WAQ management plan and other relevant regulations

Working hours and annual leave	<ul style="list-style-type: none"> • customary (40 hours per week total) • Annual leave based on relevant legislation of Palestine • Weekends and public holidays are free • Need to work outside standard working hours as and when the need arises, with due compensation (time or financial)
Salary range and incentives	<ul style="list-style-type: none"> • To be determined
Required qualification	<ul style="list-style-type: none"> • University degree in relevant field (e.g. forestry, agriculture, biology or similar) • At least 10 years experience in the conservation, forestry or natural resources sector • Familiarity with the WAQ area and local stakeholders • Proven planning, numeracy, communication and leadership skills • Computer literate • Some English skills desirable

Job Title	<i>Accountant and financial officer</i>
Nominated by	To be defined by PA bylaw.
Reporting to	Director of WAQ
Line management responsibilities	-
Tasks and responsibilities	<ul style="list-style-type: none"> • Support to the WAQ Director regarding the implementation of financial, infrastructure, equipment and maintenance related programmes and/or parts of the management plan as well as of annual work plans • Coordination and guidance of accounting and financial matters • Elaboration of proposals for the development of accounting and financing in line with the management plan • Accounting of expenditure from a WAQ Fund if such a fund is established • Support to the Director of WAQ regarding the annual financial planning, management, monitoring, reporting and documentation of finances, including monitoring of budget compliance • Support to the regular reporting of the WAQ Director to the relevant State institutions, as defined by the WAQ management plan, laws and regulations • Elaboration of proposals for the improvement of accounting procedures



Working hours and annual leave	<ul style="list-style-type: none"> • Customary (40 hours per week total) • Annual leave based on legislation of Palestine • Weekends and public holidays are free
Salary range and incentives	<ul style="list-style-type: none"> • Tbd
Required qualification	<ul style="list-style-type: none"> • University degree in relevant field (e.g. economy, business, law) and/or specialist training as an accountant • At least 5 years experience as an accountant in small or medium State institutions • Proven organizational, numeracy, and communication skills • Computer literate, working knowledge of MS Excel and relevant bookkeeping software as appropriate
Salary range and incentives	<ul style="list-style-type: none"> • Tbd
Required qualification	<ul style="list-style-type: none"> • University degree or specialist technical training in relevant field (preferably forestry) • At least 5 years experience in the conservation, forestry or natural resources sector • Familiarity with the WAQ area and local stakeholders • Physical fitness • Proven communication and leadership skills • Driving license • Computer literate
Job Title	<i>Head of Conservation and Ranger Service</i>
Nominated by	To be determined by PA bylaw
Reporting to	Director of WAQ
Line management responsibilities	<ul style="list-style-type: none"> • Direct line manager of rangers

Tasks and responsibilities	<ul style="list-style-type: none"> • Support to the WAQ Director regarding the implementation of protection and ecosystem restoration related programmes and/or parts of the management plan as well as of annual work plans • Coordination and guidance of the activities of the Ranger Service of WAQ through written instructions, regular staff meetings and individual meetings • Supervision and documentation of the patrolling activities of inspectors and rangers • Planning and supervision of ecosystem restoration activities and forestry related activities that are necessary to maintain safe operations of WAQ (e.g. cutting of trees threatening to fall onto tracks and roads, sanitary cutting in accordance with WAQ management plan) • Monitoring and reporting on activities of ranger service and on infringements of the legally established protection regime of WAQ, as defined by laws and regulations • Liaison with municipalities inhabitants of which are using natural resources near WAQ, in order to inform about the protection regime of the park • Support and coordination of activities of the WAQ Ranger Service with those related to science and monitoring, tourism and education, as well as logistics development as appropriate • Elaboration of proposals for training and capacity development of staff under his direct or indirect line management responsibility
Working hours and annual leave	<ul style="list-style-type: none"> • Customary (40 hours per week total) • Annual leave based on relevant Palestinian legislation • Weekends and public holidays are free • Need to work outside standard working hours as and when the need arises, with due compensation (time or financial)
Salary range and incentives	<ul style="list-style-type: none"> • Tbd
Required qualification	<ul style="list-style-type: none"> • University degree or specialist technical training in relevant field (preferably forestry) • At least 5 years experience in the conservation, forestry or natural resources sector • Familiarity with the WAQ area and local stakeholders • Physical fitness • Proven communication and leadership skills • Driving license • Computer literate



Job Title	<i>Head of Conservation and Ranger Service</i>
Nominated by	To be determined by PA bylaw
Reporting to	Director of WAQ
Line management responsibilities	<ul style="list-style-type: none"> • Direct line manager of rangers
Tasks and responsibilities	<ul style="list-style-type: none"> • Support to the WAQ Director regarding the implementation of protection and ecosystem restoration related programmes and/or parts of the management plan as well as of annual work plans • Coordination and guidance of the activities of the Ranger Service of WAQ through written instructions, regular staff meetings and individual meetings • Supervision and documentation of the patrolling activities of inspectors and rangers • Planning and supervision of ecosystem restoration activities and forestry related activities that are necessary to maintain safe operations of WAQ (e.g. cutting of trees threatening to fall onto tracks and roads, sanitary cutting in accordance with WAQ management plan) • Monitoring and reporting on activities of ranger service and on infringements of the legally established protection regime of WAQ, as defined by laws and regulations • Liaison with municipalities inhabitants of which are using natural resources near WAQ, in order to inform about the protection regime of the park • Support and coordination of activities of the WAQ Ranger Service with those related to science and monitoring, tourism and education, as well as logistics development as appropriate • Elaboration of proposals for training and capacity development of staff under his direct or indirect line management responsibility
Working hours and annual leave	<ul style="list-style-type: none"> • Customary (40 hours per week total) • Annual leave based on relevant Palestinian legislation • Weekends and public holidays are free • Need to work outside standard working hours as and when the need arises, with due compensation (time or financial)
Salary range and incentives	<ul style="list-style-type: none"> • Tbd

Required qualification	<ul style="list-style-type: none"> • University degree or specialist technical training in relevant field (preferably forestry) • At least 5 years experience in the conservation, forestry or natural resources sector • Familiarity with the WAQ area and local stakeholders • Physical fitness • Proven communication and leadership skills • Driving license • Computer literate
Job Title	<i>Tourism and Education Coordinator</i>
Nominated by	To be determined by PA bylaw
Reporting to	Director of WAQ
Line management responsibilities	-
Tasks and responsibilities	<ul style="list-style-type: none"> • Support to the WAQ Director regarding the implementation of tourism and education related programmes and/or parts of the management plan as well as of annual work plans • Oversight of the visitor point and management programme of WAQ • Coordination and guidance of the rangers' activities related to visitors through written instructions, regular staff meetings and individual meetings • Reporting on activities of the visitor centre as defined by laws and regulations • Responsibility for written CEPA (communication, education and public awareness raising) materials, website content, educational activities and the visitor trail network of WAQ • Coordination with the Conservation and Ranger Service in relation to the maintenance and development of touristic and CEPA facilities • Liaison with external service providers, the regional tourism industry, NGOs, the media, schools and other relevant institutions in support of the effective implementation of the CEPA and tourism activities of WAQ • Elaboration of proposals for training and capacity development of staff under his direct or indirect line management responsibility
Working hours and annual leave	<ul style="list-style-type: none"> • Customary (40 hours per week total) • Annual leave based on relevant Palestinian legislation • Weekends and public holidays are free • Need to work outside standard working hours as and when the need arises, with due compensation (time or financial)



Salary range and incentives	<ul style="list-style-type: none"> • Tbd
Required qualification	<ul style="list-style-type: none"> • University degree in relevant field (e.g. tourism, public relations, teaching or similar) • At least 3 years experience in the conservation, CEPA or tourism sector • Familiarity with the WAQ area and local stakeholders (particularly from the tourism sector) • Proven communication (incl. journalistic writing) and planning skills, excellent manners • Computer literate • Good command of English
Job Title	<i>Ranger</i>
Nominated by	Director of WAQ
Reporting to	Head of Ranger Service
Line management responsibilities	-
Tasks and responsibilities	<ul style="list-style-type: none"> • Support to the implementation of the protection related programmes and/or parts of the management plan as well as of annual work plans • Patrolling of WAQ and monitoring of compliance with the protection regime of the reserve by local inhabitants, visitors and others • Issuing of reprimands and fines, to the extent legally possible • Liaison with neighbors and visitors, in order to inform about the protection regime of the park • Support to WAQ activities related to ecosystem restoration, monitoring, tourism and education, as well as technical services as appropriate
Working hours and annual leave	<ul style="list-style-type: none"> • Customary (40 hours per week total) • Work in shifts (including nights and weekends) as appropriate • Annual leave based on Palestinian legislation • Need to work outside standard working hours as and when the need arises, with due compensation (time or financial)
Salary range and incentives	<ul style="list-style-type: none"> • Tbd

Required qualification

- Secondary school
- Physical fitness and proven communication skills
- Familiarity with the WAQ area and local stakeholders
- Driving license

5.5 Research and monitoring

The organizational chart in Figure 22 is based on the assumption that the research and monitoring activities of the reserve, while being coordinated by the Director and carried out by the rangers, will be implemented in close cooperation and with extensive technical advice from external experts (e.g. from EQA, NGOs, academic institutions or consultants). It would not be cost-efficient to develop the highly specialized capacity needed for the design and scientific supervision of PA-based research and monitoring programmes specifically for such a small reserve as WAQ.

Monitoring is the regular observation of the status of conservation targets, threats and the progress of strategies against the objectives defined in the management strategy and the indicators defined in the work plan. Monitoring is aimed at informing adaptive management at WAQ.

Research can provide information that can be used to monitor the status and management of WAQ, but is not specifically aimed at this. Instead, research is typically driven by the scientific interest of external researchers.

Because of these differences, the management authority of WAQ will employ different implementation strategies for research and monitoring.

5.5.1 Monitoring strategy

Monitoring of the state and management effectiveness of WAQ will be based on the conceptual model and results chains developed in the management strategy and refer to:

- the **goals** (i.e. desired states) formulated for each conservation and some human wellbeing targets,
- some **additional attributes** of the conservation targets,
- the **threat reduction objectives** defined for each identified threat to the conservation targets, and
- the **intermediate objectives** defined as part of most of the management strategies of WAQ.

Indicators relating to each of the above have been derived using the Miradi software and are listed in the work plan. Information collection will be partly the responsibility of the rangers at WAQ and partly of external partners, depending on the expertise needed to populate and calculate the indicators.



This means that the monitoring at WAQ will not only focus on the state of conservation targets, but also on threats to them and on the effectiveness of conservation management in relation to the objectives of the management plan. By designing the monitoring strategy for WAQ in close correspondence to the conceptual model and results chains, it has become highly activity oriented and of direct relevance to adaptive conservation management. The monitoring plan is written in such a way that it can be implemented based on the conservation management software Miradi, should the management authority so wish.

5.5.2 Procedures for research at WAQ

While the monitoring of WAQ will be part of the site's management and hence of the mission of the PA management authority, the implementation of more general research will not fall under this authority's responsibility. Knowledge generation is one of the human wellbeing targets of WAQ and is explicitly addressed by Objective 11B of the management strategy.

Research programmes will generally be proposed at the initiative of external stakeholders (principally academic institutions and potentially NGOs or State institutions in some cases). The following procedure will be followed to decide about and implement such proposals:

1. Formal application to conduct research at WAQ, based on a format that is consistent with national legislation and includes a detailed justification, work plan and biodiversity-inclusive environmental impact assessment
 2. Decision to approve or reject the application by the institution that is responsible for the management of WAQ (a ministry, authority or the National Supervisory Board for the PA System, depending on the provisions of the bylaw on the PA system), based on the criteria of potential harm to the conservation values of the reserve, scientific merit and potential to yield knowledge that is in the public interest, potential contributions to the management and/or monitoring of the reserve,
 3. Formulation of a contract between the implementing organization of the research project and the management authority of WAQ, detailing the work plan, schedules, support from the management authority and compensation if applicable, results sharing and supervision
 4. Implementation of the research project under the supervision of the management authority and EQA
 5. Reporting on the project to the management authority using a pre-defined reporting format
-

5.6 Adaptive management

The management plan for WAQ has been developed based on the CMP Open Standards for the Practice of Conservation, which have a clear and explicit focus on adaptive management (CMP, 2013). A project under the adaptive conservation management programme Miradi has been created by the Consultant and will be handed over to the counterpart together with the final management plan.

While this management plan is fully workable as a standalone document, the Consultant recommends that the application of the adaptive management standards of the CMP is supported by making the Miradi project, and not the management plan alone, the basis for the day-to-day running of the management system of the reserve. This will essentially allow to establish a constantly ongoing learning and management re-planning (i.e. adaptive management) process, and to feed lessons learned during the practical implementation of the plan directly back into the design of the management system.

The access and passive use of the Miradi file can be learned without external assistance in about half a day while a more in-depth understanding of the Open Standards and Miradi requires a training of about five days. Objective 1.2 under Management Strategy 1 includes training of relevant WAQ staff (director plus one staff) in order to facilitate the use of these adaptive management tools to their full potential.



Management programmes and five-year work plans

Section 4.9 above derives eight management programmes, based on identified management strategies. These are introduced into more detail below. Sub-programmes (where appropriate) and five-year work plans are also presented for each management programme.

6.1 P1 - Demarcation programme

6.1.1 Aim and objectives

The demarcation programme for WAQ aims to clarify the boundaries of WAQ in such a way that they can be clearly demarcated on the ground generally accepted by all Palestinian institutions and stakeholders and can be legally enforced. This programme has one sub-programme.

- **Objective 3.1:** *By the end of 2014, an official and agreed map of WAQ Managed Reserve has been produced, based on available land use maps stored at the Land Authority and other sources, and the borders of WAQ according to maps and to existing markers on the ground have been clarified using GPS technology.*

6.1.2 Work Plan

Management programme:		P1 – Demarcation programme							
Sub-programme and objective:		P 1.1 – Objective 3.1							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
P1.1.1 Acquisition and digitalization of existing cadastral maps showing WAQ from Land Authority.	Existing maps acquired and digitized	1	X						EQA
P1.1.2 Search for existing markers (cairns etc.) on the ground at WAQ and recording of their coordinates (hand-held GPS).	GIS map of existing markers on the ground produced	1	X						EQA with support from MoA rangers

<i>P1.1.3 Comparison of digitized Land Authority map and ground demarcation map and elaboration of one map of WAQ for official confirmation.</i>	<i>Consolidated WAQ map produced</i>	1	X							EQA
<i>P1.1.4 Submission of consolidated WAQ map to Land Authority for official confirmation.</i>	<i>Consolidated WAQ map submitted to Land Authority</i>	1	X							EQA or MoA (to be decided jointly)
<i>P1.1.5 Establishment of additional markings (signs) on the ground, reflecting the officially confirmed map.</i>	<i>Signs showing demarcation of WAQ established in the field</i>	2			X					Management authority

Comments:

- This management programme should be implemented in Year 0, i.e. in the pre-approval phase of the management plan.

6.2 P2 - Establishment and capacity building programme

6.2.1 Aim and objectives

This management programme aims to establish the management authority for WAQ (both legally and practically) and to develop its capacity (in terms of staff qualification, procedures, infrastructure and equipment) so that it can effectively implement the management plan.

- **Objective 4.1:** *By the end of Year 1 of the management plan, a PA management authority for WAQ has been formally (legally) established, with a setup agreed by MoA and EQA, and following the recommendations in the management plan (Implementation Strategy).*
- **Objective 4.2:** *By the end of Year 2 of the management plan, the core staff of the WAQ management authority has been identified, employed and trained. This shall include training of adaptive management based on the CMP Open Standards and the software Miradi.*
- **Objective 4.3:** *By the end of Year 1 of the management plan, the procedures and technical guidance for the management of WAQ by its designated management authority are in place, based on agreement between MoA and EQA, and following the recommendations in the management plan. This includes adequate procedures and mechanisms for continued stakeholder participation as detailed in the Implementation Strategy.*
- **Objective 4.4:** *By the end of Year 2 of the management plan, the necessary infrastructure (office and workshop) and equipment (office, transport, communications, monitoring related, interpretative) for the management of WAQ are in place at the management authority, following the recommendations in the management plan.*



- **Objective 4.5:** *By the end of Year 3 of the management plan, ranger patrolling intensity at WAQ has increased to 25h in the field per week (of which at least 5 at night); an on-site protocol system for patrolling activity – following the procedures developed and recommendations of the management plan – exists and is continuously updated.*
- **Objective 5.1:** *By the end of Year 3 of the management plan, a low truck barrier preventing trucks with waste from pulling onto the shoulder of Road 3556 where it crosses WAQ, as well as along the first 500 m of the branch road to Halhul, has been created.*
- **Objective 5.2:** *By the end of Year 3 of the management plan, three gates blocking access for passenger cars and larger vehicles have been erected at the beginning (near the junction between Road 3556 and the Halhul branch road) and end (2 km west of Hasqa) of the agricultural road at the bottom of Wadi Hasqa, as well as on the connecting road to beit Kahel. WAQ staff and agricultural land owners inside the Wadi have been given access through these gates.*

6.2.2 Sub-programmes

- **P2.1:** Legal establishment of management authority
 - **P2.2:** Hiring of staff
 - **P2.3:** Staff training
 - **P2.4:** Development of procedures
 - **P2.5:** Establishment of core infrastructure
 - **P2.6:** Acquisition of core equipment
 - **P2.7:** Patrolling and enforcement
 - **P2.8:** Control of road access to some areas
-

6.2.3 Work Plans for sub-programmes

Sub-programme P2.1 – legal establishment of management authority

Management programme:		P2 – Establishment and capacity building programme of the WAQ management authority								
Sub-programme and objective:		P 2.1 (Legal establishment of management authority) – Objective 4.1								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
P2.1.1 Draft legal document establishing management authority, following the procedures in the updated national legal and institutional framework for PA system development (cf. Strategy 1) or any relevant interim agreement involving EQA and the MoA.	Draft produced	1	X						EQA	
P2.1.2 Submit draft document establishing management authority, based on procedures as set out for P2.1.1.	Draft submitted (verification: correspondence EQA – relevant approving institution)	1	X							
P2.1.3 Approve draft document establishing management authority, based on procedures as set out for P2.1.1.	Decree or other relevant legal statement establishing WAQ management authority	1	X							Tbd. – depends on which institution will be responsible for legally establishing PA management authorities.

Sub-programme P2.2 – recruitment of staff

Management programme:		P2 – Establishment and capacity building programme of the WAQ management authority								
Sub-programme and objective:		P 2.2 (Hiring of staff) – Objective 4.2								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
P2.2.1 Draft and agree ToR for all WAQ staff (see suggested job descriptions in Section 5.4).	ToR drafted and agreed	1		X					EQA	
P2.2.2 Establish selection panel.	Panel established (verification: protocol of establishment meeting and list of panelists)	1		X					Tbd. – depends on which institution will be line managing PA management authorities.	
P2.2.3 Advertise positions in management authority and conduct transparent selection procedure, based on match of candidates with ToR.	Positions advertised in national media and through internal channels; candidates interviewed and staff selected (verification: protocols of job interviews)	1		X						
P2.2.4 Contract selected staff.	Staff contracted (verification: contracts)	1		X						



- The staff selection procedure may be modified according to the institutional procedures of the organization that is tasked with line-managing the management authority of WAQ. However, it is crucial for the functionality of the management authority that the staff is selected first and foremost based on technical qualification.

Sub-programme P2.3 – staff training

Management programme:		P2 – Establishment and capacity building programme of the WAQ management authority								
Sub-programme and objective:		P 2.3 (Staff training) – Objective 4.2								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
P2.3.1 Define staff qualification needs, based on position descriptions from Section 5.4 and overall management plan.	List of qualification needs per position produced	1			X				EQA/ Tbd. – depends on which institution will be line managing PA management authorities.	
P2.3.2 Assess qualification of selected staff and define qualification gaps to be filled through individual training. Formulate individual development and learning plans with each staff member.	Individual qualification assessments and learning plans of selected staff produced	1			X					
P2.3.3 Source existing training programmes in neighboring countries (e.g. Jordan) for suitable modules to fill identified qualification gaps.	List of suitable training programmes produced	1			X					
P2.3.4 Send selected staff to identified existing training programmes, to the extent possible.	Staff attendance of training programmes (verification: certificates of participation)	1			X					
P2.3.5 For those training gaps for which no existing programmes can be designed, purpose-design training measures such as internships and exchanges with PAs in neighbouring countries, mentoring, and intensive in-house training.	Training measures designed/agreed (verification: manuals/plans of training measures and agreements with external partners)	1			X					

P.2.3.6 Conduct training measures as described under P.2.3.5.	Training measures conducted (verification: reports of staff from training and certificates of attendance)	1			X					
P.2.3.7 Regularly appraise performance of staff, including the adequateness of training to the existing management needs.	Annual appraisals conducted (verification: annual appraisal reports)	2				X	X	X		

Sub-programme P2.4 – development, approval and implementations of procedures of WAQ management authority

Management programme:		P2 – Establishment and capacity building programme of the WAQ management authority								
Sub-programme and objective:		P 2.4 (Development of procedures) – Objective 4.3								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
P2.4.1 Develop standard procedures for administration and financial management, as well as human resources management and monitoring/reporting, based on the norms and regulations of the institution that line-manages the management authority of WAQ.	Written standard procedures developed.	1		X					EQA/ Tbd. – depends on which institution will be line managing PA management authorities.	
P2.4.2 Develop standard procedures for inter-institutional cooperation and stakeholder communication.	Written standard procedures developed.	1		X						
P2.4.3 Develop detailed ToR for the local stakeholder consultation board and for the national support network of WAQ Managed Reserve (Section 5.3 of management plan).	ToR document developed.	1		X					EQA	
P2.4.4 Convene the local stakeholder consultation board and the national support network of WAQ Managed Reserve.	Local stakeholder consultation board and national support network convened and operative (verification: Minutes of meetings)	1		X						
P2.4.5 Develop standard procedures for the patrolling of the PA by rangers and how to protocol this, including the documentation of observations such as infringements or records relevant to the conservation values of the property.	Written standard procedures developed.	1		X						
P2.4.6 Develop standard procedures on how to deal with the various expected types of infringements of the conservation regime of the PA, based on the updated legal basis.	Written standard procedures developed.	1		X					EQA/ Tbd. – depends on which institution will be line managing PA management authorities.	
P2.4.7 Submit for approval to the relevant line-management authority all newly developed draft procedures. Implement requested changes to the extent possible and facilitate timely approval of procedures.	Procedures submitted for approval (verification: submission cover letters)	1		X						



<i>P2.4.8 Implement all procedures as prescribed.</i>	<i>Procedures implemented (verification: annual reports of WAQ management authority)</i>	1			X	X	X	X		WAQ management authority
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Sub-programme P2.5 – establishment and maintenance of core infrastructure

Management programme:		<i>P2 – Establishment and capacity building programme of the WAQ management authority</i>								
Sub-programme and objective:		<i>P 2.5 (Establishment of core infrastructure) – Objective 4.4</i>								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
<i>P2.5.1 Conduct a definite assessment of infrastructure needs at WAQ Managed Reserve, based on the indicative list provided in Annex 2 of the management plan.</i>	<i>Assessment conducted (verification: assessment report)</i>	1		X					EQA/ Tbd. – depends on which institution will be line managing PA management authorities.	
<i>P2.5.2 Develop and submit an application for funding for infrastructure development to the relevant line-managing institution of WAQ or – in cooperation with the latter – to (a) suitable international donor(s).</i>	<i>Funding application(s) submitted (verification: application document or documents)</i>	1		X						
<i>P2.5.3 Once application is approved and/or external funding secured, contract suitable national businesses to (re)construct necessary infrastructure.</i>	<i>Suitable firm contracted</i>	2			X					
<i>P2.5.4 Supervise (re)construction of infrastructure by contractor.</i>	<i>Infrastructure (re)constructed (verification: handover protocols)</i>	2			X				WAQ management authority	
<i>P2.5.5 Maintain established infrastructure in a working state.</i>	<i>Infrastructure maintained in working state (verification: annual reports of management authority, including financial report on maintenance expenditure)</i>	2				X	X	X		

Comments:

- An indicative list of infrastructure considered essential/desirable by the contractor with rough cost estimates is enclosed as Annex 2 of the management plan.

Sub-programme P2.6 – acquisition of core equipment

Management programme:		<i>P2 – Establishment and capacity building programme of the WAQ management authority</i>							
Sub-programme and objective:		<i>P 2.6 (Acquisition of core equipment) – Objective 4.4</i>							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>P2.6.1 Conduct a definite assessment of equipment needs at WAQ Managed Reserve, based on the indicative list provided in Annex 2 of the management plan.</i>	<i>Assessment conducted (verification: assessment report)</i>	1		X					
<i>P2.6.2 Develop and submit an application for funding for equipment purchase to the relevant line-managing institution of WAQ or – in cooperation with the latter – to (a) suitable international donor(s).</i>	<i>Funding application(s) submitted (verification: application document or documents)</i>	1		X					EQA/ Tbd. – depends on which institution will be line managing PA management authorities.
<i>P2.6.3 Once application is approved and/or external funding secured, purchase necessary equipment.</i>	<i>Equipment purchased (verification: invoices/payment records)</i>	2			X				
<i>P2.6.4 Maintain purchased equipment in a working state.</i>	<i>Equipment maintained in working state (verification: annual reports of management authority, including financial report on maintenance expenditure)</i>	2			X	X	X	X	
<i>P2.6.5 Replace equipment according to write-off rules.</i>	<i>Equipment replaced as necessary (verification: annual reports of management authority, including financial report on infrastructure replacement expenditure)</i>	2			X	X	X	X	WAQ management authority

Comments:

- An indicative list of equipment considered essential/desirable by the contractor with rough cost estimates is enclosed as Annex 2 of the management plan.



Sub-programme P2.7 – patrolling and enforcement

Management programme:		P2 – Establishment and capacity building programme of the WAQ management authority								
Sub-programme and objective:		P 2.7 (Patrolling and enforcement) – Objective 4.5								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
P2.7.1 Based on the ranger training (see sub-programme 2.3) and the newly developed procedures for patrolling (see sub-programme 2.4), conduct patrols throughout WAQ during at least 25 h per week, including at least 5 h per week during the night.	Time on patrol and track of patrolling route (verification: handheld GPS track records, to be stored electronically)	2				X	X	X	WAQ management authority (rangers)	
P2.7.2 Log patrol activity on handheld GPS and protocol any observations and infringements first on paper and then electronically, based on established standard procedures.	Patrol logs and observation protocols per patrolling shift.	2				X	X	X		

Comments:

- This is not a capacity building sub-programme but a continuous sub-programme that builds on the initial capacity building efforts at WAQ.
- GPS patrol logging is used to have an objective measure of patrolling activity and to identify any under-patrolled areas within WAQ.

Sub-programme P2.8 – control of road access to some areas

Management programme:		P2 – Establishment and capacity building programme of the WAQ management authority								
Sub-programme and objective:		P 2.8 (Control of road access) – Objective 5.1 – 5.2								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
P2.8.1 Contract a road engineering business to develop a detailed project for a total of about 2 km of low barriers to stop trucks from pulling off Road 3665 and from the secondary road to Halhoul to deposit waste, where the roads run inside WAQ (see Figure 14 for location of proposed low barrier)	Road engineering contracted (verification: contract)	2			X				EQA/ Tbd. – depends on which institution will be line managing PA management authorities.	
P2.8.2 Construct low barriers based on engineering project.	Low barriers constructed	2				X				
P2.8.3 Monitor effectiveness of barriers after establishment.	Monitoring results (verification: monitoring report)	2					X	X	WAQ management authority	

<i>P2.8.4 Convene local stakeholder consultation committee to inform about and discuss establishment of gates at the entrance to the agricultural road at Wadi Hasqa. Gain support of local stakeholders – particularly those with land along the road, who will be given access through the gates – for construction of gates. Clarify that traffic by foot or motorcycle will not be restricted by gates.</i>	<i>Stakeholder committee convened (verification: minutes of meeting)</i>	2				X						EQA/ Tbd. – depends on which institution will be line managing PA management authorities.
<i>P2.8.5 Contract local business for construction of three gates that block car and truck access to the agricultural road (see Figure 14 for proposed location of gates)</i>	<i>Local business contracted (verification: contract)</i>	2					X					
<i>P2.8.6 Hand out keys to identified legitimate land users inside Wadi Hasqa and other stakeholders in need of access as identified by local stakeholder consultation committee.</i>	<i>No. of keys handed out (verification: signed protocol of key holders)</i>	2					X					WAQ management authority
<i>P2.8.7 Monitor effectiveness of barriers after establishment.</i>		2						X	X			

Comments:

- It is expected that the construction of gates at three main access points to the Wadi Hasqa agricultural road will meet with some resistance by local land users. Therefore, all legitimate land users should be given access through these gates and any suggestions for effective alternatives made by the local stakeholder consultation committee should be considered seriously.
- The long-term effectiveness of both measures will need to be monitored extensively to ensure that they fulfill their purpose.

6.3 P3 – Visitor management and interpretation programme

6.3.1 Aim and objectives

This management programme aims to enable and encourage visitors to WAQ to enjoy and appreciate the natural values and scenic beauty of WAQ Managed Reserve while keeping negative impacts of visitation to the conservation targets within acceptable and sustainable limits.

- Objective 6.1:** *By the end of Year 1 of the management plan, design (in a detailed way) a visitor management system for sustainable nature based, sustainable recreation and interpretation at WAQ, based on the recommendations of the management plan.*
- Objective 6.2:** *By the end of Year 1 of the management plan, establish visitor rules, and an interpretation and education programme for WAQ, based on the specific recommendations of the management plan.*



- **Objective 6.3:** *By the end of Year 3 of the management plan, all visitor management and interpretation infrastructure (trails, boards, information points, picnic areas, signposts etc.) as foreseen by the visitor management system design (Objective 6.1) are in place and all rules, interpretation programmes and other Outputs under Objective 6.2 are being implemented and observed.*

6.3.2 Sub-programmes

- **P3.1:** Design of visitor management system
- **P3.2:** Development and implementation of visitor rules
- **P3.3:** Development and implementation of interpretation and education programme
- **P3.4:** Establishment and maintenance of visitor infrastructure
- **P3.5:** Guided tours for individual visitors and school visits/camps

6.3.3 Work plans for sub-programmes

P3.1 – design of visitor management system

Management programme:		P3 – Visitor management and interpretation programme							
Sub-programme and objective:		P 3.1 (Design of visitor management system) – Objective 6.1							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>P3.1.1 Design a draft visitor management system that addresses (a) how visitors should be attracted to and informed about WAQ, (b) visitor numbers and activities acceptable at WAQ, (c) where visitors should go for which activities and where not (based on zonation strategy – Section 4.8 above), (d) the measures needed to achieve (c), and (e) specific requirements for the interpretation and education programme for WAQ (c.f. sub-programme P3.3) resulting from (a-d). Basic core parameters of the visitor management system are provided in Annex 3 of the management plan.</i>	<i>Visitor management system drafted (verification: draft report)</i>	1		X					EQA, in cooperation with Ministry of Tourism and Antiquities Hebron branch
<i>P3.1.2 Submit draft visitor management system for approval to line-managing institution of WAQ management authority. Implement requested changes as far as possible and facilitate timely approval.</i>	<i>Draft submitted (verification: correspondence EQA – relevant approving institution)</i>	1		X					

<i>P3.1.3 Once approved by line-managing institution, implement visitor management system.</i>	<i>System implemented (verification: annual reports of WAQ management authority)</i>	2			X	X	X	X		WAQ management authority
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Comments:

- The visitor management system is a strategic guidance for the more specific aspects of visitor management that are discussed into more detail in sub-programmes P3.2 – P3.6.
- Core parameters of the visitor management system are provided in Annex 3 of the management plan.

P3.2 – development and implementation of visitor rules

Management programme:		<i>P3 – Visitor management and interpretation programme</i>								
Sub-programme and objective:		<i>P 3.2 (Development and implementation of visitor rules) – Objective 6.2</i>								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
<i>P3.2.1 Draft a set of visitor rules on zoning of WAQ, permitted and prohibited activities, contact information of management authority and rangers – based on visitor management system.</i>	<i>Visitor rules drafted</i>	1		X					EQA	
<i>P3.2.2 Publish visitor rules online (1,000 copies) and in print, for dissemination at WAQ.</i>	<i>Publication online and as printout (verification: WAQ website as defined under management programme P4, printouts)</i>	1		X					EQA	
<i>P3.2.3 Enforce visitor rules, through information, communication by rangers and sanctions (based on relevant legislation) whenever necessary</i>	<i>Number of recorded infringements reducing over course of first management plan (verification: annual reports of WAQ management authority)</i>	1			X	X	X	X	WAQ management authority	

Comment:

- *The visitor rules need to be based on the basic prescriptions of the visitor management system and could be adapted from available visitor rules of similar protected areas.*



P3.3 – development and implementation of interpretation and education programme

Management programme:		P3 – Visitor management and interpretation programme								
Sub-programme and objective:		P 3.3 (Development and implementation of interpretation and education programme) – Objective 6.3								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
<i>P3.3.1 Convene a task group on interpretation and environmental education at WAQ, consisting of EQA, relevant members of the national support network of WAQ such as the EEC and PWLS, and the Ministry of Education, to guide the development of specific interpretation and education activities at WAQ.</i>	<i>Task group convened (verification: minutes of meeting)</i>	1		X	X				EQA	
<i>P3.3.2 Develop an overall concept for interpretation and education at WAQ, including key messages and themes for the various relevant target groups.</i>	<i>Overall concept drafted</i>	1		X					EQA with task group	
<i>P3.3.2 Draft a leaflet (2 pp.) and a more detailed (25 pp.) interpretative brochure about WAQ, based on the baselines study report and additional input from the task group and Annex 6 of the management plan (key messages and themes)</i>	<i>Leaflet and brochure drafted</i>	1		X						
<i>P3.3.3 Print the leaflet (initially 5,000 copies) and brochure (initially 1,000 copies) and also make them available online at the WAQ website (details under P4 below).</i>	<i>Leaflet and brochure printed (verification: receipts, copies)</i>	2			X				Depends on which institution will line-manage WAQ authority.	
<i>P3.3.4 Draft the content and layout of at least five interpretative information boards (location: see Figure 21) on WAQ in general, Mediterranean forest restoration, Alsafa Cave, flora of WAQ and fauna of WAQ (including threats).</i>	<i>Content drafted (verification: draft documents)</i>	2			X				EQA with task group	
<i>P3.3.5 Draft guidelines to rangers for at least three guided tours through WAQ (general, Al-Safa Cave, wildlife watching tour) and instruct rangers or external volunteers willing to give tours based on these guidelines.</i>	<i>Guided tour guidelines drafted</i>	2			X					
<i>P3.3.6 Draft instructions for at least five 45 min open-air classes for school students (aged 12-16): introduction to WAQ, flor/fauna of Palestine and particularly of the WAQ area, cave and night fauna, biodiversity conservation/restoration, traditional use of natural resources. Keep instructions available at WAQ so that teachers of visiting school classes can use them as part of their educational activities at WAQ.</i>	<i>Instructions for open-air lessons drafted</i>	2			X					

<i>P3.3.7 Invite additional organizations to voluntarily develop additional educational and interpretative materials for use at WAQ</i>	<i>Organizations invited (verification: invitation)</i>	3	X							EQA with task group
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Comments:

- The actions of this sub-programme are closely linked to sub-programmes P3.4 – P3.6 below as they provide content for those actions.

P3.4 – Establishment and maintenance of visitor infrastructure

Management programme:		P3 – Visitor management and interpretation programme								
Sub-programme and objective:		P 3.4 (Establishment and maintenance of visitor infrastructure) – Objective 6.3								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
<i>P3.4.1 Conduct a definite assessment of visitor infrastructure needs at WAQ Managed Reserve, based on the visitor management system and indicative list provided in Annex 2 of the management plan.</i>	<i>Assessment conducted (verification: assessment report)</i>	1			X				EQA/ Tbd. – depends on which institution will be line managing PA management authorities.	
<i>P3.4.2 Develop and submit an application for funding for visitor infrastructure development to the relevant line-managing institution of WAQ or – in cooperation with the latter – to (a) suitable international donor(s).</i>	<i>Funding application(s) submitted (verification: application document or documents)</i>	1			X					
<i>P3.4.3 Once application is approved and/or external funding secured, contract suitable national businesses to construct necessary infrastructure, using outputs of sub-programme 3.3 where appropriate (e.g. interpretation boards).</i>	<i>Suitable firm contracted</i>	2				X				
<i>P3.4.4 Supervise construction of infrastructure by contractor.</i>	<i>Infrastructure constructed (verification: handover protocols)</i>	2				X			WAQ management authority	
<i>P3.4.5 Maintain established infrastructure in a working state.</i>	<i>Infrastructure maintained in working state (verification: annual reports of management authority, including financial report on maintenance expenditure)</i>	2					X	X		

Comments:

- An indicative list of visitor infrastructure considered necessary/desirable by the Consultant is enclosed in Annex 2.



- The development of content for interpretative and educational visitor infrastructure is covered by sub-programme P3.3.

P3.5 – Guided tours for individual visitors and school visits/camps

Management programme:		P3 – Visitor management and interpretation programme								
Sub-programme and objective:		P 3.5 (Guided tours for individual visitors and school visits/camps) – Objective 6.3								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
<i>P3.5.1 Conduct at least 50 guided tours of at least 1 h per season, for small visitor groups of 5-20 individuals. Use outputs of action 3.3.5 to inform visitors.</i>	<i>Number of guided tours conducted (verification: visitor statistics)</i>	2				X	X	X	WAQ management authority	
<i>P3.5.2 Conduct at least 25 guided tours for school classes of at least 1 h per season. Use outputs of action 3.3.6 to inform and educate school classes.</i>	<i>Number of school visits conducted (verification: visitor statistics)</i>	2				X	X	X		
<i>P3.5.3 Conduct between 3 and 6 school camps of maximum one week duration each and maximum 25 participants at WAQ. Maximum number of person nights per season is provisionally set to 800, and may be revised based on outcome of visitor management system (Action 3.1.1). Camping to be restricted to recreation zone (see Figure 21). Use outputs of action 3.3.6 to inform and educate school classes.</i>	<i>Number of school camps conducted (verification: visitor statistics)</i>	2				X	X	X		

6.4 P4 – Communication, education and public awareness raising programme

6.4.1 Aim and objectives

This management programme aims to support all other management programmes through strategic communication efforts tailored to the various identified target groups of Wadi Al-Quff Managed Reserve. An overview of the main target groups, messages and themes to be considered in communication with them is enclosed as Annex 4.

- **Objective 7.1:** *By the end of Year 1 of the management plan, the Land Authority is fully supportive of management of WAQ as PA and supports the management authority in all relevant matters, particularly regarding the boundaries of the PA.*
- **Objective 7.2:** *By the end of Year 4 of the management plan, WAQ is respected by relevant local stakeholders (particularly resource users and recreational visitors) as a PA.*

- **Objective 7.3:** *By the end of Year 2 of the management plan, WAQ (including the provisions for its protection as detailed in the management plan) enjoys the full support of local decision makers (particularly Hebron Governorate and MoA branch office, Municipalities and Beit Kahel Village Council).*
- **Objective 7.4:** *By the end of Year 3 of the management plan, key local decision makers are aware of the socio-economic benefits of sustainable nature-based recreation and education at WAQ.*
- **Objective 7.5:** *By the end of Year 1 of the management plan, key local decision makers (in three municipalities and one village council, as well as Hebron Governorate) are aware of the public health as well as environmental risks of waste burning at WAQ and support the management authority in stopping waste burning in the immediate vicinity of the reserve.*
- **Objective 7.6:** *By the end of Year 2 of the management plan, an environmental education programme for all relevant target groups - following the detailed recommendations of the management plan - is being implemented effectively at WAQ.*

6.4.2 Sub-programmes

- **P4.1:** Targeted engagement of institutional stakeholders and decision makers from the local to the national level
- **P4.2:** Communication, education and awareness raising for the local general public, including occasional natural resource users at WAQ (this is partly supported by the local stakeholder consultation committee, to be established under Programme 2 on capacity development)
- **P4.3:** Education and awareness raising among visitors of WAQ, including school classes (this is covered through Sub-programmes P3.3 – P3.5 of Management Programme P3 on the visitor management system above).



6.4.3 Work plans for sub-programmes

Sub-programme P4.1 – Targeted engagement of institutional stakeholders and decision makers from the local to the national level

Management programme:		P4 – Communication, education and public awareness raising							
Sub-programme and objective:		P 4.1 (Institutional stakeholders and decision makers) – Objectives 7.1, 7.3 – 7.5							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>P4.1.1 Refine and elaborate communication objectives, messages and need with the various institutional stakeholders relevant to WAQ management (municipalities and Beit Kahel village council, Hebron Governorate and branch offices of Land and Water Authority, MoA, Ministry of Tourism and Antiquities, Ministry of Education, other relevant institutional stakeholders)</i>	<i>No. of refined communication objectives/messages (verification: communications plan)</i>	1		X					EQA/ Tbd. – depends on which institution will be line managing PA management authorities.
<i>P4.1.2 Visit all relevant institutional stakeholders and decision makers individually and explain the plans to strengthen management of WAQ, offer cooperation and ask for support.</i>	<i>No. of visits to institutional stakeholders/ decision makers (verification: minutes of meetings)</i>	1		X					
<i>P4.1.3 Establish and institutionalize regular communications and cooperation with institutional stakeholders, through the local stakeholder consultation committee (municipalities and Beit Kahel village council), national support network (e.g. Ministry of Education) and particularly through the National Supervisory Board for the PA system of oPt if this is established.</i>	<i>No. of meetings of committee, network and supervisory board (if established), attendance numbers (verification: minutes of meetings)</i>	1			X	X	X	X	EQA and management authority
<i>P4.1.4 Engage national media to maintain WAQ as a flagship for nature conservation on the agenda, thereby also addressing decision makers and institutional stakeholders.</i>	<i>No. of reference made to PA at WAQ in media reports (verification: log of media references, to be kept at management authority)</i>	1			X	X	X	X	

Comments:

- Some of the actions under Sub-programme 4.2 are also supporting the objectives of this sub-programme, and vice versa.
- It will be important to develop a good personal relationship with representatives of institutional stakeholders and decision makers, building on their successful engagement during the management planning process.

Sub-programme P4.2 – Communication, education and awareness raising for the local general public, including occasional natural resource users at WAQ

Management programme:		P4 – Communication, education and public awareness raising							
Sub-programme and objective:		P 4.2 (Institutional stakeholders and decision makers) – Objectives 7.2							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>P4.2.1 Refine and elaborate communication objectives, themes, messages and need with the general public, particularly at the local level, based on general guidance provided in Annex 6.</i>	<i>No. of communication objectives and messages finalized (verification: document derived from Annex 6)</i>	1		X					EQA/Tbd. – depends on which institution will be line managing PA management authorities.
<i>P4.2.2. Establish a website for WAQ which introduces the PA in a general way, gives practical information for visitors and local stakeholders, and also conveys messages defined under Action 4.2.1.</i>	<i>Website established</i>	2			X				
<i>P4.2.3 Visit local schools, NGOs and CBOs to inform about WAQ, offer cooperation and ask for support to the PA. Disseminate information materials produced under Sub-programme 3.3 (see Action 3.3.2, 3.3.3)</i>	<i>No. of school, NGO, CBO etc. visits (verification: minutes of meetings)</i>	1			X	X	X	X	WAQ management authority
<i>P4.2.4 Institutionalize regular communications and cooperation with local stakeholders, through active involvement of the local stakeholder consultation committee.</i>	<i>No. of meetings, attendance and pronouncements of local stakeholder consultation committee (verification: minutes of meetings)</i>	1			X	X	X	X	
<i>P4.2.5 Engage local media to maintain WAQ as a flagship for nature conservation on the agenda, thereby addressing local stakeholders.</i>	<i>No. of reference made to PA at WAQ in media reports (verification: log of media references, to be kept at management authority)</i>	2			X	X	X	X	

Comments:

- Some of the actions under Sub-programme 4.1 are also supporting the objectives of this sub-programme, and vice versa.
- It will be important to develop a good personal relationship with local stakeholders, building on their successful engagement during the management planning process.



6.5 P5 – Fire risk control and preparedness programme

6.5.1 Aim and objectives

This management programme aims to reduce the risk of serious damage to the conservation targets of WAQ from forest fires. While fire prevention through reduction of dangerous activities (e.g. industrial waste burning in the vicinity of the PA or uncontrolled barbecues near the Beit Kahel recreational park) are mainly addressed through complementary management programmes and sub-programmes (e.g. sub-programme P2.7 on reduction of road access or sub-programme 3.2 on visitor rules), this programme primarily focuses on enabling the WAQ management authority to fight any fires that have been lit in spite of these measures quickly, before they can reach a critical order of magnitude.

- **Objective 8.1:** *By the end of Year 1 of the management plan, the specific needs for new firefighting equipment for WAQ have been determined and documented in a needs assessment report.*
- **Objective 8.2:** *By the end of Year 2 of the management plan, the necessary firefighting equipment as identified in the firefighting equipment needs assessment report has been purchased and made available for immediate use (when needed) of the WAQ management authority.*
- **Objective 9.1:** *By the end of Year 1 of the management plan, conduct a firefighting skills needs assessment for WAQ and document it in a firefighting needs assessment report.*
- **Objective 9.2:** *By the end of Year 2 of the management plan, design (or preferably source externally, if possible) a practical firefighting training course for WAQ rangers.*
- **Objective 9.3:** *From Year 3 of the management plan onwards, train WAQ staff in firefighting (using output of Objective 9.2) at least once per year for at least one week.*

6.5.2 Sub-programmes

- **P5.1:** Acquisition of firefighting equipment
 - **P5.2:** Staff training in firefighting
-

6.5.3 Work plans for sub-programmes

Sub-programme P5.1 – acquisition of firefighting equipment

Management programme:		P5 – Fire risk control and preparedness programme							
Sub-programme and objective:		P 5.1 (Acquisition of firefighting equipment) – Objective 8.2							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
P5.1.1 Conduct an assessment of firefighting equipment needs at WAQ Managed Reserve, jointly with experts of the Ministry of Agriculture who are experienced in firefighting.	Assessment conducted (verification: assessment report)	1		X					EQA with MoA
P5.1.2 Develop and submit an application for funding for firefighting equipment purchase to the relevant line-managing institution of WAQ or – in cooperation with the latter – to (a) suitable international donor(s).	Funding application(s) submitted (verification: application document or documents)	1		X					
P5.1.3 Once application is approved and/or external funding secured, purchase necessary firefighting equipment.	Firefighting equipment purchased (verification: invoices/payment records)	2			X				
P5.1.4 Maintain purchased equipment in a working state.	Firefighting equipment maintained in working state (verification: annual reports of management authority, including financial report on maintenance expenditure)	2			X	X	X	X	WAQ management authority
P5.1.5 Replace equipment according to write-off rules.	Firefighting equipment replaced as necessary (verification: annual reports of management authority, including financial report on infrastructure replacement expenditure)	2			X	X	X	X	

Comments:

- The Consultant recommends that the Department of Nature Reserves and Forests of the Ministry of Agriculture support the needs assessment, purchase and maintenance of firefighting equipment for WAQ, so that synergies with the development of firefighting capacity in MoA forests beyond WAQ can be maximized.



Sub-programme P5.2 – staff training in firefighting

Management programme:		P5 – Fire risk control and preparedness programme							Implementation responsibility
Sub-programme and objective:		P 5.2 (firefighting staff training) – Objective 9.1 – 9.2							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	
P5.2.1 Define staff qualification needs in relation to firefighting and fire risk control, based on the overall management plan and the recommendations of the Department of Nature Reserves and Forests of the MoA.	List of training needs in relation to firefighting produced	1			X				EQA with MoA (exact arrangement depends on which institution will be line managing PA management authorities)
P5.2.2 Source existing training programmes already established by the MoA or in neighboring countries (e.g. Jordan) for suitable modules to meet identified training needs.	List of suitable training programmes produced	1			X				
P5.2.3 Send staff to identified existing training programmes, to the extent possible.	Staff attendance of training programmes (verification: certificates of participation)	1			X				
P5.2.4 For those training gaps for which no existing programmes can be designed, purpose-design training measures such as intensive in-house training.	Training measures designed (verification: manuals/plans of training)	1			X				
P5.2.5 Conduct training measures as described under P5.2.4, first as a primer training and then each year for one week.	Training measures conducted (verification: reports of staff from training and certificates of attendance)	2			X	X	X	X	
P5.2.6 Regularly assess firefighting readiness of staff through unannounced exercises.	Unannounced exercises conducted (verification: annual appraisal reports)	2			X	X	X	X	

6.6 P6 – Socio-economic support programme

6.6.1 Aim and objectives

This management programme intends to complement enforcement-oriented activities to reduce grazing and other natural resource use related pressures on WAQ by identifying and promoting alternative natural resource use areas outside WAQ, and potentially also additional alternative income-generating and livelihood-supporting activities. As a basis for this, a full baseline study on grazing and other natural resource use over an entire seasonal cycle, which has not been possible during the management planning process because of its limited duration, will also need to be conducted.

- **Objective 10.1:** By the end of Year 2 of the management plan, the seasonal use of WAQ as a grazing and natural resource (wood, wild plants, wildlife resources)

collection area has been studied in-depth, and the potential for the use of alternative areas has been clarified. Specific suggestions have been elaborated with regard to the use of such alternative areas for the various natural resources for which there is demand.

- **Objective 10.2:** By the end of Year 3 of the management plan, all local resource users who have regularly used WAQ in the past have accepted alternative use areas (to the extent that outputs under Objective 10.1 identify such areas) and started using them.
- **Objective 10.3:** By the end of Year 4 of the management plan, it has been proven through a systematic survey that alternative pasture and other NP use areas are used in a non-additional manner.
- **Objective 10.4:** By the end of Year 4 of the management plan, demand for - and consequently use of - pastures and all other natural resources that were shown by the Outputs under Objective 10.1 to have been used at WAQ has been reduced by 75%.

6.6.2 Sub-programmes

- **P6.1:** Grazing and natural resource use survey
- **P6.2:** Identification and promotion of alternative use areas

6.6.3 Work plans for sub-programmes

Sub-programme P6.1 – grazing and natural resource use survey

Management programme:		P6 – Socio-economic support programme							
Sub-programme and objective:		P 6.1 (grazing and natural resource use survey) – Objective 10.1							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
P6.1.1 Contract national natural resources management expert to conduct year-round survey on grazing and other natural resource use at WAQ.	Expert contracted (verification: contract)	1		X					EQA/ Tbd. – depends on which institution will be line managing PA management authorities.
P6.1.2 Conduct year-round field survey on grazing and other natural resource use at WAQ, using field observation, participatory survey approaches and analysis of the socio-economic importance of grazing and natural resource use for the population in the vicinity, including Bedouin pastoralists who only temporarily use the area. Also record grazing and natural resource use in forest areas in the vicinity of WAQ.	Study conducted (verification: study report)	1		X	X				National natural resources management expert



P6.1.3 Based on outcome of survey, decide which socio-economic compensation measures are needed in addition to enhanced enforcement in order to reduce grazing and other natural resource use pressure at WAQ in a socio-economically sustainable manner.	Decision on need for socio-economic compensation measures taken (verification: decision document)	2			X						EQA/ Tbd. – depends on which institution will be line managing PA management authorities.
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Comments:

- Based on the outcome of Action 6.1.2, the need of Sub-programme 6.2 may need to be reconsidered. A more concise assessment of grazing pressure at WAQ during the baseline field study report has not been possible, because of its duration and seasonal timing. However, this information is essential for basic decisions and detailed planning of possible socio-economic compensation measures for loss of income/livelihoods from former traditional grazing inside WAQ (particularly near Tarqumia).

Sub-programme P6.2 – identification and promotion of alternative use areas

Management programme:		P6 – Socio-economic support programme									
Sub-programme and objective:		P 6.1 (identification and promotion of alternative use areas) – Objectives 10.2 – 10.4									
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility		
P6.2.1 Based on the outcome of Action 6.1.2 and the decision taken through Action 6.1.3, define the need for alternative grazing and/or other natural resource use areas outside WAQ to compensate for lost livelihoods/income	Need for alternative areas defined (verification: decision document)	2			X						EQA/ Tbd. – depends on which institution will be line managing PA management authorities.
P6.2.2 Identify potential alternative grazing/natural resource use areas outside WAQ (also based on field study outcomes regarding forest areas in the vicinity of WAQ), including nearby forest areas for a low level of sustainable resource use.	Potential areas identified (verification: list and map of potential areas)	2			X						
P6.2.3 Negotiate with MoA and other land owners the admission of a low level of grazing and other natural resource use in nearby areas as a compensation measure.	Grazing and other low level sustainable natural resource use negotiated between MoA and users (verification: minutes of meeting)	2				X					
P6.2.4 Facilitate contractual agreements on long-term use rights of nearby areas for grazing and other sustainable natural resource use between land owners (including MoA, if applicable) and pastoralists.	Contractual agreements entered into force (verification: contracts)	2				X					

P6.2.5 Monitor implementation and impact (in terms of deciduous forest rejuvenation) of long-term use agreements and non-additionality of grazing and other natural resource use in alternative areas.	Monitoring conducted (verification: monitoring reports)	2				X	X	WAQ management authority
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Comments:

- Both the need for and the feasibility of Sub-programme 6.2 need further study (see Action 6.1.2 and comments on Sub-programme 6.1). The key question is if there is a distinct user group among pastoralists and other natural resource users that is particularly dependent on use of WAQ (and hence might need compensation to make up for the losses associated with enforcement of WAQ), or if use of the reserve is essentially diffuse (distributed among many users who also use many other areas) and opportunistic. In the latter case, a reduction of grazing and other natural resource use pressures based on enforcement alone might be the only viable strategy, given the small size of WAQ and generally high use pressure in the vicinity.

6.7 P7 – Biodiversity conservation and restoration programme

6.7.1 Aim and objectives

This management programme is a core programme of the overall management plan as it directly aims at restoration of original forest composition and hence an improved status of the key conservation target of WAQ – the Mediterranean forest, which has been modified by plantations of *Pinus* and *Cupressus* in the past.

The management strategy shows that most biodiversity targets of WAQ are most effectively conserved by removing or minimizing the threats affecting them (see programmes 1-6 for details how this is intended), and that specific restoration efforts for these targets might be less effective and also less resource-efficient. In this respect, the Mediterranean forest restoration programme follows an exceptional approach. It is possible that additional restoration actions may prove necessary and feasible in the future.

- **Objective 11.1:** *By the end of Year 1 of the management plan, there is an agreed policy in place not to replant any coniferous or otherwise non-native trees inside WAQ.*
- **Objective 11.2:** *By the end of Year 4 of the management plan, field surveys show that the level of natural rejuvenation of Mediterranean forest species has increased by at least 50% on average, throughout the forest part of WAQ, in comparison to 2014 levels.*
- **Objective 11.3:** *By the end of Year 4 of the management plan, field surveys*



show that there is an increase of the proportion in young Mediterranean forest species as a result of natural forest rejuvenation.

6.7.2 Sub-programmes

- **P7.1:** Development, approval and implementation of non-intervention forest restoration

6.7.3 Work plan for sub-programme

P7.1 – Development, approval and implementation of non-intervention forest restoration

Management programme:		<i>P7 – Biodiversity conservation and restoration programme</i>							
Sub-programme and objective:		<i>P 7.1 (Development, approval and implementation of non-intervention forest restoration) – Objectives 11.1 – 11.3</i>							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>7.1.1 Draft non-intervention Mediterranean forest restoration policy, based on not replacing through plantation any fallen pine or cypress trees and at the same time suppressing grazing in the forest areas, thereby fostering natural rejuvenation of deciduous Mediterranean forest and gradual shift in forest composition.</i>	<i>Policy drafted</i>	1		X					EQA
<i>7.1.2 Gain approval to non-intervention forest restoration policy among all relevant institutions and stakeholders.</i>	<i>Number of relevant institutions and stakeholders approving policy (verification: declarations of approval)</i>	2		X					
<i>7.1.3 Implement non-intervention forest restoration policy.</i>	<i>No. of fallen pine and cypress trees (annual verification: monitoring reports), trend in incidences of illegal grazing inside WAQ (verification: patrolling protocols), trend in density of deciduous tree rejuvenation (verification: monitoring reports)</i>	2			X	X	X	X	WAQ management authority
<i>7.1.4 Monitor effectiveness of non-intervention forest restoration policy.</i>	<i>As above</i>	2			X	X	X	X	

Comments:

- Additional conservation and/or restoration sub-programmes for other biodiversity targets of WAQ may be added in the future, should the need arise.

6.8 P8 – Ecological monitoring programme

6.8.1 Aim and objectives

This is a cross-cutting programme about the effectiveness of all other management programmes in relation to the conservation targets and threat reduction objectives of the management plan. In this respect, the ecological monitoring programme is relevant to all objectives of the plan.

6.8.2 Sub-programmes

The ecological monitoring programme consists of nine sub-programmes, which are grouped around the nine key conservation targets of the management strategy to be monitored:

- *EM1 – Mediterranean forest (partly degraded/replaced by Pinus/Cupressus)*
- *EM2 – Grass and shrub lands*
- *EM3 – Rock formations and Alsafa (Bat) Cave*
- *EM3 – Rock formations and Alsafa (Bat) Cave*
- *EM4 – Springs*
- *EM5 – Flora including threatened, endemic and economically valuable species*
- *EM6 – Small terrestrial fauna*
- *EM7 – Egyptian Fruit Bat*
- *EM8 – Breeding birds (particularly endemic and threatened species)*
- *EM9 – Migratory soaring birds*

In addition to these, progress towards the threat reduction objectives of the management strategy will also be monitored. However, no separate monitoring activities will be needed for this part of the monitoring as all necessary data to measure this progress will be available from the general patrolling and infringement statistics of the PA's management authority.



6.8.3 Work plans for sub-programmes

EM1 – Mediterranean forest (partly degraded/replaced by Pinus/Cupressus)

Sub-programme		EM1 – Mediterranean forest (partly degraded/replaced by Pinus/Cupressus) – (Conservation Target 3.2.1)								
Objectives		Monitor and assess the tree species diversity and distribution in the forest of WAQ Assess and monitor impact of grazing on restoration of natural Mediterranean Forest								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
1.1 Design and carry out a comprehensive forest inventory producing a detailed distribution map of tree species in WAQ	Distribution map of tree species Percentages of seedlings of native tree species Percentage of native trees with grazing impact	1		X					EQA, with external consultants	
1.2 Carry out forest inventory using the same methodology and application for comparison	Distribution map of tree species Percentages of seedlings of native tree species Percentage of native trees with grazing impact	1						X		

- **Methodology:** A detailed inventory is needed to provide a highly detailed map of the forest communities and distribution of the tree species in the protected area. The inventory would also work on identifying and assessing the various threats affecting the forest and specifically the different species.
- **Time and duration:** No specific time but would be preferable in spring in order to coincide with the blooming season so that undercanopy flora species are also recorded
- **Manpower:** A forest ecologist with a wide experience in forest ecology and also good experience of identifying the different tree species known to exist in the area.
- **Equipment:** GPS handheld unit, datasheets, pencils and a site map.

Comments:

- In order to restore a more typical and diverse Mediterranean forest composition for this conservation target and for this monitoring programme, achieving P7.1 – **Development, approval and implementation of non-intervention forest restoration** is of critical importance.

EM2 – Grass and shrub lands

Sub-programme		<i>EM2 – Grass and shrub lands – (Conservation Target 3.2.2)</i>							
Objective		<i>Monitor distribution, density and diversity of grasses and shrubs Assess and monitor impact of human activities (grazing, recreation, etc.) on grass and shrub distribution, density and diversity</i>							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>2.1 Design and carry out a comprehensive flora survey producing a detailed checklist of flora species in WAQ</i>	<i>Report of study Percentages of palatable species coverage</i>	1		X		X		X	EQA, with external consultants

- **Methodology:** A more intensive flora survey in the spring and autumn seasons to generate a more comprehensive checklist of plant species in the protected area. The study would not only be limited to the forest part of the protected area but will be extended to the southern part.
- **Time and duration:** The most suitable periods of the year to carry out this survey would be from February to May and from September to October.
- **Manpower:** A qualified botanist that is highly qualified in plant identification in the field and sampling for further identification.
- **Equipment:** GPS handheld unit, datasheets, pencils a site map and field identification guides.

Comments:

- It would be of great importance that this monitoring programme is carried out for the whole reserve and not to be limited to the grass and shrub areas of the reserve, see EM5.

EM3 – Rock formations and Alsafa (Bat) Cave

Sub-programme		<i>EM3 – Rock formations and Alsafa (Bat) Cave – (Conservation Target 3.2.3)</i>							
Objective		<i>Monitor state of rock formations and Alsafa Cave Assess impact of human activities, specifically recreation on rock formations and the cave</i>							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
<i>3.1 Set a Repeat Photography Monitoring programme for rock formations and Alsafa Cave</i>	<i>Seasonal photographs – compiled into an annual report Damage to rock formations and cave assessed and controlled</i>	3		X	X	X	X	X	Rangers of Reserve



- **Methodology:** Set locations from where repeat photography could be taken on regular intervals throughout the year. It should be clarified to photographers that photos should be repeated from the same angle to cover the same area each time.
- **Time and duration:** Seasonally, once each three months.
- **Manpower:** One photographer, most preferably from the reserve staff
- **Equipment:** GPS handheld unit, camera.

EM4 – Springs

Sub-programme		EM4 – Springs – (Conservation Target 3.2.4)							
Objective		Monitor water availability and quality in springs							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
4.1 Set a Repeat Photography Monitoring programme for water springs	Seasonal photographs – compiled into an annual report along with the water quality data	2		X	X	X	X	X	Rangers of Reserve
4.2 Monitor water quality monitoring for water springs	Annual water quality report	2		X	X	X	X	X	Rangers of Reserve

- **Methodology:** Set locations from where repeat photography could be taken on regular intervals throughout the year. It should be clarified to photographers that photos should be repeated from the same angle to cover the same area each time. For water quality, simple monitoring could be carried through measuring several elements such as pH, dissolved Oxygen, phosphate, nitrate-nitrogen, turbidity and temperature.
- **Time and duration:** Seasonally, once each three months.
- **Manpower:** One photographer, most preferably from the reserve staff
- **Equipment:** GPS handheld unit, camera, basic water quality monitoring toolkit.

EM5 – Flora including threatened, endemic and economically valuable species

Sub-programme		EM5 – Flora including threatened, endemic and economically valuable species – (Conservation Target 3.2.5)								
Objective		Monitor distribution, density and diversity of flora in all parts of reserve Assess and monitor impact of grazing on distribution, density and diversity of species recorded								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
5.1 Design and carry out a comprehensive flora survey producing a detailed checklist of flora species in WAQ	Number of species recorded in the reserve Relative abundance of palatable species	1		X		X		X	EQA, with external consultants	

- **Methodology:** A more intensive flora survey in the spring and autumn seasons to generate a more comprehensive checklist of plant species in the protected area. The study would not only be limited to the forest part of the protected area but will be extended to the southern part.
- **Time and duration:** The most suitable periods of the year to carry out this survey would be from February to May and from September to October. The study would be repeated biannually.
- **Manpower:** A qualified botanist that is highly qualified in plant identification in the field and sampling for further identification.
- **Equipment:** GPS handheld unit, datasheets, pencils a site map and field identification guides.

Comments:

- The monitoring programme EM2, would be integrated as part of this programme and not done separately.

EM6 – Small terrestrial fauna

Sub-programme		EM6 – Small Terrestrial Fauna – (Conservation Target 3.2.6)								
Objective		Monitor distribution, density and diversity of small terrestrial fauna species in the reserve								
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility	
6.1 Design and carry out a comprehensive small terrestrial fauna monitoring programme	Report of study and distribution maps	1		X		X		X	EQA, with external consultants	



- **Methodology:** An intensive faunal survey to generate an inventory of the local fauna, ecology of the different species, habitat use, and human impact. The first round of this programme would provide information for the distributions and densities of the different small terrestrial mammals species using the different habitats of the protected area. The study would use predefined quadrants where Sherman traps would be set to trap small mammals.
- **Time and duration:** Biannually, most preferably in spring from March to May.
- **Manpower:** A qualified zoologist with excellent identification skills of small mammals and the habitat use and needs of the different species recorded.
- **Equipment:** a handheld GPS unit, Sherman traps, datasheets and site map.

Comments:

- One of the major species to be targeted specifically in this programme is Medietrranean Tortoise *Testudo graeca*, being the only globally threatened species recorded during the baseline assessments. There is a need to continuously assess the conservation status, size and trend of the tortoise population in the reserve. Line transects would be the main method used across the protected area. Interviews with people living in the surrounding villages would be valuable since the species is known to be collected and sold, especially that the species is on Appendix of CITES.

EM7 – Egyptian Fruit Bat

Sub-programme		EM7 – Egyptian Fruit Bat – (Conservation Target 3.2.7)							
Objective		Monitor distribution, density and diversity of Egyptian Fruit Bat in the reserve							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
7.1 Carry out a comprehensive monitoring programme for the Egyptian Fruit Bat in the reserve, specifically in Alsafa Cave	Reports of study	1		X	X	X	X	X	EQA, with external consultants

- **Methodology:** The main focus of this study would be to assess the health, size and trend of the Fruit Bat population inhabiting Alsafa cave and assess the different threats that might affect it. Regular visits to the cave on monthly basis throughout the year would be valuable. The regularity of visits could be reviewed after the first year so that it could be modified. An estimation of the population is needed to be produced in the first year so that this could be monitored in the years to come. Interviews with local and specifically farmers could be valuable to assess the extent of the bat distribution and its home range.

- **Time and duration:** Monthly in the first year, then to be revised and modified if necessary.
- **Manpower:** A qualified zoologist with excellent knowledge of the species and its ecological needs and habitat use.
- **Equipment:** a handheld GPS unit, camera, light torches, datasheets.

EM8 – Breeding birds (particularly endemic and threatened species)

Sub-programme		EM8 – Breeding birds (particularly endemic and threatened species) – (Conservation Target 3.2.8)							
Objective		Monitor distribution, density and diversity of breeding bird species in the reserve							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
8.1 Carry out a comprehensive monitoring programme for the breeding bird species in the reserve	Reports of study	1		X		X		X	EQA, with external consultants

- **Methodology:** A biannual survey to monitor the breeding species in the protected area. This study would follow the same methodology and point count that were used in this survey and the recommended baseline studies mentioned earlier. All point counts must be done in the early mornings starting 30 minutes after sunrise for a period not exceeding two hours. The species of high significance that should be monitored include Syran Woodpecker *Dendrocopos syriacus*, Eastern Bonelli's Warbler *Phylloscopus bonelli* and Wren *Troglodytes troglodytes*.
- **Time and duration:** The most suitable periods of the year to carry out this survey is spring/summer (March - June). The study is to be repeated once every two years.
- **Manpower:** A single qualified ornithologist would be able to carry out all surveys. The ornithologist should be highly qualified in identifying bird species acoustically, based on their calls and songs, specifically for forest species.
- **Equipment:** GPS handheld unit, binoculars, datasheets (see appendix I), pencils a site map and bird identification guide.



EM9 – Migratory soaring birds

Sub-programme		<i>EM9 – Migratory soaring birds – (Conservation Target 3.2.9)</i>							
Objective		<i>Assess the significance of the reserve for migratory soaring birds</i>							
Action	Measurable indicator	Priority	Y0	Y1	Y2	Y3	Y4	Y5	Implementation responsibility
9.1 Carry out a migratory soaring bird survey	Reports of study	3			X				EQA, with external consultants

- **Methodology:** Carry out a raptor and soaring birds passage survey to assess the importance of the site for soaring birds in general. The vantage point mentioned to the north of the protected area could serve as a perfect location to carry out this study. The observer would need to be present at vantage point to record all species on passage throughout the day for at least a minimum of eight hours for a minimum of five days per week. Different patches of daylight could be covered. For example, some days could cover the time from early mornings until earlier afternoons while others could cover times from late mornings until dusk. This would allow the observer to record individual birds that either were roosting in the site overnight, the number of birds that come to roost to the site in the evenings and their preferences, and the total number of birds passing over the study area through the day. Routes used of the different species should be recorded and roosting locations should be identified..
- **Time and duration:** This could be carried out during both migration seasons in spring and autumn, from late February to early May in the spring and from late August until early November in autumn.
- **Manpower:** A single qualified ornithologist would be able to carry out both studies. The observer must have an excellent experience in identifying all migratory and resident soaring bird species of the region and to be aware of the methodology applied.
- **Equipment:** Binoculars, field scope, datasheets, pencils, site map and bird identification field guide.

Investment and financial plan (Year 1-5)

The investment and financial plan contains information about the necessary investments by category (infrastructure, equipment, operation and consultancy) that have been estimated for the establishment and operation of WAQ, as well as the full implementation of the management plan. Some information about how to meet the identified financial needs is also included.

7.1 Cost estimation of necessary investments

Table 15 contains a summary of the estimated costs of implementing all work programmes of the management plan. The total expected costs (excluding core operational costs) are ca. USD 335,000. The estimates have been made based on the best knowledge available to the Consultant regarding local pricing and costs. However, some of the rates and unit costs estimated may need updating for the time when implementation of the management plan commences.

A more detailed breakdown of costs by individual actions is enclosed as an Electronic Supplement 1. A list of specific infrastructure and equipment items (with their costs) on which the overall costing shown in Table 15 is based is shown in Annex 2.

It should be noted that, under "Personnel", only expenses for externally hired consultants are listed. All activities that can be fulfilled by core staff of WAQ are not separately costed, but are funded through the salaries which are listed under operational core funding (see Section 7.2).

7.2 Estimation of core operational costs

Annual core operational costs of WAQ will include salaries, utilities, travel, maintenance of infrastructure and equipment, consumables and small expenses. An estimate of these costs is included as Table 16.



The estimated annual core operational costs for WAQ (ca. USD 94,000) are more than six times the current annual budget of the reserve. This has mainly to do with the fact that a higher number of better qualified staff will be necessary to run the area in a professional manner as a managed reserve. It should be noted that the figures in Table 16 are minimum estimates, and not fully competitive with the salary ranges offered by international organizations operating in Palestine. EQA or the institution responsible for line managing the management authority of WAQ may attempt to reduce staff costs by initially offering even lower salaries for the jobs described in Section 5.4, but it should be noted that this may prove impossible or fail to attract people with sufficient qualification.

Table 15. Estimated costs in USD of management plan implementation (Year 0-5). (Y... year). Under "Personnel", only expenses for externally hired consultants are listed. All activities that can be fulfilled by core staff of WAQ are not separately costed.

Code	Infrastructure	Equipment	Operations	Personnel	Total	Y0	Y1	Y2	Y3	Y4	Y5
Total 1.1	500	0	250	3,600	4,350	3,850	0	500	0	0	0
Total 2.1	0	0	0	900	900	0	900	0	0	0	0
Total 2.2	0	0	1,000	0	1,000	0	1,000	0	0	0	0
Total 2.3	0	0	36,000	6,000	42,000	0	0	42,000	0	0	0
Total 2.4	0	0	1,000	8,400	9,400	0	9,400	0	0	0	0
Total 2.5	20,000	0	0	4,500	24,500	0	24,500	0	0	0	0
Total 2.6	0	42,580	0	1,500	44,080	0	44,080	0	0	0	0
Total 2.7	0	0	0	0	0	0	0	0	0	0	0
Total 2.8	27,500	0	250	5,000	32,750	0	0	5,250	27,500	0	0
Total 3.1	0	0	0	3,000	3,000	0	3,000	0	0	0	0
Total 3.2	0	0	2,500	600	3,100	0	3,100	0	0	0	0
Total 3.3	0	0	18,700	10,800	29,500	0	6,600	22,900	0	0	0
Total 3.4	29,150	0	0	1,500	30,650	0	0	30,650	0	0	0
Total 3.5	0	0	0	0	0	0	0	0	0	0	0
Total 4.1	0	0	8,000	1,500	9,500	0	1,500	2,000	2,000	2,000	2,000
Total 4.2	0	0	7,000	600	7,600	0	5,600	500	500	500	500
Total 5.1	0	5,000	0	1,500	6,500	0	1,500	5,000	0	0	0
Total 5.2	0	0	10,500	5,100	15,600	0	0	8,100	2,500	2,500	2,500
Total 6.1	0	0	0	15,000	15,000	0	0	15,000	0	0	0
Total 6.2	0	0	0	0	0	0	0	0	0	0	0
Total 7.1	0	0	0	1,500	1,500	0	1,500	0	0	0	0
Total 8	0	0	0	54,000	54,000	0	13,600	12,400	12,000	2,400	13,600
SUM	77,150	47,580	85,200	125,000	334,930	3,850	116,280	144,300	44,500	7,400	18,600

Table 16. Estimated annual core operational costs of managing WAQ according to the management plan. These costs will be incurred from Year 2 of management plan implementation onwards.

Item	unit cost (\$)	No. of units	Sum (\$)
Salaries			
Director	24,000	1	24,000
Financial officer	12,000	1	12,000
Head ranger	12,000	1	12,000
Tourism and education coordinator	15,000	1	15,000
Ranger	9,600	2	19,200
SUM			82,200
Utilities & consumables			
Utilities	2,400	1	2,400
Consumables	2,500	1	2,500
SUM			4,900
Travel			
Local travel	1,500	1	1,500 ¹
National travel	50	12	600 ²
SUM			2,100
Maintenance			
Maintenance	4,850	1	4,850 ³
SUM			4,850
TOTAL			94,050

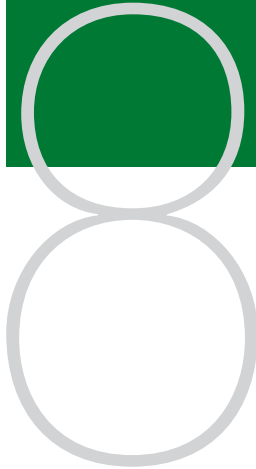
¹ 5,000 vehicle km per year, including trips to Hebron.

² twelve day trips to Ramallah per year.

³ 5% of value of infrastructure and equipment per year.



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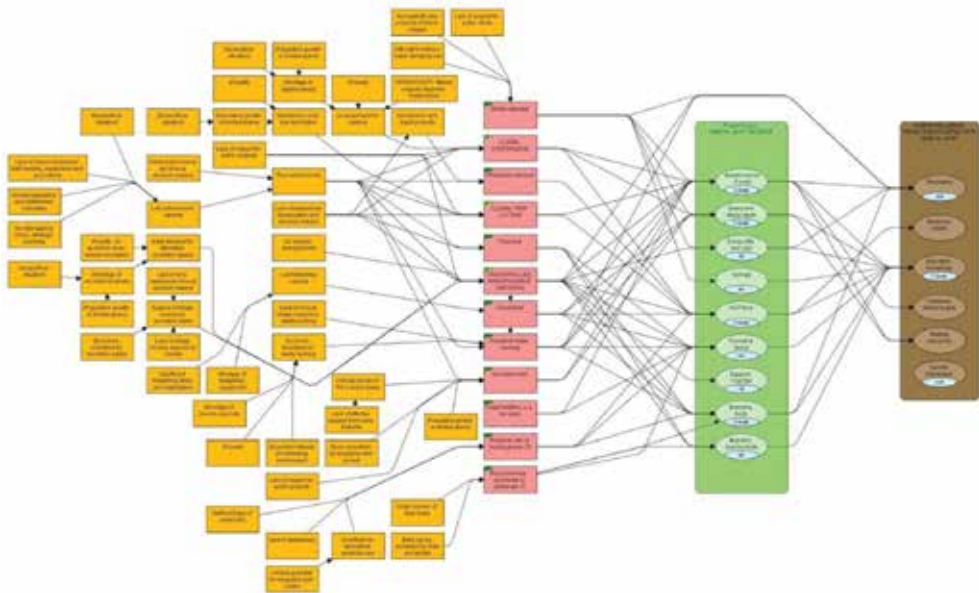
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Annexes

9.1 Annex 1 – Comprehensive version of the WAQ conceptual model

Below is a comprehensive version of the conceptual model of WAQ, including contributing factors that cannot be addressed through PA management.



9.2 Annex 2 – Indicative list of infrastructure and equipment needs at WAQ MR

Item	Action No.	No. of units	Estimated unit cost (\$)	Total (\$)
Renovation of existing ranger office/store	2.5.3	1	20,000	20,000
SUM 2.5.3				20,000
Mobile phone	2.6.3	6	100	600
Desktop work station	2.6.3	4	1,000	4,000
Printer	2.6.3	1	200	200
Scanner	2.6.3	1	200	200
Beamer with screen	2.6.3	1	500	500
Telephone/fax	2.6.3	2	150	300
VHF radio	2.6.3	4	150	600
Handheld GPS (mapping)	2.6.3	4	300	1,200
Software	2.6.3	2	1,000	2,000
Office furniture and lighting	2.6.3	1	5,000	5,000
Binocular	2.6.3	4	100	400
Digital camera	2.6.3	1	200	200
Uniform	2.6.3	10	40	400
Boots (pairs)	2.6.3	10	50	500
Small pickup truck	2.6.3	1	25,000	25,000
Electric drill/hammer	2.6.3	1	250	250
Chainsaw	2.6.3	1	350	350
Other tools	2.6.3	1	500	500
Electric torch	2.6.3	4	20	80
Fire extinguisher	2.6.3	3	100	300
SUM 2.6.3				42,580
Information point (see Figure 21)	3.4.3	1	5,000	5,000
Information boards	3.4.3	5	200	1,000
Repair and securing of existing trails	3.4.3	1	7,500	7,500
Sanitary block (4 toilets, 4 showers)	3.4.3	1	15,000	15,000
Signposting of visitor trails	3.4.3	25	10	250
Picnic benches	3.4.3	4	100	400
SUM 3.4.3				29,150
Basic firefighting equipment	5.1.3	1	5,000	5,000
SUM 5.1.3				5,000
TOTAL INFRASTRUCTURE				49,150
TOTAL EQUIPMENT				47,580



9.3 Annex 3 – Core parameters of visitor management system

Elaboration of a detailed visitor management system will be the subject of Action 3.1.1 under Management Programme 3. As a basis for this, the following core parameters can be defined:

- **Visitor areas:** Visitors are welcome to visit the recreation area to the west of Beit Kahel recreational park, all existing trails and tracks, and the entrance area of Alsafa Cave. All other areas are part of the core zone of WAQ Managed Reserve, which is strictly dedicated to nature conservation (see Figure 21).
- **Maximum visitor numbers:** No carrying capacity has been determined for WAQ visitation in general. It is recommended that this is determined through adaptive management, i.e. by setting a limit only as and when there are indications that the integrity of the area is no longer maintained. The maximum number of overnight (camping) visitors at the recreational area is tentatively set to 800 per year (mainly in school groups). Again, this should be modified if it is shown to be unsustainably high or if there is a potential for increase without damage.
- **Visitor activities to be permitted:** Non-disturbing, non-threatening visitor activities such as walking, picnicking (in designated areas), nature observation, camping (in recreational area only) are permitted. Visitors will be warned not to step too closely to steep slopes and precipices, and not to venture into Alsafa Cave. Permission or prohibition of any activities not listed shall be made by the management authority of WAQ, based on whether or not these activities pose a threat to the conservation and human wellbeing values of the area.
- **Visitor activities to be prohibited:** Disturbing or dangerous activities such as open fire, walking outside trails, removal of plants or molestation of animals, playing loud music or other noisy activities, littering and waste disposal except in designated places, shall be prohibited at WAQ.
- **Visitor information and enforcement:** Visitors shall be informed about visitor rules by (a) an information board at the visitor information point, (b) a brochure that will also be available there, and (c) directly by rangers and the recreation and education coordinator. If infringements by visitors are noted by WAQ staff, visitors shall first be politely asked to refrain from those activities. If this is not effective, sanctions shall first be announced and then be applied, based on the relevant existing legislation.

9.4 Annex 4 – Communication objectives and messages for target groups

Target group	Objectives	Messages	Comments
National decision makers	<ul style="list-style-type: none"> - Gain general support for PA at WAQ - Gain support to stop unlicensed quarry and hydrocarbon pollution at WAQ - Accelerate approval of PA and nature conservation bylaw - Gain support for additional PAs like WAQ in the future 	<ul style="list-style-type: none"> - High value of WAQ as part of the Palestinian national heritage - Important role of natural heritage in Nation building - Great potential socio-economic benefits of sustainable nature-based use at WAQ, particularly in relation to recreation and education - Current and future obligations of State of Palestine under biodiversity related multilateral environmental agreements 	<ul style="list-style-type: none"> - Important to present WAQ as a pilot and flagship area that can be presented as an illustration of general environmental protection and sustainable development efforts
Local decision makers	<ul style="list-style-type: none"> - Gain general support for PA at WAQ - Gain support to stop unlicensed quarry and hydrocarbon pollution at WAQ - Gain support to clarify demarcation of WAQ - Gain support against waste dumping and burning at WAQ and beyond - Prevent construction of further recreational parks inside immediately adjacent to WAQ 	<ul style="list-style-type: none"> - High value of WAQ as part of the Palestinian national heritage - Great potential socio-economic benefits of sustainable nature-based use at WAQ, particularly in relation to recreation and education - Legal status of WAQ MR and resulting need for protection - Opportunities to use WAQ to attract international donor funding to the area - Dangers of waste dumping/ burning at WAQ and beyond 	<ul style="list-style-type: none"> - Reportedly no land ownership conflicts between surrounding villages and WAQ – this should make situation easier - Some local decision makers may have some indirect or non-obvious stakes in some of the damaging activities at or near WAQ (e.g. quarry). This needs to be taken into consideration. - Appeal to local pride may help, but high dependency of at least Beit Kahel village on income from recreational park may limit this.
Local public	<ul style="list-style-type: none"> - Gain general support for PA at WAQ - Reduce number of infringements of PA regime from illegal resource use, irresponsible visitation, encroachment etc. - Encourage locals to enjoy the benefits of the PA - Win locals to support management authority in conflicts with external irresponsible resource users 	<ul style="list-style-type: none"> - High value of WAQ as part of the regional natural and also cultural heritage (wedding ceremonies, spiritual values etc.), part of which could be revived - Great potential for local development benefits of sustainable nature-based use at WAQ, particularly in relation to recreation and education - Potential to attract relatively wealthy visitors from Hebron and beyond, and to benefit from this (restaurants etc.) - Legal status of WAQ MR and resulting need to refrain from certain uses - WAQ as a space were children from the vicinity can be happy and get to know nature 	<ul style="list-style-type: none"> - It is likely that some local citizens have used some natural resources from WAQ in the past, but is is unlikely that many locals depend to a greater degree on such resources. This should be made clear and should contribute to minimizing conflicts. - Local people may be the ones that will be most affected by restrictions of natural resource use, but are also best placed to enjoy the benefits of WAQ.



Operator of recreational park at Beit Kahel	<ul style="list-style-type: none"> - Gain support and good neighbor relationship from operator - Refrain from further extensions of recreational park - Minimize the impact of the operation of the park on the natural values of WAQ - Reduce littering in the immediate vicinity of the park 	<ul style="list-style-type: none"> - Great potential to benefit economically from cooperation with WAQ MR, and from supporting sustainable nature-based use in the area - Legal status of WAQ MR and resulting need to manage recreation park in an environmentally-friendly way - Responsibility of operator as a business leader to contribute to sustainable development 	Offer partnership – do not threaten..
Occasional opportunistic resource users at WAQ	<ul style="list-style-type: none"> - Stop natural resource use at WAQ to the extent it is against the protection regime 	<ul style="list-style-type: none"> - Legal status of WAQ MR and resulting need to refrain from certain uses, possible sanctions - Wider socio-economic benefits of WAQ to all local stakeholders 	With these stakeholders, the main emphasis of communication should be on enforcement and sanctions. Most will be also part of the local public and therefore be reached by the more general messages to the public anyway.
General visitors, including school groups	<ul style="list-style-type: none"> - Enjoy WAQ to its full (natural) potential - Reduce dangerous and damaging behavior at WAQ - Increase general environmental awareness and knowledge of natural values of Palestine - Gain popular support for additional PAs like WAQ in the future 	<ul style="list-style-type: none"> - High value of WAQ as part of the Palestinian national (natural and cultural) heritage - Biodiversity of WAQ and of Palestine in general - Scenic beauty, culture and traditions connected to WAQ - Benefits of nature conservation and nature-friendly behavior 	- The WAQ-based communication, education and awareness raising activities for visitors should aim at a more general learning and behavioral effect that goes beyond support of this particular PA. For these visitors, the experience of WAQ may be an opportunity to reflect on their general lifestyle and its environmental sustainability.

9.5 Annex -5 National framework analysis

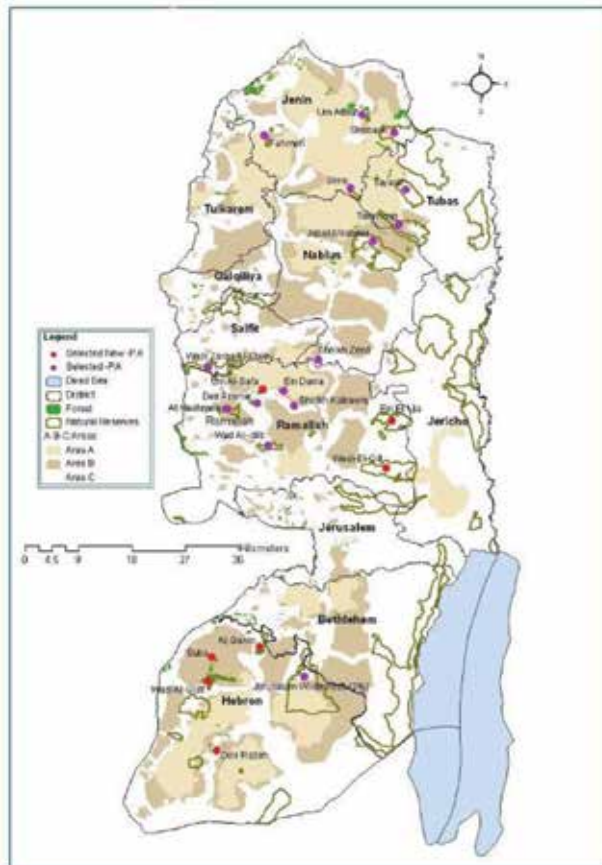


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1 Executive Summary

The assignment “Management Plan for a Protected Area in the West Bank” has the following among its objectives: *“To assess the national, institutional and individual capacity building needs for nature conservation and protected areas management and identify gaps in the policy, planning and legislative framework for the protected areas and make recommendations on how to address these gaps”* (UNDP/PAPP Request for Proposal, February 2013).

In order to meet this objective, a national framework analysis has been conducted in parallel to the site based PA management planning process for WAQ. This analysis has focused on the history of the Palestinian PA system, its policy, legal and institutional framework and stakeholder setting, the current capacity for PA system development and individual PA management, as well as constraints and opportunities.

The history of the Palestinian PA system provides for a complex legacy, with a tradition of area protection measures reaching back to the Ottoman era and beyond on the one hand and a more recent partial discrediting of PAs as a consequence of their use in conjunction with Israeli military occupation and illegal settlement policies on the other hand.

While basic elements of a policy framework for PA system development are in place, some of these elements – such as the 1999 National Biodiversity Strategy and Action Plan (NBSAP) appear outdated and in need of revision. It is also important to learn from the low level of implementation of the original NBSAP.

The legal framework for PAs lacks detailed provisions and suffers from an apparent inconsistency of the Environmental Law (1999) and the Agricultural Law (2003). This is reflected by recent efforts on the part of relevant Palestinian institutions to develop a dedicated bylaw on nature conservation and PAs. However, earlier drafts of this bylaw have been at variance with international best practice on PA legislation, and the current state and progress of the legal drafting and approval process is unclear.

The main institutions of the State of Palestine involved in PA management and system development are the Environmental Quality Authority (EQA) and the Department of Nature Reserves and Forests of the Ministry of Agriculture. Their respective mandates are in need of clarification and mutual delineation. There are additional State institutions, NGOs and academic institutions which have

an important role to play in relation to making Palestinian PAs effective nature conservation tools.

Institutional capacity for PA system development and also at the site level is severely limited in oPt. This limitation is compounded by challenges arising from the continued military occupation and illegal settlement policy, with their various ramifications. At the same time, there are also a number of important opportunities to move PA system development ahead now. In order to use these opportunities, the following recommendations to various Palestinian institutions are made:

Recommendation 1 (to the State of Palestine): *Clearly define institutional responsibilities and mandates of EQA and MoA in relation to PA system development and PA management, with EQA taking the lead on PA related policy, oversight and partner coordination, and continuing to provide technical and infrastructural support to individual PA management and streamlining its activities in productive ecosystems outside PAs with conservation objectives.*

Recommendation 2 (to EQA and MoA): *Establish a system of delegated and/or joint governance for individual PAs, as defined more detailed in the WAQ draft management plan.*

Recommendation 3 (to EQA as a lead and all stakeholders as participants): *Continue developing and formalizing a national multi-stakeholder support network for biodiversity conservation and PA system development involving relevant government institutions, NGOs and academic institutions.*

Recommendation 4 (to EQA): *Update and simplify the policy framework for biodiversity conservation and PA system development in oPt, particularly the National Biodiversity Strategy and Action Plan (NBSAP) of Palestine. Prioritize stepwise PA system building as one key action of the NBSAP and include an explicit resource mobilization strategy for it. Involve all relevant stakeholders in the updating of the NBSAP, through a structured drafting and consultation process taking into account the available guidance from CBD on NBSAP updating.*

Recommendation 5 (to EQA and MoA): *Draft and approve a modern and effective bylaw on nature conservation and protected areas, taking into account available international best practice.*

Recommendation 6 (to EQA and MoA): *Expand the capacity development strategy for the national PA system (including related to staff qualification, institutional procedures, infrastructure and equipment, financing) and prioritize its implementation for international donor funding.*

Recommendation 7 (to EQA and MoA): *Increase ranger numbers and ensure adequate training of existing MoA rangers as well as newly employed rangers, based on either in-country capabilities or cooperation with external partners.*

Recommendation 8 (to EQA): *Include mainstreaming biodiversity into the updating of the NBSAP of oPt and implement CEPA and mainstreaming activities, particularly aimed at political decision makers and opinion leaders.*



2 Introduction

The assignment “Management Plan for a Protected Area in the West Bank” is primarily aimed at the development of a PA management plan for one specific site, Wadi Al-Quff (Hebron Governorate). However, it also has the following objective:

“To assess the national, institutional and individual capacity building needs for nature conservation and protected areas management and identify gaps in the policy, planning and legislative framework for the protected areas and make recommendations on how to address these gaps” (UNDP PAPP Request for Proposal, February 2013).

It makes sense to approach site based PA management and the development of the national framework in parallel because both areas of work depend on each other, and can inform each other: On the one hand, a detailed site level management planning process will raise questions (e.g. on institutional responsibilities, legally endorsed PA categories or PA financing mechanisms) regarding the national framework which might otherwise remain unnoticed, and unaddressed. On the other hand, strengthening the national framework for PA management will identify requirements for site level management plans (e.g. regarding ecological connectivity, formal requirements for a legal endorsement of management plans) which would not be as obvious from the site perspective alone.

By taking steps towards the establishment of a national PA system, the State of Palestine contributes to the implementation of the Strategic Plan for Biodiversity of the Convention on Biological Diversity (CBD) 2011-2010. This is particularly true for Strategic Goals B (“Reduce the direct pressures on biodiversity and promote sustainable use”) and C (“To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity”) (CBD, 2010). However, PA system establishment is relevant to all strategic goals of the Strategic Plan, and reference is made throughout this text where individual actions would make a particularly strong contribution to specific strategic goals.

A comprehensive development programme for the entire policy, institutional, legal and planning framework for the PA system of the West Bank would be beyond the scope of this, primarily site based assignment. Therefore, the report focuses on a number of key areas in need of development, drawing also strongly on the recent analysis of Garstecki et al. (2010):

- **History of Palestinian PA system:** PA system development in Palestine does not start from scratch, but has a long-lasting and complex history which also determines the current scope of and constraints to further improvements. Therefore, the history of the PA system is briefly summarized in Section 3.
-

- **Policy framework:** Existing policies, plans and programmes related to biodiversity conservation including PAs provide the strategic basis for further PA system development in oPt, including legislation, institutional arrangements, and capacity building. This basis is briefly analyzed in Section 4.
- **Legal framework:** Both the existing legal framework (principally the Environmental Law of 1999 and the Agricultural Law of 2003) and known plans for further development of legislation relevant to PAs (i.e. plans to develop a bylaw on biodiversity conservation and PAs) are crucial determinants of current and future conservation practice in oPt. To the extent they are relevant to PA system development, they are discussed into more detail in Section 5.
- **Institutional setup and stakeholders:** Institutional responsibilities for PA system development and the management of individual PAs in oPt have been somewhat contested, and are in need of clarification. In addition, there is a significant and growing stakeholder community, an account of which is given in Section 6.
- **General appraisal of system level capacity:** An appraisal of current PA capacity is needed as a baseline to define the entry point of future capacity development efforts in relation to nature conservation and PAs. This appraisal forms Section 7 of the report.
- **Constraints from Israeli military occupation and settlements:** An important peculiarity of the current context of PAs in oPt is the continued Israeli military occupation and the continued development of illegal settlements. The consequences of these constraints for PA system development are summarized in Section 8.
- **Opportunities:** Nature conservation in oPt does not only face constraints and difficulties, but also a number of important opportunities and favourable factors, which should be used to their full potential. Therefore, identified opportunities for PA system development are briefly listed in Section 9.
- **Recommendations:** Based on the general appraisal of the current enabling framework for PA system development in Sections 3-9, a few key recommendations to advance this framework are made in Section 10 of this report.

The report is fully referenced and most of the references provided are also useful to provide additional information and deepen the understanding of the recommended approach for further PA system development.

This report is meant to complement a set of site specific documents for Wadi Al-Quff protected area (baseline field study report, local framework analysis and management plan), which have been the main focus of this assignment.



3 History of the PA system of the West Bank

The history of the PA system in the West Bank has been summarized by Garstecki et al. (2010): *“The first protected areas in the oPt were designated under the British Mandate 1917-1948. Additional PAs were declared under Israeli occupation, and a total of 48 Israeli-declared nature reserves were counted in 2000 (Messana, 2000). They covered 330.4 km² or 5.7% of the total area of the West Bank.*

Based on the Oslo I and II agreements (1994/95), the West Bank was divided into three zones: Area A (159.9 km² or 2.7% of the West Bank area) included all major towns and cities and was transferred fully into the control of the PNA, Area B (1,334.2 km² or 22.9% of the territory of the West Bank) came under Palestinian Administration but remained under Israeli Military control, and Area C (4,327.6 km² or 74.3% of the West Bank area) remained under full Israeli control. Based on this partial transfer of control, 18 reserves which were at least partly located in Zone B also came under PNA control.

According to the 1998 Wye River Agreement (and re-enforced by the 1999 Sharm el Sheikh Memorandum), a further 12% of West Bank territory (including the Jerusalem Wilderness reserve, equaling 3% of the West Bank) was transferred to the PNA. In total, this leaves 475.2 km² or 8.1% of the West Bank designated as PA, 235.3 km² of which are under Palestinian jurisdiction. This is about 10% of the part of the West Bank that is under Palestinian control (Areas A and B).

While the area covered by designated PAs under PNA control is hence comparable with international PA coverage targets (e.g. CBD's 10% coverage target), it should be noted that this set of PAs was not designed as a consistent, representative PA system or ecological network. Instead, it represents a conglomerate of areas that were designated at various stages by various administrations, and for various purposes.

According to Massana (2000), the Israeli administration designated PAs not always for biodiversity conservation, but also as a pretext for establishing other forms of land use. This is an additional reason to question the suitability of the existing set of reserves as a nature conservation tool.

Additional areas with potentially high biodiversity value were suggested by ARIJ (1998), IUCN (1998), and PEnA (1999). This information was also used to draw up the list of seven additional areas that were assessed for this study, in addition to the originally listed areas.

Although there have been attempts to develop a concept for the integration of individual PAs into a functional ecological network (Geneva Initiative, 2003), comparable to the Pan-European Ecological Network, this concept is again not reflected in the current set of PAs. While the abovementioned network concept has also aimed at an integration of the oPt PA system with that of Israel, the ongoing construction of a “separation wall” by the Israeli administration counteracts such efforts, by reducing ecological connectivity.

In conclusion, the current set of designated nature reserves (CPAs) in the part of the oPt that is under Palestinian control is the result of a historical development that was not planned with biodiversity conservation in mind, and is hence not fully functional as a conservation tool.”

This summary is still valid and needs to be taken into account when planning further PA system development measures in the West Bank.



4 Relevant policies, strategies and plans

4.1 Status of protected areas in general policies and development strategies

The Palestinian National Development Plan for 2011-2013 highlights the environment, including forests and nature reserves, as an indispensable part of the green infrastructure of Palestine (PNA, 2011). It acknowledges the importance of protected areas as part of this infrastructure and includes their rehabilitation and development among its objectives (highlight by author):

"In order to protect and sustain our environment for future generations, we will step up our efforts to reduce contamination of air, water and soil; promote waste reduction, reuse and recycling initiatives; ensure mechanisms are in place for safe handling of solid waste and hazardous materials; rehabilitate our nature reserves and our coast line, and ensure environmental goals are reflected in land use planning and resource use policies and practices."

The development of a PA system is not listed among the top environmental priorities of the Palestinian National Development Plan but those activities that are mentioned should support and offer strong synergies with PA system development. Forest PAs such as Wadi Al-Quff are particularly important to the objectives of the plan as it contains explicit targets for forest coverage and reforestation, including the target to increase forest cover from 1.56 to 1.86% (PNA, 2011).

It is difficult to gauge from the National Development Plan and other related documents the relative weight that biodiversity conservation and PA system development is given when it comes to inevitable conflicts with other development goals.

4.2 Specific policies, strategies and plans relevant to biodiversity and PAs

Under the umbrella of the general government policies of the State of Palestine, there are a number of more specific policies, programmes and plans that either deal directly with biodiversity conservation and PAs, or are of immediate concern to it. The most important ones are the following:

4.2.1 *National Biodiversity Strategy and Action Plan (NBSAPP, 1999)*

According to Garstecki et al. (2010), *“Biodiversity conservation and protected areas in particular are covered by the National Biodiversity Strategy and Action Plan (NBSAP; PEnA 1999). (...) The NBSAP’s first objective is the Conservation of Palestine’s Biodiversity, and the development and establishment of a representative PA system is listed as an immediate priority action.*

The Plan also includes project concepts on the “Development and Management of a Palestinian Protected Areas System”, (and) the “Development of Management Plans/ Structures in Designated Protected Areas based on Biodiversity Surveys and Inventories (...)” (Garstecki et al., 2010).

The immediate (1-5 years, counting from 1999) priority action on PA system creation is formulated as follows: *“Identify and legally establish a representative system of protected areas/habitats, including endemic, domesticated and endangered species habitats and habitats of important plant species, with the widest possible representation of Palestinian biodiversity. Ensure that the resident communities are involved in establishing those protected areas and in managing them.” (PEnA, 1999)*

While the relevant agencies of the Palestinian government have published several reports related to it since 1999 – among them an Assessment of Capacity Building Needs and Palestinian Priorities in Biodiversity (EQA, 2003), and a report on the Implementation of Article 6 of the CBD (EQA, 2006) – the progress of implementation of the plan has not been systematically assessed and reported to date. However, the most relevant priority actions of the NBSAP in relation to PA system development (and apparently also in related areas) have not been implemented over the last 14 years. In addition to this lack of impact, the plan appears now outdated and in need of revision: although the NBSAP does not appear to have been written for a specific period, its age now significantly exceeds the typical lifespan of such documents (i.e. five to ten years).

The following likely root causes of the implementation gap of the NBSAP may also be relevant to PA system development in Palestine (including Wadi Al-Quff) in general:



- Lack of funding, capacity (both institutional and individual) and information;
- Incomplete, conflicting and overlapping legislation;
- Overlapping institutional responsibilities;
- Lack of de-facto control of the State of Palestine of potential PAs in area C and in other areas affected by Israeli military occupation;
- Conflicting priorities for land use and development, including related to urbanization, among relevant institutions of the State of Palestine and other actors, such as businesses;

Any attempt to implement a revised NBSAP, or indeed any PA system development strategy, would depend on first addressing at least part of these root causes. Otherwise, such a strategy should focus on those (few) activities and areas of work that are not constrained by them. Apart from this observation, we conclude that the 1999 NBSAP does not provide a sufficiently robust policy framework for current PA system development in oPt.

4.2.2 Environmental Sector Strategy (2010)

The Environmental Sector Strategy for 2011-2013 (EQA, 2010) concretizes the provisions of the Palestinian National Development Plan 2011-2013 for the environmental sector. It is particularly important as a central strategic planning document of the Environmental Quality Authority (EQA). Based on a situation analysis for the entire environmental sector including biodiversity conservation and PAs, the sector strategy identifies five broad priorities for the work of EQA and the entire sector. One of these is directly relevant to biodiversity and PAs, while two of them are indirectly relevant:

- **Priority 2:** Natural environment and cultural heritage in oPt are preserved and maintained,
- **Priority 5:** The institutional and legal environmental framework is strong, effective and working in an integrated and concerted manner,
- **Priority 6:** The State of Palestine is committed to international conventions and treaties on environment.

Biodiversity conservation and PA system development should benefit from general practical interventions to improve the enabling legal, institutional and capacity framework of the sector, which were considered the highest priority by sector representatives in 2010.

At the same time, specific interventions to safeguard biodiversity and develop the Palestinian PA system were not perceived as particularly high priorities by environmental sector stakeholders. The implementation of field surveys to assess

biodiversity, the development of biodiversity and species protection plans, and the elaboration of PA and coastal management plans were given priority 20, 22 and 27, respectively, in the sector strategy. This is not surprising and likely to reflect other, more pressing issues related to environmental pollution at the time. The fact that these were considered more urgent does not necessarily mean that they are also more important than biodiversity conservation and PA system development.

The Environmental Sector Strategy 2011-2013 also proposes two indicators relevant to biodiversity and PAs (on the proportion of endangered species among the flora and fauna of oPt and on the area extent of the PA system).

4.2.3 *Palestinian Spatial Plan (2012)*

The Palestinian National Spatial Plan is a comprehensive scheme that takes into consideration the spatial dimension in directing development and the geographical distribution for economical and social activities, including biodiversity conservation and PAs (National Spatial Plan, 2012). The plan defines which areas should be dedicated to which uses, particularly in the context of a rapidly growing population, the ongoing rapid and often uncontrolled urbanization, the continuing military occupation and the potential return of Palestinian refugees from neighboring countries in the future (National Spatial Plan, 2013).

The Palestinian Spatial Plan is highly relevant to PA system development because the PAs shown on its maps reflect a national consensus, with a certain legal force, about which areas should be allocated to nature conservation. This is a higher level of acknowledgement than that reflected in environmental sector or EQA documents.

The Palestinian Spatial Plan of Palestine comprises nature reserves as one land category and stipulates restrictions of use for them. However, the wording of the *Provisions of the National Plan to Protect Natural Resources and Historical Monuments*, which appears to limit the use of these areas to uses aimed at their conservation purposes (with a few exceptional additions), is a little unclear, and it is not obvious to which categories of PAs these provisions refer exactly.

There was some dispute about the provisions of the Palestine Spatial Plan including the limitations on construction activities in as yet undeveloped areas in summer 2013. As a result, it was agreed to revise the plan. This process is ongoing and its final results with their impacts on PA system development in the West Bank are as yet unknown.



5 Legal framework

5.1 Environmental Law

The legal fundament for the designation and management of PAs by the PNA is the Palestinian Environmental Law (1999). Garstecki et al. (2010) summarized the content and relevance of this law as follows:

“Chapter 5 of this law deals with the protection of natural, historical and archaeological areas. Article (40) of this Chapter tasks the Ministry of Environmental Affairs of the PNA to “...prescribe bases and standards for the protection of natural reserves and national parks, monitor and declare them, and establish and designate the national parks and supervise them.”

Article (44) postulates that “It shall be forbidden for any person to conduct activities or perform any action that may cause damage to the natural reserves, forests, public parks or archaeological sites, or affect the esthetical aspects of such areas”. While this generally is a clear obligation to protect natural heritage in PAs, the penalty for violations of this Article is very limited. Article (72) of Chapter 3, which deals with penalties and other issues, states: “Any person violates the provisions of Article (44) of this law shall be penalized by paying a fine of not less than 20 and not more than 200 Jordanian Dinars, or the equivalent thereof in the legally circulated currency, and the imprisonment for a period not less than three days and not more than one month, or one of the two penalties.”

The Palestinian Environmental Law (1999) lacks more detailed guidance on how the Ministry of Environmental Affairs should fulfill its obligations as stated in Article (40). This is left to a bylaw or several bylaws.”

5.2 Agricultural Law

The Agricultural Law (2003) deals with all agricultural resources, including forests and animal as well as plant species that are exploited in agriculture. This law also comprises a provision on MoAs mandate in relation to the establishment and management of PAs, which appears to somewhat contradict the provisions related to EQA's role in the Environmental Law of 1999:

- **Book 1 Chapter 2 No. (9):** *“MoA and other specialized parties are preparing a program for management and conservation of protected areas including all plants, animals and microorganisms.”*

This provision, which is the only provision explicitly addressing PAs in the Agricultural Law (2003), mentions one (national?) programme on PA management, not the development and/or implementation of site-specific management plans.

Other indirectly relevant provisions of the agricultural law concern the management of forests and range lands. This is relevant to the management of WAQ as it is neighboring several forest areas which are not designated as protected area, but function as a buffer zone. Irrespective of the management authority and regime of WAQ itself, the way in which these surrounding forests are managed by the MoA will influence the effectiveness of WAQ.

5.3 2009/10 draft bylaw on PAs

A Bylaw on Nature Protection, Nature Reserves, Protected Areas and National Parks was drafted by EQA in 2009/2010. However, this draft bylaw was not approved to date and an approval in its original form is now unlikely, reportedly reflecting conflicts within the Council of Ministers about which ministry or agency should have the responsibility for PA management. A re-negotiation process involving EQA, MoA and other relevant State institutions has been initiated and a new bylaw will be drafted as one of the outcomes of this process.

Because of their relevance to the re-drafting process, the comments of Garstecki et al. (2010) on the original (2009/10) draft are recalled:

- *“The PA categories defined in the bylaw are not fully consistent with the IUCN categories, and are named in a way that would be misleading to someone who assumes that these categories are used: The same terms as for IUCN categories are used, but they are given a different meaning and are not sufficiently clearly explained.*
- *Article (4) of the draft prescribes that “land or premises ownership or holding does not give the owner or holder the right to dispense with nature reserves, protected areas, national parks or natural heritage existing thereon and therein except as indicated herein”, but there is little further guidance on how PAs on private land should be managed. Article (18) empowers a national committee (see below) to “take the necessary actions to purchase, rent, or acquire lands within the nature reserve, protected area, or national park borders. Otherwise, the land owners have the right to use their lands according to the protection goals and the administrative plan of the nature reserve, protected area, or national park”. It also does not mention compensation or equivalent rights of land owners who stay in possession of their land in PAs. This lack of detail is important as many CPAs assessed in this study are on private land.*



- *The bylaw foresees creation of a non-permanent National Committee for Nature Reserves, Protected Areas and National Parks at the PNA, to be tasked with decision making on policy development and site designation, management framework planning, licensing, and other tasks. (...)*
- *The procedures for PA designation and management planning defined in the draft bylaw lack adequate provisions for the consultation of such plans with local stakeholders, such as the inhabitants of villages bordering PAs or holders of traditional land use rights. This makes designation of key CPAs under the current draft bylaw unrealistic and hence unenforceable.*
- *Article (34) entitles the management authority to delegate management of PAs to other entities but does not give further guidance as to which types of PAs should be managed by which entities.*
- *Article (37) contains a conditional ban (“unless permitted by the Ministry under rules issued by the Authority”) on most natural resource use practices including pasturing in PAs but does not clarify the conditions for them, although there are several ways of natural resource use that would be consistent with some PA categories (e.g. IUCN Category IV).*
- *The draft bylaw endorses the low upper limit of penalties for violations of PAs, as set out in the Palestinian Environmental Law (1999).*
- *The draft bylaw does not clearly define the mandate, rights and responsibilities of rangers in PAs.*

In conclusion, the draft Bylaw on Nature Protection, Nature Reserves, Protected Areas and National Parks clarifies several important categories, responsibilities and procedures related to PAs, but the opportunity of strengthening the basis for PA designation and management that is offered by the introduction of this new legislation could be used more effectively. This could be achieved through implementation of international guidance on PAs (e.g. IUCN Categories, IUCN management planning and PA system planning guidelines).”

There are obviously other, directly or indirectly relevant laws and regulations relevant to PA system development as well as PA establishment and management in oPt. However, it would be beyond the scope of this mainly site-based assignment to include an in-depth assessment of all directly and indirectly relevant legislation.

6 Institutional framework

The main responsibility for the development of the PA system of the West Bank is currently shared between the Environmental Quality Authority (EQA) and the Ministry of Agriculture (MoA) of the State of Palestine. The exact delineation of responsibilities between these two institutions is somewhat contentious, as reflected by the contradictions between the Agricultural Law (2003) and the Environmental Law (1999). There are other institutions that also are relevant to PA establishment and management, including the Ministry of Planning and Administrative Development, the Ministry of Local Government, the Land Authority, local municipalities and village councils, NGOs and academic institutions.

6.1 Environmental Quality Authority

According to Garstecki et al. (2010), *“the EQA is responsible for the development of legislation and policy for the PA system, in the context of overall environmental policy development in the West Bank. Responsibility is concentrated in the Biodiversity Department (1 staff), Directorate of Environmental Resources.”*

The EQA has been elevated to the status of Ministry and returned to the lower status of an authority twice during its existence. In 2013, it returned to being an authority after a short period as a Ministry. This does not necessarily reflect a change in the attention that is given to environmental matters by the State of Palestine.

6.2 Ministry of Agriculture

The Ministry of Agriculture (hereafter MoA) implements some aspects of the biodiversity policy of Palestine on the ground. According to Garstecki et al. (2010), *“this function is fulfilled by the Department of Protected Areas and Forests under the Directorate of Forests, Rangeland and Wildlife, which is slightly larger than the EQA Biodiversity Department. The MoA has territorial Departments in the governorates of the West Bank, which also have a responsible staff for protected areas and forests. These Departments usually also have some basic infrastructure, such as personal computers and cars.”*



The rangers that are responsible for individual PAs report to the territorial Departments of the MoA. They are not only responsible for one PA but typically for several PAs and/or forest areas.

The MoA and its territorial Departments, as well as the EQA engage other PNA agencies or local government as necessary for PA development.”

The MoA also runs the National Agriculture Research Centre (NARC) in Nablus, which has relevant expertise in the field of botany and forestry.

6.3 Other relevant government organizations

6.3.1 Ministry of Planning and Administrative Development

The Ministry of Planning and Administrative Development is relevant to PA establishment and management in oPt because it leads the cross-sector planning, develops comprehensive development policies with multi-institution participation, and coordinates as well as supports sector planning in individual ministries and agencies, aimed at ensuring consistency with the comprehensive cross-sector approaches and plans (Ministry of Planning and Administrative Development, 2013). The Ministry develops different plans – such as the National Spatial Plan - and programmes, for approval by the Cabinet and/or Legislative Council.

Because the Ministry of Planning coordinates development in oPt across sectors, it is an important institutional stakeholder of any PA establishment as it can ensure – through its coordinating role – that such plans are not compromised by conflicting land use and development plans of other ministries or entities. The National Spatial Plan is one concrete application of this function as it “reserves” PA lands from other land uses such as agricultural development or urbanization. This plan is being elaborated by various ministries and agencies, with coordination by a project which is based at the Ministry of Planning and Administrative Development.

6.3.2 Ministry of Local Government

The Ministry of Local Government, founded in 1994, is an important player in relation to local development. Its original role was primarily to provide the system of local government with new legal supervision. However, it also reflected a perceived need for enhanced local development at the time of its creation (Signoles, 2010).

Governance of local affairs is relatively centralized in oPt, and the Ministry of Local Government is situated on top of this centralized structure. The ministry legally supervises village councils of villages with less than 1,000 inhabitants, while the larger municipalities have a more bottom-up type of local self governance. However, fiscal management (as well as several additional aspects of management) of both

village councils and municipal councils is supervised by the ministry (Signoles, 2010).

Because of its strong influence on local governance, the Ministry of Local Government is an significant institutional stakeholder in relation to the socio-economic and development related implications of PA establishment and management. The same would be true in case of conflicts about land ownership between municipalities/villages and the central state. No such conflicts have been identified thus far, and no direct interference of the ministry in the WAQ management planning process has been observed so far.

6.3.3 Land Authority

The Palestinian Land Authority oversees the cadastral system and holds information on land ownership, including in the immediate vicinity (but not inside) WAQ. This gives it a potentially important role regarding the exact delineation of the PA on the ground, particularly in areas where clarity about the exact border between the reserve and adjacent agricultural lands or recreational areas is currently lacking.

According to information received during the framework analysis, the Hebron branch of the Land Authority currently lacks the technical means to clarify the borders of WAQ on the ground. However, it remains to be explored during the management initiation process whether it holds – and is able to provide – cadastral maps of the area which might contribute to the clarification of boundaries.

6.4 Municipalities and village councils

The municipalities and villages surrounding WAQ are an important element of the institutional framework of WAQ. Municipalities are the only level of political organization in the West Bank that has persisted throughout the 20th Century. Therefore, they often enjoy a relatively high degree of loyalty from Palestinian citizens, and sometimes even more than central government. While the interaction of specific communities with WAQ is discussed in the local framework analysis, this section briefly summarizes the general role of municipalities and village councils as part of the institutional framework for PA establishment and management in Palestine. This role is mainly as land owners/letters and as representation of the interests of the local population.

Three of the villages/towns immediately surrounding WAQ have municipalities (Beit Ola, Halhul and Tarqumia) whereas one (Beit Kahel) only has a village council. Municipalities have a degree of independence in some aspects of their local self-governance, whereas village councils are supervised by the Ministry of Local Government. Municipalities, but particularly village councils have very little income sources as there are hardly any local taxes in oPt (Signoles, 2010). This makes these local governments extremely dependent on either external donor funds or income sources other than taxes, such as income from the lease of municipal lands for



business purposes.

- **Ownership and use of land:** Some of the neighboring municipalities and villages of WAQ own land in the immediate vicinity of WAQ. In one case, a land ownership conflict between one municipality and the Ministry of Agriculture regarding forest areas adjacent to (but outside) WAQ was reported by a major. In other cases forest lands (but reportedly not parts of the PA) were given to municipalities for the establishment of recreational parks. Local municipalities and villages can (and do) give their lands into long-term lease, for instance for the establishment and maintenance of recreational parks.
- **Representation of the interests of local population:** Municipalities and village councils including those surrounding WAQ also play a key role in representing the interests of their citizens in inter-institutional negotiations, which may concern legal natural resource use interests, as well as the need of local citizens for educational and recreational resources. This renders these local government institutions important stakeholders in relation to the management of any PA and the optimization of human wellbeing benefits from them.

6.5 NGOs

In addition to government organizations at local, governorate and national levels, non-governmental organizations form an important part of the institutional framework for biodiversity conservation and PA system development in oPt. Their interest and relevance to this field is manifold:

- **Biodiversity advocacy:** PAs are primarily for the benefit of biodiversity, which cannot speak for itself in multi-stakeholder negotiations. This is why many conservation NGOs see it as part of their role to act as advocates for biodiversity. This is a legitimate role which deserves inclusion in the respective negotiations.
 - **Technical expertise:** Nature conservation NGOs often have valuable expertise in relevant fields including geology, ecology, botany, zoology and practical conservation. This expertise enables them to support and advise government institutions on specific aspects of PA management, such as biodiversity inventory and monitoring, or the identification of pressures on biodiversity and possible conservation interventions to control them.
 - **Communication, education and awareness raising (hereafter CEPA):** Another frequent contribution of NGOs to conservation activities is their support to CEPA activities. Often NGOs are qualified for this because of a combination of the two above factors.
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While there are many environmental NGOs in the general sense in oPt, there is only a limited number of NGOs with a clear track record in biodiversity conservation. It is important to identify those NGOs that clearly have a demonstrated relationship to biodiversity, in order to focus network development on the most relevant partners. Without claiming to be exclusive, the following organizations (in alphabetical order) have recently been active in the above fields:

- **Applied Research Institute – Jerusalem (ARIJ):** Advocacy, technical expertise and CEPA; numerous relevant publications and an ongoing PA management planning process in Al-Qarrin PA in the West Bank (ARIJ, 2013 - <http://www.arij.org/programs/sustainable-agriculture-program/biodiversity-department.html>).
- **Biodiversity Environmental and Research Centre Nablus (BERC):** Some botanic research and publications, experience with botanic gardens and CEPA centered on them (<http://www.berc.ps/>).
- **Environmental Education Centre Beit Jala (EEC):** Advocacy, ornithological and botanic research, exceptional expertise on CEPA (EEC, 2013 - <http://www.eecp.org/index.php>).
- **Land Research Center Hebron (LRC):** Mainly research and CEPA related to Israeli occupation and agricultural issues; the latter include activities relevant to natural resources and biodiversity (LRC, 2013 - <http://www.lrcj.org/Eng/site.php>).
- **Palestinian Hydrology Group Ramallah (PHG):** Main area of expertise and activity is water management, with some limited relevance to biodiversity conservation (PHG, 2013 - <http://www.phg.org/>).
- **Palestinian Wildlife Society Beit Sahour (PWLS):** Palestinian BirdLife partner, past work on important bird areas (IBAs), CEPA and advocacy (PWLS 2013 - <http://www.wildlife-pal.org/>).
- **Islamic Culture Foundation Spain (FUNCI):** Reportedly some work in relation to biodiversity data compilation, network of botanical gardens and biodiversity gardens (FUNCI, 2013 - <http://medomed.org/2010/palestine-general-information/>).
- **Union of Agriculture Work Committees (UWAC):** Main area of expertise and activity is agricultural extension and rural development, with some limited relevance to biodiversity conservation (UWAC, 2013 - <http://www.uawc-pal.org/>).



6.6 Academic institutions

Academic institutions have a double stake in PAs as on the one hand, they can contribute to the knowledge base for their management, while on the other hand they are interested in using PAs as study areas to conduct scientific investigations and practical training for their students. Both their potential contribution to management planning and their research interests offer valuable benefits to PA management. The following Palestinian academic institutions are of particular relevance to biodiversity conservation:

- **Bethlehem University:** The group of Prof. Mazin Qumsiyeh at Bethlehem University has engaged in the inventory and monitoring of biodiversity in the West Bank for many years. Numerous articles in international peer-reviewed scientific journals have been published as a result of this work. Prof. Qumsiyeh has also authored a leading book on the *Mammals of the Holy Land* (Qumsiyeh, 1996).
- **Al-Najah National University/Nablus:** Prof. Mohammed Saleem Ali-Shtayeh, Professor of Biology and Biotechnology is a leading botanist at the national level and has published a Red List of Threatened Plants of the West Bank and Gaza, among other works. Dr. Waleed Al-Basha, who professionally specializes in medical genetics, has also engaged in the surveying of birds particularly of the central and northern West Bank.

It is possible that there are additional researchers who at least partly engage in work that is relevant to biodiversity conservation and PA system development in oPt. However, the overall number of such researchers is likely to be low: Considering that only 296 researchers in the West Bank were engaged in research in the physical and agricultural sciences combined (Palestinian Central Bureau of Statistics, 2010), it is unlikely that a large number of these was contributed by such a small specialization as biodiversity research and conservation. This evaluation is consistent with the more general findings on the state of biodiversity research in the West Bank, as compared to Israel and Jordan, by Qumsiyeh and Isaac (2012).

7 Capacity for PA management and biodiversity conservation at the national level

Although the institutional framework of biodiversity conservation and particularly PA system development in oPt comprises a wide range of governmental as well as non-governmental organizations, this does not automatically mean that there is also sufficient capacity among these organizations to establish, manage and develop a PA system there. An *Assessment of Capacity Building Needs and Palestinian Priorities in Biodiversity* was elaborated by EQA in 2003. This assessment, which focused on the key governmental institutions as listed above, “revealed a substantial lack of capacity in terms of the conservation of biodiversity and the management of natural resources.” (EQA, 2003).

As far as individual capacity for PA management is concerned, a wide range of training courses and similar measures to address observed capacity gaps both at the central and at the individual PA level were proposed in this assessment. This was an ambitious list, which included training of government staff in some expert thematic fields which could also be covered by contractors or partnering NGOs/academic institutions. Few if any of these trainings have been conducted.

With regard to institutional capacity, the following main deficiencies in relation to biodiversity were identified in 2003 (EQA, 2003):

- Existing political constraints imposed by the Israeli occupation including the fragmentation of Palestinian lands and restrictions on freedom of movement,
- Unclear mandates and roles in existing institutions, resulting in the duplication of efforts and lack of accountability.
- Lack of efficiency of institutional processes.



A list of more specific technical competencies that would be needed in the institution responsible for biodiversity conservation and PAs was also compiled. This included technical competencies, legislation and policy development, management and communication skills.

In order to overcome observed institutional capacity constraints, the creation of a “Palestinian Biodiversity Higher Committee” was suggested in the assessment (EQA, 2003). This committee has not been created since.

Capacity developing needs at the national level were also discussed by a more recent analysis of potential PAs in the West Bank (Garstecki et al., 2010). This assessment concluded that the capacity of EQA and MoA was severely limited at the time, and highlighted the following institutional capacity gaps:

- **Staffing:** *There are currently only 8.5 ranger positions dedicated to the protection of all nature reserves in the West Bank, out of 28 ranger positions under the MoA. 14 of the 22 CPAs inspected do not have a ranger dedicated to them. The rangers receive the lowest salary on the government salary scale, and have not received specific ranger training. At the national government level, there are relatively well-qualified staff, but only very few. The relevant departments of the EQA and MoA consist of one and a few staff at the national level, respectively.*
- **Budgets:** *The Biodiversity Department has no operational budget, while the budget of the PA and Forest Department of the MoA has limited project related funds. Including the budget for 28 rangers, the annual budget of that Department is USD 300,000. Territorial Departments and individual rangers have no operational budgets to dispose of.*
- **Infrastructure:** *None of the CPAs has any dedicated infrastructure.*
- **Equipment:** *EQA and MoA national and governorate level staff have limited access to their institutions equipment (computers, cars), but there is no dedicated equipment at the national level, and no equipment for rangers to carry out their tasks at the site level.*
- **Management planning:** *As a result of the limitations listed above, the EQA and MoA currently have no capacity to develop management plans for PAs in the oPt, and as a result, none of the PAs has a management plan.”*

These overall capacity constraints are unlikely to have changed substantially since 2010. In the absence of a more in-depth competence-based capacity-needs assessment, it is concluded that there is an urgent lack to upgrade the institutional capacity of the core institutions responsible for PA management (principally EQA and the PA and Forest Department of MoA), in all areas of PA management, PA system development and also biodiversity conservation in general.

The ongoing PA management planning exercise for Wadi Al-Quff PA will serve as a pilot exercise that establishes a replicable approach to PA – with the associated skills and competencies – management planning.

8 Constraints to PA management from military occupation and illegal settlements

The continuing military occupation of the West Bank and the growing number of illegal settlements with their associated infrastructure need to be considered as a crucial constraint for PA system development and biodiversity conservation in general in the West Bank. The general effect of this part of the political framework on the Palestinian environment has been analyzed into detail by ARIJ (2007) and UNEP (2003). This section therefore focuses on the specific impacts of military occupation and illegal settlements on PA system development and biodiversity conservation.

8.1 Population growth and poverty under the constraints of occupation:

As Qumsiyeh (2013) analyzed, *“the Israeli occupation seized complete control over the occupied Palestinian Territory’s (OPT) land and natural resources soon after the 1967 war. This area which comprises 22% of historic Palestine is in two separate entities the West Bank (roughly 5661 km²) and the Gaza strip (roughly 362 km²). Over 200 colonial settlements were established in the OPT contrary to International law...”* The needs of a Palestinian population, which includes refugees from both the 1948 and 1967 evictions, and which is growing under the constraints of military occupation and settlements, increase the pressure on natural resources in the areas remaining under Palestinian control. This includes areas of high biodiversity value and potential protected areas.



8.2 Constraints on PA management in Area C

As noted by Garstecki et al. (2010), Palestinian Government agencies have only restricted control over PAs that are partially or entirely located in Area C: *“Ten of 22 of the CPAs assessed for this study (or 8 of 20, if Ein El-Uja and Wadi El-Qilt are excluded) are partly situated within Area C, according to the Oslo Agreements.”* Although it is a policy of the State of Palestine not to exclude Area C from its activities and programmes, there are a number of practical constraints that arise from this zoning: (a) Palestinian law enforcement agencies have no legal mandate in Area C (see below). (b) It is impossible to build PA or touristic infrastructure in this area, and there is (c) at least a theoretical possibility that new settlements or military outposts are established there.

8.3 Access and jurisdiction for enforcement

Representatives of EQA and MoA only have limited access to some PA sites. During the 2010 study on potential PAs in oPt (Garstecki et al., 2010), one CPA could not be assessed because of this access limitation (Ballotatt Taffuh), and another site (Tayyasir) could only be inspected from the outside. Problems with threatening behaviour of Israeli settlers were reported from two additional sites (Al-Hashmee and Um Al-Saffa). On a more general level, Palestinian police are excluded from Area C and can only operate with prior agreement from the Israeli army in Area B (Signoles, 2010). This means that no emergency interventions in PAs like WAQ (located partly in Area B and partly in Area C) from the Palestinian police would be possible currently, even if it would be given a mandate to support the enforcement of PA regimes.

8.4 Negative impact on attitude to PAs

Garstecki et al. (2010) observed *“negative attitudes towards protected areas and discouragement of sustainable land management: Israeli-designated PAs have generally been perceived as part of the Israeli occupation policy (and associated with a loss of ownership) and not as a way of self-determined sustainable management of natural resources. This has created a negative attitude towards PAs. On a more general level, the threat of losing ownership of land in the future, for instance to Israeli settlements, discourages a sense of ownership of the land and the associated responsible, sustainable land management, particularly in areas near settlements or military training grounds.”* Construction is sometimes seen as a way of securing the land against Israeli expropriation, which contributes to an unfavorable attitude for PA system development.

8.5 Habitat loss and fragmentation from occupation infrastructure

Some high natural value areas have been lost to Israeli settlements and military bases (Garstecki et al., 2010). In addition, national PA system development typically aims at constructing a spatially connected network of PAs (rather than a disjoint patchwork), in order to allow for animal migrations, gene flow, and more gradual shifts in the distribution ranges of biota in response to large scale environmental changes, such as those triggered by climate change (CBD, 2004; Davey, 1998). In the case of oPt, realizing the connectivity dimension of the nascent PA network will be particularly difficult as both the separation wall and the double road network (general use and Israeli bypass roads) impose multiple barriers to ecological connectivity (cf. ARIJ, 2007). In addition, the separation wall has disconnected many resource users from their traditional use areas and has forced them to “concentrate inside the wall, which in some cases (e.g. Shoubash) has increased pressure on designated nature reserves” (Garstecki et al., 2010). However, this should not prevent the Palestinian authority from starting PA system development from a few high priority core areas.

8.6 Direct environmental impacts of occupation

The continued occupation also has a wide range of direct environmental impacts, which affect not only the population but also biodiversity, ecosystems and (potential) protected areas (ARIJ, 2007; UNEP; 2003). Among them are those related to water abstraction from West Bank aquifers (Qumsiyeh, 2004), the burning of industrial waste brought into some West Bank areas (including near WAQ) via Israeli settlements (ARIJ, 2012), and other factors. In combination, these factors put additional stresses on biodiversity and complicated efforts to conserve it, and to use natural resources in a sustainable manner.

None of the above constraints and challenges should be interpreted as a reason not to engage in PA system development, but all of them need to be addressed in the process of PA system development, and more specifically in the management planning process of individual protected areas such as WAQ.



9 Opportunities for development of a PA system and PA management capacity

In spite of the challenges arising from the political, legal and institutional framework and the particular difficulties of the continued Israeli military occupation, there are also a number of important opportunities for PA system development in oPt:

- **Growing support among governmental and non-governmental organizations:** The management planning process for WAQ has shown that there is a growing agreement and support among both relevant government organizations and leading NGOs that it is time to invest into the development of a well-managed PA system in oPt, in order to safeguard its rich natural history.
 - **Improved knowledge and know-how base:** A number of recent projects and publications have improved the knowledge base for PA system development in oPt. Garstecki et al. (2010) provided an overview about candidate PAs and a set of recommendations for PA system development at the national level and the management of individual PAs. ARIJ is currently conducting a PA management planning process for Al-Qarrin PA, from which useful lessons will be learned as well. The current UNDP assignment also aims at creating a pilot approach that can be replicated elsewhere. Taken together, these past and ongoing activities will inform further PA system development efforts.
 - **Strengthened international legal framework:** The Strategic Plan for Biodiversity 2011 – 2020 and the Aichi Targets (CBD, 2010) form a
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consolidated and strengthened base for the global implementation of CBD. Although the State of Palestine currently has only observer status in relation to this MEA, these strategic targets and the plan are nevertheless likely to be taken into account, thereby improving the operating environment of institutions tasked with biodiversity conservation and sustainable natural resources management.

- **Growing donor interest:** Reflecting the above and also the growing acknowledgement of the key role of biodiversity and ecosystem services in sustaining national economies and livelihoods, there is growing donor interest in projects related to the sustainable management of biodiversity. This is shown not only by the project of which this assignment forms a part, but also by other projects, such as MAVA Foundation (2012).



10 Recommendations for national framework adjustments

10.1 Clarification of roles and cooperation between EQA and MoA

As discussed in Section 5.2 above, a clear shared understanding of the respective roles of EQA and the MoA in the field of PA system development is still missing. This is also reflected in apparent inconsistencies between the environmental and agricultural laws (see Section 5.1). EQA and MoA are now working on a mutually supported bylaw on biodiversity conservation and PAs. One objective of this process is to resolve the apparent inconsistencies between the roles of both institutions.

PA system development and management are complex tasks, which calls for a division of responsibilities. Besides the basic criteria (legal and policy framework) already discussed, the following criteria can be used to design an effective allocation of responsibilities among institutions:

- **Technical expertise:** Each institution should contribute most to those areas of PA system development for which it has the greatest technical expertise.
 - **General institutional capacity at the central and local level:** The current general capacity of institutions (in terms of staff, finances, infrastructure, presence throughout the country etc.) should be considered when allocating specific tasks in the field of PA system development and the management of individual PAs. For example, a local or governorate level presence throughout the West Bank will contribute to effective PA system development and enforcement as more PAs are established in the future.
 - **International best practice:** International best practice examples can provide useful guidance for the search for a viable institutional setup for the Palestinian PA system.
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Applying these criteria to EQA and MoA as the most relevant institutions in this field, the following observations can be made:

- **EQA** employs individual staff members with strong technical expertise and track record in biodiversity conservation. It has spearheaded the development of most relevant policies and has acted as the national focal point to the major Multilateral Environmental Agreements. This is also reflected in the more detailed PA-related legislation that was developed with strong involvement of EQA, particularly the Environmental Law (1999). At the same time, the overall institutional capacity of EQA is limited in terms of staff numbers and sub-national representation.
- The **Ministry of Agriculture** has a higher general overall capacity for on-the-ground activities throughout the West Bank, facilitated through its network of Governorate level branch offices and the 8.5 ranger positions dedicated to PA guarding (Garstecki et al., 2010), including at WAQ. The Department of Protected Areas and Forests of the **MoA** has some adequately qualified staff members, and proven capacity for GIS applications. At the same time, its track record in the field of biodiversity policy and planning (e.g. related to national plans and the implementation of MEAs) is by far not as clear as that of EQA, reflecting its mission and role.

Based on the above, EQA appears best placed to fulfill leading roles (in cooperation with other relevant State institutions) in relation to the following aspects of PA system development in oPt:

- Developing and coordinating of implementation of national policy, plans and programmes on PAs, including related to Palestinians commitments under MEAs (to the extent relevant to PAs).
- Drafting of legislation and technical regulations and norms for PA system development and the management of particular PAs, e.g. standardized instructions for PA management planning and business planning for PAs.
- Monitoring and control functions in relation to the PA system (e.g. PA management effectiveness monitoring).
- Convening and supporting (in a Secretariat role) a national multi-stakeholder support network for PA system development and biodiversity conservation.
- Facilitation of information exchange at the science-policy interface, to the extent relevant to conservation.
- Donor coordination in relation to PA system development and support to individual PAs.



- Development and implementation of programmes on communication, education, and public awareness raising in relation to biodiversity conservation and PAs.

In addition, EQA could potentially take over direct management responsibility for selected individual PAs, particular those that have a pilot role in relation to overall PA system development.

The Department of Protected Areas and Forests of the MoA currently appears to be better placed to take over other, complementary leading roles, again in cooperation with other national actors:

- Coordination of PA system development with other areas of responsibility of the MoA, aimed at a minimization of pressures of agricultural development and practices on biodiversity and protected areas.
- Development of policy, legislation (where appropriate) and technical guidelines on the management of productive or other ecosystems in its jurisdictions in line with nature conservation objectives, particularly where those ecosystems are situated in the immediate vicinity of PAs.
- Technical and infrastructural support to PA management where necessary, e.g. related to fire risk control, pest control where needed etc.
- Potential responsibility for the direct management of some PAs, particularly where MoA is well-placed logistically to fulfill this task.

The above possible delineation shows that institutional roles and responsibilities for PA system development are a much more complex issue than simply giving direct line management responsibility for individual PA administrations to one or another institution. However, the current management planning process for WAQ can also function as a laboratory for testing an institutional setup for a PA, from which national stakeholders could learn and which they could then modify or maintain for application in additional PAs in the future.

It should be noted that the above list is limited to functions and roles in relation to PA system development, and does not aim to also address other functions, roles and mandates of any of the institutions discussed.

An inclusion of this or another agreed delineation of the roles of EQA and the Department of Protected Areas and Forests of the Ministry of Agriculture in the planned revision of the bylaw on biodiversity conservation and protected areas is strongly recommended.

Establishing a system of delegated and/or joint management of individual PAs, which takes into account their significant potential human wellbeing contributions, will directly feed into implementation of the Strategic Goal D of the CBD Strategic Plan 2011-2020: "Enhance benefits to all from biodiversity and ecosystem services" (CBD, 2010).

Recommendation 1 (to the State of Palestine): *Clearly define institutional responsibilities and mandates of EQA and MoA in relation to PA system development and PA management, with EQA taking the lead on PA related policy, oversight and partner coordination, and continuing to provide technical and infrastructural support to individual PA management and streamlining its activities in productive ecosystems outside PAs with conservation objectives.*

Recommendation 2 (to EQA and MoA): *Establish a system of delegated and/or joint governance for individual PAs, as defined in more detail in the WAQ draft management plan.*

10.2 Development of a national support network for PA development

Most capacity needs assessments – however rapid they may have been – agree that the capacity of leading state organizations for effective PA system development and PA management is severely limited (EQA, 2003; ARIJ, 2007; Garstecki et al., 2010). This situation calls not only for intense capacity building efforts of all the institutions involved, but also for a concerted approach of all nature conservation stakeholders to supporting the development of a PA system in the West Bank.

A national support network for PA system development could sustain such a concerted effort. It could build either on the already established support and expert network from the management planning process for WAQ, or on other existing networks such as the Palestinian participants of the ongoing MAVA project on capacity building for nature conservation.

All the key stakeholders as identified in Section 5 above should form part of this network, which should be open, focused on PAs and without any oversight function. A Secretariat function could be fulfilled by EQA, which could also develop procedures for the convening and operation of the network. The main function should be to engage and mobilize the expertise and support of participating organizations in response to identified PA system development needs and challenges, and to facilitate communication and joint among between relevant organizations.

Creation of a national support network for PA development will contribute directly to implementation of Strategic Goal E of the CBD Strategic Plan for Biodiversity 2011-2020: *“Enhance implementation through participatory planning, knowledge management and capacity building”* (CBD, 2010).

Recommendation 3 (to EQA as a lead and all stakeholders as participants): *Continue developing and formalizing a national multi-stakeholder support network for biodiversity conservation and PA system development involving relevant government institutions, NGOs and academic institutions.*



10.3 Update and simplification of the policy framework for nature conservation

The Palestinian NBSAP (PEnA, 1999) is now almost 15 years old (see also EQA, 2006). An update based on the assessment by Garstecki et al. (2010), the recommendations of this assignment as well as of other finalized or ongoing projects, and the available guidance from CBD on updating and revising NBSAPs in relation to the Aichi Targets and Strategic Plan for Biodiversity until 2020 (CBD, 2013a; b) would significantly strengthen the policy framework for further PA system development. Additional guidance on how to implement a wider range of Multilateral Environmental Agreements during the development of the PA system (including UNFCCC, UNCCD, WHC, Ramsar Convention, UNESCO Man and Biosphere Programme) is summarized in the TEMATEA issue-based module on protected areas (TEMATEA, 2005) and the additional guidance of InforMEA (UNEP, 2013). All these documents should be taken into account when updating the NBSAP and PA system development plan for the West Bank.

The updated NBSAP should aim at narrowing down priorities for action even further than the 1999 NBSAP, in order to make it easier to direct the very limited funding that is likely to be available for its implementation to the most important areas of activity.

Recommendation 4 (to EQA): *Update and simplify the policy framework for biodiversity conservation and PA system development in Palestine, particularly the National Biodiversity Strategy and Action Plan (NBSAP) of Palestine. Prioritize stepwise PA system building as one key action of the NBSAP and include an explicit resource mobilization strategy for it. Involve all relevant stakeholders in the updating of the NBSAP, through a structured drafting and consultation process taking into account the available guidance from CBD on NBSAP updating.*

10.4 Creation of an effective PA bylaw

A general analysis of the draft PA bylaw that was under discussion between EQA and MoA was provided by Garstecki et al. (2010), and is also quoted in Section 5.1.3 of this report. It is understood that a new attempt has been launched or is being launched to draft such a bylaw. Based on the analysis of the earlier draft, it is recommended that particular attention be paid to the following aspects while drafting a new bylaw.

- Full consistency of the bylaw with the IUCN PA categories and admission of an appropriate range of governance types (see Dudley 2013),
 - Procedures for the clarification of any land ownership conflicts inside PAs,
 - Strengthening of public participation in management planning and
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implementation through clearly established procedures and rights, in agreement with the IUCN Management Planning Guidelines (Thomas & Middleton, 2003),

- Clarification on which institutions should have management responsibility for which types of PAs (both in relation to EQA and MoA, and in relation to the possibility of delegating management responsibility to other organizations such as NGOs),
- Clear criteria and procedures for the permission/bans of land use (including grazing and tourism use) in the various types of PAs,
- A higher upper limit of penalties for violations of PAs than currently, to enable adequate penalties for large-scale violations of PAs as a consequence of commercial activities,
- Clear definition of the mandate, duties, rights and responsibilities of rangers in PAs.

The re-drafting process should take into consideration recent international best practice guidance on PA legislation, particularly as compiled in Lausche (2011). Areas of particular relevance of this guidance to the Palestinian situation include the following:

- **General principles to be addressed through the PA bylaw:** PA definition, categories and governance types; PA system and connectivity planning; PA management planning procedures; taking account of climate change; etc.
- **PA governance:** Good governance for PAs; access to information; public participation in PA planning and management. Defining a suitable range of governance types to be admissible under the PA bylaw. This may also include provisions on promoting Access and Benefit Sharing procedures in accordance with the Nagoya Protocol (CBD, 2013c).
- **Consistency with international legal obligations and commitments:** CBD, Ramsar Convention, CMS, etc.; regional conventions.
- **Guidance on a logical drafting process and sequence for PA legislation:** pre-drafting considerations; definitions and application of the bylaw; assessment of the policy base of bylaw; institutional arrangements on the national and individual PA level; PA system planning; rules for the establishment of PAs; regulation of PA management; regulated activities in PAs; compliance and enforcement; EIA and SIA in the PA context; financial regulations and tools; etc.

From a legal/technical point of view, the development of effective PA legislation is not a trivial task. The specific political and socio-economic context of oPt is likely to exacerbate these technical challenges. Therefore, it is recommended that some



expert input (both national and international) be invested into the drafting of the planned PA bylaw.

Recommendation 5 (to EQA and MoA): *Draft and approve a modern and effective bylaw on nature conservation and protected areas, taking into account available international best practice.*

10.5 Institutional capacity development at the national level

Depending on how responsibilities for the various aspects of Palestinian PA system development will be allocated to institutions, there will be a need to upgrade the institutional capacities of those institutions. Garstecki et al. (2010) identified the following competence areas that would particularly benefit from an investment into increased capacity:

- **Management planning:** As after WAQ, additional new PA management plans will have to be developed in parallel, it will be most cost effective and sustainable to develop the capacity for PA management planning in-country, rather than relying on international consultants in the long term. Therefore, 1-2 management planning specialists with a natural resource management or biology background should be trained and employed.
 - **Natural resource management:** It appears likely that Managed Reserves (IUCN PA Category IV) will be among newly established PAs, and since these do not necessarily all natural resource use but have to ensure it is sustainable, this area will be an important competency for the functioning of the PA system. Natural resource management specialists should be trained and hired. Such positions should be at a medium salary scale and filled with staff with a natural resource management, agricultural or forestry background.
 - **Communication, education, and public awareness raising (CEPA):** WAQ is a case that clearly demonstrates the considerable CEPA potential of PAs in oPt. At the same time, there are important knowledge gaps and image problems regarding existing PAs in the West Bank. In order to implement effective communications activities, the position of communications officer (medium salary scale) should be created and filled with staff from a communication or social sciences background.
 - **Legislation and law enforcement:** As demonstrated in Section 9.4 above, development of PA legislation will likely be a challenging task. In addition, development of the PA system of the West Bank will encounter conflicts related to land ownership, resource use and benefit sharing. Therefore, the interests of the MoA/EQA in this regard should be represented in an appropriate way. Unless there is already a lawyer at the MoA/EQA who can fulfil this function, the position of Legal Officer (medium salary scale) should
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be created at the management authority and filled with an appropriate lawyer.

- **Ranger training:** Palestinian rangers have essentially acted as forest guards up to know. This means that continuous training of already employed PA staff will be necessary to raise the qualification of rangers for modern PA management. This capacity can also be developed in-house. A ranger trainer position (medium salary scale) needs to be created and filled with staff with a background in natural resource management or similar. Alternatively, this competence could be arranged through cooperation with suitable external partners.
- **Tourism and recreation management:** WAQ is already extensively used for tourism and recreation. Several of the PAs on the 2010 list of potential investment (Garstecki et al., 2013) also have untapped or underdeveloped tourism potential. Targeted offers for sustainable tourism and recreation activities in and around PAs would also increase ownership of these PAs among Palestinians. In order to develop and manage such offers, the position of Tourism Officer should be created and filled with a candidate with a background in tourism, business, communication or similar.
- **Research and monitoring:** Although many immediate research and monitoring tasks in PAs could be fulfilled by external partners of PA agencies or contractors, the processing, evaluating and storing biodiversity and socio-economic data will become increasingly important for site designation and management. PA management authorities also need to be able to grant or deny permissions for research projects in PA, based on their conservation impact and scientific/biodiversity related benefit. Therefore, the position of a research or monitoring officer should be created and filled with a person with a biology or similar background.

Additional recommendations and ideas for the development of the institutional capacity of Palestinian institutions for PA management (including related to the development of procedures, PA system design, CEPA and public participation) are discussed in Garstecki et al. (2010). In relation to PA sustainable financing, the Palestinian PA authorities should consider the guidance of Emerton et al. (2006).

Considering the significant challenges that need to be overcome to build the capacity needed for a functioning PA system in oPt, it is recommended that activities contributing to this are included into the cooperation of the State of Palestine with international donors.

Recommendation 6 (to EQA and MoA): *Expand a capacity development strategy for the national PA system (including related to staff qualification, institutional procedures, infrastructure and equipment, financing) and prioritize its implementation for international donor funding.*



10.6 Support to capacity development and training in individual PAs

Palestine Second Report to CBD, the Assessment of Capacity Building Needs and Palestinian Priorities in Biodiversity (EQA 2003), contains lists of training needs of PA staff and proposals for training courses. While the courses listed under “Training Needs of Staff in Protected Areas” may be too technical for many rangers there is another way of creating training opportunities: Rather than developing a curriculum for a ranger training programme from scratch, existing curricula or even entire training programmes from neighbouring countries – for instance from Jordan - should be used to train Palestinian PA rangers. To complement this, an employed ranger trainer (see above) could undergo “training of trainers”. Possible organizations to approach include the Royal Society for the Conservation of Nature of Jordan (who run a regional training unit – see RSCN 2010), and other IUCN member organizations in the region (Garstecki et al., 2010). As long as the number of actively managed PAs in Palestine is limited, it will also be possible to support local rangers involved in PA management through the central staff that is listed in Section 10.5 above.

***Recommendation 7 (to EQA and MoA):** Increase ranger numbers and ensure adequate training of existing MoA rangers as well as newly employed rangers, based on either in-country capabilities or cooperation with external partners.*

10.7 Mainstreaming of biodiversity conservation

In order to ensure continued PA system development in oPt, it will be crucial to build support and capacity for it not only among the already existing conservation community and individual State institutions such as EQA or MoA, but also more generally at the level of the general public and particularly among decision makers in legislative and government organizations. To this end, the following steps are recommended:

- **CEPA:** EQA and MoA should engage in communication, education and public awareness raising activities, in order to inform the general public and decision makers about the existence and values of Palestinian PAs, as well as their plans to intensify PA management in these areas.
 - **Economic and human wellbeing benefits of PAs:** In the context of the CEPA activities mentioned above, emphasis should be placed on the important function of PAs as part of the green infrastructure, as a provider of ecosystem services and rich associated human wellbeing benefits, such as hydrological regulation, recreation, education and science. The opportunities related to improved Access and Benefit Sharing according to the Nagoya Protocol could also be highlighted in this context (CBD, 2013c).
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- **PAs and biodiversity as part of the Palestinian national heritage:** Another important benefit of Palestinian PAs is that the biodiversity and landscapes protected by them form an important part of Palestine's national heritage – in the same way as many architectural and archaeological sites. This argument could be used more clearly in mainstreaming efforts related to biodiversity conservation and protected areas.
- **Strengthening of National Spatial Plan:** The Palestinian Spatial Plan of Palestine is an important potential mainstreaming tool as it anchors PAs in a legally binding national consensus on how various parts of the land should be used. EQA and MoA should therefore support the further development (from a nature conservation perspective) and implementation of the spatial plan.
- **Cooperation with other pro-conservation organizations and individuals:** It is recommended that EQA and MoA continue and extend their efforts to build a broad coalition among all stakeholders (local and central government, NGO, academia and donors) which support conservation goals, in order to add additional political weight and practical support to their efforts to develop the PA network. In addition, high profile individuals from the media, culture and Civil Society should be won as nature conservation champions.
- **Integration of mainstreaming in policy and plans:** A more in-depth concept for the mainstreaming of biodiversity conservation across sectors should be included into relevant policy documents and plans, such as an updated NBSAP.

Enhanced mainstreaming of biodiversity will contribute directly to implementation of Strategic Goal A of the CBD Strategic Plan for Biodiversity 2011-2020, which reads: "Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society" (CBD, 2010).

Recommendation 8 (to EQA): *Include mainstreaming biodiversity into the updating of the NBSAP of oPt and implement CEPA and mainstreaming activities, particularly aimed at political decision makers and opinion leaders.*



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