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Protection of Wadi Gaza
An Environmental Challenge

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Abstract

This paper examines the issue of environmental protection and shared water resources in the Palestinian National Authority, providing an overview of the prevailing institutional framework. It concentrates in particular on the example of Wadi Gaza, a non-navigable watercourse that flows through Israeli and the Palestinian territories, to pour into the Mediterranean Sea off Gaza. This paper also examines the legal instruments, both local and international, that apply to Wadi Gaza within the scope of shared water resources and environmental conservation.

Institutions in Palestine have only recently emerged, with the Ministry of Environmental Affairs (MEA) created as recently as 1998. Nevertheless, significant overlapping interests remain among the different ministries, whereby several of them continue to exercise statutory jurisdiction over matters related to the environmental protection of Wadi Gaza. In addition, given that most of the Occupied Territories are still subject to Israeli administration (under the terms of the Oslo Agreement, designated as Area "C"), they are still governed by different sets of rules and laws. As a result, the MEA's ability to implement an effective strategy is gravely hampered.

The development and protection of natural resources in Palestine is essential, especially in view of the scarcity of land and water. Demand for water is increasing with the growth of the population, and water resources are already over-exploited. At the same time, there is a corresponding increase in solid waste and wastewater generation, which have for a long time gone untreated, and have resulted in the contamination of groundwater as well as irrigated lands, and caused heavy pollution off the coast of Gaza. The direct impact of this on human health, in addition to the damage incurred to flora and fauna on land and at sea, make this one of the most urgent issues to address.

Wadi Gaza is a unique wetland with a highly stressed ecosystem. It is also a main stop on the route of different migratory birds. For years it has been subject to serious pollution and neglect. As an international watercourse, it is subject to international legislation relevant to the *non-navigational uses of international watercourses* (UN Convention, May 1997) and the *Helsinki Rules on the Uses of the Waters of International Rivers* (August 1966). As a wetland of international importance, and an example of natural heritage, it is subject to other conventions relating to the conservation of wetlands, biodiversity and flora and fauna.

In terms of local legislation, the MEA has a clear mandate to declare Wadi Gaza a nature reserve.

It has become critical today that Gaza begin to integrate into the Mediterranean region, yet there remains a serious lack of legislation with regards to coastal land use. The majority of Mediterranean countries have well-structured legal frameworks in this field,



and many have introduced limitations and land-use restrictions for active conservation strategies. Yet this poses various problems, revolving around the public use and acquisition of land, which need to be dealt with in a sensitive manner. Palestine has not yet addressed this issue, and can therefore be guided by the principles and provisions of the international legal instruments cited. It is important to realize, however, that an adequate framework for the protection, preservation and conservation of shared ecosystems cannot be achieved unless the dispute settlement mechanisms are recognized and made available.

I. Introduction

A study of the shared ecosystem, biodiversity¹ and environmental conditions of Wadi Gaza may be made from a number of vantage points. This paper examines the legal instruments both local and international that apply to Wadi Gaza within the scope of shared water resources and environmental conservation. Special attention is given to the principles that allow declaring Wadi Gaza a nature reserve to preserve its ecosystem.

The paper also examines the institutions, laws, and policies of the Palestinian National Authority relative to environmental protection and then provides analysis of their application to the specific issue of Wadi Gaza.

There has been, over the last two years, growing interest in the environmental conditions prevailing in Palestine due to the prevalence of pollutants and the considerable stress on its ecosystem. One such example is Wadi Gaza. The Wadi is a non-navigable watercourse with a highly stressed ecosystem; it has become urgent and a highest priority to prevent, control and reduce the release of hazardous and harmful pollutants into it. It is only recently that the Palestinian National Authority (PNA) has started paying attention to the legal framework for its management.

¹Biological diversity is the diversity of genotypes within a species, species diversity, and the diversity of ecological communities, i.e., it is the diversity of life on earth (See 1992 UN Convention on Biological Diversity). The protection of endangered species and biodiversity has been important in many parts of the world for sometime. Many nations have studied biodiversity, made quantitative assessment of the value of their ecosystems and allocated funding. They have determined that without the minimum amount of biodiversity the ecosystems would not function poorly. Biodiversification and ecosystems are important and beneficial to humans since they contribute to the sustainability of human life. There is also a critical relationship between ecosystems, desertification, loss of biodiversity, and climate change in the context of sustainable water supplies especially in area like Gaza. Desertification is land degradation in drylands caused by mismanagement and overexploitation. Overpopulation and increased demands, mostly in semiarid regions, bring about overstocking and overgrazing, trampling, transformation of woodland to rangeland. The reduced vegetation cover and breakage of soil crust, lead to water and wind erosion of topsoil, and with it an irreversible loss of productivity-desertification. The loss of vegetation cover reduces aquifer recharge and increases losses of floodwater. At the same time the loss of vegetation cover reduces the global carbon sink, thus exacerbating global warming.



Environmental protection in Palestine will require broad participation of many government authorities acting under national laws and international conventions and protocols. In developing and implementing an effective local and regional arrangement for protecting Wadi Gaza, the efforts of a various authorities will have to be coordinated with converging policies, programs and practices.

Local practice and responsibility are the base for ensuring protection. International legal instruments are significant, even though they lack the strong enforcement mechanisms. Cooperation on key management issues pertaining to shared water resources, conflict prevention, dispute resolution and environmental protection become crucial.

II. Background

Wadi Gaza covers 3.5km of wetland². It is 7.5km in length and 20-50m in width. The wadi is located some fifty meters off the coastal plain of the shores of Gaza City on the Mediterranean and it has the following characteristics:

- The largest part of the Wadi is dry.
- The Wadi is susceptible to floods.
- The Wadi has been adversely affected by urban growth.
- Industrial growth is moving close and posing a threat (power generation plant).
- Sewage and solid waste disposal has created a serious nature hazard in the Wadi.
- Hunting birds and overgrazing are rampant.
- Water drainage from the aquifer.
- Pollution of the environment and the water source.

Wadi Gaza lies across and passes through Palestinian and Israeli territories and pours into the Mediterranean Sea off the coast of Gaza. The Wadi reflects special climatic conditions that make it one of the international centers for winter migration of various bird species along the southern Mediterranean. However, Wadi Gaza is fragmented. Dirt roads have split it; overgrazing has made it fragile, solid waste and wastewater have polluted it; and the effect of pesticide from adjacent agricultural land has destroyed its will life. No steps over the past 35 years were taken to mitigate the adverse effects on its ecosystem and biodiversity; no attempts were made to restore it from damage; no efforts were made to secure the allocation of water for the aquatic ecosystems; and no plans were made to promote its future rehabilitation, development or sustainability. Effectively,

²Wetlands are areas and lands where the water is close to or at the surface. They may also be covered by shallow water. These lands have physical, chemical, and biological features that cause recurrent or may have saturated inundation. Water in a wetland moves slowly. This slow movement reduces the oxidizing capacity whereby wastewater treatment is ineffective. However, the slow movement of water permits the deposition of suspended material and provides the necessary time to complete the biological mineralization of organic compounds and, at the same time, the biodegradation of synthetic and toxic chemicals. Wetland vegetation is also supported by the slow water movement. This makes the Wetlands shallow, thus contributing to their spatial expansion. This expansion provides a unique ecosystem service: water storage during floods and a slow downstream release. Wetlands effectively lower flood peaks and their detrimental economic and environmental effect, such as soil erosion.



Wadi Gaza has become extremely fragile and its fauna and flora have bordered on extinction. Its biodiversity and ecosystem have become severely damaged.

The ecosystem and biodiversity of Wadi Gaza are being destroyed by land conversion, fragmentation and increasing air and water pollution. It suffers from long degradation of its resource base and amenity. Long standing historical reasons and externalities prevented any attention and/or interest in this remaining wetland in Palestine.

The environment in Palestine has long suffered from considerable and multiple strains caused primarily by shortages in its resources and pollution. High population growth and decades of overuse, under-protection and negligence have contributed to the deteriorated conditions and created serious hazards. Externalities caused by long years of occupation, absence of public planning and awareness have not spared the Palestinian environment. The absence of central management and deteriorated infrastructure over the past thirty years have resulted in Palestine being a dumping ground for sewage and solid waste. The environmental conditions are sub-standard and extremely alarming compared with those in neighboring countries and in the region.

The fragile and sensitive conditions of the Wadi, created the urgent need to establish policies to promote the development of active landscape preservation and conservation strategies for wetlands and biodiversity, and overall ecosystem functions.

Recognizing the significance and importance for the conservation of the biodiversity of Wadi Gaza as a wetland and the protection of its ecosystem, the Ministry of Environmental Affairs (MEA) has embarked on a three year program with the support of international organizations to declare Wadi Gaza a nature reserve and a wetland within the ambit of international conventions. The Ministry is examining domestic legislation and is looking at the local legal framework, tools and incentives that can be designed to promote the conservation of Wadi Gaza and declaring it a nature reserve.

At the same time it has undertaken a comprehensive study of international legal instruments for guidance and to ascertain appropriate measures for the adoption of their principles into domestic law and in due course accession.

III. Institutional Framework

Institutions in Palestine, including the Ministry for Environmental Affairs, have recently emerged. In 1998, the Ministry of Environmental Affairs (MEA) was created with a mandate to oversee environmental planning, monitoring and management and to coordinate with other official bodies. Prior to the creation of the MEA, authority over environmental matters was distributed rather haphazardly among several national authorities, with a number of ministries and authorities assuming responsibility for their own impact on the environment. This often resulted in confusion, duplication, and a lack of effective monitoring and enforcement.



With the establishment of the Ministry of Environment, the policy of fragmentation of environmental responsibilities was reversed. Yet, despite the significance of this step, there remain significant overlapping interests among ministries whereby several of them continue to exercise statutory jurisdiction over matters related to the environmental protection of Wadi Gaza.

Environmental management of the West Bank and Gaza is burdened with major difficulties. Different rules and sets of laws administer the two areas. Given that most of the West Bank is still under occupation and/or designated as area ("C"), i.e., subject to Israeli administration, zoning and planning are, therefore, outside the scope of Palestinian control. On the other hand, related environmental planning, pollution control and management have been ad hoc and incomprehensive resulting in detrimental effects on the environment. The Ministry of Agriculture deals with certain issues directly impacting agriculture; the Ministry of Health licenses certain related activities to ensure quality of food, drink, quality of water and urban cleanliness; in certain segments of the economy including the refugee camps, UNRWA provides services. In towns and villages, the municipalities are solely responsible for services such as solidwaste collection, wastewater and pest control. Palestinian officials are now striving to have a comprehensive coordinated effort to reduce the fragmentation caused by years of absence of planning.

Shared management of water resources and environmental protection and conservation with other states is a recent responsibility for the nascent MEA. Recognizing the need to coordinate and share in the management, Wadi Gaza has become of special significance to Palestine and its immediate neighbors as well as those farther away within the Mediterranean basin for the very fact that the Wadi attracts migratory birds and has long been their home in their winter journey to the warmer southern climate.

Prior to the creation of the MEA, the responsibilities for environmental protection and conservation were delegated to numerous official bodies, as described above. Only partial treatment of salient issues was possible while the much needed monitoring was not achieved. Each official body required a separate budget and staff. Neither was readily available. At the same time, necessary standards were not comprehensively established and one official body was urgently needed to assume this responsibility.

To alleviate the situation and improve conditions, the Palestinian National Authority took serious action to concentrate efforts in one official body to ensure the proper planning, monitoring, supervision and standard setting.

Since its establishment, the Ministry of Environmental Affairs has developed a strategy to address the following issues:

- Availability of water resources
- Gaza undergroundwater quality



- Over exploitation of natural resources
- Soil pollution and erosion
- High dust emissions and air pollution
- Pollution of the Gaza shoreline and marine environment
- Heavy stress of nature and biodiversity
- Distortion of landscape and visual environment
- Threats to cultural heritage
- Mismanagement

According to MEA, these problems and issues are interrelated. However, MEA faces serious constraints in implementing a comprehensive and fully integrated strategy caused by its limited control. Structural analysis requires that environmental planning is to cover all of Palestine. Absence of such coverage curtails and hampers MEA's ability to carry out its plan.

IV. Status of Natural Resources Development and Protection

A. Land Use and Planning.

In Gaza, land is scarce. This scarcity poses the largest constraint on environmental planning and control. Based on MEA information, urban and horticultural expansion is limited to the western coastal zones of Gaza because expansion in other directions has reached its limits. The MEA has also reported that agricultural expansion has reached its limits in all of Gaza. While intensification of agriculture has reached its limits (e.g., unproductive citrus orchards), more use is expected to continue leading to further deterioration and damage. Soil salinity and water scarcity are other factors that pose land use problems in Gaza. Land use, zoning and planning laws and regulations have not been updated to adjust to environmental changes.

Land use planning is critical to environmental protection and public health. The threat to nature and its fragile ecosystem in Gaza has become alarming due to the expanding urban and agricultural areas. Historically, land use planning has not paid attention to competing land uses, demand for water and protection of groundwater. Today, more emphasis is being placed on zoning for appropriate use, relocation of industrial areas, proper authorization for infrastructure, transport, public service, and sanitation to prevent further adverse impacts.

B. Water Use.

Demand for water continues to be affected by the growth of population, and so does solid waste and waste water generation. Future demand over the next 10 years is expected to double in Gaza. Demand in 1995 was 47 MCM in Gaza and is expected to reach 100 MCM Gaza in the coming ten years later. Use of water resources for irrigation is overexploited. The MEA has been coordinating with the Palestinian Water Authority to ensure the proper present and future use of water resources.



C. Solid Waste Generation, Collection and Disposal

The generation and collection of solid waste in Gaza covers close to 70% of the population per MEA records. Problems of uncontrolled dumping of waste on vacant lots and roadsides are still common. No separation of waste takes place at source; all domestic, industrial, hospital, agricultural, hazardous, infectious waste, are dumped or burned together without any protection. Gradually, the MEA has taken steps to prevent and close uncontrolled dumping. Meanwhile, sanitary landfills are being constructed.

D. Wastewater and Sanitation

In Gaza between 70-80% of domestically produced wastewater is discharged into the environment without treatment. The largest part flows into the sea with a minor amount infiltrating the soil causing contamination to groundwater. This discharge has a detrimental effect on public health and irrigated lands. The few treatment facilities available are inadequate and their discharge is left untreated. Occasional storms and rains result in floods causing pollutant torrents to flow through densely populated areas. Gaza City's untreated effluent flow directly in Wadi Gaza. There it forms a lake of raw sewage discharging into the surf zone of the Mediterranean.

The Ministry of Environmental Affairs has listed the following factors that impact human health:

- Soil and groundwater pollution as a result of discharge of untreated wastewater;
- Direct human health risks as a result of exposure to wastewater in open systems, or spreading of wastewater from open systems during floods, overflowing cesspits, etc.;
- Contamination of the coastal zone seawater, threatening both the fishery sector as well as the marine ecosystems;
- Indirect human health risks as a result of consumption of polluted crops and fish; and
- Nuisance caused by odor and insects.

E. Marine and Coastal Pollution

The Gaza shoreline and its coastal sea have significant importance with respect to marine ecology, fishery, transport, recreation and tourism. Gaza beaches and seawater is heavily polluted. The discharge of untreated wastewater along the shoreline contributes significantly to the pollution. Dump sites for solid waste and littering seriously affect the quality of the environment on the coast and seawater. Cleaning is ad hoc and non-system driven mostly by MEA or municipal campaigns. Sedimentation due to erosion is another problem as well as unplanned marinas or fishing harbors. The Gaza coast suffers from over-fishing. The average area of fishing is about 0.5 square nautical miles; the average fishing vessels are close to 800.

F. Deterioration of Biodiversity

There are few remaining areas in Gaza that have some nature conservation values. They include the salt marshes of Wadi Gaza, the coastal dunes of the south-west, the littoral zone of cliffs and the mobile dunes. The nature in Gaza is under severe pressure. At the same time, the unplanned urban expansion and the inherent space limitations as well as



the widespread pollution have nearly destroyed the wildlife. Natural habitats are either not preserved or intensively used. Pesticides and chemical waste severely upset the ecological equilibrium. Massive coastal fish mortality takes place at the Wadi Gaza outlet because of wastewater drainage. Gaza is a stopover for a large number of migratory birds. The pesticides and chemical waste has severely affected the bird reproductively and its survivability. The birds include insectivorous, passerine, raptor and scavenger bird species.

G. Threats to Cultural Heritage

Gaza has many historical and archaeological sites going back to the Byzantine, Mamluk and Ottoman periods. These sites are not sufficiently protected and most have suffered from negligence, unintentional damage, and poor maintenance. There are limited public parks, gardens or areas preserved for aesthetic value. There are few public awareness programs and constrained official protection plans. The cultural heritage of Palestine requires sustainable preservation: identification, rehabilitation and protection.

H. Cost

For the first time in Gaza's history (since 1948) the MEA is paying special attention to the financial and economic aspects of environmental protection. It is taking account of the cost for investment, operations, and enforcement. Principles like the "polluter pays" are becoming accepted, although time will tell whether the full impact of such cost recovery measures will be fully realized.

Based on the foregoing, the MEA has prioritized the natural resources issues for Gaza as follows (listed in order of high to low priority):

- Depletion of water resources
- Deterioration of water quality
- Shoreline and marine pollution
- Depletion of natural resources
- Land degradation
- Deterioration of nature and biodiversity
- Air and noise pollution
- Landscape and aesthetic distortion
- Threats to cultural heritage

V. International Legal Instruments

The Palestinian legal system, being in state of evolution, has not devised the mechanisms to either automatically recognize, adopt or ratify international instruments (custom or convention). Nevertheless, as a matter policy, international conventions and protocols are being closely examined for purposes of adoption, in the meantime, the PNA has



ected to adopt the underlying principles of these international legal instruments. For the purposes of this paper, the following international instruments were examined.

1. United Nations Convention on the Law of the Non-navigational Uses of International Watercourses, May 1997

This Convention applies to non-navigational uses of international watercourses, including protection, preservation and management. Article two defines watercourses as "a system of surface and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus" and international watercourses as "a watercourse, parts of which are situated in different States".

Wadi Gaza is a non-navigable watercourse, being a system of both surface and groundwater thus being a unitary whole. It is situated, as described above, between Palestinian and Israeli lands. As the Wadi pours into the Mediterranean, it borders international waters.

Palestine has initiated a program, with international donor assistance, to protect and preserve Wadi Gaza. Effective management to preserve its fragile ecosystem and to mitigate the sever harmful effects has just begun.

Part IV (Articles 20-26) and Part V (Articles 27-28) address issues of protection, preservation and management of ecosystems as well as the mitigation of harmful conditions on these ecosystems.

Part IV (Articles 20-26) calls for the protection and preservation of ecosystems. A watercourse state is obligated to "protect and preserve the ecosystems of international watercourses". (Article 20).

Article 21(1) defines pollution to mean "any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct". This is the case in the situation of Wadi Gaza, as was mentioned above. Palestine is obligated to "protect and preserve". It will be a long while before this can be effectively achieved both because of long neglect and the lack of financial resources, but MEA is aware and recognizes the responsibility to take part in shared management.

Moreover, within the scope of paragraph (2) of the same Article (21), the PNA would be responsible to "prevent, reduce and control the pollution...that may cause significant...harm to human health or safety, to the use of waters for any beneficial purpose, or to the living resources of the watercourse".

Therefore, MEA must establish "techniques to address pollution from point and non-point sources" (Article (21)(2)(b)). As to management, MEA within the scope of



Article 24 must plan "the sustainable development of an international watercourse and provide for the implementation of any plans adopted", paragraph (2)(a) of this Article. Promotion of "rational and optimal utilization, protection and control of the watercourse" is also called for according to Article 21(2)(b).

Part V (Articles 27) calls for the prevention and mitigation of harmful conditions to international watercourses whether resulting from natural causes or human conduct including "water-borne diseases, siltation, erosion, salt-water intrusion, drought or desertification". Article 28 calls for action without delay to face and deal with emergencies and accidents. To be part of the international community and share in the responsibility, Palestine must look hard at these issues and address them.

2. *The Helsinki Rules on the Uses of the Waters of International Rivers, August 1966*

These Rules apply to international drainage basin which are defined as "geographical area extending over two or more states determined by the watershed limits of the system of waters, including surface and underground waters, flowing into a common terminus". Article II.

They call for equitable utilization of waters as well as their protection from pollution. Article IX defines pollution as "any detrimental change resulting from human conduct in the natural composition, content, or quality of the water of an international drainage basin". It also imposes an obligation on states to "prevent any new form of water pollution or any increase in the degree of existing water pollution" Article X(a); paragraph (b) states that states "should take all reasonable measures to abate existing water pollution". The Rules apply to pollution originating both within and without the territory of the State caused by the State.

Effectively, Palestine must also adhere to these Rules and commit to prevent future pollution, which as matters stand today, still persists.

3. *Convention on Wetlands of International Importance Especially as a Waterfowl Habitat, 2 February 1971 (RAMSAR)*

This Convention, also known as the RAMSAR Convention sets the policies and guidelines to the promotion and conservation of wetland and the principle of "wise use" (Article 3). Under Article (2), criteria is devised for the declaration of wetlands including: ecology, botany and zoology, among others. RAMSAR also calls for conservation of wetlands by establishing and declaring them nature reserves with adequate wardening (Article 4(1)). Should a country change the boundaries of the wetland on the basis of "urgent national interest", it can do so provided, however, that it compensates for the loss of wetland resources by creating additional reserves to protect an "adequate" portion of the habitat. Article (1) defines wetlands as "areas of marsh, fen, peat-land or water, whether natural or artificial or temporary, with water that is static or flowing, fresh,



brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters". Article 1 (2) defines waterfowl as birds that are "ecologically" depended on wetlands.

From the foregoing, and based on the nature of Wadi Gaza, the Wadi is subject to the RAMSAR Convention. Wadi Gaza is a natural marsh of salt land. It pours into the Mediterranean where the tide is low (Article 1). Wadi Gaza has a bird population that depends on its ecosystem (Article 2). Under (Article 4(1)), the Wadi can be declared a Wetland.

4. Convention on Biological Diversity, 5 June 1992, Rio De Janeiro

This Convention (CBD) calls for and requires the promotion of sustainable use of biological resources. It stress the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere including ecological, genetic, recreational and aesthetic values and calls for their preservation.

Adopting the principles of the CBD would support Wadi Gaza both as to its ecosystem and aesthetic values.

5. International Convention for the Protection of birds, 18 October 1950, Paris

The purpose of this Convention is to "protect birds in the wild" (Article 1) The Convention prohibits the mass killing or capture of birds and requires gradual prohibition (Article 5). Article 10 calls for the adoption of measures against water (Article 11).

The bird population in Wadi Gaza is at a critical stage and protection to prevent further damage is needed. Some bird species have become extinct.

6. Convention on the conservation of Migratory Species of Wild Animals, 23 June 1979, Bonn

Under this Convention, all species of wild animals which habitually move across national boundaries are protected (Article I). Thus status of such animals must be conserved in the territory of range; activities that adversely affect them must be prohibited and states where the animals migrate must endeavor to conserve and restore their habitats. (Article III).

Certain bird species migrate to Gaza, they travel from the various Mediterranean Basin countries to the warmth of the south in Wadi Gaza. The habitat in Wadi Gaza requires restoration to preserve the ecosystem for the migratory bird population.

7. Convention for the protection of the World Cultural and Natural Heritage, 16 November 1972, Paris



This Convention applies to "cultural heritage" and "natural heritage" which have "outstanding universal value" (Articles 1 and 2). Under Article 2, habitat of threatened species of animals and plants of outstanding universal value from the aesthetic or scientific point of view are protected; and natural sites or precisely delineated natural areas of outstanding universal value from the point of view of science, conservation or natural beauty are to be protected.

The plant species in Wadi Gaza constitutes part of the culture and natural heritage of the Wadi. The migratory birds require such plant species for their natural habitat thus the plant life in the Wadi has considerable universal value.

8. Convention on International Trade in Endangered species of wild fauna and flora, 3 March 1973, Washington.

This Convention regulates the trade of endangered species of Wild Fauna and flora in an effort to control or eliminate their trade in international market.

The applicability of this convention is significant as it will operate to deter potential trade.

VI. Local Legislation

An examination of local legislation reveals the following:

1. Environment Law No 7 of 1999.

Article 2 (1), (1) and (4) of the Law aims to protect the environment from pollution, preserve public, welfare and preserve biodiversity. Article (6) vests the Ministry of Environment Affairs with the power to set policy guidelines for land use for the purpose of safeguarding, protecting natural resources and the environment as well as calling for the cooperation of those concerned. Article (40) expressly vests the Ministry with power and authority to declare nature reserves and the supervision thereof.

Within the parameters of this Law, the Ministry has clear mandate to declare Wadi Gaza a nature reserve.

2. The National Parks Law No. 5 of 1926

Article (3) of this Law vests authority to declare certain parks and "woods" a nature reserve and deem it public land. Article (5) specifies the management of such reserves.



Even though this is old legislation, the policy and language of the Law are clear and applicable today as they call for the preservation and zoning of certain land "woods" as public land.

3. Protection from Hunting Law No. 1 of 1924

This Law calls for the protection of wild animals and birds and calls for the prevention of their hunting. Article (3) vests authority for listing those wild animals and birds that are prohibited from hunting.

This Law, while long available, has not been invoked. Today, the protection of the birds and animals of Wadi Gaza can be achieved by the implementation of this Law.

Israeli Military Order on Nature Reserves Amending Law No. 5 of 1926.

The military orders Nos. 213, 444 and 355 provided lists for protected species and set the rules for declaring an area a nature reserve.

Such orders, where they have positive effect, as in this case, can still be invoked.

4. Municipal Zoning Law of 1936

This Law regulates land use and zoning in the Gaza Strip. Article (12) addresses issue of public welfare and health. Article 14 recognizes zoning and planning for purposes of preserving aesthetic value. Article (14) authorizes public taking of land subject to compensation.

Under this Law, MEA can coordinate with municipal zoning and planning authorities in Gaza to zone Wadi Gaza a nature reserve. The MEA and municipality will have to examine the compensation issue and its feasibility where taking or zoning for public purpose occurs. See section VIII below.

VII. Legal Framework for Coastal Land Use and Ecosystems

In setting policy guidelines for the promotion of coastal landscape and biodiversity conservation, special issues of landscape quality, ease of access, compensation, management of both coastal land use and government, incentives and other legal tools have certain values and require consideration. Palestine has not addressed many related polices concerning coastal legislation with respect to the Gaza Strip which constitutes



part of the Mediterranean basin. For historical and political reasons, Gaza could not have an outward look. As it stands today, it has become critical that it thinks regional and global. Given the characteristics of the Wadi Gaza and Gaza Strip itself, a proper legal framework is required.

The majority of Mediterranean countries have well structured legal frameworks for nature protection and specific legislation for the creation of protected areas. Many of these countries has protected coastal marshes, wetlands, saltwater meadows, dunes and cliffs. Derogation is permitted for recognized public interest where there are no economically acceptable alternative.

Moreover, several Mediterranean countries have introduced limitations and land-use restrictions for active conservation strategies. Land conversion is discouraged in order to preserve biodiversity and ecosystems. Most countries also provide some form of compensation to balance public benefits and private property rights issues.

Some of these Mediterranean countries deem some form of compensation a constitutional right. At the same time countries have instituted some form of control on use on the land. These countries have determined that public land acquisition and direct management has significant benefits to conservation. Many of these countries consider public ownership under appropriation to be a most certain way to protect and enhancement ecosystems. Some countries have enacted legislation to permit acquisitions for public policy purpose and to facilitate funding for such land taking.

Other practices include giving the official authorities the right of first refusal to land acquisition in certain ecosystem and ecologically fragile areas. This has been an effective tool to prevent the change of use or halt habitat fragmentation. Public access to areas is also protected under certain legislation which permit government to apply restrictions or permit certain uses for the enhancement of scientific and cultural values for public interest purposes.

Special zoning and land-use planning controls have also been known to drive market value and prices down, which has enhanced governmental ability to acquire more land. Other legislation has permitted certain rights to land to be inalienable. This applies in those instances when the land is held by a special national trust or other legal instruments.

In other instances, the land owner accepts to burden the land by a servitude or an easement which runs with the land and future owners become bound as well.

Other countries have established special procedures for violations of prohibitions or for failure to obtain proper permits and made them criminally punishable.

As mentioned above, the use of regulatory methods to conserve ecosystems and restrict land use have been recognized and accepted in the Mediterranean region and world-wide.



However, monitoring and enforcement present real difficulties. To further promote conservation and sustainable use of biological diverse areas, some countries have designed private incentive schemes. These other tools supplement governmental funding which is not often available. These incentives may be negative, i.e., discourage discretionary subsidies and taxes, or positive. The positive are designed to encourage conservation by increasing financial returns and generate funds to support the communities including:

- Tax incentives
- Funding incentives
- Indirect incentives
- Voluntary standards-based incentives
- Disincentive (polluter pays)
- User fees

Dispute Settlement and Conflict Resolution.

Palestine has not addressed this issue in its local legislation and can therefore be guided by the principles and provisions of the international legal instruments cited in the Section VI above. A framework for protection, preservation and conservation of shared ecosystems cannot be achieved unless the dispute settlement mechanisms are recognized and made available.

VIII. Conclusions

As the world's resources are increasingly exploited and areas of beauty, ecological biodiversity and ecosystems are gravely threatened, Wadi Gaza is still environmentally unique. Its ecosystem is now recognized by the international community and is a shared ecosystem. Major studies are underway and steps to preserve the biodiversity of this wetland and its fragile ecosystem are being taken.

From the MEA's strategic plan, we understand that the Ministry is developing:

- A clear legal and institutional responsibility for environmental protection of Gaza including Wadi Gaza
- Rapid and damage control to the environment
- Aesthetic, scientific and economic understanding of the ecosystem of Gaza in general and Wadi Gaza in particular



- Environmental planning
- Integrated management approach

The foregoing presentation and discussion attempted to underscore the stress and its causes on Gaza's ecosystem and the biodiversity functions. It is clear that the stress is so severe that Gaza's ecosystem has to be spared. The Ministry of Environmental Affairs has appropriately channeled efforts to mitigate the deterioration. One such effort is the preservation of Wadi Gaza and declaring it a nature reserve to preserve its ecosystem.

We have seen that both International Conventions and local legal instruments expressly support the preservation of the Wadi's biodiversity and its shared ecosystem. Palestine, though not a signatory to the international conventions, is certainly not precluded from adopting their principles. Accession is another matter that Palestine is looking into. As to immediate steps, MEA has prepared the environment assessment for Wadi Gaza and is completing the legal framework to declaring it a nature reserve.

Regulated and sustainable development of shared ecosystems is the only approach that will simultaneously encourage growth in Wadi Gaza while protecting its resources. While the domestic laws and policies of the PNA reflect measures for environmental protection, international instruments such as the UN Convention on Non-navigable Watercourses must guide especially between the Palestinian and Israeli sides and the Mediterranean.

Although the PNA has implemented legislative and other measures to protect the environment in Wadi Gaza, there remain significant gaps within the legislative and administrative schemes aimed at protecting the Wadi. Existing laws must be enforced effectively and penalty provisions strengthened to reflect the scarcity of, or damage to this Wadi. It is a promising start that the MEA has to consolidate official responsibilities for environmental protection and to avoid inefficiency and duplication.

Annexes (Provisional)

Annex 1

The Hula and Azraq Wetlands

- For examples of other regional wetlands that have either been declared nature reserves or otherwise drained, see Annex 1.



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