

Environmental Protection & Sustainable Development in Palestine

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Introduction:

Palestine is a small country with a long and illustrious history. Serving as host to the world's three monotheistic religions, it remains a religious and political focal point drawing global interest. In addition to a board spectrum of ethnic and religious diversity, historical Palestine is host to surprising range of ecological diversity. While it is not surprising that world interest has focused far more on the conflicting historical and political claims to the land, what happens to the environment inevitably reaches to all components of the natural web, including humanity. In Palestine, and globally, it is increasingly apparent that that to sustain ourselves we must sustain nature. Too often the demands of the environment have been sacrificed at the alters of national, ethnic or political ambitions. However, environmental problems cannot be isolated from the surrounding economic, social, political and military issues. The case of occupied Palestine illustrates the often downward spiraling relationship between conflict and environment degradation [1].

This paper will describe how development in the last 100 years has not followed an environmentally sustainable path, in large part because of political constraints. This will be followed by an outline for a plan for “sustainable development” in the Palestinian context.

The Environmentally Sustainable Development Defined:

Sustainable development is a process of change in which exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony, and enhance both current and future potential to meet human needs and aspirations. Thus, sustainable development should address the past, present and future. To understand potential development in Palestine, one should look at the carrying capacity and natural composition of the land through history. From there it will be necessary to assess the major environmental and socio-economic issues of the day and project these into the future. This information will then form the basis for conclusions about what actions should be taken to insure that society develops in an environmentally sound manner.



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A History of Environmental Degradation:

Palestine is part of the historical “Fertile Crescent”, considered to be the cradle of human civilization and the starting point of agriculture. A look at historical evidence and recent satellite images reveals the extent of environmental changes endured over the last hundred years. Barren hills have taken the place of what was once rolling woodland covered with thickets and forests. Deserts have replaced grassland. A fetid trickle of sewage now runs where the Jordan River once was. And the Dead Sea has sunk so low that it is now four separate lakes – and it is still dropping. Gone from the land are animals which were once plentiful – the ostrich, cheetah, leopard, lion (the last once killed 800 years ago during the Crusades), Syrian bear, crocodiles and several kinds of deer – casualties of human encroachment [1].

Human infringement upon the composition of Palestine’s native vegetative cover has occurred in four main ways: gathering of wood for fuel and lumber, overgrazing by domesticated sheep and goats, conversion of woodlands to arable land, and forest fires, both planned and accidental. During the Turkish rule in Palestine, vast areas of natural forest were lost as large numbers of trees and shrubs were cut to provide fuel for Turkish railways. Many naturally occurring forests across Palestine disappeared and the consequent reshuffling of the vegetal composition led to the loss or marginalization of native flora.

Under Israeli occupation, new sets of rules affecting the environment and natural resources were imposed in yet another chapter in the long legacy of environmentally disruptive policies and actions. Restrictions imposed during this period have played a major role in causing environmental changes in the occupied Palestinian territories (O.P.T.) – changes such as land degradation, depletion of water resources and the degradation of water quality. Such changes impact the social fabric, with far-reaching social and political implications. They have helped to induce economic hardship, population displacement, threats to public health and an inadequate distribution of social institutions. The relationship between Israel and the O.P.T. provides a microcosm, in my ways, of the North-South global relationship, essentially colonial, with all of the attending economic, social and environmental implications.

The occupation authorities have placed restrictions on development in most of the O.P.T. Access to wells and water sources have been limited severely. Grazing areas accessible to shepherds are less than 15% of the pre-1967 figure resulting in an unsustainable ratio of livestock per dunum, and thus overgrazing [2,3]. Military orders have been issued to facilitate the confiscation and closure of land and to deprive Palestinian farmers from using their full share of water and other natural resources. Afforestation has been forbidden



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throughout most of the O.P.T. and water use has been limited through the closure or confiscation of irrigation wells and through strict drilling restrictions. Many Palestinian farmers have been forced to leave their land and join the labor market in Israel. Sizable areas of land have been neglected and returned to semi-desert.

The Challenge:

The peace process that was started in Madrid has created an opportunity for ending the 27 years of occupation and creating a new Middle East in which all efforts are joined to combat poverty, desertification and pollution. Palestinians actively joined the peace process and are working hard to implement the first phase of the Declaration of Principles. The Gaza-Jericho (Cairo) Agreement and the (Erez) Agreement of Preparatory Transfer of Powers and Responsibilities are currently in the process of implementation, offering the Palestinians an opportunity to become the stewards of their own affairs.

The challenge facing the Palestinian leadership is that the current peace process, which was based on a “peace in pieces” approach – to satisfy Israeli political intransigence – is failing to give Palestinians full opportunities to formulate integrated sustainable development policies. One of the most important components of sustainable development, economic growth, has been severely hampered by the fact that since March 1993, Israel has clamped strict closure on the O.P.T., denying the majority of the Palestinian workers who rely on work in Israel their only source of income. A prerequisite for sustainable peace in the Middle East is that it is comprehensive, and based on U.N. Resolutions 242 and 338. While Palestinians have accepted the Cairo Agreement, their development plans must be based on sovereignty over all the O.P.T.

There is a serious economic crisis exists in the O.P.T. threatening the sustainability of the peace process. Palestinian decision makers are confronted with a daunting set of priorities. They must launch an intensive development program to create immediate job opportunities for the thousands of workers in the West Bank and Gaza, even though they lack an adequate infrastructure and management framework to support such a scheme. The constraints imposed on the Palestinian Authority regarding the control over land and water resources make this task almost impossible. Palestinians cannot reduce the cost of living which has artificially risen during the occupation years. Not can they, in the short term, reverse the environmental destruction and human displacement cause by 27 years of land confiscation, and settlement and road building.

Development schemes must be carried out in an environmentally sound way if there is to be any hope of making them sustainable. Water resources, erosion and the environmental



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effects of toxic and non-toxic pollution must all be taken into account. Legislation and policies, such as the requirement of an environmental impact assessment prior to all development projects, must explicitly be presented and adhered to. Palestinians must start putting forward the blue prints for a comprehensive sustainable development program in which the natural resources of Palestine are protected. Such a plan should be based on the geopolitical and political integrity of all the O.P.T.

This is not just an issue of environmental soundness. Palestinians realize that only a prosperous economy can bring stability to the region. Outside investment, essential for pushing Palestinian development forward, will find the area much more attractive if environmental regulations are in place. While local industrialists and developers may see environmental requirements as simply a hinderance to short term profits, investors from outside are increasingly viewing these very requirements as an indication of the long term economic sustainability of their investment. In addition to their integral role in the region's complex ecosystem, land and water resources constitute the foundation for economic growth and development in Palestine.

The following pages represent an overview of the natural resource components of Palestinian sustainable development. The current status is outlined, and blue prints for environmentally sound development are presented.

Land:

Land is the crux of the Palestinian-Israeli conflict and at the same time it is the basis of agricultural production. The total area of the West Bank, including Jerusalem, is about six million dunums, of which 31.7% are cultivated. The Gaza Strip is an area of 365,000 dunums, of which 47.8% are cultivated [2].

Land, as a major physical resource for agriculture, has proportionately different economic significance to Israel and Palestine. While the farming sector in Israel accounts for 3% of the Gross Domestic Product (GDP), in Palestine it accounts for 22-30% [2]. For political and ideological reasons, Israel continues to deprive Palestinians of their natural agricultural potential, now controlling 70% of the West Bank. Up until the implementation of the Cairo Agreement, Israel controlled 60% of Gazan land. Taking the O.P.T. as a whole, 2.61 million dunums have been claimed by Israeli settlements and 1.16 million dunums by military installations [4,5]. Even after the Cairo Agreement, Israel continues to control 22% of Gaza [6].



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Research needs to be done on the effects of agricultural, pastoral and infrastructure usages of the different types of land in Palestine. Guided by the results of this research, the Palestinian authorities will need to move quickly to provide regulations and incentives for sustainable land usage. Finding means of limiting agriculture, grazing and building will be of the utmost importance, as will coming to terms with issues of land tenure and ownership rights.

The extent of Israeli control has fostered overgrazing and continuous cropping on Palestinian-controlled land, and hence to the desertification of vast tracks of the O.P.T.. This is particularly the case in the eastern slopes region of the West Bank, where attempts to reverse overgrazing and desertification must be prioritized. Serious consideration must be given to how best to utilize the “closed military zones” in this region – which currently account for 85% of all pasture land – once it is returned from Israeli military control. Programs of native plant reestablishment and reforestation would cost around \$200 per dunum.

Urban land use must also be considered. Land devoted to urban development is growing despite Israeli restrictions on construction and efforts to impede growth in other sectors of the economy, such as industry. Urban planning comes under the responsibility of the Israeli Civil Administration, local municipalities, and/or village councils, and consequently an integrated approach is currently difficult to implement. Despite this, the Palestinian authorities must begin to look seriously at how to limit the expansion of cities, towns and villages on the valuable arable land. They must embark on a participatory process to develop and implement town plans and zoning requirements at the earliest date possible.

Water:

Water, perhaps the most scarce and valuable resource in the region, has been another focal point of the Palestinian-Israeli conflict. Israeli authorities have restricted water usage, and exploited Palestinian water resources. It almost goes without saying that addressing the issue of water rights, and coordinating water usage (with an emphasis on wise use and maximum efficiency), will be key to achieving sustainable development in the region.

The region’s groundwater resources, namely the coastal and mountain aquifers, underlie, to varying degrees, both Palestine and Israel. Surface water resources include the Jordan and Yarmouk Rivers, to which both Israel and Palestine are riparians. West Bank farmers exploit the waters of the Jordan River to irrigate their fields, but this source has become quite polluted as it serves as a receptacle for waste disposal upstream. Moreover, Israeli diversions from Lake Tiberias into the National Water Carrier have reduced the flow considerably, leaving Palestinians downstream with effluent. In Gaza, the coastal aquifer serves as the main



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water resource. Other Gazan water resources, such as runoff from the Hebron hills, have been diverted for Israeli purposes. Partly for this reason, and partly because of excessive pumping, Gaza's coastal aquifer is now suffering from severe saltwater intrusion. In the West Bank, Israeli restrictions on drilling have diminished the water resources available to Palestinian consumers. In Israel, by contrast, farmers are permitted to drill bore hole wells, accessing water resources before they reach higher Palestinian wells.

With regard to total water consumption, an Israeli uses 375 cubic meters per year (cmy), a Palestinian uses 107-156 cmy, while a Jewish settler uses 640-1,480 cmy. Israelis use around 500 million cubic meters per year (mcm) from the West Bank waters per year while Palestinians are using only 115 mcm of their own waters [7,8].

Palestinian consumption of local water resources takes place mainly in the agricultural sector. West Bank irrigated farming utilized 88 mcm, while irrigation in Gaza uses 65-70 mcm [3,4]. Israeli restrictions have drastically limited the irrigation of Palestinian land so that today only 5.5% of the West Bank land cultivated by Palestinians is under irrigation, the same proportion as in 1967. By contrast, about 70% of the area cultivated by Jewish settlers is irrigated [8].

Water consumption in sectors other than agriculture is minor. Per capita domestic, urban and industrial consumption among Palestinians is 35-50 cmy, while in Israel it is 100 cmy. Actual Palestinian demand is estimated at 125 cmy per capita and therefore consumption is expected to increase once restrictions have been lifted [7].

Not only is there an imbalance in the distribution and consumption of water between Palestinians and Israelis – the pricing of water is also discriminatory. These high prices serve as a deterrent to excessive use, and partially explain the low per capita consumption in Palestine. While the actual cost of supplying once cubic meter of water in Israel is estimated at \$0.36, Jewish settlers, who receive large subsidies, pay \$0.16 and \$0.40 per cubic meter for agricultural and domestic purposes respectively. Palestinian consumers pay up to \$1.20 per cubic meter of water, with no subsidized rate of agriculture [8].

To date, neither the multi-lateral negotiations on water nor the bilateral talks have broached the sensitive issue of equitable sharing of water resources. Water rights, it can only be presumed, will be one of the issues discussed as part of final status negotiations to begin in 1996. Only serious consideration of this issue will lead to a sustainable peace and avert environmental disaster.



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In addition to resolving the problem of water allocations, emphasis must be placed, throughout the region, on increasing the level of supply relative to demand. Supplies could be enhanced through water importation, although it seems that such options could be economically, environmentally and politically dangerous. A more feasible option would be to concentrate on increasing rainwater harvesting, and enhancing agricultural water supplies through using brackish water and wastewater for irrigation. Additionally, stress should be placed on conservation and the appropriate use of water resources. Consumption should be governed by a recognition that the Middle East is an arid region where water supplies are never going to be plentiful.

Air:

Air quality is relatively good throughout Palestine but is a rising concern among Palestinian environmentalists. While the industrial sector is underdeveloped, the number of cars is on the rise, and may present the biggest problem to air quality control. The absence of data and monitoring is acute and prohibits accurate description of current conditions.

In time, a major concern for both Palestine and Israel will be coordination on programs for air quality monitoring and control. Statistics for ambient air quality in Israel are at best spotty. One can speculate that continued development of industry along the coast will have a major impact on the air quality of residents in adjacent parts of the O.P.T., and, likewise, industrial development in Palestine will have repercussions on Israeli air quality.

Agriculture:

Agriculture is the largest sector of the Palestinian economy, generating 22-30% of the GDP of the West Bank and Gaza and providing employment to over 15% of the population [2,4,9]. However, Palestinian agriculture is far from flourishing at present. The reasons behind this are the high cost of production, particularly the cost of labor; the rapidly rising cost of living forcing marginal farmers to abandon their land and seek employment elsewhere in Israel; capital scarcity imposing economic constraints on farmers; high competition with subsidized Israeli agriculture; unfair trade laws allowing subsidized Israeli produce into the territories while restricting Palestinian markets in Israel; and lack of sufficient research and outreach services to help farmers improve their production and efficiency.

With the advent of peace, the agricultural sector is expected to develop rapidly in the coming years, acting as the engine of growth for the Palestinian economy. Both agriculture's contribution to GDP and employment are expected to increase dramatically. However, to



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ensure that agriculture develops in a sustainable and productive manner, Palestinians will need to address a number of issues.

Firstly, Palestinians will need to consider the vital relationship between economics and agriculture. This must include sound analyses of the economic opportunities available for farmers, and an outreach program that will help farmers to determine the economic feasibilities of different crops and to have access to all appropriate technology necessary for maximum economic efficiency.

A second focus of research should be increasing water efficiency in agriculture. This would include attempts to increase supplies, through, for example, water harvesting and wastewater reuse. Attention should also be paid to improving crop varieties, so as to enable cultivation using brackish waters, and to reduce water requirements. Additionally, research needs to be conducted on the potential for increasing the productivity of rain-fed agriculture, and cultivating traditionally irrigated crops, such as vegetables, without irrigation.

Thirdly, consideration of pest management and pesticide use will be vital. West Bank and Gazan farmers are using both environmentally and humanly unsafe practices during application of pesticides, as well as unsafe pesticide types, including seven of the internationally banned “dirty dozen”. This is in large part because of inadequate labeling and safety regulations, and the lack of extension services. The Palestinian authorities will have to enforce new labeling, distribution, and disposal requirements. A regional program to develop integrated pest management strategies (aiming for the minimization of crop damage through the use of rotations and biological control) is much in need.

Mineral Resources:

Mineral resources, both metallic and non-metallic, are limited. Quarrying (mainly of lime, limestone and marble) is common, but is exploited below potential due to restrictive policies on permits, exploitation, extraction, and exports, as well as the absence of research institutions and reliable data on mineral resources. Prior to expansion of the mineral exploitation sector, a comprehensive resource policy should be formulated and implemented. This would greatly assist efforts to employ clean technology in the extraction processes, to encourage proper waste disposal, and to conserve resources for future generations.

Waste Management:

Although waste is described as a resource of no net income value, its management is vital to sustainable development. The disposal of sewage and solid waste creates demands on land



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resources and can be potentially harmful to water resources. Approximately 275,000 tons of solid waste are generated annually in urban areas in the O.P.T., most of which is placed in landfills or dumped randomly [4]. Nearly 65% of this waste is estimated to be organic, implying real opportunities for waste disposal schemes that emphasize recycling. However, as of yet, no clear answers exist as to how to best handle waste disposal either in Israel or in the O.P.T.

Among the major issues to be considered is how to monitor and prevent the contamination of precious ground water resources when landfill sites are selected. This problem is of particularly cognizant in Gaza, where environmental pressure on water resources is most intense. For this reason, and also because such a high proportion of the waste is organic, it may be environmentally preferable too incinerate Gaza's solid waste. Another option to be considered is recycling. The establishment of any comprehensive scheme would have to involve regional cooperation, however, because of small population of Palestine (like the populations of Israel, Jordan and Lebanon) and the shortage of financial resources.

Tourism:

Tourism, of course, presents tremendous opportunities for the newly emerging Palestine. Estimates are that 2 million people would be expected to visit Palestine annually in the near future. In addition, several hundred thousand diaspora Palestinians will be expected to spend their summer vacation with their relatives in Palestine. Serious consideration must be given as to how this regular population influx can be productively exploited without damaging the environment.

Population Growth:

A critical issue in the discussion of sustainable development is that of population. Environmental degradation and population growth can form a cyclical process of reinforcement. A growing population obviously signifies an increasing demand for food, water, and energy, among other things, and requires equally rapid growth merely to maintain a constant standard of living. Likewise, poor environmental quality can raise the incidence of poverty and reduce opportunities for better living standards which in turn increase the fertility rate.

This issue is politically charged in the context of the Palestinian-Israeli conflict. While Palestinian natural population growth rate is high, between 3 and 3.5%, the immigration rate in Israel means that the Israeli rate of population increase is even higher, at 4.2% [4]. All are higher than the projected rate for the Middle East and North Africa overall, 2.9% [9].



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These rates of growth will undoubtedly lead to the more strain on the natural resources, including water and land. Serious consideration must be given as to how to cope with these rates of growth.

Traditional factors instrumental in reducing fertility rates (i.e. family planning, elevating the status of women, and eliminating poverty) must be targeted. Above all, the socio-economic characteristics of the population must be considered.

Public Awareness:

At present, Palestinians are more concerned with their struggle for self-determination and the attainment of the right to pursue the development course they choose than to contemplate “better” or “more appropriate” patterns of resource use when have little or no choices to begin with. While it should be noted that segments of Palestinian society were involved in environmentally sound practices such as recycling long before it became vogue, the general lack of environmental awareness is obvious to anyone passing through Gaza or driving the back roads of the West Bank. Mounds of rubbish, scattered tins, discarded plastics, dismembered car bodies discarded on roadsides and in ravines demonstrate the lack of shared responsibility and respect for shared public space. Such litter is a blight to the naturally pristine beauty of Palestine. roadside debris, when compared to the dangers of industrial waste or overgrazing, may not be all that menacing. And yet it poses a threat to more than just beauty for it is symptomatic of an unattunedness to environmental concerns.

Despite a general unfamiliarity with environmental issues, there is a perceptible increase of environmental consciousness among Palestinians. The environmental education initiative has been taken by grassroots organizations and NGO’s, but this must expand to be shared at all levels, from the policy makers to the grassroots. Palestinian leaders have a responsibility to make the protection and care of their environment a priority of the highest national importance. Publications, media programming, regular columns, educational curriculums and the formation of formal institutions such as a Palestinian Nature Protection Society may be forums for expanding awareness. An “environmental ethic” must be cultivated and adopted, in which resources – clean air, land and water – are viewed as precious assets to be carefully protected, managed and allocated. Environmental education must receive priority status in the quest for sustainable development and sufficient financial resources must be allocated to transform this into reality.



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Concluding Remarks:

The Palestinian perspective on environmental protection and sustainable development is one that takes account of the need for institution, infrastructure and capacity building as tools for the implementation of a national strategy. Above are outlined the areas that will need to be the major foci in achieving this goal. Overall, a theme of this work must be public participation – the ability for Palestinians from all parts of society to become involved in carrying out sustainable development. A plethora of economic and other mechanisms exist for encouraging environmentally sound development, and Palestinians have the advantage of being able to implement these from the beginning of the development process.

However, the important precursor for any of this to take place is Palestinian control over the natural resources within the borders which the international community recognizes as Palestine. Without this empowerment, attempts at sustainable development will be for nought. While the Palestinian authorities must begin to design environmentally sound development plans in the areas agreed upon in the first phase of the Declaration of Principles, they must also gain control at the earliest possible date of the other areas under occupation. Only through sovereignty over, and development of, all areas of O.P.T. will Palestinians be able to utilize and protect their natural resources in an integrated and sustainable manner.

Acknowledgements:

The author would like to thank Eliza Al-Laham, Stephen Gasteyer and Jan Selby for their help in the production of this manuscript.



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