

## Palestinian Environment a changing landscape



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The occupied Palestinian territory (oPt) consists of two physically separated land masses, namely the Gaza strip and West Bank including East Jerusalem with a total area of 362 km<sup>2</sup>, and 5661 km<sup>2</sup> respectively<sup>1</sup>. However, at present the Palestinians only have partial control over 40 per cent of the West Bank and 76 per cent of Gaza and the rest is under direct Israeli control<sup>2</sup>. The total estimated Palestinian population living in the oPt by the end of 2013 was 4.5 million, of which 1.7 million live in the Gaza, and 2.8 million in the West Bank<sup>3</sup>. In addition, there are about 628,000 Israeli settlers, living in Israeli settlements, built illegally on Palestinian lands in the oPt<sup>4</sup>.

Despite its small geographical area, the oPt is characterized by a great variation in topography and altitude, especially in the West Bank where the variation ranges between 1,020 meters above sea level to 420 meters below sea level. This variation is directly reflected on the climate and the distribution and diversification of agriculture patterns, from irrigated agriculture to rained farming. The Gaza Strip is essentially a foreshore plain gradually sloping westwards. In the north of the Gaza Strip there are four ridges with different elevations, ranging between 20 to 90 meters above sea level. Accordingly, the oPt is characterized by its unique variable ecosystems that encounter various climatic zones, desert, steppe, Mediterranean woodland, and even oases, join one another in this compact geographical area.

Palestine is characterized by the presence of two contradictory planning schemes that aim at exploiting its natural resources to serve two peoples: these are the endogenous Palestinian population and the Israeli settlers, which has been controlling the area since 1967. The fragile Palestinian environment has been the first casualty of this reality. It has been exposed to pressures ensuing from the practices of the Palestinian population, on the one hand, and from the practices of the Israeli Occupation, on the other hand, which have significantly contributed to changing the environmental features of the oPt. Since the beginning of the occupation in

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<sup>1</sup> Jad Isaac and Jane Hilal (2011), Palestinian landscape and the Israeli–Palestinian conflict, International Journal of environmental studies, vol. 68,4, pp 413-429, Taylor and Francis.

<sup>2</sup> Following the 1995 Oslo Accords, the West Bank was divided into three areas: A, B and C. Area A, mainly fragmented urban centres, was placed under the control of the PNA; Area B was placed under PNA civil administration but Israeli security control; and Area C which covers the Jordan Valley region, settlements and their surrounding areas, remained under full Israeli control over security, planning and zoning representing 61% of the West Bank.

<sup>3</sup> Palestinian Central Bureau of Statistics (PCBS), 2014

<sup>4</sup> (ARIJ database, 2011).

1967 the continuity of the natural landscape, the carrying capacity of the environment has been destroyed and replaced with fragmented enclaves that are rapidly disappearing. A healthy environment is integral for the viability of a Palestinian states, as it provides the physical context in which society exists and it determines the extent at which society is sustainable. Despite this fact it has received less attention in the continuing debate. Restrictions on the available resources, poor management and unsustainable practices have resulted in the radical transformation of the Palestinian environment, land fragmentation, degradation of its natural ecosystem, and depletion of its resources.

The oPt is known for its great wealth of biodiversity and is home to 2,076 species (102 endemic species in 28 families)<sup>5</sup>. Construction of the Separation Wall<sup>6</sup> has altered and destroyed natural habitats of the mentioned species threatening biodiversity and depleting ecosystems. The Wall acts as a physical barrier which not only restricts the movements of Palestinians, but also wildlife and the growth of endemic floral species. Almost 21%, 31%, and 13.1% of the grasslands, forests, and shrub-lands respectively, will be annexed behind the Segregation Wall upon its completion<sup>7</sup>. Over the last 40 years, up to 636 species (of 2,076 recorded plant species growing in the oPt) were found endangered of which 90 species are very rare. The covered forested areas in the West Bank and the Gaza Strip, compromise 78.3km<sup>2</sup> and 2 km<sup>2</sup> respectively<sup>8</sup>. Natural, planted, and bare forests are the types of forests distinguished in Palestine. Natural forests form 79.1% of the total forested area in the West Bank and planted forests cover 12.1% of total forested area. Gaza includes only planted forests, which represent 2.5 % of the total forests in the oPt<sup>9</sup>. In addition the total area of nature reserves in the oPt is about 744 km<sup>2</sup>, forming 12.8% of the total area of the West Bank and Gaza strip.



**Photo1: Plant species growing in the oPt *Anemone Coronaria* (Left), *Quercus Calliprinos* (Right)**

<sup>5</sup> ARIJ-BFS, (2007) Biodiversity and Food Security Department (BFS). Applied Research Institute - Jerusalem (ARIJ), Bethlehem.

<sup>6</sup> The Separation Wall is a physical barrier constructed by Israel. The Wall is still under construction and when completed its length will total approximately 708 kilometers (OCHA, 2011. The Wall is composed of vehicle-barrier trenches, exclusion zones, electric fences and thick concrete slabs stretching 8 metres high. The route of the Separation Wall deviates substantially from the 1949 Armistice Line (Green Line) cutting deep into the West Bank.

<sup>7</sup> ARIJ (Applied Research Institute - Jerusalem)-GIS (Geographic Information System) Department. 2011. Land Use – Land Cover Analysis for the year 2010

<sup>8</sup> ARIJ, (2011). ARIJ GIS Database. Applied Research Institute - Jerusalem (ARIJ), Bethlehem.

<sup>9</sup> Ibid

Water resources in the oPt consist of both surface and ground water namely Jordan River and Ground water forming the West Bank aquifer system and the coastal aquifer in Gaza. The renewable water quantity is estimated at 679 MCM. The natural annual sustainable yield of the coastal aquifer underlying Gaza is estimated at about 55 MCM, around 15% of the total yield of the shared aquifer. Israel controls almost all Palestinian water resources and is exploiting around 89% of the available water; leaving only 11 per cent to the Palestinians<sup>10</sup>. Palestinians are denied access to shared water resources such as the Jordan River while Israel enjoys utilizing it to satisfy one third of its water demands. Prior to the 1950s, the annual flow of the Jordan River was 1,300 MCM per year<sup>11</sup>. Today it remains less than 50 MCM per year of highly saline water and wastewater. As a result of heavy diversions by Israel and other riparian states, the Dead Sea has experienced a rapid decline in water level and deterioration in water quality which has polluted the environment and destroyed ecosystems that are reliant on it. In the Gaza Strip the environmental situation is even more critical. The increased pressure on available water resources combined with an economic blockade has damaged water resources and the environment beyond repair. The increased demand for water has placed huge pressure on the coastal aquifer system and Palestinians in Gaza have resorted to over-extraction from the Coastal Aquifer at a rate of 50-60 MCM per year<sup>12</sup>. This has caused the water table to drop below sea level and saline water to intrude rendering 90-95 percent unfit for human consumption.



**Photo 2: Wadi al Quilt in Jericho city, 2014**

Such pressure on the integrity of ecosystems and stability of natural resources increases the risk of losing the livelihood as well as the historical, cultural, environmental, and economic value of Palestinian biodiversity, despite the fact that these costs are difficult to quantify, or may indeed be immeasurable and irreplaceable.

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<sup>10</sup> Palestinian Water Authority (PWA), (2012). 'Water Supply Report 2010'. Palestinian Water Authority, March 2012.

<sup>11</sup> Lowdermilk, W.C., Palestine, Land of Promise, Harper and Bros, New York 1944

<sup>12</sup> Palestinian Water Authority (PWA), (2012). 'Water Supply Report 2010'. Palestinian Water Authority, March 2012