

Food and Agricultural Concerns in Palestine

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Abstract

Palestine, a *de jure* country located in the Middle East, is infested with problems that severely affect the living standard of Palestinian citizens in the present day. Food and agricultural issues stand out in particular, as they further deepen Palestine's other concerns. This paper first examines the historical context behind Palestine and how its past has greatly shaped its current day situation. It then expounds on much of the current problems that Palestine holds, focusing primarily on the diminishing presence of agriculture and food security. Moreover, the paper discusses the root causes behind these issues, proving that many of the troubles are due to Israeli intervention and widespread violence. Lastly, it explores potential solutions that would be able to curtail the dwindling agricultural sector. The paper comes to two conclusions: that both an increase in the development of unique farming techniques (namely hydroponics) and a reduced Israeli presence in Palestine are essential steps towards guaranteeing Palestinian citizens food security, economic growth, and ultimately, liberation and autonomy.

Keywords: Palestine, Israel, West Bank, Gaza, agriculture, food security, hydroponics

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Agricultural security is an increasingly desperate issue that affects a number of nations worldwide. Palestine, a region in the Middle East between Israel and Jordan in the Levant, is particularly reflective of this deficient agriculture that runs prevalent in other countries. This strip of land has a short yet deep history that has contributed to its current crisis, which will be thoroughly explored in this paper. Further, it will examine the modern causes behind the food crisis in Palestine, while lastly offering viable solutions to mitigate the issues at hand.

History

Palestine in its current form has had a violent past, with major conflicts stemming from Israeli intervention. To understand the root of the dispute, it is essential to recount the deep history that these two states have undergone. Zack Beauchamp of Vox Media details this well, explaining that “though both Jews and Arab Muslims date their claims to the land back a couple thousand years, the current political conflict began in the early 20th century” (Beauchamp, 2018a). He elaborates further, showing that Jews seeking a “homeland” after persecution in Europe (an ideology that became to be known as Zionism) settled in the then-Ottoman-later-British-controlled region of Palestine. Prior to Jewish settlement, the entire area was dominated by Palestinians, but after the rise of Zionist movements, the demographics slowly began to change. Arabs native to the lands viewed the mass migration of European Jews as a “colonial movement”, resulting in rising tensions. A landmark decision from the United Nations came in 1947 which split the territory in two, thereby forming Israel and Palestine. Since then, the clash has yet to be resolved.

Zionism

In basic terms, Zionism is a religious movement that seeks to establish and maintain a Jewish homeland in ancestral grounds. Beauchamp furthers that these claims to nationhood can be traced back to “the biblical kingdoms of David and Solomon, circa 950BC” (Beauchamp, 2018b). Zionism was first pioneered by Theodor Herzl, an Austrian Jew who coined the term around 1896, during the onset of European nationalist movements. After witnessing blatant and cruel anti-Semitism in Europe, Herzl began to advocate for a separate Jewish nation, one that would be free from constant persecution from European states. After organizing multiple conventions and gathering supporters, Herzl and his followers began migrations to the area of what was then Palestine. In their footsteps, tens of thousands of Jews soon followed, occupying lands of what they assumed were their ancestors. Unfortunately, many of these settlers trod on the land of Palestinians, marking the rudiments of more settler movements to come.

Balfour Declaration

In 1917, following the First World War, British foreign secretary Arthur James Balfour issued his support for a Jewish homeland to be instated in Palestine, forming the basis for what is known today as the Balfour Declaration. This document expressed British support for the creation of Israel, and legitimized the movements of Jewish settlers in Palestine.

Formation of the State of Israel

After the defeat and partition of the Ottoman Empire following World War I, Britain was given mandate over the Palestinian territory, which was partially allocated for migrating Jews in the aforementioned Balfour Declaration. The mandate officially ended in May of 1948, signaling the establishment of the State of Israel. U.S. President Harry Truman backed David Ben-Gurion, head of the Jewish Agency, who would go on to become Israel’s first prime minister. The

formation of Israel was legitimized by the United Nations, which pushed Resolution 181, a bill that would partition Palestine into Jewish and Arab states. While many Israeli Jews were in deep support for the partition, Palestinian Arabs forcefully rejected the plan, seeing it as an unjust attack on their sovereignty. After Israel became an independent state, “700,000 and 900,000 Palestinians fled or were forced to leave their homes” (History.com, 2017b).

Arab-Israeli War of 1948

Immediately following the creation of Israel, five Arab nations – Egypt, Jordan, Iraq, Syria, and Lebanon – invaded sparking what is known as the Arab-Israeli War. The two sides clashed until 1949, when an armistice agreement was met by both sides. Borders between the nations were drawn, Egypt and Jordan ultimately gained control of the Gaza Strip and West Bank (see Figure 1), areas that were prominently Palestinian (History.com, 2017a). Palestine, meanwhile, still lacked recognition from the international community.

Palestine Liberation Organization

Founded in 1964, the Palestinian Liberation Organization aimed to create a sovereign state that was separate from Israel. Often viewed as an answer to Zionism, the PLO sought to breed a sense of cultural and national unity within Palestinians, hoping to trigger liberation movements (History.com, 2018).

Six-Day War.

In this brief, 1967 conflict involving a variety of neighboring Arab states, Israel was able to defeat Syria, Jordan, and Egypt in a mere six days. They quickly occupied the West Bank, Golan Heights, Gaza Strip, and Sinai Peninsula, most of which would be eventually ceded back to Arab authority in coming decades, though Israeli presence is still felt heavily in these regions today.

Oslo Accords

Under the influence of the PLO, uprising movements known as the First Intifada began to protest the Israeli occupation of the West Bank and Gaza. The liberation movements, which began in 1987 and ended in 1991, prompted the Oslo Accords, a peace agreement between Israel and Palestinian officials. In the accords, the Palestinian National Authority was established to govern the West Bank and Gaza, while Israel agreed to slowly de-settle the Palestinian territories (History.com, 2018)

Hamas

Though different countries have separate views of Hamas, it began as a “political party” that took control of the Palestinian government in 2006. This new Sunni militant group (Hamas) incited conflict against the existing party, Fatah, resulting in mass violence in Gaza, in which Hamas eventually defeated Fatah. History.com corroborates that after the Gaza conflict, “the two [Palestinian National Authority] areas were run by separate factions, with Fatah ruling the West Bank and Hamas ruling Gaza” (History.com, 2018). The two parties eventually agreed to unify, creating a Palestinian government that had jurisdiction over both territories. Hamas, however, has had a history of carrying out frequent attacks on Israel, causing many countries to view the former as a terrorist organization.

The Current State of Palestine

Palestine is located in the heart of the Levant, a region located East of the Mediterranean Sea. The political boundaries of Palestine are often ambiguous, as Israeli occupation and territorial disputes tend to muddle the boundaries of each state. There are two important distinctions to be made: the “region of Palestine” refers to the area within the Levant that encompasses Israel, the West Bank, and the Gaza Strip, while the “State of Palestine” refers to

the UN-defined political boundaries of the self-governing Palestine. The total Arab population of the Palestinian region was estimated to be 5.8 million in 2017, with 1.84 million Arabs in Israel, 2.16 million in the West Bank, and 1.79 living in the Gaza Strip (Central Intelligence Agency [CIA], 2018). However, the United Nations recognizes the “State of Palestine” as a *de jure* sovereign state in the regions known as the West Bank and Gaza Strip. 4.5 million people reside in the West Bank and Gaza Strip, with a majority (86%) Arab demographic adhering to the Sunni Islam faith (CIA, 2018). Palestine has a land area of 6,020 square kilometers, with a population density of 839.3 people per square kilometer. The capital city is recognized as East Jerusalem, with Israel staking claims to its Western counterpart. As of 2018, the State of Palestine had a gross domestic product of 13.4 billion USD, with an annual growth rate of 4.1%. Of Palestine’s economy, agriculture accounts for 4.4% of its economic output, while industry and services contribute 22.5% and 73.1% respectively (United Nations [UN], n.d.).

Agriculture in Palestine

Agriculture, though a diminishing presence in Palestine’s economy, is rife with problems that plague the nation’s food stability and output. Despite formally employing only about 10% of Palestine’s workforce, CEPR estimates suggest that over 90% of Palestinians are informally involved in agriculture (Center for Economic and Policy Research [CEPR], 2012). This is particularly apparent in rural areas, where agriculture is essential for basic subsistence. The fragility of the agricultural sector has led to an increased dependence on Israeli labor markets, further stifling jobs and employment for Palestinians. Combined with the lack of proper training and inadequate labor conditions, agriculture as an industry has lost its profitability. The industry’s losses are likely the cause of the declining employment rate in agriculture, with employment rates of up to 15% just a decade earlier (UN, n.d.). Further, UN data demonstrates

that Palestine's agricultural production index, an indicator of a country's edible and nutritious food crops, is a mere 87. To elaborate on the qualifications of such crops, coffee, despite being edible, contains no nutritive value and is thus not factored into the agricultural production index. With most countries having an average 122.4 index points, Palestine's staggeringly low 87 is indicative of its dire and stagnating agriculture.

Food Security

Along with a suffocated agricultural district, food security for Palestinians is at critical lows. Of the 4.7 million Palestinians, 32.7%, or 1.6 million lack access to or the money for nutritious food (World Food Programme, 2019). The World Food Programme further reports that food insecurity is particularly high amongst women, with 32% of matriarchal families lacking security in Palestine, and 54% of these families with insecurity in the Gaza Strip (World Food Programme, 2019). But beyond basic insecurity is the malnutrition that affects nearly 50% of Palestinians, often due to unvaried diets. As noted earlier, Gaza faces even worse conditions than that of the West Bank. Food insecurity in this region is at 68.5%, while basic social services and infrastructure continue to crumble and collapse. Furthermore, an ongoing energy crisis leaves Gaza residents with less than four hours of electricity a day. Even drinking water remains scarce; UN data details that in urban areas, almost 50% of Palestinians lack access to improved drinking water (UN, n.d.).

Causes of Detriment in Agriculture

Palestine has, for the greater part of half a century, been subjected to oppressive occupation and domination from Israel. Since the end of the Six Day War, the Israeli military has continued to hold the West Bank and Gaza strip in the name of "national security" and "historic right". However, these efforts have severely restricted Palestinians' autonomy and have slashed

basic human rights. While both of these regions have faced similarly discriminatory and violent practices, their situations with Israel are vastly unique.

The West Bank

The West Bank is a heavily disputed area in the Palestinian region for many reasons; namely, it contains numerous historical heritage sites that both Israeli Jews and Palestinians lay claim to. From the Hills of Judea to the Jordan Valley, both groups have been actively seeking out measures to control these culturally significant lands. Beauchamp writes that “for many Jews... the West Bank was the heartland of the ancient Jewish state”, which encouraged settler movements into the region (Beauchamp, 2018). The Israeli government has been complacent with this rapid movement; since the beginning of its occupation after the Six Day War, Israel has allowed the settlement of nearly 450,000 Jews into the West Bank, with a majority of these settlers establishing homes and communities in Judea and Samaria (Federman, 2019). Other estimates from the Human Rights Watch report some 628,000 unlawful settlers, including East Jerusalem, one of Palestine’s two capitals (Human Rights Watch, 2019). This overwhelming movement of Israelis into Palestinian territories signals two main concerns: firstly, it drives out Palestinians from their own land, as the large Jewish settlements are often expansive in size (see Figure 2) and in significant areas. But secondly, the wild and sporadic nature of the locations of these neighborhoods ensures that Palestine would almost never be granted full autonomy. If Palestine were to be granted independent statehood, one of two things would inevitably occur – a deportation of all Israeli settlers in the West Bank (a migration of almost half a million people), or a creation of a myriad of Israeli exclaves scattered across the West Bank. The first solution appears to be infeasible, as the settlers would view it as an attack on their autonomy and would resist expulsion. The second is also illogical, as the politically-defined borders of dozens of

enclaves would amount to extreme complication and hurt Palestine's sovereignty. Thus, the ongoing settlement has left out any sort of potential freedom for Palestine. But beyond mere civilian occupation of the West Bank is Israel's growing military presence in the region. The Israeli military is infamous for inciting conflict with Palestinians, often with no justification. The Human Rights Watch finds that in 2018 alone, the Israeli military had "fatally shot 27 Palestinians and wounded at least 5,444", including passerby and peaceful demonstrators (Human Rights Watch, 2019). Since 2000, however, a staggering 9,917 Palestinians, 2,172 of which are children, have been killed by Israeli security forces (Israel-Palestine Timeline, n.d.). One particular instance in 2018 shows an Israeli policeman gunning down 17-year-old Nadim Nuwarah from 60 meters away, despite Nuwarah's evident innocence. That the policeman was tried and prosecuted in court represents an exception to the common trend where the Israeli aggressors face no consequences for exercising violent practices (Human Rights Watch, 2019). Israel's involvement in the West Bank extends beyond militaristic intervention. Despite international law barring occupying nations from settling occupied land, Israel has continued to provide assistance and support for its communities in the West Bank, while purposefully undermining Palestinians (Human Rights Watch, 2019). Water and electricity that is made available and inexpensive for Israelis in the West Bank is offered in limited supply or at pricier premiums for Palestinian citizens.

Israel's occupation has hurt agriculture in Palestine immensely. Tom Joyce from The Guardian writes that though the West Bank has abundant arable land for growing a wide variety of fresh produce, Israel's control of the borders forces Palestinian farmers to work within "a fractured supply chain that reduces their competitiveness" (Joyce, 2016). Mohammad Abu Khizaran, a Palestinian agricultural worker, asserts that getting through the Israeli checkpoints is

a lengthy process that can ruin the freshness of the crops (Joyce, 2016). He further identifies that Palestine's greatest challenge in their agriculture sector is their water shortage, which can be largely attributed to Israel's throttling of the West Bank's water supply. Indeed, Anne-Marie O'Connor of The Washington Post finds that "as settler agricultural start-ups get prioritized access to water, export markets and development rights, the Israeli occupation is roiling the centuries-old pastoral life of Palestinian farmers" (O'Connor, 2017). Fawzi Ibrahim, a Palestinian farmer, describes years of harassment from Israeli settlers, who "chased Ibrahim's tractor, threatened him, yelled at his Israeli soldier escorts, tried to burn his fields and warned that letting him farm would risk bloodshed", a gross display of deliberate intervention and abuse from Israeli settlers (O'Connor, 2017). Marwan Durzi, an official with the Palestinian Authority, has reported that Israeli authorities "deny Palestinians permits for wells and cisterns and demolish nonpermitted irrigation" (O'Connor, 2017). These actions show Israel's calculated intentions of strangling Palestine's agriculture and ultimately, their culture and way of life. The Human Rights Watch details even more examples of procedures carried out by Israel to limit Palestine's agriculture. 86% of the Jordan Valley, "a traditional center of Palestinian agriculture", was allocated towards Israeli settlements. The valley provides "vastly greater access to water from the aquifer beneath the valley to [Israeli] settlement agricultural industry than to the Palestinians" (Human Rights Watch, 2015). Even more egregious are the measures taken by some of these Israeli agricultural settlements. In spite of international laws and regulations, these settlements have been reported to establishing extortionist child labor practices. Palestinian children who come to work on these farms are as young as 11 years old (despite the international minimum for employment at 15) and are subjected to immeasurably harsh working circumstances (Human Rights Watch, 2015). These conditions include extreme heat (up to

122F), hazardous pesticides, dangerous heavy machinery, and lack of protective gear. Beyond this, these child laborers are denied any sort of medical or social insurance, forcing injured workers to pay for their own medical expenses (Human Rights Watch, 2015). Children, who feel compelled to work on these farms to aid their families, often abandon their education to work in establishments in which they are getting paid an average US \$19 for a full day (sometimes up to 12 hours) of work (Human Rights Watch, 2015). Thus, the exploitive nature of these settlements not only cripples Palestine's own agriculture, but also subjects young children to a life of danger and poverty.

Gaza

The Gaza Strip, which shares a border with Israel and Egypt, is a narrow segment of land that bears important cultural significance to Palestinians. Israeli forces occupied Gaza from 1967 to 2005, when they formally withdrew their troops and settlers. Though the West Bank has suffered greatly since its occupation, Gaza has arguably had it worse; Hamas, an Islamist militant group, took control of Gaza between 2007 and 2014, which was met with strict blockades from both Egypt and Israel (British Broadcasting Corporation [BBC], 2018). The rise of Hamas and their frequent rocket strikes on Israel pushed the latter to retaliate, inciting further clashes between the militants and Israelis. Gaza's food catastrophe is dire; data from the United Nations Office for the Coordination of Humanitarian Affairs found that over 68%, or 1.3 million Gazans are food insecure (United Nations Office for the Coordination of Humanitarian Affairs [OCHA], n.d.a). Of the numerous causes that lead to such food insecurity, the two main contributors to Gaza's impaired agricultural sector are an insufficient water supply and the blockade from Israel and Egypt.

Water, an abundant resource in the West, is a rare commodity for typical citizens in Gaza. As Oxfam International finds, less than 4% of Gaza's fresh water is suitable for consumption (Oxfam International, 2019). This not only signals a massive shortage in drinking water, but in agricultural irrigation as well. Furthermore, Gaza's irrigation systems are largely dysfunctional and contaminated, largely due to embargos set forth by Israel and Egypt.

Following a war-torn past, Gaza has found itself to be generally unsustainable when left to its own resources. After withdrawing their troops and settlers from Gaza, Israel quickly established blockades to prevent militant groups from obtaining resources to create missiles and other weapons. Similarly, Egypt also closed its border known as the Rafah Crossing, citing terrorism and weapon smuggling as its main reasons. This embargo has devastated nearly every aspect of Gaza's economy. The sanctions severely limit raw materials from entering, making it "incredibly difficult to develop water and sanitation infrastructure to meet the needs of a growing population" (Oxfam International, 2019). This thus spurs the vicious cycle of contaminated water, food shortages, and a broken agricultural irrigation system. As these problems fester, even the water that gets treated through sanitation systems does not guarantee its consumability. Water has become so scarce that families are spending up to one third of their entire income just on water, forcing them to cut back on other expenditures, such as food, medicine, and education (United Hands Relief, n.d.). Moreover, due to rising tensions between Israel and militant Gazan groups, Israel and the Palestinian Authority agreed on a buffer zone of 1.5 kilometers from the Gaza border (BBC, 2018). Unfortunately, the buffer zone restricts farmers from growing in the area, forcing them out of what is considered some of Gaza's most arable land. Gadzo explains that "more than a third of Gaza's agricultural land is now part of the Israeli buffer zone" (Gadzo, 2017). The effects are pronounced; agriculture has dropped from 11% of Gaza's GDP in 1994 to

just 5% in 2018 (BBC, 2018). With its critical water crisis and its hardship under Israel's blockade, Gaza will continue to suffer if immediate action from foreign actors is not taken, particularly from Israel and Egypt.

Solutions for Palestine's Agricultural Problem

Despite the turmoil that Palestine's agriculture currently suffers through, steps can be taken to improve this incapacitated industry. Already, humanitarian NGOs around the world have attempted to alleviate some of the issues that plague the most troubled parts of Palestine. Possible solutions to these problems vary by region, with the West Bank requiring different varieties of aid than Gaza.

The West Bank

Several efforts have been carried out by several organizations intent on ushering in aid to improve the West Bank's sustainability. Agriculture, of course, is seen as a key aspect for establishing a strong foundation for Palestine's economic independence. Joyce from The Guardian references the World Bank, demonstrating that "irrigation could help boost the value of production in the West Bank by more than \$1bn" (Joyce, 2016). Such projects to improve irrigation to Palestinian farms could then harbor back hundreds of millions of dollars in revenue for the West Bank's agriculture. Others, however, have attempted to solve their problems through developing unique methods of cultivating crops. Canaan Center for Organic Research and Extension (CORE) has attempted to "promote the organic production of fruits, vegetables, and grains in Palestine and abroad" (Balch, 2016). CORE has been able to build up over 1,000 hectares of almond orchards in the provinces of Tubas and Jenin, using rainwater as its main source of irrigation.

However, developments in irrigation and agricultural techniques are far from enough. In order to gain true independence and economic freedom, Israel must comply with international pressures and cease and withdraw its settlers who have, for decades, been unlawfully claiming Palestinian land as their own. Based on popular trends, settlement of the West Bank will only continue. If these measures are not met, Palestine's autonomy will continue to suffer, and along with it, its people and culture. Israel's younger, educated generation should advocate for its government to cease all transportation of citizens to the West Bank, which would trigger the start of long process of de-settlement.

Gaza

Gaza's situation is even more desperate; the Strip requires urgent and immediate attention to alleviate its citizens from poverty and food insecurity, which affects over half of its population. Much of the hunger and food insecurity problems that mar Gaza can be mitigated through developing a stronger local agricultural sector. Thankfully, various attempts have been made to relieve the crisis. The Food and Agriculture Organization of the United Nations (FAO) recognizes the necessity of introducing "farm-level technologies that increase resource use efficiency and sustainably reduce groundwater consumption" (Food and Agriculture Organization of the United Nations [FAO], n.d.). FAO thus initiated a project to promote the widespread use of hydroponics, or soilless agriculture, observing that these methods would meet the goal of water efficiency. The project, which was started in 2015, was able to establish low-tech, small-scale hydroponic farms in Gaza and found that, despite unique challenges, hydroponics were "nine times more profitable than conventional methods" (FAO, n.d.). Mersiha Gadzo (2017) continues, illustrating the life of a particular farmer who utilized hydroponic farms on his rooftop. Abu Nasser, a Gazan farmer, is able to produce twice as many crops while saving

90% more water using hydroponic methods. Nasser is one of few farmers who have begun to implement such a practice in Gaza, as these farms are not yet affordable or practical for all farmers (Gadzo, 2017). Nevertheless, a gradual increase in hydroponic farming will greatly reinforce Gaza's agricultural industry.

Like the West Bank, new methods of agriculture are not sufficient for regional stability. An almost necessary prerequisite for Gaza's cohesion is the abolishment of the blockade, which, as noted earlier, has suffocated an already damaged territory. The blockade is allowing passage for only the most basic of humanitarian relief, the amount of which falls woefully short of the necessary minimum to support the growing population. A lift on the restrictions would finally allow Gaza to connect with the global economy and receive crucial aid for its citizens, most of whom have already sunk below the poverty line. It would also allow resources to flow into the Strip, finally allowing for vital reconstruction projects and infrastructure. The threat of missiles from Gaza can also be mitigated through counterterror efforts from both the Palestinian Authority and Israel; a full blockade of the region is ineffective and cuts off urgent support and supplies for innocent civilians. A diminished buffer zone would also cede back up to one third of Gaza's arable land back to farmers. From this change, Gaza would see a substantial increase in its amount of agricultural production, inciting necessary adjustment from the cyclical nature of food shortages, water, and poverty.

Dr. Norman Borlaug famously stated that "you can't build a peaceful world on empty stomachs and human misery." Palestine is one country that hosts a suffering population where considerable numbers of people are dying due to food insecurity and water shortages. The solutions and aid required to reverse the problem are neither impossible nor impractical. The willingness of outside nations and organizations to fund humanitarian aid, build critical

infrastructure, and advocate for de-settlement and relaxed borders is what will eventually secure Palestine's future. Food and agricultural security are essential for establishing a sovereign and self-governing state, an imperative for a unique Palestinian identity and culture.

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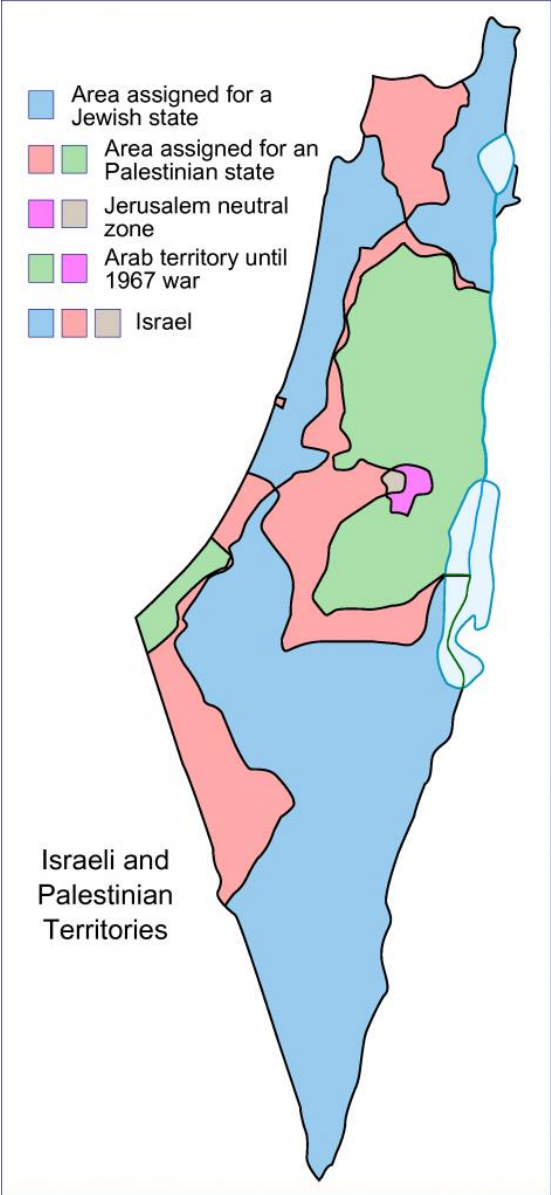


Figure 1. Current day political boundaries of Israel and Palestine following the 1967 war (End Times Truth, n.d.).

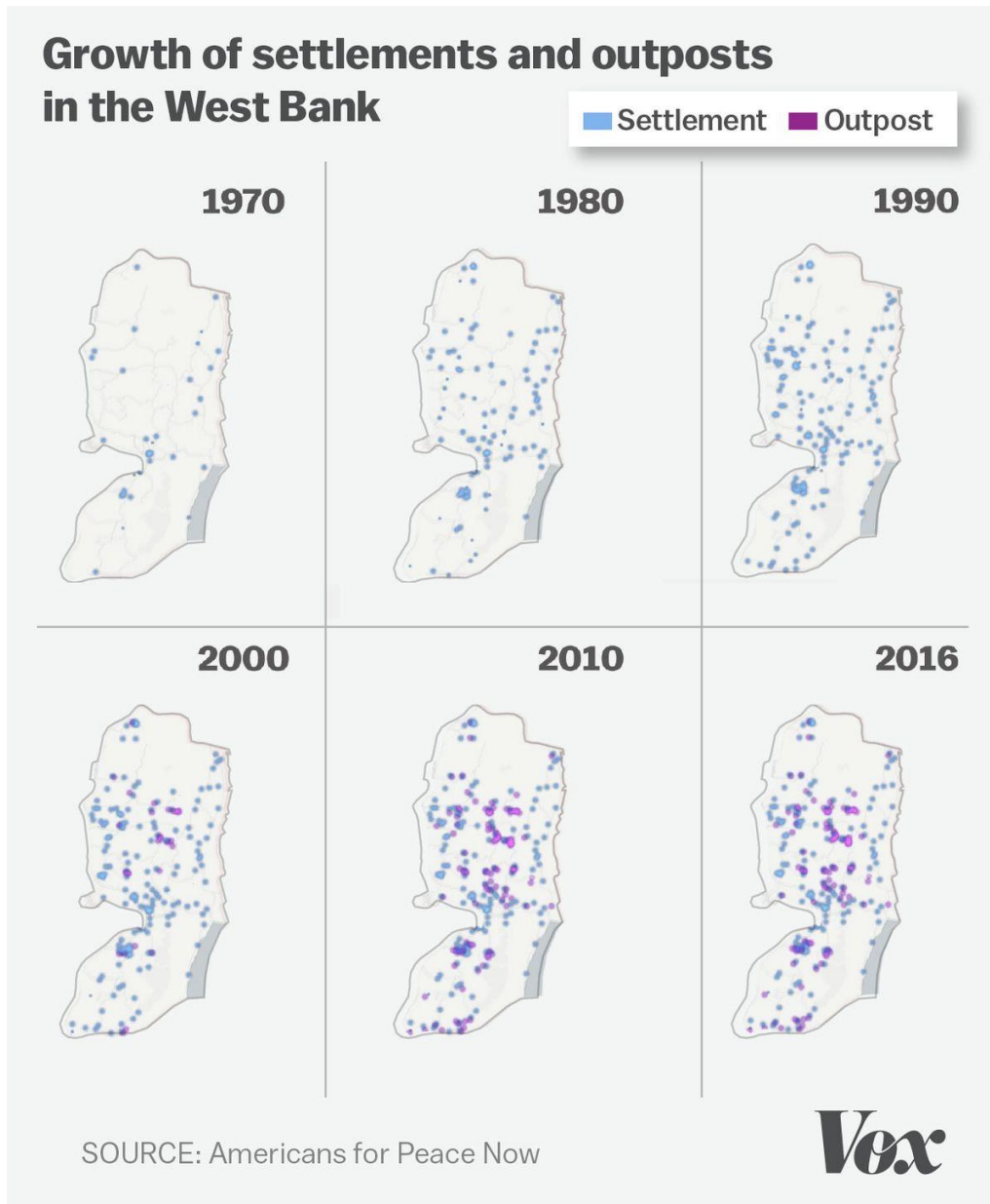


Figure 2. Growth of Israeli settlements and outposts since 1970 (Williams and Zarracina, 2016).