

AMERICAN UNIVERSITY OF BEIRUT

AGRICULTURE AS A TOOL OF SETTLEMENT: A POLITICAL
ECOLOGY AND ECONOMY ANALYSIS OF ISRAELI
AGRICULTURAL DEVELOPMENT

by

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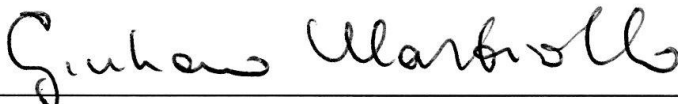
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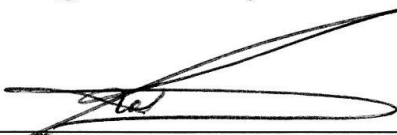
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AN ABSTRACT OF THE THESIS OF

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Israel is often praised for its agricultural and water model, and has used this recognition to better its international standing. However, this takes a historically shallow and uncritical look at the development of Israeli agriculture. Throughout its development Israel's agricultural and water systems have been built off systemic Palestinian land confiscation, water grabs, and diminishing Palestinian agriculture. This development is not accidental, but the basis of the agricultural development of the Israeli state and pre-state formation.

This study takes a historical and ecological look at Israeli agricultural development, how it has changed throughout the history of the Zionist project and the state of Israel, and how it has impacted the socio-ecosystems and landscape of Palestine. To do this, this study uses a multifaceted framework combining food regime theory of global agricultural markets, water paradigms on the sanctioned discourse of water management, and the ideas of settler colonial studies and the shared narratives and strategies of settler states. Using this framework, it then dissects the history of the Zionist and Israeli agricultural settlement into five periods, based on the changing modes and methods of this settlement development and analyzes agricultural development within these timeframes. It then looks at the impacts of this agricultural development on Palestinian socio-ecosystems and landscapes such as changes in patterns of tenancy, water systems, agricultural and grazing systems, and land cover/land use.

From this research this study asserts and concludes that throughout its history Israeli agricultural development's main use and goal was as method to gain, hold, and settle the land of Palestine. Also this large-scale agricultural settlement, clearing, and transforming the previous forms of land use and environmental interaction, radically impacted the socio-ecosystems and landscape of Palestine. While the place of agricultural settlement has changed, shifted, and has fallen from its place as the privileged and preferred mode of settlement, it continues to be used within Israeli settlement strategies.

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ACRONYMS

CPAL	Commission for Protection of Agricultural Land
NOP 35	Israeli Comprehensive National Outline Plan 35
IDF	Israeli Defense Forces
ILA	Israeli Land Administration
JNF	Jewish National Fund
JA	Jewish Agency
JCA	Jewish Colonization Association
NWC	National Water Carrier
PLDC	Palestine Land Development Company
PICA	Palestine Jewish Colonization Organization
WZO	World Zionist Organization

CHAPTER 1 INTRODUCTION

Israel is often lauded on the international stage as a “world leader in making agriculture flourish in an arid environment” and called “the unsung hero in water management” (Schwab, 2016; Spreyer, 2016). In a strategic effort, Israel has used this reputation to export its agricultural and water model to other nations such as Mexico, Turkey, China, and India to better its international standing (Booth, 2016). It has also stepped into managing the situation of California’s enduring drought, and to relay its “cutting-edge farming practices,” which claims to have enabled it to become “an agri-tech superpower in a land that was known a century ago for swamps in the north, deserts in the south, and very little water anywhere” (Milstein, 2016). Most notably, Israel has also been expanding its relations with South Africa over issues of agriculture and water. Despite criticism from leaders such as president Jacob Zuma of Israel’s harsh response to Palestinian attempts at self-determination, recently there has been diplomatic relations between South Africa’s director of Department of International Relations and Co-operation and Israeli diplomat Dore Gold over issues of water, agriculture, and trade (Monama and Mkize, 2016). All the while, Israel’s water model is inseparable from its agricultural practices, which have been built off systemic Palestinian land confiscation, water grabs, and diminishing Palestinian agriculture (Farming Injustice Report, 2013). This development is not accidental, but the basis of the agricultural development of the Israeli state and pre-state formation.

This praise, export, and acceptance of the Israeli agricultural model takes a very ahistorical and uncritical look at Israeli agricultural and water development. This study provides a critical analysis of Israeli agricultural development: how it has been used in the

settlement of Palestine, how this role changed, and what are the ecological implications of Israeli settler agriculture. While the volumes on the conflict over Palestine could fill libraries, the works written on agricultural settlement in Palestine may struggle to fill a few shelves. This is striking, as agricultural settlement has explicitly been one of the main forms of Israeli settlement. Further, while research often focuses on the place of water in the Zionist project and later Israeli state, there seems to be a disconnect as these rarely provide a deep discussion of agricultural settlement, the use for a majority of Palestine's water resources for more than half a century. To address this gap, this research investigates the processes, forms, and changes within Israeli agriculture settlement. Also because of large amount of work on the more traditional political aspects of the Israeli-Palestinian conflict, this work will not delve deeply into these histories.

In order to accomplish this, this study uses a multifaceted theoretical framework including understanding Israeli agricultural development in the changing global economy, in water use and management, and in relation to other settler colonial powers. In addition, this study investigates and evaluates the extractive methods of Israeli settler agriculture on Palestinian socio-ecosystems. From such investigation this work asserts that Israeli agriculture has been one of the main instruments for the settlement of Palestine; that the place and processes of agricultural settlement have changed throughout history, and that, although no longer the privileged tool of settlement, it continues to play a role in settler development and land control. In addition, because of the erasure and extractive methods of Israeli agriculture, there have been large and wide-ranging impacts on Palestinian socio-ecosystems and the historic landscape of Palestine. Although an exhaustive study of these impacts is beyond the scope of this work, a number of critical changes to the ecosystems and

landscape of Palestine will be discussed. This agricultural development has been shaped by the narratives and strategies of other settler colonial nations, influenced by the pressures of the world economy, global food regimes, and sanctioned discourses around water. By looking at this development through these vectors one can better understand the trajectory of Israeli agriculture, its place in settlement policy, and better assess the impacts of this development on Palestinian socio-ecosystems.

This work builds off other studies that look at the place of non-conventional tools of land control. Particularly, this study builds off previous work analyzing the place of afforestation as part of Israeli settlement as providing a large piece of a two-pronged process of rural settlement (Cohen, 1993; Braverman, 2008; Braverman, 2009; Long, 2009). In this way, these dual pincers of settlement of “agricultural and afforestation work transformed these imagined-aesthetic landscapes of the homeland into material-aesthetic landscapes of the nation” (Long, 2009, pg. 66). However, while these works very astutely examine the use of afforestation and the place of the tree as “the enemy soldier,” (Braverman, 2008) there is little investigation other piece of this settlement, the modes and processes of agricultural settlement.

This investigation is structured into two large sections, the first being chronological, dividing the history of Israeli agricultural development into periods. This periodization is based on changing characteristics of agricultural settlement and takes into account larger changes in global agricultural markets and water management paradigms. The second section focuses on the impacts of Israeli agriculture. The chapter three will discuss how early agricultural settlement took on a private plantation form, focused on export crops such as wine grapes and citrus, influenced by other settler agriculture models, and encouraged by

British mandate policies. It will also discuss the beginnings of more organized and focused pre-state agriculture, with the rising influence of the Jewish National Fund and Zionist Executive organizations. Chapter four will look at the shift from mainly private agriculture to the building of small-scale collective and family farms, with strategic land acquisition characterized by high input use and more large-scale irrigation in agriculture. This chapter carries into the creation of the Israeli state and the Palestinian Nakba, examining the prominence of the kibbutz agricultural type and its importance for land capture and holding during and after the expulsion of Palestinians. The chapter five discusses the transfer to the agricultural settlement type of the moshav, from that of the kibbutz and this model's dominance. It also observes the eventual challenge of this settlement model coming with the ascension of the right wing Likud party and changes in global food regimes and water paradigms. The chapter six will describe the fall of the privileged place of agricultural settlement, the reasons behind this change, and some of the settlement structures that have replaced it. The chapter seven will look at the much more recent place of agriculture in settlement: how new technologies, environmental visions, and new settler movements have given novel arguments for the continued importance of agricultural settlement.

The second section will analyze some of the critical impacts of agricultural settlement on Palestinian environments and socio-ecosystems. The chapter nine will discuss how early Zionist settlement, combined with British Mandatory policy and eventual Israeli state violence, made for massive depeasantization and destruction of complex systems of land tenure and use. The chapter ten of this section will discuss the place of Israeli agricultural settlement in Palestinian rural livelihoods, including changing agricultural patterns, urbanization, and food security. The chapter eleven will look at the impacts of Israeli

agriculture on the water bodies and systems of Palestine. Lastly, chapter twelve will discuss specific changes of land cover resulting from agricultural settlement.

A. Theoretical Framework

1. Food Regimes

To more fully understand the processes and systems of Israeli agriculture in larger global contexts of agricultural change, this work will take the insights of a number of theoretical models including food regime theory, the framework of water paradigms and the comparative historical ideas of settler colonial studies to look at shared settler narratives and strategies. Food regime theory, developed by Philip McMichael and Harriet Friedmann, attempts to explain “the strategic role of agriculture and food in the construction of the world capitalist economy” (McMichael, 2009, pg. 139). In this theory two food regimes have been established, with an emerging regime debated in the recent decades. This theory is very useful as it sheds light on how agriculture dialectically shapes and is shaped by other economic structures within the world economy. The first food regime described is that of the Settler colonial regime, beginning in 1870 and changing after WWI. In this structure of global agriculture, British hegemony and its financial system of the pound sterling created “the first price-governed market in an essential means of life” (Friedmann, 2005 pg. 125; McMichael, 1984). In this system agricultural flows of exported temperate/exotic agricultural products and grain staples were produced in colonies to feed the emerging proletariat of the colonial center. At the same time these colonies began to slowly build up their own state agricultures, with one of the main structures being that of the family farm (McMichael and Friedmann, 1989).

After the devastation of WWI and the Great Depression, there began to be a reformulation of agricultural markets. The second Mercantile-Industrial regime re-routed surplus flows of agriculture from colonial centers, the main example being flows of staple grains from the United States and Europe, to newly post-colonial states. In this way, centers like the United States and Europe set prices and conditions for domestic farmers, which made for the production of export surplus from these centers. Staple foods like maize, wheat and soy became industrial commodities, which helped globalize a ‘modern’ diet based on wheat and meat (Friedmann, 2005). This surplus was used as food aid and cheap export, which was combined with pushes for the industrialization of agriculture in post-colonial states (McMichael 2009). These processes changed after the 1973 food and oil crisis and gave way to a still emerging new regime. While there are disagreements about all of the characteristics of this recent regime, this work will take insights from both McMichael’s corporate food regime and from Friedmann’s green capitalism regime. McMichael argues that this new regime is characterized by a neo-liberal shift in agriculture, by which large trade organizations and multinational corporations have set the rules of trade (McMichael, 2009). While Friedmann acknowledges the place of multinational corporations and large trade organization, she differs from McMichael in her views of alternative movements such as those of farmer-led food sovereignty and the generalizing of both peasant movements and corporate interests (Friedmann, 2016). In her analysis Friedmann sees other aspects of the regime where, “a new round of accumulation appears to be emerging in the agrofood sector, based on selective appropriation of demands by environmental movements” (2005, pg. 139). These new trade rules have allowed the expansion of subsidized production in the global North with newly opened markets in the global South. At the same time there has been a

move away from domestic production to high-value export crops such as fresh fruits, vegetables, and flowers for much of the agriculture of the global South. Through this theoretical model this work is able to analyze how Israeli agricultural development was shaped by, or was incongruous, with these larger forces in the global agricultural economy.

2. Water Paradigms

In combination with food regime theory, this study employs Tony Allan's idea of water paradigms and Francois Molle's concept of hydraulic bureaucracies. These are used to understand the large structures that influenced water development and its place in agricultural settlement. While water's place in Israeli agriculture has changed, particularly in the last three decades, for much of the study period upwards of 70% of freshwater resources have gone to agriculture. These theories of agriculture and water development will uniquely be used in tandem to understand the Israeli case. Allan posits that throughout modern water development there have certain ideas and management strategies have become dominant "sanctioned discourses" (Allan, 2003). He then maps the periods of these discourses, which fit with shifts in the global economy discussed by McMichael and Friedmann. Allan lays out five water paradigms that describe water development. The first, premodern paradigm, the period before 1870s, is associated with limited technical and organizational capacity of water systems. The second, the industrial modern water paradigm beginning in the late 1880s, is characterized by the ideas of the hydraulic mission with large centrally-planned water projects and state control of water. This management model dominates for quite some time before shifting from criticism of what Allan calls, the reflexive modern paradigms, beginning around the late 1970/80s. This last period of the reflexive modern paradigms includes

environmental, economic, and integrated management understandings of water management and development (Allan, 2003). These last reflexive paradigms; environmental, characterized by water reduction for agricultural and environmental degradation awareness; economic valuation, or seeing water as a scarce resource to be valued; and Integrated Water Resource Management (IWRM), or looking at water problems as issues of more integrated management: are important for understanding the shift away from agricultural settlement in Israel. To complement and flesh out this framework, this study also uses Molle's work around the creation of structured state water systems or hydraulic bureaucracies. Molle describes aspects of the export and creation of the sanctioned discourse of the hydraulic mission, and later, the shift away from this long dominant paradigm beginning in the 1970s until today. (Molle, Mollinga and Wester, 2009).

3. Settler Colonial Narratives and Strategies

In addition, this work will use the comparative historical ideas of settler colonial studies to look at the similar settler narratives and strategies that gave credence and shape to settler colony projects. This comparative work is not done to gloss over the many differences and distinctions of settler colonial projects, but to show that during the development of Israeli agricultural settlement, there was exchange and parallel use of these similar settler narratives and strategies. Salamanca, Qato, Rabie, and Samour describe the importance of understanding Israeli processes in relation to other settler nations writing, "while Israel's tactics have often been described as settler colonial, the settler colonial *structure* underpinning them must be a central object of analysis" (2011, pg. 2). Here this study will look at these structures in the form of shared settler narratives and strategies for agricultural

colonization, and examine their changes overtime and in relation to other settler states. It will also show the direct exchange of these strategies and narratives, which often came in the form of consultants, development experts, and the study of settler strategies by Zionist framers (Troen, 2000). While a demarcation of different narratives and ideas is more difficult owing the fluidity of their use and twisting emergence, this study will sketch out the figure of these ideas along with changing food regimes and water paradigms.

Some of the narrative arcs that we will discuss and dissect are those of romantic ideas of settlement land as ‘terra nullius,’ or the idea that the lands of settler colonial projects, such as Israel, the United States, Australia, South Africa, French North Africa, were sparsely inhabited and were being used by native populations in an unproductive way (Gasteyer, Issac, Hillal and Walsh, 2012). Complementarily, there are narratives about native populations as savage, backwards and uncivilized, seeing both the land and people as something in need of change and modernization (Gasteyer and Flora, 2000). In early settler state development we also see use of the narrative of man’s ability to dominate nature for social productivity. This idea, rooted in the European enlightenment, takes the notion that nature’s forces are there for the harnessing of society. These notions are also linked with liberal ideas of economic trade as “the domination of nature, as well as the domination of human nature...became subsumed within the logic of the market” (Harvey, 1996, pg. 131). This narrative manifested itself in agricultural and water management in the creation of large dams, irrigation projects and modern, high input farming techniques. We see this in settler projects from California to South Africa where rivers were “to be ‘tamed and domesticated’, so that ‘deserts [could be] turned into gardens’” (Molle et al, 2009). We also see this in French North Africa, where

French colonial officials specifically designed their irrigation after those in California (Ertsen, 2006).

Another evident narrative form are romantic ideas around land bolstered by the use of biblical allegories and allusions. These romantic ideas, in contrast to the ideas of native people's interaction with land, see "settlers' pioneering process, as life close to nature and if possible, in the old motherland, which may revive national life and civilization" (Schnell and Arnon, 2011, pg. 177). These romantic narratives often recall biblical stories: early Zionist settlement used narratives of restoring the land of milk and honey, while American Western settlers saw the West as the new 'holy land' (Molle et al, 2009). Many of these similar narratives and ideas were employed early on in the colonization of Palestine.

Later on, particularly with the rise and dominance of the Jewish National Fund and the Zionist labor party, we also see narrative strings of resource scarcity and land degradation. In the Israeli case we see a narrative shift from water abundance to one of scarcity, creating a justification for water control and large state water projects (Alatout, 2009). Similarly we see such ideas used in discussing other types of natural resources such as soil. Soil degradation and desertification are tropes that have often been used by colonial actors to justify top down intervention in areas such as West Africa (Koning and Smailing, 2005; Boateng, 2013). This parallel narrative structure use in settler colonial development is summed up nicely by Gasteyer et al writing that settlers, "whether in Africa, the Americas, Asia, or the Middle East followed this pattern of a narrative of modern development of 'barren' landscapes, settlement for production, displacement of the local population, and expansion on to the land designated for that population over time" (Gasteyer et al, 2012, pg. 464).

While there is less comparative work looking at later development of settler states, a number of novel narrative shifts occurred within Israeli discourse. During the early state period one can see more security-focused narratives around agricultural settlement with early state settlements pushed forward on these security-based ideas (Kellerman, 1993; Kellerman, 1996). This security narrative continued and furthered after the territorial control of the occupied territories, particularly under the Sharon settlement plan (Yiftachel, 2010).

Lastly, more recent narratives and strategies have come about, reflecting Allan's ideas of reflective paradigms, that have been critical of agricultural settlement for environmental, economic, and water management reasons. De-Shalit (1995) draws historical parallels to the United States, Canada and Australia, describing shifts in Israeli narratives from those of the early settlers' conquest of land and nature, to the eventual reflection of environmental preservation. These new narratives arose with the growth of the Israeli environmental movement, influenced from global shifts in water management, and environmental economics. However, while challenging some of the assumptions of previous forms of agricultural settlement, they do not directly challenge the basis of agricultural settlement, only its environmental and economic sustainability (Shani, 2011; Thomson, 2016). At the same time there has also been a revival of some of the older narratives of natural conquest and remaking by new settler movements such as Gush Emunim that has at times clashed with reflexive narratives (Shani, 2011).

This multilayered framework is given a visual outline below showing the periodization of Israeli agricultural development along with the ideas of the framework. Through this framework this study gives a deep historical understanding of Israeli

agricultural settlement's place in the global economy, in large ideas of water management, and in relation to other settler states.

	1880s - 1929	1930s -1950s	1950s - 1977	1980s - 2005	2005- Present
Food Regimes	First food regime: based on export agriculture and the creation of state agriculture		Second food regime: grounded in agricultural surplus from colonial centers	Third corporate food regime: based on neo-liberal reorganization, extra-state influence on food flows and trade	
Water Paradigms	Premodern paradigm	Industrial modernity paradigm: characterized by large water projects and the hydraulic mission		Environmental, economic valuation and integrated management paradigms	
Narratives	Terra nullius, classical/romantic, abundance	Modernization, productivity, settling periphery, scarcity		Security	Preserving nature, water saving, water/environmental, open space revisionist/neocolonial

Figure 1.1: Theoretical Framework

Finally, in order to evaluate and examine the impacts of Israeli agriculture, this study will use the ideas of political ecology. Political ecology gives us the insight of seeing landscapes as being created, not just by natural forces, but also by social and economic forces that increasingly make spaces of socio-ecosystems. Swyngedouw discusses this idea writing how ecosystem production has become both a “physical and social process” (2004, pg. 2), creating ecological landscapes that are shaped by social factors as well as natural processes. Robbins and Sharp (2003) have also shown how economic and ideological systems can change and negative impact environments. By looking at the “inter-connected social and ecological scales and processes” this study is able to show how social changes, such as depeasantization and shifts in land tenure forms, influenced ecosystem functioning and environmental changes within a landscape (Bailey and Buck, 2016, pg. 480).

B. Methodology

To investigate this study's intended goals, the methodology consists of a critical historical literature review, contemporary research into the present and future role of Israeli agricultural development, review of literature on the ecological impacts of Israeli agriculture, and spatial analysis looking at the effects of agricultural settlement on Palestinian socio-ecosystems.

For the historical literature review this study looked at secondary historical sources on Israeli land policy, agricultural development, and water development to understand what work has already been done on these issues. These included works of historical geography, social history, and rural history. Primary sources included land policy and planning documents under the British mandate government and Israeli state agricultural and land bodies such as the Ministry of Agriculture, the Jewish National Fund, the Israeli Land Administration, the Commission for Protection of Agricultural Land, and the National Planning and Building Board. This also included statements, rhetoric, and goals of Israeli policy makers and politicians; reports by NGOs; and other civil society actors and data from the Israel Central Bureau of Statistics.

For analysis of Israeli settler agriculture's impacts this study has chosen a number of relevant changes within Palestinian landscape and social systems come about through literature review on the effects of agriculture and agricultural development in Israel and Palestine. This is comprised historical documents on changing modes of Palestinian livelihood from Israeli settlement, scientific journals discussing environmental impacts of

Israeli agriculture and agricultural development, and reports by Israeli and Palestinian NGOs and civil society organizations on the environmental and social impacts of Israeli settlement. In addition, this study also used mapping tools of ArcGIS in order to map where agricultural settlements had replaced previously Palestinian villages. To do this maps were taken from Nijim (1984), Kadman (2015) and Weintraub, Lissak, and Azmon (1969) and were digitized, georeferenced, and compared to see where and what type of Israeli agricultural settlement replaced Palestinian villages. Lastly, while travel restrictions did not easily allow for fieldwork, during the period of study frequent correspondence occurred with researchers on the ground, including colleagues at Birzeit University and organizations like the Union of Agricultural Work Committees and the Applied Research Institute of Jerusalem.

CHAPTER 2

THE LANDSCAPE AND ECONOMY TO BE SETTLED: PALESTINE BEFORE THE BRITISH MANDATE

The landscape of Palestine is one that has seen millennia of human interaction with the environment through agriculture and pastoralism, and which is host to a wide range of geological features, and species of flora and fauna. The total area of Palestine is estimated at 27,000 Km² or 27,000,000 million dunums¹. There is large variation of topography within the country with the mountainous areas of the West Bank reaching heights of 1,020 meters above sea level and the lowest point being 420 meters below sea level at the Dead Sea (ARIJ Status of the Environment in the State of Palestine, 2015). The main geomorphological zones within Palestine are the central highlands, coastal region, Western slopes and valley, Eastern mountain slopes area, the Jordan Valley, and the large arid Southern region.

¹ This study will mainly refer to land size in dunum, as most of the historical sources cite this measurement. 1 hectare is equal to 10 dunums.

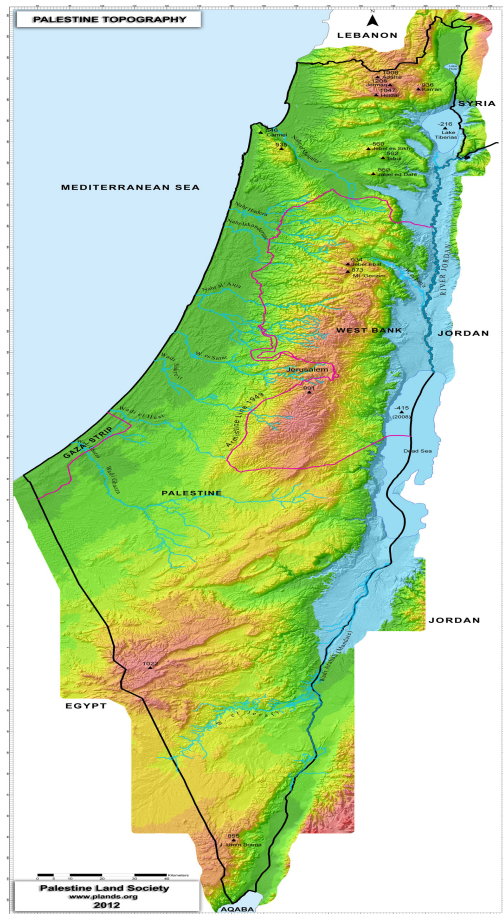


Figure 2.1: Topography of Palestine (Palestine Land Society www.plands.org)

Much of the rock formations within Palestine are composed carbonate rock such as limestone, dolomite, and chalk, making for a highly karstic landscape. The major soils found in Palestine are terra rossa, brown rendzinas, vertisols, reg soils, and aridisols (Singer, 2007). The climate is typical of many areas within the Mediterranean with long, dry summers and temperate winters, with a majority of the rainfall coming between October and May. Generally, rainfall decreases from the Northern towards the Southern part of the country, with rainfall ranging between 300-900 mm annually in the North and decreasing to 200 mm and below in the arid South (Ministry of Environmental Protection, 2010).

As far as water resources there are a number of trans-boundary surface water flows and ground water resources in the region. The surface waters include the upper Jordan rivers of the Hasbani, Liddan and Banias, which sit trans-boundary between Israel, Lebanon and Syria. The combined flows of the upper Jordan then run into Lake Tiberias, ranging between 500 and 1,100 million cubic meters (MCM) per year (Rosenthal and Sabeel, 2009).

Historically, the Hula Lake and surrounding wetlands also served as another tributary of the upper Jordan, sitting above Lake Tiberias². The lower Jordan then flows into the Dead Sea, with historic flow into the sea being estimate at around 1,200 MCM annually (Tal, 2002).

Other major rivers include is the Yarmuk river, which flows from Jordan and Syria into the lower Jordan and Nahr al-Ajua³, which runs through the center of the country. There are also various wadis, or perennial streams, that flow into the Jordan and appear within the karstic landscape, moving out into the Mediterranean sea.

In addition, there are a number of ground water resources in the area. These include the Mountain Aquifer, made up of the Western, Eastern and North Eastern sections. The Western Aquifer is largest of the three, with a sustainable recharge rate of 362 MCM/year. The North Eastern in the second largest, with a recharge rate of 145 MCM/year. The Eastern Aquifer has a much smaller recharge rate of around 78 MCM/year. Lastly, there is Coastal Aquifer, which runs along the coast of Palestine, with an estimated recharge rate of 485 MCM/year (Zeitoun, 2008).

² A note on naming. This study will by default use the Arabic name or English translation for a place or area, except for certain cases of expedience, for example with areas such as the Galilee, referring to most Northern part of the country

³ Commonly referred to by the Hebraized name; Yarkon



Figure 2.2: Water Resources in Palestine (Zeitoun, Messerschmid, and Attili, 2009)

By the 1880s, Palestine was being pushed into an emerging global market system. The Middle East had been opened by the penetrating forces of European capital (Scholsh, 1982) and became a “producer of primary products and market for manufactured and colonial products” (Shafir, 1996, pg. 26). Another reason for the expansion of agricultural markets, and a change that will feature largely in this account, is that of the Ottoman land reforms. Both The Land Code of 1858 and Tapu Law, as part of the larger modernization project of the Tanzimat, were points of divergence for land tenure and historic forms of land use. These reforms had a number of salient requirements and impacts. One of the major aims of these reforms was to increase agricultural production in order to the grow tax base and increase tax revenue (Kark, forthcoming) and to increase production for export. In addition, the reforms made possible the greater privatization of land and for the buying of land by

foreign citizens (Shehadeh, 1982; Solomonovich and Kark, 2015). After the reforms, the land categories in Ottoman Palestine stood as waqf: religious trust land, mulk: completely private land usually sites of homes within towns and villages, miri: under the reforms, this land type was land that was under the ownership of the Ottoman sultan but was given use to those that would keep it under continuous cultivation, mahlul: this was miri land that had been uncultivated for more than three years, after which it returned to property of the state, mawat: or dead land was vacant land, that could be brought into the miri category by cultivation, lastly, matrouk: or left over land was essentially public land, such as large rocky areas, grazing ground (Shehadeh, 1982; Solomonovich and Kark, 2015, Kark, forthcoming). The majority of agricultural land during this period, and up until the British mandate, fell under the miri category (Tamim 1995, Dajani, 2005). These land reforms produced large-scale effects and while some were not seen immediately they played a very important role in the changing of agricultural livelihoods in Palestine.

Agricultural production in Palestine during this time consisted mainly of grains, legumes, and olives, partially for subsistence and partly as surplus for market sale, as well as more export oriented crops such as citrus (Nadan, 2006). Much of the export crop went into the colonial food market, and particularly most of the country's citrus fruit was exported to Britain (Owen, 1993). This agricultural production was highly based on the climate and topography of the area with citrus planted in the coastal plain; olive, fruit trees, and cereals in terraced plots in the central mountainous areas; wheat and barley production in the arid South, with seasonal grazing in the South, extending up the West side of the Jordan River. Except for citrus production and some vegetables most of the agriculture was unirrigated, with only 5.8% irrigated agricultural land before 1920 (Graham-Brown, Sarah, 1990).

Until 1918, Palestine's rural population ranged between 65-70%, thus making up a bulk of the area's inhabitants (Stein, 1984). This rural population engaged in highly varied and complex forms of land use and tenure. One of the most widely practiced forms of land use was *musha'a*. This was a form of communal land tenure by which a group of fellahin, Arab farmers, would communally hold land, which was then periodically redistributed (Atran, 1986; Patai, 1949). This title could also apply to communal grazing land (Zurayk, 2011). This system of communal redistribution was emeshed over the Ottoman categories of *miri* and *mulk* lands, where by *musha'a* redistribution could occur over land held in *miri* form (Mundy and Smith, 2007). This land use form was generally centered around the social unit of the *hamula*, or patrimonial village group (Atran, 1986). While some argue that part of the Ottoman land reforms, through requiring the process of land registration, was an attempt to end *musha'a* land use, (Pappe, 2006) others have discussed how forms of *musha'a* were not in contradiction with the land reforms (Firestone, 1990). *Musha'a* cultivation was widely practiced throughout much of Palestine, with estimates of around 70% of villages land cultivated in this fashion in 1917 (Nadan, 2003). In addition to this form, there were a wide variety of other shapes of land use and tenure. This included various forms of sharecropping and co-cultivation. In these situations a landowner and farmer came into an agreement and supplied differing amount of farm inputs, such as land, labor, seed...etc. and then received varied shares of the yield from production. For example, while there existed more straightforward crop agreements where a farmer would provide only the labor and receive between one-fourth or one-fifth of the produce, there were also agreements where a farmer would provide labor, animals, equipment and receive two-fifths of the production. Another increasingly common form of cultivation, before and into the British Mandate, was that of

co-cultivation, muzara'a, or joint farming. In these arrangements there was a greater partnership, or sharaka, between the farmer and the landowner, sharing more in the responsibilities and inputs of the farm (Firestone, 1975 A and B; Nadan 2006). Many of these forms of tenure were used in a shifting and overlapping fashion with some farmers being owner-cultivator on some plots, while also being part of a sharecropping agreement on another plot, creating what is often described as a 'web of tenure' (United Nations Human Settlements Programme, 2005).

Another salient aspect of rural life in Palestine during this time was increasing indebtedness. Crop failures, livestock disease, the predatory practices of moneylenders, land taxes, and military and civil unrest during WWI all had a hand in the surmounting debt of many agriculturalists in Palestine (Stein, 1987). This indebtedness is part of the reason for some of the creative forms of land cultivation, for as some former owner-operator farmers sunk into debt they took on joint farming partnerships with other farmers in order to share the financial burden of cultivation (Nadan, 2006). Debt of rural inhabitants also played a later part in the sale of land to Zionist settlers in subsequent years.

In addition to these forms of Palestinian peasant agriculture, there also existed large Bedouin populations who engaged in nomadic and semi-sedentary pastoralism as well as more sedentary cultivation. At the beginning of the British Mandate the Bedouin population of Palestine hovered between about 60,000 and 85,000, most of whom were located within the Southern Naqab⁴ and the Northern Galilee areas and were divided among around 95 tribes (Goering, 1979; Falah, 1991). The Palestinian Bedouin generally did not conform to any Ottoman imposition of land tenure and although there had been efforts at sedentization

⁴ commonly referred to by the Hebraized name; Negev

by the Ottomans these attempts had not result in large change to Bedouin lifestyle. While even before the beginning of the British mandate some Bedouin had begin to shift to semi-sedentary cultivation of land, many before this period depended on pastoral grazing of sheep, goats, cattle, and camels, often moving to different areas throughout the Southern Naqab and up into the middle Jordan Valley (Goering, 1979).

It is in this environmental and economic landscape that the Zionist settler project was initiated. These factors performed a large role in the shape and development of Zionist agricultural settlement.

CHAPTER 3 FROM PRIVATE PLANTATIONS TO STRATEGIC LAND ACQUISITION 1880S-1929

A. Moshava Plantations and Private Agricultural Settlement

In this section we will see the establishment and introduction of the main types of Zionist settlement: the moshava, kibbutz, and moshav, the shifting dominance of these types, and their influence by other settler strategies and ideas. The first Zionist agricultural settlements appeared in Palestine in the late 1870s and 1880s, under the guise of early organizations such as the Hovevei Zion or Lovers of Zion and Rishon le-Tsiyyon or First in Zion. Many of these first settlements did not continue as they were poorly planned and financed, with an estimated 90% of outmigration of early settlers from these initial settlements (Lehn, 1988; Kellerman, 1993, pg. 54) However soon after, later waves of settlers with more precise and prepared visions came to renew the settlement project with their main avenue of land settlement being agriculture. While there were various reasons for choosing agricultural settlement, with some being more metaphysical, such as the remaking of a new Jewish consciousness and redemption of the land (Kimmerling, 1982; Kellerman, 1993), there were also some more practically rationales.

Firstly, as early Zionists sought land control by legal means this meant that they had to work within the bounds of the Ottoman system, therefore much of the land in Zionist holdings had to be cultivated or they would risk it reverting back into property of the Ottoman state (Long, 2009). Secondly, agriculture was a way to create a larger presence on the land, thereby establishing greater claim. In this way “without military conquest of Palestine...Jewish presence through cultivation was the key to ownership” and “the

foundation of future sovereignty” (Kimmerling, 1982, Shafir, 1996, pg.139). Thirdly, modernizing and creating a more productive agrarian landscape was a way to present the Zionist project to other Colonial benefactors, namely the British (Lehn, 1988; Atran, 1989). Remarking in 1915 on agricultural colonization of Palestine, Chaim Weizmann, the president of the World Zionist Organization (WZO), wrote that “should Britain encourage a Jewish settlement there, as a British dependency, we could have in twenty to thirty years a million Jews out there, perhaps more; they would develop the country, bring back civilization to it and form a very effective guard for the Suez Canal” (quoted in Atran, 1989). Lastly, in initial planning and the early period of Zionist settlement, there was much study of other settler colonial projects and methods, most of them focusing on agricultural colonization (Troen, 2003, Shafir, 1996). However, agricultural settlement was not a moot point. A number of Zionists, such as the director of the colonizing organization the Anglo-Palestine Company, were of the opinion that “urban forms of settlement, that is, industry and trade, were the fastest and the economically and socially safest ways to settle Palestine” (Karlinsky, 2005, pg. 28). But, quickly agricultural settlement became the preferred and privileged method of Zionist settler colonization in Palestine.

After the initial failure of very first settlements, the Zionist project was revived mainly by the contributions and auspices of French Baron Edmund de Rothschild. Focused on making these colonies productive, introducing modernized agricultural techniques, and taking cues from other settler models, Rothschild used his personal funds to support the settlements, which became the first grouping of moshavot (pl moshava). These settlements took the model of French colonization in Northern Africa, establishing larger high-value crop plantations. Agricultural experts, who had worked in Algeria and other areas of the Middle

East, were brought in and introduced crops such as wine grapes, almonds, mulberry trees for silk, and oranges (Shafir, 1996). These crops were export oriented and early settlements sought to produce them in order to compete on the world market. Training farms were established to teach the mainly previously urban-dwelling Jewish settlers methods of farming. Another distinctive characteristic of the moshava was their heavy reliance on outside hired labor, which would later clash with other forms of settlement. Farmers on these larger estates became more like plantation estate owners, coordinating farming activities, which were then physically carried out by cheap Palestinian labor (Ben-Artzi, 2001). However these settlements continued to rely on the lasting financial subsidy of Rothschild. In an attempt to make the settlements self-sustaining, the settlement's organization became the responsibility of Jewish Colonization Association (JCA) in 1899. The JCA began initiating the planting of more field crops such as grains, as an addition to fruit orchards, and the introduction of European farm machinery. While slightly more diversified, these blocks of crops were still semi-large single crop areas that were susceptible to intermittent drought (Weintraub, Lissak and Azmon, 1969). While many of these early crops were dry farmed, citrus began to emerge as the most profitable among the products of the moshavot, which was based on intensive irrigation. In 1910, Petah Tikva, one of the major agricultural settlements, accounting for 18% of all the citrus exported from Palestine (Ben-Artzi, 2001, pg.152). This wave of immigration and settlement, known as the first Aliya, established around 30 settlements, mainly in the coastal plain around Jaffa and Haifa and in the Lower Galilee.

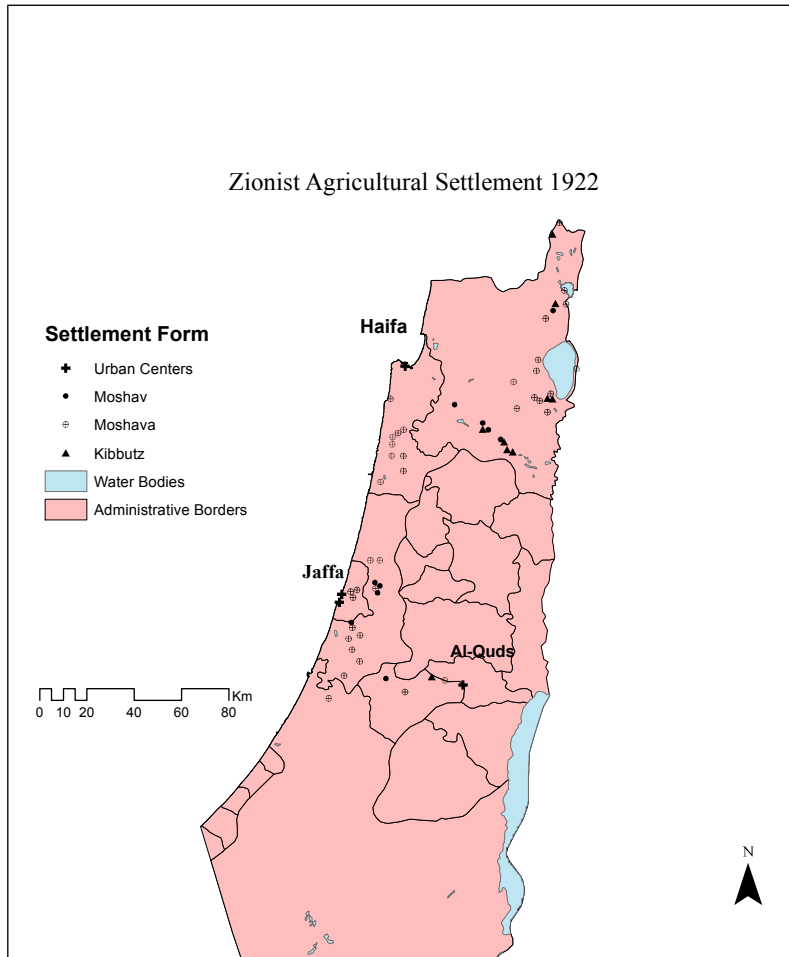


Figure 3.1: Zionist Agricultural Settlement 1922 (Weintraub, Lissak and Azmon, 1969) digitized by author

B. Introduction of the Moshav and Kibbutz forms

While having the same eventual goals of establishing Jewish control over land and a Jewish majority, during the second Aliya other forms of agricultural settlement came about that were distinct in their farm models, techniques, and practices. Like the JCA, the main settlements organs for these emerging settlement types were the Jewish National Fund (JNF),

the Jewish Agency and the Palestine Land Development Company (PLDC)⁵. Established in 1901 by an act of the World Zionist Organization (WZO), the JNF created a more detailed and specific set of practices for agricultural settlement. The JNF was organized with the intention to “purchase...or otherwise acquire any lands, forest, rights of possession and other rights...for the purpose of settling Jews on such lands” and subsequently to “clear, cultivate irrigate and otherwise improve any of the lands of the Association” (quoted in Lehn, 1988, pg. 30). Two of the large differences between earlier settlements and those of the JNF was that, firstly, settlement lands were not privately given to settlers, but were assigned by an indivisible lease from the JNF for a period of 49 years. These lands would be leased at a low annual rate of the estimated value of the land, 2% for rural land and 4% for urban, however for the first years of JNF leasing many settlers were given the land for only a small token fee and less than full payment of the annual lease (Lehn, 1988). Secondly, as part of the lease for agricultural lands, only Hebrew labor could be employed (Granott, 1956) and the land was not to be lease to any non-Jews (George, 1978). After the JNF’s first land purchases in 1905, another coordinating body was established in Jaffa to help aid land purchase and settlement; the Jewish Agency. Similarly to the JNF, the JA took on principles of promoting “agricultural colonization based on Jewish Labor” (Lehn and Davis, 1978, pg. 7). Soon after the PLDC was founded, with the task of developing and promoting new agricultural settlements in coordination with the JA. Through these land purchases and agricultural settlements, these organizations sought to create ground presence and make Zionist land

⁵ Initially the Jewish Agency was known as the Palestine Office under the Mandate. The WZO, JA, and JNF worked together closely and may be thought of as working together as a Zionist Executive

control a fait accompli. Much of early Zionist land purchase focused on the buying of land wherever available from large absentee landlords.⁶

However before the outbreak of World War I, the JNF had acquired only a very small amount, in total less than 20,000 dunums, of land and it was only under the British Mandate that the settlement vision of the organization, and the Zionist program in general, grew (Lehn, 1988). The Balfour Declaration in 1917, showing British support of the establishment of a Jewish National home in Palestine, and the British Mandate taking administrative control of the land of Palestine opened new opportunities for Zionist settlement. The Mandate made explicit its hope to foster Zionist settlement and create a productive colony in Palestine. The Mandate declaration states that it seeks to facilitate “close settlement by Jews on the land, including State lands and waste lands not required for public purposes” and that it shall “introduce a land system appropriate to the needs of the country, having regard...to the desirability of promoting the close settlement and intensive cultivation of the land” (quoted in Wolfe, 2011, pg. 95). The land policy of the British in Palestine, while maintaining some of the laws of the former rulers, sought to do away with the complex forms of tenure under Ottomans, and looked to divide most land into public or private, and to register this land to an individual owner. One of the first ordinances given under the Mandate was Land Transfer Ordinance. Written with the input of the Zionist Commission, the ordinance required consent from the British Land Registry Department before completing any land transfer (Stein, 1984). While this put some restrictions on Zionist land purchase, it also put a large number of tenant and non-individual landowners, such as those who held land under *musha'a*, at a

⁶ The many sellers to Zionist land purchasing organizations were land landowners and Palestinian elites. For great discussion of this topic see Stein (1984)

disadvantage as they may not have held the title to their land or did not register lands in their name. This made it easier for Zionist land purchasing organizations to gain access to land (Dajani, 2005).

As the JNF gained control of more land, new settlement types were promoted, as many within the organization and its affiliates saw the agricultural settlement of the moshava as unsustainable in maintaining land and a large settler population. The two novel forms that came about were the cooperative moshav and the collective kibbutz. The kibbutz was a collective form of agricultural settlement, based on the JNF and WZO principles of Jewish-only labor, or the conquest of labor (Kanovsky, 1966; Shafir 1996). The moshav (pl. moshavim) was alternatively based on individual family groups with cooperative purchasing of agricultural inputs and marketing of produce. Later another form was established, the moshav shitufi, which was more collectively organized than the moshav, but kept consumption at a family level, however this form was not majorly used⁷. These settlement types were also distinct in their agricultural production. While the larger moshavot relied on a small number of monocrops, particularly citrus, these forms of settlement emphasized mixed farm. One of the main figures who endorsed and promoted this principle was Itzhak Elazari-Volcani. Volcani served as the agricultural advisor to the WZO and as the director of JA's main agricultural research station in Rehovoth. He saw native Palestinian agriculture as backwards and unsustainable economically and advocated for more diverse production, with intensive irrigation, heavy fertilization with manure and synthetic fertilizers and the use of European plows and tractors (Tal, 2007). By intensifying production for market sale and

⁷ For this study moshav shitufi will be lumped with moshav forms generally

employing Jewish-only labor, Volcani wrote that intensive mixed agriculture would be able to provide a high enough wage to maintain the settlers on the land (Volcani, 1927). He saw that the contemporary main forms of settlement were “based today upon two opposite staple products – citrus fruits and cereals,” and sought to create a more diversified, though still market oriented, settlement agriculture, which could eventually become a state agriculture (Volcani, 1935, pg. 5)

Year	Fertilizer Quantities (in Tons)
1922	1,077
1923	1,544
1924	2,275
1925	2,701
1926	2,017
1927	2,849
1928	3,361
1929	5,896
1930	7,328
1931	4,463
1932	7,493
1933	10,324
1934	12,852
1935	13,000
1936	9,687
1937	14,693
1938	10,243
1939	10,191

Figure 3.2: Synthetic Fertilizer Import to Palestine (Reifenberg, 1947)

C. Sharing Notes on Settlement

All of these settlement models borrowed and took consultation from the experience and strategies of other settler colonial states’ in their development and growth. After the onset of the British Mandate, Louise Brandeis, one of the main figures of American Zionism, urged Weizmann to invite American experts to come to Palestine to give their expertise on settling an arid frontier, as in the American West. Although other American experts would be influential later, the first to make a large impact was Elwood Mead. Mead, an irrigation and agricultural engineer and who would eventually become chairman of the US Bureau of Reclamation, was devoted to the idea of efficient and scientific agricultural development, particularly in the settlement of the American West (Rook, 2000). He was called by Arthur

Ruppin, the head of the JA in Palestine, “the best living authority on agricultural colonization” (quoted in Troen, 2003, pg. 31). Mead came to Palestine in 1923 in order to give council on methods and means of creating lasting agricultural settlement. After a number of visits Mead, under the auspices of the WZO and British Mandate, created *The Report of The Experts*, to relay his and his team’s findings on agricultural settlement. The report pushed for the technical agricultural training of settlers before their placement on settlements, greater development of irrigation, the consolidation of land purchases, as well as greater adoption of the American model of private family farm settlement, a recommendation to move away from the collective model of the kibbutz. While not all of Mead’s recommendations came fully to fruition, they influenced the later more strategic buying of lands, plans for irrigation, and some opposition to kibbutz style settlement (Rook, 2000). Indeed in their early establishments the WZO and JNF preferred the family based, cooperative moshav. Weizmann displayed this opinion, writing that “if we had the necessary funds, and if conditions warranted it, we should begin the transformation of the kibbutz into moshavim” (quote in Kanovsky, 1966, pg. 17). Mead and his report further convinced Weizmann of this opinion, who wrote in reference to the continuing appearance of new kibbutz settlements that “we ought not continue the same way a moment longer” (quote in Rook, 2000, pg. 77).

These direct exchanges of similar settler strategies were attempts to “export, not only settlement technologies, but also the social and economic values underlying America’s development of its own frontiers” (Troen, 2000, pg. 307). While Volcani was influenced by these American ideas of settlement, he also took ideas from European models of more labor-intensive colonization. He and other Zionist planners like Theodore Hertz and Franz

Oppenheimer sought guidance from the German internal colonization model (Shafir, 1996). One aspect from the American model Volcani took issue with was heavy mechanization. Although he promoted tools to economize human labor, he saw that much mechanized farming could displace manual labor, which conflicted with the goals of Zionist development as planners wanted to “place people on the land and keep them there” (Troen, 2003, pg. 35).

In addition to the influence on the JNF-directed settlements, other settler models also had sway with the larger moshava farms, particularly citrus growers. Citrus farming had continued to expand, predominately within the private moshava settlements of the Palestine Jewish Colonization Organization (PICA) (formerly JCA, changed in 1924). This settlement expansion was extensively planned and looked far and wide for strategies of cultivation. As mentioned, earlier private settlement was modeled after French North colonization in Africa, but as time went on many came to see the experience of citrus in the American West as a more relevant source of inspiration. What became known as the California model was widely shared among citriculture settlers as the best model for expansion because of California’s similar arid climate and dominance in the world citrus market. Other similar delegations of agricultural experts came to Palestine to advise on Zionist agricultural colonization. American experts like Knowles A. Ryerson and Robert Hodgeson traveled to Palestine to promote the California model and advise on its implementation in Palestine (Karlinsky, 2005). One of the aspects of this model was advancement of extensive, large-scale irrigation with the growth of internal combustion and electrical well pumps in addition to deep well extraction (ibid). This settlement expanded on top of and along side existing Palestinian citriculture, which at first had taken examples from preexisting Palestinian techniques before taking on European and American colonization models. The main cultivar used in this

production was the Shamouti orange, which had become an attractive trade variety within citriculture of the area. These efforts were seen favorably by the British Mandate as a way to modernize the agriculture of Palestine and increase its productivity (Karlinsky, 2000). However many within the leadership of Zionist organizations like the WZO, JNF, and those within the Zionist Labor movement were opposed to the settlement model of the moshava, over the collective and cooperative models of the kibbutz and moshav, particularly because of the use of hired Palestinian labor on moshavot.

D. Early Zionist Water Development

With the increase in settlement numbers and settlement types having intensive irrigation as part of their structure, Zionists began to seek greater control and development of water resources. One of the first large acts towards this goal was the inclusion of a larger portion of the Hula valley within the Mandate border. Many Zionist lobby efforts targeted the French and the British to concede in extending the Mandate border upwards to include the Hula marshes and some of the upper Jordan River tributaries. Lobbying efforts also went as far as attempting to extend the border to include the flows of the Litani and the Yarmuk River, however these requests were not granted (Zeitoun, Eid-Sabbagh, Talhami and Dajani, 2013). As discussed, the Mandatory government was supportive of the Zionist expansion of irrigation for a number of reasons, including making the agriculture of Palestine more productive, bringing it more into the global market, but also as a way to attempt to accommodate both Zionist expansion and Palestinian agriculture. Mandatory opinion was that if agriculturalists of Palestine could be modernized and pushed toward more intensive,

irrigated agriculture, then there would be more land available to accommodate Zionist expansion (Kamen, 1991). During negotiations with France, the British government took a hardline position on irrigation waters expressing that they were “not prepared to conclude any arrangements which do not contain due provision for the future utilization by Palestine of the waters of the Yarmuk and the Litani [Rivers], which may well prove vital to the economic development of the country and the creation of a national home for the Jews” (quoted in (Rosenthal and Sabeel, 2009, pg. 97). However eventually the borders agreed upon did include much of the Hula valley, the large water bodies of Lake Tiberias, Lake Hula, and much of the upper flows of the Jordan.

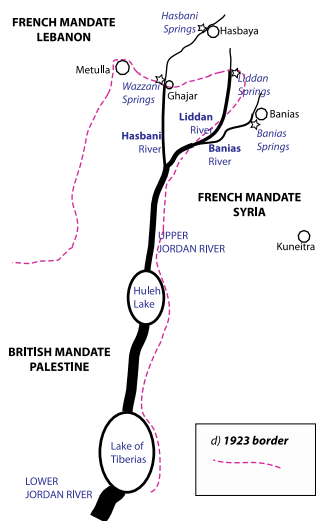


Figure 3.3: Mandate Border with Water Resources (Zeitoun, Eid-Sabbagh, Talhami and Dajani, 2013)

E. Signs of Change

Land purchase and settlement expansion continued, with JNF land purchases focusing on buying large tracts of land mostly from absentee landlords, attempting to create non-isolated settlement blocks, buying cultivatable or previously cultivated land, and also making purchase contracts that required the removal of all Palestinian tenant farmers before hand

(Lehn, 1988). So far decisions on rural land purchase had been based on its ready availability and less for its strategic placement or any defensive purposes. While Ruppin had devised an earlier settlement placement structure based on North/South blocks, it was still based on the principle to “purchase of the land from Arabs when ever the right kind of offer is made”(quoted in Hassan and Gosenfeld, 1980, pg. 321). However, a large shift occurred after 1929 that would impact mandate policy towards active support for the Zionist movement, the policy of Zionist land purchase, the preferred form of agricultural settlement and the place of water resources in the settlement project.

The largest catalyst that began these shifts were the riots that occurred in 1929 between Palestinians and Zionist settlers. The protests were initiated as Palestinians began to fear for their economic security as Zionist settlement grew, also stemming from growing anger with the British Mandatory authority (Shaw Commission Report, 1930). After the riots the Mandatory government commissioned a number of studies to look at the cause of the disturbances, which produced the Shaw, Hope-Simpson, and French reports (Stein, 1984). This incident and their responses began a changing of Mandatory policy that would be furthered by the later 1936-1939 general strike and the Peel Commission. These reports, the Zionist response to them, and the growing impacts of Zionist land purchase and settlement after 1929, shifted Zionist policy to one of strategic land purchase with particular land and border goals in mind. It resulted in the expanded the use of the kibbutz settlement type, and put water control and development in a more central place within agricultural settlement. These changes and their effects on continued agricultural settlement will be discussed in the next chapter. While during this period there was the slow building of an apparatus and settlement methods that would dominate during the next few decades of Zionist agricultural

development, this early colonization had very different models of cultivation and labor practices. By 1929, JNF land holdings accounted for only 23% of Jewish owned land in Palestine, while the PICA holdings made up 31% and private settlers owning 46% of total Jewish owned land. This picture becomes even clearer when looking at a breakdown of these settlements production with a large majority, 77%, of early settlers living in privately owned agricultural villages, or moshavot, where the main type of farming was often citriculture (Karlinsky, 2005, pg. 4-6). However despite their differences in preferred method, Zionist leaders within the JA and Labor movement would eventually acknowledge and accept some of the methods of the moshava, as they were still inline with the larger goal of settlement (ibid).

During this period private moshava agriculture, based on French and Californian settlement models were pervasive. At the same time the JNF, JA, and WZO began to create and promote different forms of agricultural settlement. After 1929, the growth and power of these organizations increased as they became the major players in the development of Zionist agricultural settlement. However it is important to recognize that early Zionist agricultural settlement was dominated by the private, monocrop, plantation agriculture of the moshava and it was only later that other forms and models of settlement began to expand in the settlement effort.

F. Analysis and Conclusion

In this history one can see the shaping influence of global markets on the development of Zionist agricultural settlement. During the Mandate, British authorities

sought to increase Palestine's agricultural productivity, particularly for export. They aided in larger production of staples such as wheat, and exotics like citrus that greatly flowed back to the British colonial center. Both earlier Palestinian agriculture, with the slow opening of Ottoman controlled areas to market penetration, and Zionist agricultural settlement, with its highly market oriented production, became more integrated into global food markets. By appealing to colonial powers to develop agriculture in Palestine, the Zionist project participated in and was shaped by the emerging first world food regime. One indication of this was the tying of the Zionist economy to the pound sterling (Pappe, 2006), which linked its agricultural development to the British dominated global markets. The Zionist project is very typical of the settler colonial food regime, whereby market relations were created through "migration from Europe, settlement of lands converted from indigenous use to commodity production of European staple foods" and the long distance shipment of part of the emerging modern diet (Friedmann, 2005, pg. 127). Indeed citrus, complementing staples of wheat and meat, had become part of this modern diet, with expanding demand after the discovery of vitamins and vitamin C in citrus.

While water development made only small progressions during this time, we see the beginnings of the communication of sanctioned discourses over water. With experts like Mead, and many others later, there began a flow of ideas of modern industrial water development. Mead in his work would become the head of the US Bureau of Reclamation and oversee the planning of massive damming projects like the Hoover and Grand Coolie dams. His recommendations for Zionist agricultural development included similar courses of water management, which typify what would become the ideas of the hydraulic mission. Again while this development had not advanced fully by this time, almost all of the

expansion of irrigation was carried out by Zionist agriculture (Nadan, 2006), greatly basing their development off other settler states.

We have seen the study and exchange of settler strategies for agricultural settlement within this history, and along with these strategies came similar narratives of dealing with the landscape and indigenous peoples on settlement frontiers. Writing about these similar narratives in Zionist and American settlement Schnell and Arnon posits that:

In the context of the frontier, nature is perceived to be wild and dangerous, manageable only by very determined and technologically superior struggle. Similarly, the savage native populations are perceived to make no attempt to improve the land, and thus to have no moral right to it (2011, pg. 178)

During this early period of Zionist settlement, we see the use of these parallel narratives. Firstly, one can observe the notion of an empty land in early Zionist narratives, where native Palestinian populations became “part of the environment to overcome” (Kamen, 1991, pg. 8). This can be seen in the common Zionist idea, reiterated by many that Palestine was a “country without people, and, on the other hand, there exists the Jewish, and it has no country” (Braverman, 2009, pg. 340). In this way the Zionist settlers then projected Palestine as a degraded and barren landscape, which needed to be ‘redeemed.’ Landscapes were described with adjectives like “desert, nothingness, emptiness, loneliness, desolation, abandonment, neglect, ruin, dreariness” which needed to be “conquered, suppressed, and made to flourish, to blossom, to be inhabited and civilized” (De-Shalit, 1995 pg. 74). In order to redeem the landscape, we have seen how agricultural settlement turned to modernizing

agriculture and methods of land reclamation. Describing these processes Volcani wrote that “we shall have to fix shifting sand dunes, to embroider with earth bare rocks, to divert water constituting swamps, and to store it where it now runs off to the sea,” to settle the land with the “ploughshare being our only weapon” (Volcani, 1935, pg. 7). The British Mandate government shared in this narrative, regarding the agricultural practices of the fellahin as an “archaic system that blocked any chance of development” (Nadan, 2003, pg. 320). In this way the Mandate government created a scheme to “‘modernise’ agricultural production – with the intention, of course, that there would be a return on investment for the colonising forces as well as the colonized” by creating greater productive export for the colonial market (Gasteryer et al, 2012, pg. 451).

In these ways, the first Zionist agricultural settlement in Palestine was influenced and shaped by these intertwining forces, as large plantation agriculture became one of the main means of land control within the settler project. However with local events such as the 1929 riots and changes in Mandate policy, and larger structural changes such as the changing of global food trade and the appearance of the second food regime, Zionist agriculture began to build in another direction.

CHAPTER 4 FROM THE KIBBUTZ AGRI-SOLDIER TO THE FAMILY BASED MOSHAV 1930-1950

A. The Commissions

After the violent incidents of 1929, the Shaw Commission was the first study to investigate and recommend Mandate policy. The commission reported that Zionist land purchase, in addition to other land pressures such as growing population, had created a large class of landless Palestinian peasants, who had no area to farm and create a livelihood. It gave the opinion that support of the Jewish National Home in Palestine was contradictory to the simultaneous promise to preserve the rights of the existing Palestinian population, given in the Balfour Declaration (Alatout, 2009). Two of the major recommendations of the commission were to limit “the rate at which newcomers are to be admitted to agriculture” meaning generally to limit Jewish immigration and if greater immigration was to be supported “agricultural methods would have to change radically and intensive cultivation would have to become widespread” (quoted in Kamen, 1991, pg. 51). In this way the commission supported the promotion of Zionist agricultural methods, in opposition to traditional extensive cultivation. As such, greater Jewish immigration became hinged on a technical question of greater agricultural development. It also initiated actions like the creation of the Protection of Cultivators Act, which required some compensation for tenants impacted by Zionist land purchase, however this law did little to curb any Palestinian displacement (Dajani, 2005).

Soon after the commission, a follow up report was requested to be written by Sir Hope-Simpson. In preparation for this report the JA set up their own committee to preempt

the finding of Hope-Simpson commission. The JA committee was composed of many of the architects of agricultural settlement in Palestine, such as Arthur Ruppin; Itzhak Volcani; Avraham Granott; the current director of the JNF; and Moshe Smilansky of the Jewish Farmers Federation, greatly representing moshava interests (Stein, 1984).

In their appeal to Hope-Simpson, the committee first attempted to convince the Mandate government that Zionist agriculture, instead of negatively impacting local fellahin, actually had positive effects in the form of a modern productive example for agriculture. Second, the JA committee argued that through Zionist intensive agricultural methods more land would be available for both Jewish settlement and Palestinian peasants. However this proved difficult to demonstrate. This was because of the JNF policy of using only Jewish labor, so that once a tract of land was purchased, Palestinians could no longer gain livelihoods from it, either as farmers or labors. Additionally, the recent memory of the Wadi Hawarith incident, which had caused the displacement of a large number of Palestinian tenant cultivators and Bedouin herders, weaken this agreement (Stein, 1984).

The Hope-Simpson report concluded that there was much less cultivatable land in Palestine than previously estimated and that currently there were no additional lands for cultivation. It also reiterated calls from the Shaw report to create intensive irrigated agriculture in the Palestinian sector. In addition, it estimated the number of landless Palestinian peasants, or those that were displaced by Zionist land purchase and could not find new land to cultivate, at 29.4% of all rural families (Hope-Simpson Commission Report, 1930). While this number was challenged and seems to have had flaws in calculation, the negative findings about the impacts of Zionist agricultural development shifted the position

of the Mandatory government and were a step in changing some of the strategies and modes of Zionist agricultural settlement.

Very soon after the Hope-Simpson report, the Mandate government issued the Passfield White Paper, which restricted land transfers to only those that aligned with the plans of the Mandate development authority and reserved much of the current state land for resettlement of landless Palestinians (Stein, 1984). Although a conciliatory letter from Prime Minister MacDonald annulled much of the power of the white paper, this marked a large shift in Mandatory policy and lessened the active support for Zionist settlement (Pappe, 2006; Wolfe, 2011). Earlier, Zionist aspirations had been nurtured in the development of a settler colony, but the Mandate began to see Zionist advancement as a threat to the stability of Palestine.

B. The Response

The Zionist response to these reports took multiple forms. First, they were highly condemned. A Jewish Agency pamphlet criticized the commissions for apparently being prepared “to let an area fit for orange growing remain grazing land merely because its present occupants claim to need it for their flocks, ‘know nothing of irrigation,’ and because, in case of transfer, ‘it seems likely that the tribe will lose its identity as a tribe and become a scattered community’” (quoted in Kamen, 1991, pg. 68). The second response was an attempt to prove that through Zionist intensive cultivation and JNF reclamation, more land could be made available for settlement. Ironically, in this sense the reports, while condemning the transfer of peasants off the lands, endorsed Zionist methods of intensive

agriculture and the partition of *musha*'a land, which were both alterations of the current systems of peasant reproduction. Both of these moves pushed Palestinian peasants further towards a more market-oriented, capitalistic mode of farming, which was part of larger changes in the countryside of the Middle East in general. Granott called for agricultural education of the *fellahin*, greater use of natural and synthetic fertilizers, greater irrigation, and more expansion of markets for Palestinian produce (Kamen, 1991)⁸. In challenging Hope-Simpson's definition of cultivable lands, Granott wrote that "as more intensive methods come into vogue the definition of the term 'cultivable' will have to be revised. Just as marshlands after being reclaimed by the Jew must be transferred from the uncultivable to the category" so too "sand dunes can be prevented from drifting... primarily by proper use of fertilizer and sufficient irrigation" (Granott, 1936, pg. 65). As Alatout has pointed out later with water, this qualification by the Mandate government that intensive agriculture could possibly create more land for settlement, made the question of Zionist acquisition a technical one of simply increasing irrigation and fertilizer application.

The third response, despite the negative results of the Mandatory reports and the obstacles that came with them, was an increase in Zionist land purchase during the 1930s, before the Mandate restrictions were to come into effect and due to fear that there would be greater restrictions imposed on their ability to purchase land in the future (Kimmerling, 1982; Stein, 1984). However, these land purchases were distinct from those that had come before. Firstly, JNF land purchases increased during this time more than those of the PICA or other private settlement organizations. This signaled a shift to greater importance of the JNF and

⁸ The question of the role of capital in changing the mode of the Palestinian peasant, in relation to Zionist agricultural settlement, will be discussed further in Chapter 11

its affiliate organizations, over the private settlement of the moshava (Kimmerling, 1982) In addition, the rise of the Zionist Labor party through organizations like the large Histadrut union, mirrored the dominance of JNF settlement and many of the figures who would later shape agricultural settlement policy, such as David Ben-Gurion and Levi Eshkol, came from the Labor party. While private agricultural settlement continued to exist, expand, and account for a large portion of Zionist agricultural production, after 1921 no new moshava were established in the pre-state period (Ben-Artzi, 2001). Secondly, while land purchases increased, their size decreased, with the average size of these sales being about 52 dunums. As much of the land of large absentee landlords had already been purchased by Zionist organizations, this forced purchase to focus more on owner-cultivator lands and parceled musha'a land (Kamen, 1991; Yazbak, 2000, pg. 103).

Lastly, one of the most significant changes was the beginning of a struggle between the agricultural settlement forms of the kibbutz and the moshav. Previously, the WZO and JNF had shied away from use the kibbutz model, preferring the cooperative moshav. However, the 1929 riots and the shifts in Mandate policies, began to make Zionist planners think more about settlement placement and defense (Kanovsky, 1966). Though border creation and security settlement became a central focus after the General Strike in 1936, we see the beginnings of this shift here (Kellerman, 1993). The kibbutz would become one of the main forces of outpost settlement, border establishment, and a training ground for many of the pre-state military operations such as the Haganah. An early example and predecessor of this military and agricultural combination was the Hashomer. These were organized conquest groups, that became part of the Haganah in 1920, that quickly cultivated JNF

purchased land and were expanded with the greater use of the kibbutz settlement (Near, 1997A; Dajani, 2005).

C. Moshav and Kibbutz Competition and Expansion

From 1931 to 1936 the number of kibbutzim grew from 24 to 47, however the number of moshavim grew as well, from 16 to 44 (Klayman, 1970, pg. 23). As agricultural settlements grew, there was an emphasis on making these settlements more stable and able to support incoming Jewish immigration, with wages that were similar to those in industrial occupations (Lehn, 1988). There were a number of plans to increase incomes of agricultural settlements. One of these was the introduction of a more formalized dairy industry. It was presented that this production could be integrated into the mixed farming of the kibbutz and moshav, while maintaining the settlement family unit (Troen, 2003). In order to advocate for this, Volcani published a study on its prospects entitled *The Dairy Industry as a Basis for the Colonisation of Palestine*. He presented that the export of milk from Palestine, particularly to Britain, could be a viable way to increase the income of settlers and keep them on the land. However, Zionist milk and milk products first would need to be able to compete on world markets. In order to do this he supported changing the traditional two crop rotation of the Palestinian peasant, of one area for winter cereals and another for crops like sesame or sorghum, to a system that included larger cultivation of forage and fodder crops such as hay and clover. In addition, it also called for the increase of milk production through cattle breeding and importing breeds, the increase in fodder crop production with irrigation, and the reclamation of land for such production through marsh drainage and fertilization by synthetic

fertilizers and green manure (Volcani, 1928). During this time dairy production expanded on kibbutzim and moshavim in the fashion put forward by Volcani, attempting to create high-value and highly market oriented agricultural production, with greater investment in agricultural inputs.

Another agricultural change during this period of the Mandate was the increase in poultry production and the introduction of aquaculture. As part of a Mandatory development department program, chickens were distributed to farms at low and reduced costs and veterinary and breeding services were also provided. While this program was most aimed at struggling fellahin, Zionist agriculture also benefited and poultry production, mainly for eggs, increased within the kibbutzim and moshavim (Ruppin, 1926; Nadan, 2006). Fish ponds were also introduced during this time as another diversifying sector for agricultural settlement (Feitelson, Selzer, and Almog, 2014)

D. The Arab Revolt and Mandatory and Zionist Response

Despite the Mandatory white paper and land transfer controls, Zionist land purchase continued and Jewish immigration still flowed into Palestine in the largest wave since Zionist immigration had begun (Granott, 1956). In order to continue land purchases Zionist leaders and purchasers gained “detailed information and data on the land regime in Palestine that no one else possessed...utilized sophisticated understanding of bureaucratic procedures...and neutralized the potential barriers to land acquisition” (Stein, 1984, pg.173). The growing stress of depeasantization from Zionist purchases as well as increasing poverty and indebtedness led to a new period of unrest. In response to the situation, as well recent actions

by the British police, the newly created Arab Higher Committee called for a general strike in 1936 (Yazbak, 2000). The general strike and surrounding clashes, which came to be known as the Arab Revolt, would last until 1939. During the revolt there was close association between the Zionist establishment and the Mandatory government with the government even recruiting groups of Zionist agricultural settlers to defend British property within Palestine (Mitchell, 2009).

The British and Zionist reaction to this would greatly propel some of the trends that had already begun in settlement agriculture and create a new political situation that would push its expansion. The reactions to the general strike unfolded in a similar fashion to those following the 1929 riots, with the Mandatory government commissioning a study of the causes of the revolt and Zionist bodies responding in kind with counter arguments and action on the ground. Soon after the strike began the Palestine Royal Commission, or Peel Commission, was initiated, publishing its results in 1937. The report, similarly to previous mandatory studies, saw the causes of the outbreak as the Palestinian fear of the establishment of a Jewish National home, the displacement from Zionist land purchases, and the growth and rise of Arab Nationalism (The Palestine Royal Commission, 1937). The commission called for a continued ‘modernization’ of Palestinian agricultural methods, including increased irrigation, intensive cultivation, partitioning of *musha’a* land, and reducing Zionist land purchase. It also suggested that one method to reduce poverty was greater employment in Zionist established enterprises, thus seeming to tie “the future of the Palestinian Arab population” with the “continuation of Jewish immigration and capital import” (Kamen, 1991, pg. 67). Lastly, the report called for an end to the Mandate and a partition of Palestine into a Jewish and an Arab state. Later, in a follow up to the Peel Commission, a White Paper was

issued by the Mandatory government, which sought the creation of a bi-national independent state within ten years and the limiting of Jewish immigration to Palestine to 75,000 over the next five years (Stein, 1984).

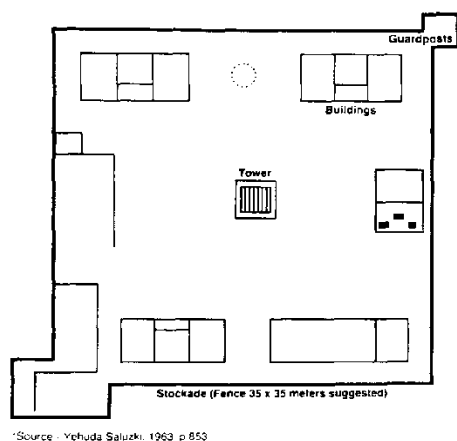
The Zionist reaction to the report was swift and took on multiple forms. First, JNF land purchases became completely motivated by strategic purpose and border creation. Granott remarked that now land acquisitions would be principally those that “bore a military value, either because they overlooked centres of Jewish activity, already operated or likely to be in the future” (quote in Lehn, 1988, pg. 58). This also meant buying land in areas that Zionist planners hoped would define the borders of the eventual partitioned Jewish state, or what Kellerman (1993) has called the ‘territorial concept’ of a national settlement map formation. As David Ben-Gurion, the leader of the Zionist Labor party at the time and the eventual Prime Minister remarked, land purchase should now be in “key positions, for expansion of borders, for strengthening of security” and for “fact creation” (quoted in Kellerman, 1993, pg. 56). Areas that were seen as strategic included expanding ownership in the Southern Naqab and in the Upper and Western Galilee.

Second, strategic acquisition also meant more strategic settlement methods, making a shift to the kibbutz being the preferred mode of settlement. The kibbutz was easier to establish and new methods were devised for rapid set up. During this time the kibbutz was recognized as “well-suited to perform police and security functions” and their design changed slightly in order to “root their population in a hostile countryside and to enable pioneers to hold their gains” (Troen, 2003, pg. 63). From 1936 to 1939 around 52 new kibbutzim were hastily established in a form called the stockade and tower settlement, named for the observation tower and fencing around the small settlements enclosing the agricultural

area (Hasson and Gosenfled, 1980). Many of these new settlements were constructed quickly, sometimes overnight, with disregarded for Mandatory restrictions on land transfer. The first settlements of this strategic drive were established in the Beesan Valley⁹, under Lake Tiberias, in hopes to break the boundaries of the partition designated by the Mandate and to better secure the water rich area. Kibbutzim were also set up around the growing hub of Haifa.

Lastly, these settlements were pushed to the South, where the Naqab, which made up almost half of the landmass of Palestine, had not been included in the partition of the Jewish state (Troen, 2003). Kellerman (1996) describes how in their design, these agricultural settlements shifted to a more offensive posture, giving the illustrative example of Kibbutz Hanita. Established on the Lebanese border it, like others of the stockade and tower kibbutz type, was intentionally placed in an area that was isolated from other settlements and near to surrounding Palestinian villages. These also represented a melding of the agricultural settler and the soldier, with a popularized image of settlers of these sorts “holding a plough in one hand and a gun in the other” (Kellerman, 1996, pg. 375). Moshe Sharett, the head of the JA at the time, remarked of the kibbutz that “from a political point of view, I know no more pressing task, no more effective weapon, than founding settlements in [border] areas” (quoted in Troen, 2003, pg. 69).

⁹ Commonly referred by its Hebraized name; Beit She’an



*Source - Yehuda Saluzki, 1963 p 853

Figure 4.1: Plan for Stockade and Tower Kibbutz (Hasson and Gosenfled, 1980)

E. Narratives of Water Abundance and the Building of Water Infrastructure

Another shift that occurred in reaction to the general strike and the challenge to Zionist expansion from the Mandate, was greater politicization and centralization of water. Previously, the Mandatory government introduced economic absorptive capacity as a metric for considering Jewish immigration limits to the country. Prime Minister Macdonald reconfirmed the use of this metric in his letter to Zionist leaders in 1931. In their response to the Peel Commission and the restrictive White Paper, Zionist planners created a number of technical reports arguing that increased irrigation could provide a much larger absorptive capacity into Palestine than had been thought previously. Based on data presented to the Peel Commission, geologists and hydrologists employed by the JA gave testimony that there may be much higher amounts of water to be discovered within Palestine than previously estimated. The geophysical methods used by the JA experts required less empirical geological evidence and made available larger projections of possible sources of water.

Ruppin presented to the Commission that with this potential water, agriculture in Palestine could be “fully or partly irrigated,” capable of expanding 1,500,000 dunums of irrigated agriculture (Alatout, 2009, pg. 376). Although the Mandatory government challenged these assertions, this became a way for Zionists to argue for the greater absorptive capacity of Palestine and expansion of Zionist settlement.

This marks a turning point after which water, and its place within agriculture, became a central part of Zionist expansion, particularly for pre-state actors like the JA and JNF. Another event that signals this shift is the founding of Mekorot, the organization that would eventually become the national water company of Israel. Prior to this only a few water companies and cooperatives existed among agricultural settlements, but none had a national mandate. In 1937 the JA, JNF, and Histadrut jointly formed Mekorot, for the purpose of planning and creating waterworks for irrigation and consumption (Alatout, 2007). Soon after its creation the company went from supplying 1 MCM to 14 MCM for settlement agriculture. This water centralization played a large role in the expansion of pre-state networks and the building of a state agriculture.

In order to make way for the eventual partition, and in hopes of further curbing Zionist land purchase, the Mandatory government passed the Land Transfer Regulations of 1940. This divided the Mandate into three sections, zones A, B, and C. Zones A and B, consisted of the mountainous areas, parts of Bir al-Sabah¹⁰ in the Naqab, Gaza and some of the Galilee and coastal plains; in these areas land transfers to Zionists were prohibited except by special permission. In Zone C, which included much of the coastal plain and areas around Al-Quds, land purchase was under no such restrictions (Falah, 1991). However, Zionist

¹⁰ Commonly referred by its Hebraized name; Beersheba or Beersheva

planners and land purchasers were able to circumvent these restrictions, continuing to purchase large amounts of land in the restricted zones. Granott wrote that purchases during this time were “directed precisely to those part of the country which were destined, by way of ban, to be closed to the Jews” (quoted in Dajani, 2005, pg. 25). In this fashion, Zionist land purchase proceeded, with the JNF facilitating most of these acquisitions. Indeed, the JNF and its affiliate organizations had at this point emerged as the main organs of settlement. By 1944, of the 272 mostly agricultural settlements established, 70% had been created on JNF purchased land, despite it owning only half of the total Jewish owned land in Palestine (Kimmerling, 1982, pg. 44). Additionally, by this time 70% of the funds amassed by the Palestine Foundation Fund, the financial body of the JNF, went towards agricultural settlement (Kellerman, 1993, pg. 59). The JNF had also started buying lands from other settlement organizations, particularly the PICA, furthering its control over Zionist settlement (Lehn, 1988).

Although publically the Zionist establishment accepted the Peel plan for partition, new plans were already being formulated for an independent Jewish state in the whole land of Palestine and the transfer of the country’s indigenous Palestinian population. This idea was first declared at the American Zionist conference in 1942, where Ben-Gurion presented an outline that rejected the limits on Jewish immigration and put forward an uncompromising program for an independent Jewish state (Morris, 1987; Pappé, 2006) This plan was later accepted by a majority of Zionist institutions in 1944 (Alatout, 2009). While Zionist land purchase at this point stood at less than 5% of all of Palestine, there began to circulate the notion of forceful transfer of Palestinians from their land, with two of the main architects of

this plan being Ben-Gurion and Yossef Weitz, head of the Land and Afforestation Department of the JNF (Morris, 1986).

In preparation for an independent state, Zionist bodies continued agricultural settlement and the development of necessary pre-state infrastructure. One of these already mentioned was the creation of Mekorot, but during the 1940s the JNF and JA were given another opportunity to plan for the greater building of water infrastructure, mainly to support irrigation. Again seeking the experience and models of other settler states, in the 1940s the JA sought out and supported the research of the well-known American soil conservationist Walter Lowdermilk. Lowdermilk was an avowed Christian-Zionist who had worked with the US Tennessee Valley Authority. Before being commissioned by the JA, he had earlier visited Palestine and proposed a plan for the damming of the upper Jordan River in order to irrigate the more arid South of the country. He claimed that the development of such water resources would make Palestine able to support 4 million additional Jewish immigrants, appealing to the absorptive capacity logic of the Mandate. His vision was of a TVN on the Jordan or a Jordan Valley Authority. In 1943, at Weizmann's suggestion and with JNF funds, Lowdermilk came again to Palestine as part of the American Zionist Emergency Committee. Their task was to examine the feasibility for Lowdermilk's proposal (Miller, 2003). Zionist leaders widely used Lowdermilk's work, which was eventually published into a book called *Palestine: Land of Promise*, in order to promote their vision in Palestine, sending it to prominent leaders such as the British high commissioner on Palestine and Transjordan. Lowdermilk's credential as a scientist who had worked with the TVA and the US Department of Agriculture was stressed, in this way pushing the question of a Zionist state into a more purely technical realm that could be solved by agricultural and irrigation

development. In addition, it was also made readily known that Lowdermilk was not Jewish, showing him at the same time as a disinterested actor, but also drawing in Christian Zionists who saw biblical evidence as legitimizing the Zionist project (Alatout, 2009). A few years later, the WZO invited American engineer G.B. Hayes to translate Lowdermilk's ideas into a more concrete plan. Hayes was chosen also based on his experience working in a technical capacity with the TVA (Davis, Maks, and Richardson, 1980). In these ways Zionist organizations began to bring water into a more central role within this pre-state development, politicizing its place, and planning its use for larger expansion of agricultural settlement.

F. Agricultural Soldiers and the Expanding Kibbutz

Eventually the plan for the partition of Palestine was handed over the United Nations, which created The United Nations Special Committee on Palestine (UNSCOP). However, within the Zionist leadership, plans were already underway for the greater seizure of lands beyond any plans of partition and the expulsion of much of the indigenous Palestinian population (Abu Sitta, 2010) Agricultural settlement and settlers played essential roles in the subsequent conflict, removal, and holding of land for the eventual Israeli state. In November of 1947, the UN voted to partition Palestine into separate Jewish and Arab States. Immediately after this violence broke out between Jewish settlers and Palestinians, and the Zionist leadership commenced their plan for the forceful transfer of between 500,000 and 900,0000 Palestinians, code-named plan Dalet (Kadman, 2015). This study will only look at the part agricultural settlement played in this effort, for other studies have already

meticulously documented the events of the Palestinian Nakba (Morris, 1989; Abu Sitta, 2000; Pappé, 2006).

Before the outbreak of the eventual war in 1948, plans were already underway for greater agricultural settlement. In December of 1947 the Committee on Settlement and Irrigation was created within the Labor party with the purpose of preparing for the agricultural settlement for an influx of Jewish immigration after the declaration of independence (Golan, 1997). This committee formulated a 3 year plan for rural settlement that proposed settling around 60,000 people in agricultural settlements, which turned out to be a great underestimate (Ben-Artzi, 2001). With regards to combat, agricultural settlements had greatly been the breeding ground for the Zionist forces of the Haganah, and many of the ranks of the Israeli political and military leadership came from agricultural settlements (Near, 1997B). After British funding was cut for Zionist brigades post World War Two, it was proposed that members of the Haganah and its elite fighting force, the Palmach, work on kibbutz and receive both agricultural and military training (Allon, 1970). During the fighting, remote kibbutz settlement members served as auxiliaries to the main Zionist fighting force (Pappé, 2007) and the kibbutz were seen as the “vanguard...in the Arab-Israeli conflict of 1947-1948” (Kanovsky, 1966, pg. 20). Later this combination of agricultural and military training would become more explicit with the creation of a special brigade for these forces, which was geared towards remote agricultural settlements (Heymont, 1967). During the war somewhere between 418 and 531 Palestinian villages were emptied of their inhabitants, most of them in rural areas (Khalidi, 2006; Abu Sitta, 2000). In mid 1948, when around 190 Palestinian villages had been taken, the newly created Israeli government began a program of both village destruction and rehabilitation, with the intent of using these areas for the

placement of agricultural settlers. These two methods were proposed by the Transfer Committee, which included Ben-Gurion and Weitz, with the purpose of blocking any return of Palestinians to their villages (Golan, 1997). By the end of 1948 the settlement department of the JA had already compiled a list of 96 sites of strategic importance to be targeted for agricultural settlement (Near, 1997B). Levi Eskol, at the time the head of the Settlement Department of the JA, was the first to suggest the placement of agricultural settlers in emptied Palestinian villages. Eskol suggested, “we should storm these [villages], and prepare them for the coming winter, transfer to each dozens of families... and start working the fields” (quoted in Kadman, 2015, pg. 20). The government began leasing Palestinian land to surrounding kibbutz and moshav for a period of one year to thwart any Palestinian return and to hold the land for later settlement building (Troen, 2003). In order to facilitate this action, the government created the Custodian for Absentee Property, which was authorized to supervise the land that had been deemed absentee land and with the Agricultural Ministry made responsible for leasing the land (Golan, 1997). Later in 1950, the Absentee Property Law defined those as absentees as anyone who was away from their normal place of residence between November of 1947 until the creation of the law, with a number of other criteria under which Palestinians could be declared absentees (Danjani, 2005). In this way “Palestinian refugee lands, orchards, water reservoirs... were given to Jewish refugees and immigrants” (Kadman, 2015, pg. 20). While some still existing village structures were used, often this was temporary and many villages were subsequently demolished and then a new settlement was built either on or nearby the former village. According to Falah most of the villages in the low-lying plains were completely or mostly destroyed and many of them,

especially in the Hula-Safad sub-district “involved radical changes in land use, e.g., conversions into citrus plantations, irrigated crop field” (1991, pg. 267).

Once the fighting had ceased, the newly created Israeli state set about on an intricate program to establish presence on the land captured during the war, creating a complex web of legal measures and bureaucracies that used agricultural settlement as a major tool to transform the emptied landscape. Illustrating this idea of establishing presence after capture, Ben-Gurion, the now Prime Minister, stated, “we won indeed in conquests, but without settlement these conquests do not have a decisive value, neither in the Negev nor in the Galilee nor in Jerusalem. Settlement - this is the real conquest” (quoted in Kellerman, 1993, pg. 65). By the end of the war Israel had gained control of 78% of mandatory Palestine (Dajani, 2005). The top priority of the state during this time was that the land seized not be challenged and not be conceded back to returning Palestinian and in this effort “permanent civilian presence in the contested areas” through agricultural settlement “was seen as essential” (Feitelson, 1999, pg. 435). Now that the new Israeli administration was unhampered by any British interference, it quickly created pathways for preventing Palestinian refugee return by holding the land and settling it with a large focus towards “the village and agrarian settlements of all types” (Kellerman, 1993, pg. 65). First, the state abolished British ordinances on restriction of land transfers and Jewish immigration. Then it gave legal definition to ‘abandoned’ property to begin the process of state confiscation, control, and settlement of these areas. The Abandoned Area Ordinance defined these as any area that the state had taken control of that had been emptied of all or parts of its inhabitants during the war, or simply any area declared by the state to be abandoned. A number of laws were also enacted that specifically used agriculture or lack of cultivation as a means of land

confiscation. The Cultivation of Waste Lands Law authorized the Ministry of Agriculture to seize previously agricultural land that had been left uncultivated. This law was used in tandem with the Security Zone Law, by which Israel could declare certain areas a security zone and so prevent Palestinians from returning to cultivate there law, which was then seized for not being cultivated (Dajani, 2005). The Israeli Ministry of Agriculture estimated that about 80% of the land taken, more than 16 million dunums had been Palestinian refugee property, with around 5 million of these seized through the Absentee Property Law (Kadman, 2015; Dajani, 2005).

In addition to these means, there were numerous other methods based on what Granott termed a “legalist illusion” of land seizure and confiscation (Kadman, 2015, pg.16). Many of these land seizures, on which less official settlement had already begun, were then sold to the JNF. However in 1951, the Development Authority was created with representatives from the new government, the JNF, and JA, and it became responsible for all absentee property and for the task of settlement on the confiscated land. But, the Development Authority was required to give preference to the JNF and could not sell this land until it had by passed over by the JNF (Granott, 1956). While later there would be greater consolidation of authority, during this period a number of actors including the JNF, the Settlement Department of the JA, and the Development Authority, made quick work of establishing agricultural settlements, mainly under the land policies of the JNF of perpetual public ownership and long term, Jewish-only leasing.

Although both moshavim and kibbutzim were created rapidly during and after the war, the kibbutz continued to be the preferred mode of agricultural settlement especially in the short period of after the war when the narrative of settlement as security dominated. The

kibbutz was seen, during these war years and initial post independence, as part of the defense establishment. Remarking after the war, Ben-Gurion said “the role of the kibbutz in the state is not in the past. On the contrary, it has expanded to include, settlement, security...construction in the desert, and the ingathering of exiles (quoted in Near, 1997B, pg. 181). Between May of 1948 and the end of 1949, 57 new kibbutzim had been established, the majority of them in strategic area of the Western Galilee, the Naqab, and areas around Al-Quds (Near, 1997B). Included in these establishments were the newly created Nahal brigades. The Nahal program combined military and specialized agricultural training as part of the compulsory service in the recently conglomerated Israeli Defense Forces (IDF). These forces were sent to secure he'achsuth, or footholds, mainly in border areas and areas that were contested by any Palestinian refugee attempt to return (Heymont, 1967; Newman, 2010).

Despite the prominent role of the kibbutz, moshavim were also part of this initial push for securing and holding the newly seized territory. Both during and in the immediate aftermath of the war, the Moshav Movement, the main collective moshav organization, organized new Jewish immigrants into groups to set up and maintain moshav on depopulated village sites. This was program financially supported by the JA, which paid the new settlers for their work in establishing moshav (Kadman, 2015).

The main goals of the kibbutz in this initial state period were “a) colonization of the land; b) increasing production, especially agricultural production; c) expansion of agricultural population; and d) attainment of a ‘decent standard of living for the members’” (Kanovsky, 1966, pg. 32). While its main purpose was still colonization and keeping settlers on the land, agricultural production for consumption was emphasized during this time. One

of the reasons for this was that, as a result of the expulsion of much of Palestine's indigenous population, most of who had been rural agriculturalists, there was a large shortage of food available. This led to high food imports, particular of food staples like wheat, mostly coming from the US, the UK, and Germany (Granott, 1956; Central Bureau of Statistics, Statistical Abstract of Israel 1949). In 1949, Israel imported 60% of its food requirements (FAO State of Food and Agriculture, 1950).

G. Kibbutz Decline and Moshav Rise

After this initial spurt of kibbutz settlement, there was quickly a decline in the number of kibbutzim being created and the kibbutz movement overall. One of the reasons for this was that many of the new immigrants coming in were not suited for the intense training required of these security focused, border settlements (Near, 1997B). Another was that arriving immigrants preferred settlement that was based on the family unit, rather than collective living, and so were more easily recruited to moshav settlement (Ben-Artzi, 2001). Finally, there was also a political break with part of the kibbutz movement that lost them some support amongst the political elite. The most prominent incident was a public disavowing of a number of kibbutz organizations by Ben-Gurion for their opposition to the new government (Ben-Artzi, 2001). Indeed, by the early 1950s the moshav had taken the place of the main form of agricultural settlement. At the same time there was also some early challenges to agriculture's privileged place in rural settlement, from new forms such as the development town and greater industrial production in kibbutz and moshavim, which we will discuss further in next chapter.

In this period, agricultural settlement played a major and decisive role not only in holding and maintaining a presence on the land, but also an active part in the expansion of Zionist territorial gains during the war. This relates to Wolfe's notion that the forceful expulsion and tragedy of the Nakba, while greatly speeding up the process of colonization, did not change the means of this process, which continued to put agricultural settlement as a priority (Wolfe, 2011). However, during this period we do see large shifts in the mode of agricultural settlement. These transformations included changes from the large place of the plantation moshava in early settlement, to the more mixed, but still market oriented, economy of the kibbutz and the moshav. This shift was facilitated by the different settlement strategies of the main Zionist movement organs of the JNF, WZO, and JA. These settlement strategies were directly and indirectly influenced by those of other settler nations, particularly the US. In addition, during this period we see the beginning of centralized water development, with its main purpose being to feed agricultural settlement.

H. Analysis and Conclusion

It is important to note that while so much emphasis was given to agricultural settlement, a rural Jewish population was never the majority in Palestine. Reaching its height in 1941 at around 29% of the total Jewish population, rural and agricultural population never exceeded this ratio (Kellerman, 1993). While a number of studies conclude from this that agricultural settlement was a failure as far as Zionist efforts were concerned, this does not address all of the goals of agricultural settlement. Indeed while Zionist agricultural settlement did not fulfilled the notion of creating a nation of farmers or absorb a majority of Jewish

immigration, it was effective in holding and retaining land as a tool of settlement. As Shafir writes “ the significance of the kibbutz” and later the moshav “in the formation of the Israeli state and nation was much greater than its share of the...population” (1996, pg. 185).

Through complex and historically situated means and combining agriculture with legal and military apparatus, pre-state and state institutions were able to capture, empty, and hold large areas of land despite the highly urban and concentrated geography of much of the settler population.

In its evolution, Zionist agriculture seems to greatly mirror the agricultural development of other settler-states within the second world food regime, however with some interesting divergence. Initially developing as a surrogate colony (Atran, 2005) of the British Empire, populated by Jewish Europeans rather than British settlers, with an agricultural economy greatly based on the production of both temperate crops like wheat and exotic commodities such as citrus for the colonial center. In this period we see change from this development. Agricultural development begins to take on more of the form of a state agriculture, characteristic of the national development of other settler states during this time (McMichael, 2009). We see the increase of more durable commodities like milk and poultry products, an objective specifically put forward by Volcani (1935). However this development was in its early stages, expanding in the post-state period, and also hampered early on by the high need for agricultural imports from other settler states such as the US. In this way, while there existed building blocks of state agriculture put in place by pre-state organizations like the JNF and JA, there was then a large vacuum, created by the massive dispossession of Palestinians, where a state agriculture then was rapidly planned and developed.

There the expulsion of much of the indigenous population the new Israel state thought of Palestine as a clean slate for remaking and the planning of state agriculture (Granott, 1956). In understanding this, it is useful to bring in Araghi's take on the notion of accumulation by dispossession. Araghi describes this as "expanding 'ecological enclosures'" combined with processes of "simultaneous depeasantization" of labor (Araghi, 2009, pg. 124,127). Although he uses this notion to understand the forces of neo-liberalism, it assists us in understanding the making of Israeli agriculture, out of the large-scale dispossession of Palestinians. While Israeli dispossession did not lead to privatization of land, it pushed out the many varied forms of land use and tenure practiced by indigenous cultivators. It then replaced these with an entirely novel enclosed system that benefited one people over the indigenous population. This notion will be expanded upon later in chapter 8 and 11, but here one can see how Palestinian dispossession, in which Israeli settler agriculture was an important mechanism, made way for the expansion of greater agricultural development and accumulation.

In this period we also witness the first planning for large national water development. In the Lowdermilk-Hayes plan, we see the seeking of sanctioned models of hydraulic development, which will later define the ideas of the hydraulic mission. Zionist planners used the technical and scientific reverence of the hydraulic planning in the US, within projects such as the TVA, to argue for greater expansion of settlement in the Mandate. In this way, the new state would also covet the export of this model that entrusted water development to "powerful state water bureaucracies" based on large-scale water projects such as damming and wide-spread irrigation (Molle, Mollinga, and Wester, 2009, pg. 330). This development is highly intertwined with the making of 'modern' agricultural techniques employed by

Israeli agricultural settlement. As the Zionist effort focused on creating non-subsistence agriculture that would provide wages and living standards that were equal with those of settlers in urban areas, the expansion of irrigation and technical water development was essential.

Lastly, Zionist settlement and post state planning continued to employ parallel settler narratives and strategies. Both Zionist planners and Mandate officials continually inserted the idea that agriculture in Palestine was a backwards system on which they projected a “collective re-imagining...of a landscape that had potential for 'modernisation'” (Gasteyer, et al. 2012, pg. 452). Sir Hope-Simpson, endorsing Zionist methods for intensive, modern cultivation wrote, “the Arab peasant has at present neither the capital nor the education necessary for intensive cultivation. The Jew has” (George, 1978, pg. 3). Zionists promoted this narrative that ‘the Jews have raised the standards of agriculture in Palestine...by adopting new methods of cultivation, using agricultural machinery...who introduced modern methods of dairying, promoted scientific poultry-raising (Granott, 1936, pg. 54). In this way, Zionist planners justified encroachment on Palestinian peasant land and their eventual dispossession, in order to ‘modernize’ a landscape seen as a “seedbed of thorns and weeds, degenerating into waste land” (Granott, 1956, pg. 93).

In addition to these narratives of modernization, Zionist agriculture also employed specific techniques of other settler agricultures. One of these was the reclamation of land for agriculture, greatly through wetland drainage. The major actor in this was the JNF, with one of its other functions being land reclamation and draining wetlands in many areas, mainly in the Northern portion of the country (Tal, 2002). These projects were very similar to those of settler agricultural development by the US Bureau of Reclamation in the American West,

where there was drainage of waterlogged areas where cultivation was thought possible (McCully, 2001).

Lastly, it is interesting to note the parallel narrative of the plough as weapon against a foreign ‘wilderness,’ and ‘modern’ agricultural methods as non-partisan moral good. As mentioned, Volcani described Zionist colonization as using the ploughshare as the one of the main weapons of this settlement. Here, we see strikingly similar narratives and strategies within US settlement of the American West. Through passage of laws like the Homestead Act, giving 160 acres to Western immigrants in exchange for cultivating the land; and the Morrill Land Grant Act, for the funding agricultural schools, settlement was spread across the newly gained Western territory. In this pursuit the government “saw scientific, increasingly mechanized agriculture, as such a positive good that they believed every farmer should practice it, and western Native Americans were among those actively and systematically compelled to change over to new methods” (Knobloch, 1996, pg. 57). Within this effort the plow became “a single perfect symbol for the American ethos” by which “virgin American land was made for this plow; manifest destiny was achieved with it; the wealth of the nation depended on it” (Knobloch, 1996, pg. 49). In these ways both Zionist and American settlement held ‘modern’ agricultural techniques as pathways of colonization to change and conquer landscapes, pushing these practices on indigenous people, while at the same time displacing them from their lands.

Zionist agricultural settlement transformed significantly during this period, from colonial plantations serving world markets, to the building blocks of a state agricultural based on small-scale commodities production. In this shift agricultural settlement was shaped by changing forces within agricultural markets and also by ideas of modern agriculture and

water development propagated from other colonial powers. With these strategies of colonization came narratives of backwards indigenous agricultural practices seen as degrading landscapes into wilderness. These were also augmented by burgeoning narratives of security through settlement, which greatly came with the rise of the kibbutz model and Zionist Labor party. While the kibbutz model began to fade as the main vehicle, many of these strategies and narratives continued forward into the next phase of agricultural settlement.

CHAPTER 5

MOSHAV AND FAMILY FARM SETTLEMENT TO THE FALL OF AGRICULTURAL SETTLEMENT, 1950-1977

A. Moshav Expansion and Production

In order to take advantage of their territorial position after the war, the newly created Israeli state had a number of high priorities. These included the planning and continuation of agricultural settlement, the rapid development of resources for this settlement, gaining greater control of land for settlement, and consolidating and rationalizing of laws and organizations around agricultural settlement.

Within the first decade after independence, the government devised a number of strategic plans for agricultural settlement that sought to fill the now “internal frontier” (Yiftachel, 1996). In 1952, the Joint Planning Center was established to prepare a seven year plan for agricultural development. In these plans, six specialize types of agricultural settlement farming structures were established 1) fully irrigated dairy, 2) semi-irrigated dairy, 3) citrus, 4) field crops, 5) hill farms, and 6) mountain farms.

Type	Main Production	Size
Fully irrigated dairy	Fodder crops, dairy	Small land holding
Semi-irrigated dairy	Fodder crops, dairy, some field crops	Small land holding
Citrus	Citrus, vegetables	Larger land holding
Field	Industrial field crops, vegetables	Larger land holding
Hill	Poultry, field crops	Small land holding
Mountain	Poultry, fruit trees	Small land holding

Figure 5.1: Agricultural Settlement by Production Type (Klayman, 1970).

These agricultural settlements were placed in different areas of the country to suit the climate and demographic settings, meaning the portion of Israelis to remaining Palestinians.

While previous agricultural settlements had also been planned and given much support by various settlement agencies, these new settlements were highly planned and monitored by the Development Authority. This expansion was also jointly aided by the multiple settlement organizations within the larger kibbutz and moshav movements. The Settlement Department worked through these movements, and new settlements were obliged to be affiliated with a settlement movement before an agricultural settlement could be established (Newman, 1986).

By Area	No. of Villages	By Farm Type
Northern	53	Field
Central	72	Mountain (mixed)
Mountain Jerusalem sub-district	33	Hills (mixed)
Galilee sub-district	29	Dairy (mixed)
Lakhish	30	Citrus
Southern	34	
Total	251	Total 251

Figure 5.2: Distribution and Type of New Agricultural Settlements (Weintraub et al, 1971)

Many of the new immigrants coming into the country were funneled directly into agricultural settlement. Soon after the war in 1948, the moshav settlement model became favored, particularly because of its focus on the individual family unit. As arriving immigrants were free to choose the type of settlement they would be directed to, many preferred to settle in moshavim. The new wave of immigrants coming in the 1950s was greatly composed of Jews from the Middle East and North Africa. The moshavim established by these newer immigrants were distinguished from the earlier moshav, ovdim or workers moshav, with the title of moshav olim, or immigrants moshav. This took an explicitly racial character, with Eshkol, the then Minister of Agriculture, addressing doubt of the new moshav

settlers by stating “I know that the great stream of popular immigration has brought with it a man who is very different from the one to whom we have become accustomed” that “lacks the old social qualities.” But none the less “we must...strive to turn this new immigrant into a farmer, into a creator of agricultural villages” (quoted in Weintraub et al, 1971, pg. 4). Between 1950 and 1956, 168 new moshavim were established, with the goal of securing certain regional areas in mind.

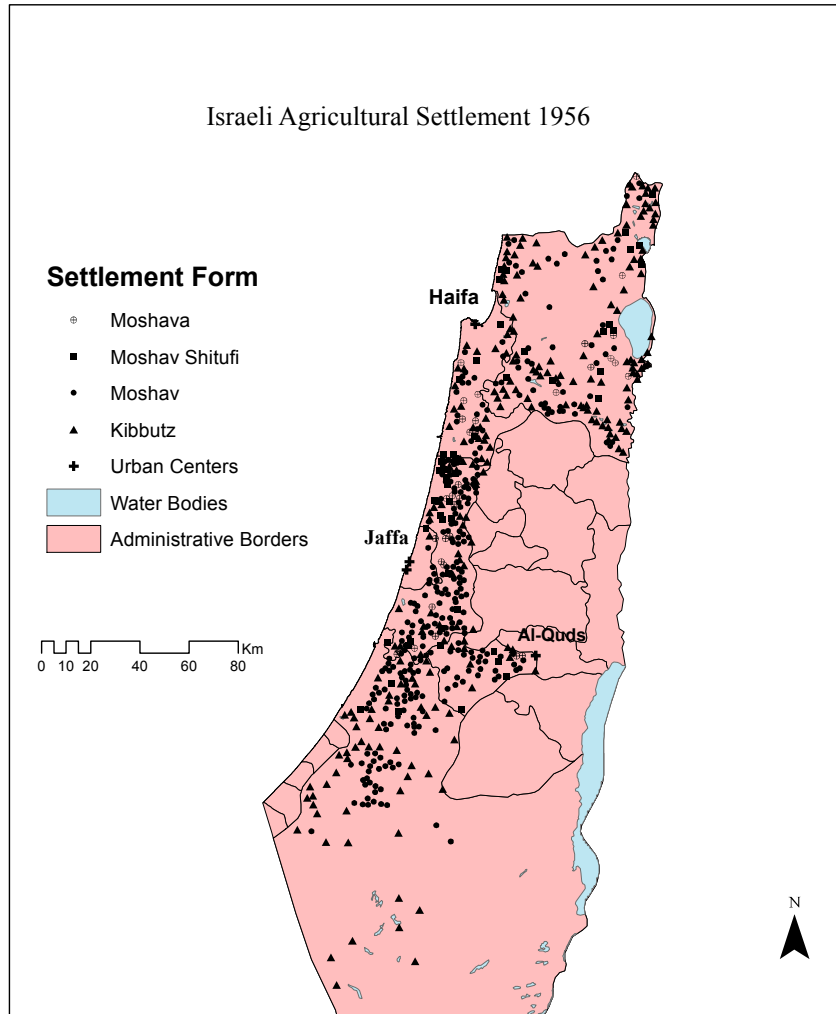


Figure 5.3: Israeli Agricultural Settlement 1956 (Weintraub, Lissak, and Azmon, 1969) digitized by author

In order to fill the borders of the state, regional settlement planning was developed. One of the first of these regional plans was in the Naqab. In this plan, small groups of three to five moshavim were established to serve as a base for eventual settlement expansion. This method was used greatly by Ranaan Weitz, who became the head of the Settlement Department of the JA, and would advance rural settlement along these lines (Klayman, 1970) This type of division was built into the first larger National master plan for the state. Designed by Arie Sharon, it had a large impact on the internal colonial development of the

state. This plan divided the country into 27 development regions, emphasizing greatly the expansion of development in frontier areas (Yiftachel, 2010). As before, one of the aims was to be able to keep new settlers on the land, by maintaining wage levels at those similar to urban professions. To do this a number of agricultural strategies were prioritized. Milk, milk products, and citrus continued to make up much of the production of the new moshav, but they also began to produce greater amounts of high-value irrigated vegetables, with vegetable production doubling between 1950 and 1955 (Central Bureau of Statistics, Statistical Abstract of Israel, 1956). Another of these strategies was the introduction of industrial crops such as cotton and sugar beets, which filled some of the area of the field crop and hill farm types. Broiler chickens were also introduced as another market strategy, with interchanging of layer chickens for broilers in some of the mountain moshav. However, layer chickens continued to be the majority (Schwartz, 1999). The production of beef, mostly a by product of the dairy industry, and aquaculture also continued to grow during this time (Klayman, 1970)

In addition to keeping new settlers on the land, settlement policy was also designed to stop any attempt at return of Palestinian refugees to their land. Early on after the creation of the state and large-scale population transfer, the Transfer Committee began to discuss ways to prevent any refugee return. Placing settlers on the land and within the homes of Palestinian refugees was an important method in the cementing of this land confiscation. Within this effort the Scheme for the Solution of the Arab Problem in the State of Israel was created, greatly guided by Ranaan Weitz. This included the plans to:

destroy Arab villages, fields and farms; to settle Jews on lands, and in homes, 'vacated' by Arabs; to

draw up legislation to prevent their return; to prevent ‘infiltration’ by peasants and farmers returning to cultivate their fields; and to make proposals for resettling refugees abroad (Dajani, 2005, pg. 38).

Another part of this effort was the creation of laws in order to prevent any refugee return. This included the 1954 Law of Prevention of Infiltrators, under which ‘infiltrators’ who’s definition greatly overlapped with that of ‘absentee’ were barred from returning to their lands, with penalties including expulsion from the country.

B. The Continued Place of the Kibbutz

While the kibbutz model had ceased to be the major form of agricultural settlement and was embroiled in political disputes, it continued to play a role in agricultural settlement and land holding within the new state. The place of the kibbutz as a militarized agricultural settlement was emphasized, and much of the new kibbutzim established after 1950 were created by the Nahal groups. The kibbutzim were also worked into settlement planning of the country’s regional centers. In regional centers like Lachish, moshav and kibbutz were established together, mutually reinforcing one another and also serving the nebulous purpose of “providing help and models of behavior for the new immigrants” (Near, 1997B, pg. 232). As far as crop production, the kibbutz made up little of the overall vegetable production, and while continuing to grow fodder crops for dairy, also began to focus on industrial crops like sugar beets and cotton (Central Bureau of Statistics, Statistical Abstract of Israel, 1968)

In order to support the growth and expansion of the agricultural sector, the new government created a system of protective policies including price controls, land quotas, and

subsidies. The largest subsidies during this time were paid to dairy, egg, cotton, and vegetable production, accounting for a large portion of settler income ranging between 10 and 25% (Kalyman, 1970). Milk production particularly received high support, for in addition to direct subsidies there were also price controls, which set milk prices artificially high for domestic consumers (Zusman and Amiad, 1977). In addition, agricultural settlers also received indirect subsidies for inputs like fertilizer, pesticides, and water, which will be discussed further in section F (Kalyman, 1970, pg. 71-72). Of the capital flowing into the new state about three-fourths ended up in the hands of the government and much public sector funding went to “development imperatives...primarily oriented toward the expansion of agriculture and the provision of employment” (Selby, 2003, pg. 70).

C. Expanding State Water Development and Changing Narratives Around Water

As agricultural expansion was a top priority and particularly with the advance of water hungry vegetable, fodder, and industrial crops, gaining greater water resources for this expansion was avidly pursued. Water development, combined with agricultural settlement, took on great importance within the state as a means of expanding land control and in the creation of new Israeli citizens. In this way “water was not regarded as a mere economic resource but as an input to the creation of a new society in the land of Israel” (Fischendler, 2008, pg. 93). Water was also very necessary to create settlement in the drier Southern areas of the country, and it was seen as “‘indispensable’ for the ‘survival’ of such peripheral communities” (Selby, 2003, pg. 68). Advances towards water control and centralization were taken very quickly after the creation of the state. In 1950, Israel adopted into law the

British ordinance that declared rivers common property, putting them in the hands of the state (Alatout, 2007). Parallel to agricultural development, strategic plans were created for the advancement of water development. The first of these was the seven year plan, based greatly on the Lowdermilk-Hayes plan, aimed at creating a water diversion from the upper Jordan in order to irrigate agricultural settlement the South (Gasteyar et al, 2012). From 1951 to 1955, American engineer John Cotton was employed in order to turn this plan into reality and create what would eventually become the National Water Carrier (NWC) (Davis, Maks, and Richardson, 1980). One of the first steps towards this goal was the drainage of the Hula wet land area. Like other reclamation and drainage projects, this was seen as a general good, but most particularly as a way to create more arable land for settlement and to make way for the building of large-scale irrigation (Lipchin, 2006). To facilitate the technical planning for the NWC, the Tahal organization was created with a mandate for engineering and planning of water development. In 1951, drainage and construction began in the Hula basin. The plan called for diversion of the Jordan under its large tributary, Lake Tiberias, within the demilitarized border with Syria.

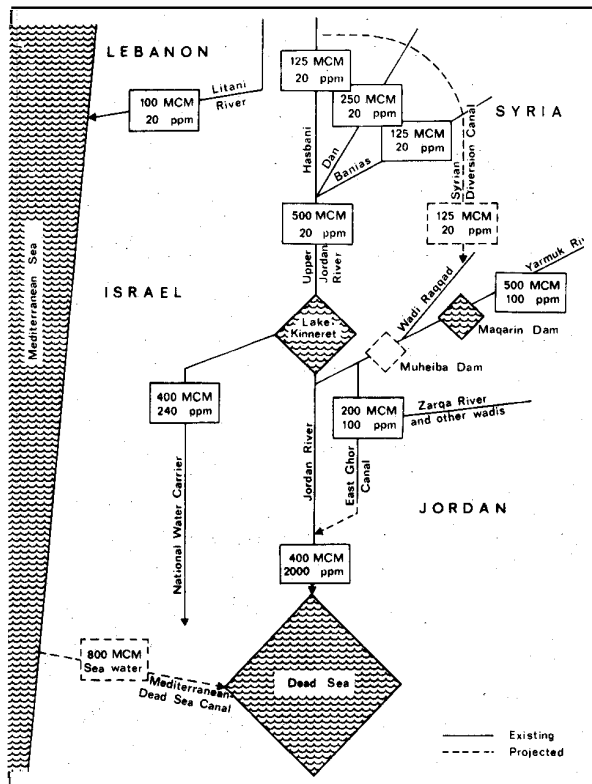


Figure 5.3: Early Schematic for the National Water Carrier (Inbar and Moas, 1980)

Israel's actions were met with Syrian armed forces, resulting in US intervention. Under US envoy Johnston an agreement was created for transboundary division of the water of the Jordan and Yarmouk rivers (Rosenthal and Sabeel, 2009). Despite the rejection of the plan by the Arab League, Israel continued its construction and preparation for water development, completing drainage of the Hula lake in 1958. As an interim before the creation of the NWC, a pipeline was built to divert flows of Nahr al-Ajua down to the Naqab. This Nahr al-Ajua-Naqab pipeline was key to establishing of the regional settlement center of Lachish, running directly to the area and providing irrigation for agricultural settlement there (Feitelson, Selzer, and Almog, 2014).

During this period it is also significant to point to a shift in narratives around water within the state. Alatout (2009) has deftly described the change during this time from

previously arguing for water abundance under the Mandate, to narratives of scarcity of water moving forward. He discusses how a pivotal moment in this shift came with the founding and changing leadership of Tahal. Initially Simcha Blass, who had worked for the JA as a hydrologic engineer and been one of the founders of Mekerot, was made the first head of Tahal. Blass had argued for higher estimates of water potential in the region, giving numbers of around 3,000 to 4,000 MCM/year (Alatout, 2007). Estimating this potential was very important for moving forward with the planning of the NWC, and there was infighting over this estimate. Others within Tahal argued that the country's potential was much lower than previously thought, putting forward a much scarcer water situation. Eventually, scarcer estimates won out and in the 1955 Master Plan water potential was estimated at 1,850 MCM/year, and Blass was replaced as the head of the organization. In addition to the greater technical expertise applied, the narrative of scarcity was more politically expedient as it made Israel able to argue for greater control and use of surrounding water resources (Alatout, 2009).

Influenced by and reproducing such ideas, this Israeli ideology of water development mirrors that of other states in their hydraulic mission. While we have discussed this term in the context of large state water projects, we may further refine this definition of the hydraulic mission. One can describe the hydraulic mission as the idea that nature can be controlled and harnessed for the interests of a state and that this can be achieved by technical progress through large water projects, such as dams and irrigation projects (Allan, 2003 and Molle et al, 2009). It also maybe summed up as the idea of state control in attempt to “capture as much water as possible for human uses” (Wester, Rap, Vargas-Velazquez, 2009, pg. 395). We can see this idea greatly integrated into Israeli agricultural settlement expansion and

water development. One can observe specific rhetorical examples of this ideology in discourse around water, with Ben-Gurion stating in 1953:

[T]he water of the Jordan flows down to the Dead Sea, and the Yarkon [Nahr al-Ajua] water flows to the Mediterranean...even the rains, plentiful in the north and minimal in the south, flow wasted, in large measures to the Mediterranean or the Dead Sea, without fully benefiting the thirsty soil. (quoted in Lipchin, 2006, pg. 255).

Particularly, this sanctioned discourse of water development fit well with Ben-Gurion's notion of *mamlakhtiyut*, or the idea that state should be central for creating Jewish identity and life. This ethos gave legitimacy for centralizing water institutions and managing water for national purposes, such as settlement development (Harris and Alatout, 2010). Feitelson, citing Simcha Blass, defines Israel's hydraulic mission, of the early state period as the struggle to "develop all available water resources and convey them to where they were needed for agricultural and settlement purposes" (2013, pg. 18). This water ideology worked together with large state development of agricultural settlement.

D. Afforestation and Agricultural Settlement: Complementary Tools

Although not the focus of this study, it is quite relevant to discuss the complementary and dual role of agricultural settlement and afforestation, particularly during this period of rapid expansion of land control and settlement. Afforestation as part of the Zionist project had been occurring for sometime, used by the JNF as a funding method and specifically in

order to transform the landscape of Palestine (Bar-Gal, 2003; Long, 2009). Afforestation had long been a part of the work of the JNF, taken up with the purpose of the trees serving as “our proxy immigrants” and also in order to transform the landscape of Palestine into an imagined biblical vision of many Zionist planners (Long, 2009, 62). In this effort the JNF choose to fill Zionist controlled land with large areas of monocrop pine, mainly *Pinus halepensis* and *Pinus pinea*, (Ruppin, 1926) although some other species such as eucalyptus and carob were also included. This ecological choice was based on the idea that in biblical times Palestine had been covered in mixed forests. Yossef Weitz particularly rejected the idea that the landscape of the bible was the “type of rocky, non-arable hill country” observed, and that it should be restored to a land with “large trees covering an extensive area', or an area covered by closely spaced trees” (quoted in Long, 2009, pg. 66). In addition, this approach may also have been influenced by the views of other settler colonial forestry programs, such as French efforts in North Africa. This program also held the belief that much of the Middle East had previously been more greatly forested before its gradual desertification by ‘destructive natives’ (Davis, 2004, pg. 365). While these ideas were eventually proven to be historically inaccurate, they greatly guided Israeli afforestation policy (Davis, 2004; Braverman, 2009).

Pine forests, like agricultural settlement, become a tool in Zionist and later Israeli land control. Put quite succinctly by one of the JNF’s later chief forest inspectors “in order to prevent the taking of state land by anybody: you, me, Bedouins, Druze” one “must find tool for preventing people from occupying these lands...And this tool was forestation” (Braverman, 2009, pg. 347). In this way afforestation and agricultural settlement served complementary roles. Afforestation was used in non-arable areas not suited for agricultural

settlement, but then still “demonstrated active ownership in the eyes of Ottoman law, thereby securing Jewish tenure” (Long, 2009, pg. 72). In addition, pine forests could be used to hold land for later settlement development. In the decade before the creation of the state, Zionist planners had used afforestation side by side with agricultural settlement. In the kibbutz stockade and tower settlements, settlers worked quickly “laying water pipes and planting trees,” establishing plantings that were “enabling the population and development of areas that were geopolitically significant but otherwise unfit for habitation or crop cultivation” (Long, 2009, pg. 73).

After the war and large-scale expulsion of Palestinians, afforestation efforts increased along side agricultural settlement. At the 1951 opening session of the Knesset, Ben-Gurion declared “we must plant hundred of millions [of] trees...we must cloth every mountainside with trees, every hill and rocky piece of land which cannot successfully be farmed, the dunes of the coastal valley, the Negev plains east and south of Beersheba” (quoted in Braverman, 2009, pg. 344). In this effort the JNF was given greater control of afforestation in 1959 when the government made the decision to transfer all afforestation projects to the JNF, as some were previously organized by the Ministry of Agriculture (Lehn, 1988). Of the villages depopulated before and during the war of 1948, 86 were planted over with JNF forests (Kadman, 2015). By 1960, 279,000 dunums had been afforested by the state and the JNF, this area almost doubling in the next decade (Central Bureau of Statistics, Statistical Abstract of Israel, 2014). Water and irrigation were also important for the creation of these forestry projects, feeding the initial and maintenance of these establishments. In this way agricultural settlement and afforestation should not be seen as separate, but as two complementary tools of settlement in the proverbial Swiss army knife of colonization.

E. Consolidation and Rationalization of Legal Systems

As agricultural settlement spread, the state continued processes that would gain greater control over land and create more mechanisms for land confiscation. To cement its control over land declared absentee property, the Land Acquisition Law was passed in 1953. This law confirmed all of the acquisitions by the Development Authority, officially sealing transfers of Palestinian property to the Israeli government (Dajani, 2005). It also passed legislation to further the state's gains in territory, with many that specifically used agriculture or non-cultivation as a logic for confiscation. One of these was the Plant Protection Law of 1956. This law put in place regulations on plant production and crop import and export under the authority of the Ministry of Agriculture, further centralizing state strategic control over agriculture. Further the law was later amended to allow the Ministry of Agriculture to destroy plants in declared security areas, thus being able to destroy Palestinian crops in areas declared security zones and leaving the lands uncultivated giving greater signal for confiscation (Dajani, 2005). One of the most important legal measures in this process was the Prescription Law of 1958. This changed and repealed measures of the Ottoman land law and British ordinances, making Israel able to challenge Palestinian claims on miri and mawat land. Under this law farmers are required to submit documentation of uninterrupted cultivation over the past 15 years, and requires specifically aerial photographs as evidence of this cultivation. The state could then use any absence of this evidence to declare agricultural land as state land, even if it was under cultivation (Danaji, 2005).

Other laws were implemented to restrict any advance of Palestinian agriculture that may impinge on Israeli settlement growth. This included policies of sedentization of Bedouin populations and restricting their pastoral and agricultural economy. An example of this is the Black Goat Law of 1950, which prohibited the grazing of black goats, those mainly kept by Bedouin tribes, to certain areas (Falah, 1985). Other policies included the creation of the Green Squad or Green Patrol in 1953. This was a military unit under the control of the Ministry of Agriculture, which was tasked with clearing any Bedouin cultivation that could be used to make claim on land, and reducing the size of Bedouin flocks through the enforcement of the Black Goat Law (Goering, 1979; Falah, 1985).

Lastly, the government made a number of moves to stream line and rationalize the system of settlement. This included defining the relationship of the JNF, WZO, and JA to that of the Israeli state. While these bodies had greatly acted as “essentially specialized functions of one and the same organization,” (Davis and Lehn, 1978, pg. 7) it was necessary to again define these functions in the context of the new state. In 1953, the JNF Law allowed the establishment of the fund within the new state, continuing its fund raising activities for purposes of Jewish-only settlement. The JNF organization that had been incorporated in Britain then transferred the titles to all of the JNF owned land within the state, but kept the claims to the lands that the fund had purchased outside of the state boundaries, including those in the West Bank and Gaza Strip. The next year the government passed the WZO-JA(Status) Law, combining these into the Zionist Executive, with the continued purpose of organization of Jewish immigration, absorption of this immigration, and “agricultural settlement in the country and the purchase of land and its development (Davis and Lehn, 1978, pg. 13).

Another of these developments was the passage of a number of land laws that consolidated power over land and protections for maintaining rural state land ownership. The first of these was the Basic Law of 1960, which defined nationally owned land as those owned by the state, the Development Authority, and the JNF. This consolidated land authority and continued the policy of outlawing the sale or leasing of these lands to non-Jews, which now amounted to 93% of all land in the state (Nijim, 1984). In the same year, the Land Ordinance Law defined the role of district courts in disputes over cases of government claims over miri and mawat land (Dajani, 2005). The next legal development was the Israel Lands Administration Law of 1960, which created the Israeli Land Administration (ILA) in order to administer state owned property (Hananel, 2010). Finally, there was legislation attempting to preserve agricultural settlement's place as a land holding mechanism. In the 1965 Planning and Building Law, the preservation of agricultural land was declared as a central goal of planning, and the Committee for the Protection of Agricultural Land was created as one of the highest authorities in national planning. A few years later this preservation entity mapped all of the country's land reserves declaring "all areas that had no pre-existing building rights to be agricultural, even if they were not being farmed" (Hananel, 2010, pg. 1162). These laws of course referred specifically to settler agriculture, as non-Jewish agricultural was undermined by many legal systems and settlement development.

F. Legal Consolidation and the Expansion of Water Projects

This legal and organizational authority was also consolidated around water, sealing the place of water in agricultural settlement, where for the first three decades of the state 70%

or more of available water resources went to agriculture (Kislev, 2011). From the beginning of the state, water development was tied to agricultural development institutionally. The state water authority, the Israeli Water Commission, which was created quickly after independence, was placed within the Ministry of Agriculture with the Water Commissioner to be appointed on the recommendation of the Minister of Agriculture (Feitelson, 2005). In 1959, the Water Law placed all water resources under the control of the state to be managed by the national water company, Mekorot (Lipchin, 2006). The law also decoupled land and water rights, detaching water resources from their place of origin (El Musa, 1996). It allocated water to sectors based on the decisions of the Water Commissioner (Davis, Maks and Richardson, 1980). Water allocation was also given differently for agriculture, with high subsidies and different limitations, to encourage settlement. In this system quotas were established, where block usage determines price, with 50% of water allocated for agricultural use being about half of industrial users prices, and increases in price with greater use (Becker and Lavee, 2002).

The largest piece of Israeli water development and apogee of the Israeli hydraulic mission was the creation of the National Water Carrier. Although under development for sometime, it was completed in the later half of 1964, with most of the flows diverted to agricultural settlement. While the original plan was divert water directly from the Jordan, because of clashes with Syria in the demilitarized zone mentioned earlier, the diversion came from Lake Tiberias (Inbar and Moas, 1980). The diversion consists of two large pipelines to deliver water to the coast and down to Southern Israel with many canals and smaller pipes coming off of the mainlines. Originally created for a carrying capacity of 350 MCM/year, the NWC pumps between 100 and 520 MCM/year, with a high evaporation rate of around 270

MCM/year (Rosenthal and Sabeel, 2009). The centrality of this project in the development of the Zionist project can be seen in the resistance to its establishment and completion. In fact the first military operation of the Palestine Liberation Organization was against the newly completed NWC (Zeitoun, 2008). Throughout this period Israel increased its irrigated crop area by three times, growing from around 550,000 dunums in 1950 to more than 1.5 million dunums in 1965, (Central Bureau of Statistics, Statistical Abstract of Israel, 1965) also with a large increase in water used for aquaculture (Feitelson, Assaf and Almog, 2014).

G. Challenges to the Privileged Place of Agricultural Settlement and Its Use After 1967

While water development grew, continually feeding into agricultural settlement, there began to be significant challenges to the privilege place of agricultural settlement.

Agricultural settlement creation slowed and began to level off in the mid 60s, with 367 moshav and 230 kibbutz in 1964 (Central Bureau of Statistics, Statistical Abstract of Israel, 1964). The moshav continued to receive large government protections such as subsidies, import protections for produce, and debt relief. These helped incomes for moshav members remain high (Schwartz, 1999). However despite its engrained place within the Zionist establishment during this period, other forms of settlement began to challenge the preferred position of agricultural settlement in population dispersal and settling the periphery. One of these forms was the development town or industrial village. This model was developed as a response to the diminishing potential of agriculture as means of settling and holding land (Applebaum, Newman, and Margulies, 1989). At first these small urban centers established

in peripheral areas in the North, center, and South of the country, served mostly as service providers for the surrounding rural moshav. But by the mid 1960s their population had exceeded those of other peripheral settlement types and the Labor leadership, which had for decades seen agricultural settlement as the main and only proper means for the settlement of maximum territory, began to consider these other alternatives. Commenting on this phenomenon, Moshe Dayan, the then Minister of Agriculture, said that the kibbutz and moshav have begun to lose their place as symbols of “essential centers,” which nowadays are “typified by places such as Beersheba, Ashdod, or Dimona,” prominent development towns (quoted in Kellerman, 1993, pg. 80). The development towns had similar settlement functions and structures as agricultural settlement of holding territory, population dispersal, and settling the periphery, but with industrial professions rather than agricultural as their main economic drivers (Yiftachel, 1996). While development towns grew as a mean of peripheral settlement, agricultural settlement continued to remain as part of the settlement strategy. Here this study greatly disagrees with some, such as Troen (2003), who argue that agricultural settlement ceased to be of major importance after 1967. As we will see, although it had begun to fall from its privileged position, agricultural settlement continued to play a strategic role after the 1967 war and with a more recent resurgence.

While some have disputed its place in as a *casus belli* (Zeitoun, 2008; Alatout, 2009), the creation of the NWC and disputes around water, were part of the run up to the 1967 Six Days war (Lowi, 1993). In June of 1967, conflagrations between Syria and Israel led to a short and intensive military campaign by Israel, through which it captured the Golan Heights, West Bank, Gaza Strip, Sinai Peninsula, and East Al-Quds. In addition, it gained greater control of the upper streams of the Jordan and control of the groundwater rich aquifers under

the West Bank (Lowi, 1993). After this large territorial gain, Israel proceeded in a similar manner to that following the war in 1948, creating legal means for land seizure and control, securing water resources, and expanding settlement. However, after an initial settlement drive, agricultural settlement greatly fell away as a major tool of settlement expansion. This change is multifaceted and influenced by larger changes in the global economy; changes in sanctioned discourse on water development, such as environment, economic, and integrated management critiques; and the development of new settlement forms that were more compatible with the economic outlook of the government.

Like with the war in 1948, many individuals were displaced, both internally and externally. Estimates of around 430,000 left their homes during the war, with about 250,000 of those being Palestinians in the West Bank, and 93% of the Golan being cleansed of its population (Harris, 1980; Abu-Lughod, 1982). The highest number of displaced persons came from the Eastern area of the Jordan River valley. The Settlement Department proceeded with more caution than after the 1948 war, but plans were formulated for the creation of agricultural settlements, mainly in the Golan Heights and West Bank, with a few settlements in the Gaza Strip. In the formulation of these plans the government relied on the “well-tested mechanism of agricultural settlements” (Feitleson, 1999, pg. 438). However, even before any government plans had been created, and only a few days after the war, members of kibbutz and moshav in the upper Galilee and Hula region met and discussed the creation of agricultural settlements in the newly gained territory (Harris, 1980). The main government plan that would guide settlement from 1967-77 was the Allon Plan, formulated by former Palmach commander and deputy Prime Minister Yigal Allon (Newman, 2010). The plan called for lines of strategic agricultural settlements in a corridor along the Jordan Valley and

in the high Southern plateau areas of the Golan, and even extending down to the Southern tip of the Sinai. Much of the rhetoric around the plan was security oriented, focusing on creating “defensible borders” through “territorial barriers and strategic depth” (Allon, 1976, pg. 42).

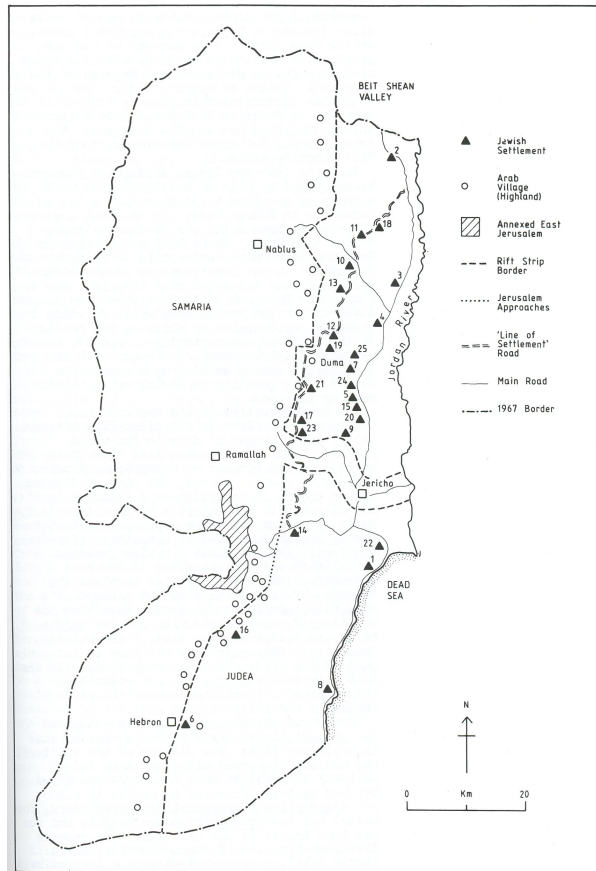


Figure 5.4: The Allon Plan in the West Bank (Harris, 1980)

This envisioned the annexation of 40% of the West Bank, with an initial force of 20 agricultural settlements, and eventually establishing a population of between 45 to 50,000, within both agricultural villages initial and later urban centers (Abu-Lughod, 1982, pg. 18; Dajani, 2005, pg. 73). The plan relied heavily on the existing structures of previous agricultural settlement such as the kibbutz organizations and moshav federations. In order to facilitate this mode of settlement intensive, soil, climate, and water resource surveys were conducted by the Ministry of Agriculture, Tahal, and the Volcani Agricultural Research

Organization (Harris, 1980) Many of the initial settlement were established by Nahal units, which were intended to eventually become functioning kibbutz.

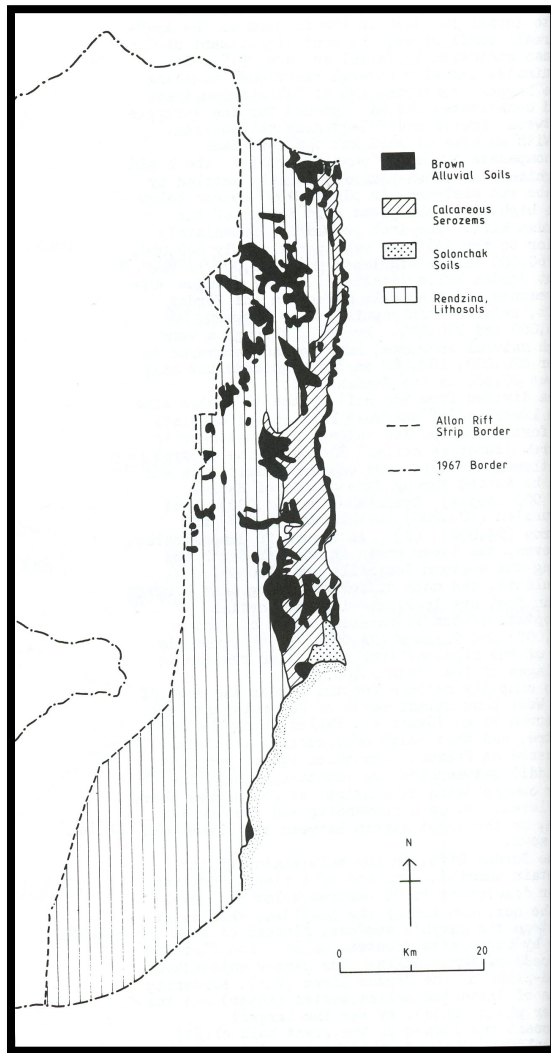


Figure 5.5: West Bank Soils in Areas of Agricultural Settlement (Harris, 1980)

In order to again create some legal formation for activity of settlement, which was illegal under international law, Israel extended legal frameworks for settlement into the occupied territories. The first of these moves was the Proclamation on Law and Administration, or military order number two, that authorized the government to take over any state property, which was used to seize much miri and mawat lands. While hundreds of

amendments to Jordanian law and military orders were issued, we can sum up a few salient points of these orders. Absentee property laws were extended to the occupied territories and were expanded to define absentee as any resident of a hostile area. A number of these orders allowed the restricting or closing of areas for security or military purposes, cutting off farmers from their land and restricting Bedouin grazing (Danaji, 2005) This seizure for ‘security’ purposes was a common method of land confiscation, especially during the first years after the war, with land taken through these measures often later becoming state land (Kerem Navot, 2013). JNF land purchases also proceeded, mainly in the West Bank, however with purchases being held by the JNF subsidiary, The Hemnutah Co. This company had remained from the early days of the JNF activities for the purposes of continuing land purchase and ‘redemption’ outside of the state’s borders (Davis and Lehn, 1978). Later Israeli also issued military orders restricting Palestinian agricultural expansion, such as military orders 474, 818, and 1015, which restricted the planting of fruit trees and certain vegetables and flowers by Palestinian farmers (Danaji, 2005). In addition, Israel issued a number of military orders that were meant to secure its water position. The first, military order number 92, gave complete control over water resources in the occupied territories to a water officer who would be chosen by the Israeli government. Order number 158 made sure that there would be no attempt to divert water from Israeli purposes, by stating that any water installation must be granted a license by the occupied area commander (Gasteyer et al, 2012). Finally, military order 291 declared all prior agreements on water in the areas to be invalid (Al-Haq, 2013).

In many ways, the agricultural settlement of the Golan and the West Bank was a last test of this tool of settlement, which then witnessed a fall from its place as the preferred

settlement mode. In the Southern Golan, agricultural production took on the common forms within the state, with field crop area of industrial crops, some fruit plantation area, and cattle for dairy and beef production. However, the Northern Golan took on agricultural production that was more indicative of Israeli agriculture to come. This included intensive, high water input production of fruit orchards, vegetables, and flowers. Similarly, the agricultural settlements of West Bank, particularly the Jordan Valley, also emphasized intensive production of high-value crops, using green houses, plastic covering, and making use of the warm winter season for exportable fruits and vegetables (Harris, 1980).

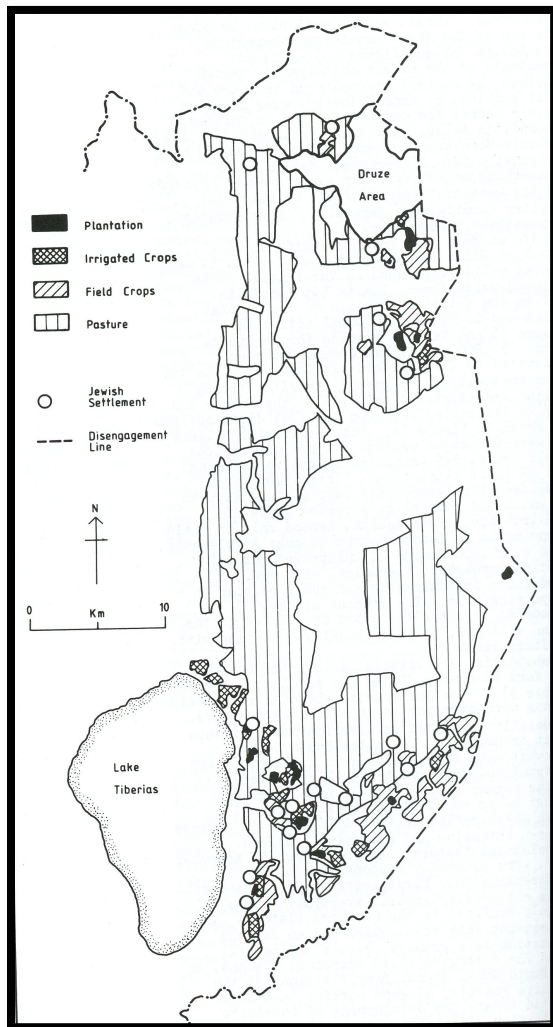


Figure 5.6: Israeli Agricultural Settlement in the Golan 1974 (Harris, 1980)

By 1973, only a small number of settlements had been established, about 13 in the both the Golan and West Bank, with around 2,300 and 1,800 settlers respectively (Harris, 1980, pg. 68-69 and 112-113). Despite the small numbers of settlers, large amounts of water resources were pumped into the settlement areas. In the Golan, local water sources amounted to only 20% of settlement use, with much of the rest needing to be pumped from the near by Lake Tiberias (Davis, Maks, and Richardson, 1980). In addition, in the first half of 1973 the settlement plans were reconfirmed and given even greater territorial scope in reworkings of the Dayan and Galilee plans (Dajani, 2005). However, in October of 1973, another short military encounter between Egypt, Syria, and Israel, mainly in the occupied areas of Sinai and the Golan Heights, further called agricultural settlement into question. While agricultural settlement had been touted for its ability to secure peripheral areas, during the 1973 war, the small Nahal agricultural solider outposts were criticized for doing little against the more modern warfare of the time. One of the main responses was the call for greater heavy fortification of settlements to face such military attacks (Harris, 1980).

But there were a number of other obstacles facing agricultural settlement during the mid 70s that eventually lead to a radical change in settlement methods. In the 1970s, Israeli agriculture faced increasingly difficult terms of trade in agricultural markets, increasing inflation, and, despite much government support, growing debt (Kislev, Lerman, and Zusman, 1991). Farm incomes began to decline and agricultural settlers began to seek

different methods of social reproduction.

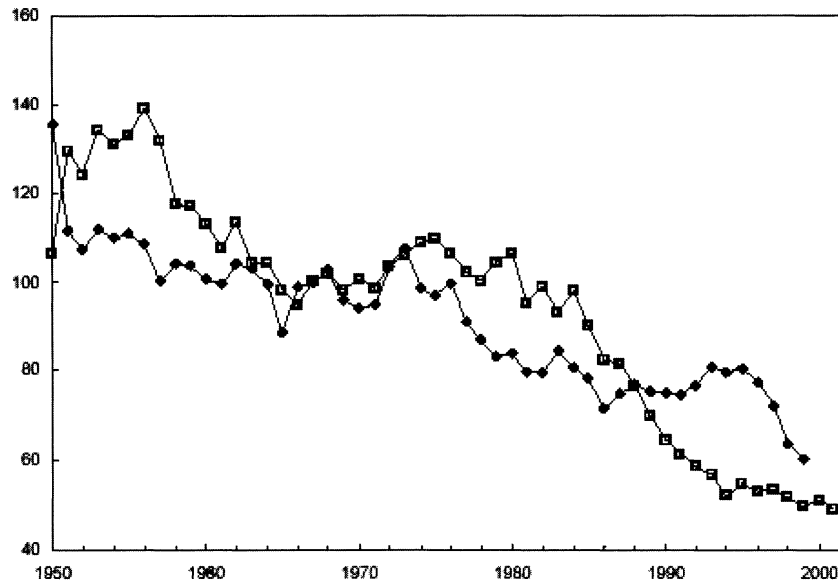


Figure 5.7: Agricultural Price Index, Israel and World (Tal, 2007)

These strategies included finding employment in other industries in near by urban areas and continuing agriculture only as part of the settlement zoning requirement, supplementing farm income with off farm income, or increasing in size and using more intensive methods (Sofer and Applebaum, 2006; Applebaum and Sofer, 2012). Industry within kibbutz and moshav economy began to grow, with less and less of their inhabitants making their living from agriculture. Those employed in agriculture fell more than 20% since the creation of the state and at the same time the percentage of the rural population engaged in industry grew from 11.8 to 16.5% (Newman, 1986, pg. 129). Another indicator of this beginning decline of agricultural settlement was the phenomenon of agricultural settlers leasing their allotted agricultural settlement lands to back Palestinians. In 1967 Israel passed the Agricultural Settlement Law that prohibited this practice and made sure that this would not lead to any Palestinian repossession of land (Zureik, 1979). This meant that Israeli

planners began to view agricultural settlement as no longer being able to keep people on the land and provide the presence and land holding that it once had.

In addition, there were challenges from new settlement forms and Zionist movements that were less committed agriculture as the privileged form of settlement. Seeing the events of the 1973 war as a partial failure of relying on agricultural settlement, a new religious settler movement, Gush Emunim was established in 1974. This movement was not ideologically committed to the cooperative and collective settlements of the moshav or kibbutz and sought settlement through the more economically open and less structured yishuv kehilluti or community settlement. This settlement type was partially based on industrial employment, but also designed as a commuter community, similar to suburb and exurban communities (Newman, 1984). Although the ruling labor party disapproved of these methods, a change in government in 1977 would aid this shift in settlement policy. In the coming section we will see the rapid rise of this settlement type, which will be described only in its relation to the decline of agricultural settlement. These economic changes within world markets, influencing shifts within the economy of the moshav and kibbutz, as well as political changes from within the state and the rise of new settler movement and types, all began to erode the favored place of agricultural settlement.

H. Analysis and Conclusion

In this period we witnessed the rapid expansion of Israeli agriculture, with the creation and consolidations of systems for gaining the maximum land, holding that land, and intensely planning and supporting the agricultural settlements established there. Here we see

the greater fulfillment of state agricultural development that had been initiated before and immediately after the war of 1948. Israeli agriculture became a state agriculture and sought to protect this burgeoning system, while at the same time integrating itself more fully into world markets. In this way, like many other settler nation states, agriculture became “an industrial sector as food increasingly shifted from final use to manufactured (even durable) products” (Friedmann and McMicahel, 1989, pg. 103). Israeli agriculture expanded in this way with “intensification of agricultural specialization...and integration of specific crops and livestock into agro-food chains dominated at both ends by increasingly large industrial capitals” (ibid, pg. 105). Through expansion of durable and semi-durable agricultural commodities like milk, meat, and poultry products as well as industrial crops like sugar beets and cotton, and continuation of specialized crops like oranges, Israeli agriculture became more fully integrated into world agricultural markets. This striving for market integration, with the goal of attaining high-level incomes for agricultural settlers, shaped the crop strategies and eventual outcomes of agricultural settlers. While Israel experienced some of the same processes as third world agricultural states, such as the high increase in cheap wheat imports after the 1948 war, it rapidly expanded agricultural support and protection for agriculture.

At the same time, mirroring other settler states like the US, Israel “set prices and other conditions for domestic farmers...and managed imports and exports” (Friedmann, 2005, pg. 129). Israel established such protective policies, giving a social safety net to agricultural settlers, while at the same time pushing the production of agricultural settlement into expanding markets. As Yiftachel astutely points out, the expansion of agricultural settlement within the newly created internal frontier can also be seen “as an attempt by the

central state to optimize conditions for economic growth and capital accumulation” and that the newly created nation state was “intimately tied with the emergence of the capitalist mode of production” (Yiftachel, 1996, pg. 497). In these way Israeli agricultural development was assimilated into larger systems of the second world food regime, which shaped and influenced the development of agricultural settlement expansion.

In addition, during this period of early state development, we see the major adoption of sanctioned discourses around water and the building of a state hydraulic bureaucracy. Already directly influenced by some of the ‘prophets of irrigation’ and the hydraulic mission, such as Elwood Mead, Israel continued to build larger scale irrigation and water development projects (Molle, Mollinga and Wester, 2009). It also created technical and bureaucratic systems for this development, such as the Water Commission and Tahal, in order to advance such projects. Of course the largest example is that of the NWC, which was directly related to the build up of such bureaucratic systems around water. Like hydraulic development in the Western united states, Israel was influenced by ideologies of human domination over nature, integrated with increasing water demand from agricultural settlement, and from a growing set of hydrological experts looking to expand their technical expertise (Worster, 1982; Worster, 1992).

Finally, in this time of Israel’s largest agricultural expansion, we can observe a number of shared settler narratives and strategies. These include the alteration of arid landscapes through ‘modern’ water and agricultural development, the homesteading strategy of family farming, and the export of ‘modern’ agricultural models to developing states. One of the narratives that percolated through much of Israeli agricultural settlement expansion was that of “making the desert bloom” (George, 1978; Tal 2007). This narrative was

particularly acute when it came to calls for expansion of agricultural settlement in the arid Naqab, as leaders like Ben-Gurion envisioned that the expansion of water infrastructure in that area would lead to a transformation of the landscape (Troen, 1988; Tal, 2008). This same narrative had been used in other settler state with arid and semi-arid climates, where a change in landscape was imagined through scientific water and agricultural development (Molle, Mollinga and Wester, 2009). The narrative of transformation of “desert wastelands” through irrigation spread from settler projects in California to North Africa, Australia, South Africa, with this narrative and ideological exchange often being multidirectional (Gasteyer and Flora, 2000; Ertsen, 2006). These shared narratives propelled agricultural settlement forward, seeing itself as doing productive and redemptive work.

In addition, practical strategies of homesteading were also shared between Israel and other settler states, particularly the US. Here again we see examples of direct guidance by another settler state, where homesteading was promoted by the *The Report of The Experts* presented early on in the Zionist project. While there were fluctuations in the use of different agricultural settlement models during this period, we see the large growth of the moshav model based on the family unit. An essential part of this model was that necessary work “should be preformed by the settler and his family” (Ruppin, 1926, pg. 10). The US agricultural trajectory in the settlement of the American West greatly parallels the transformations of Israeli agricultural development. Like the large moshava plantations, early large capitalist farms on the Western plains were eventually replaced with settler family farms. These farms and their forms of simple commodity production could be squeezed through “reduction of personal and productive consumption” and still provide social reproduction, unlike the larger capitalist farms (Friedmann, pg. 568). In the settlement of the

American West the family farm it was found that the “most efficient method of territorial expansion was the encouragement of settlement by commercial agricultural households” as “the family was mobile and potentially self-sufficient in labor supply, unlike the capitalist farm, which required a pool of sellers of labor power” (Friedmann, 1978, pg. 583). In this way, the growth of the moshav seems to be comparable to the growth of the settler family farm in other settler states like the US. Indeed Ruppin notes in his treatise on agricultural colonization of Palestine that part of the benefit of the family unit as the base of agricultural settlement was that a settler’s “wife and children can also give him substantial help” (Ruppin, 1926, pg. 12). Friedman remarks of kind of agricultural settlement in settler states like “the United States and Canada, and to a limited extent Argentina and Australia, through military conquest, subsidies and technical supports, and active recruitment of colonists” were able to settle and cultivate vast amounts of acreage (Friedmann, 1978, pg. 583). Here it seems that Israel should be added to this list, as the family moshav during this period provided the largest form of agricultural settlement, enabling the state and pre-state organizations to claim and hold large amounts of territory. While this period would also witness the transformation of Israeli settler agriculture from simple commodity production to food as an industrial commodity, the family centered moshav served as the main base of agricultural settlement before and heading into this transition.

Lastly, Israel, like other emerging settler states, attempted to export its agricultural model to new states of the developing world. As part of the development of the second world food regime, third world nations were aided in ‘modernizing’ their agricultural sectors, with countries like the US supporting the export of Green Revolution technologies and inputs (McMichael, 2009). In response to the gaining traction of the Afro-Asian and the Non-

Aligned Movement and Israel being shut out of international meetings like the Bandung conference, Israel sought to better its relations with developing nations, particularly newly independent African states. One of the largest of these efforts was the creation of a special unit inside the Ministry of Foreign Affairs called MASHAV. This organization dealt specifically with spreading the Israeli agricultural and water model, through technical training and trade. Countries like Ghana, Kenya, Senegal, Congo, and Uganda were engaged in such relations, where representatives were “given to technical cooperation, especially in training personnel for agriculture, irrigation, development of arid zones,” and trade deals and contracts from Israel development companies like Mekorot and Tahal (Oded, 2010, pg. 130). While this exporting of industrial agricultural models is less unique to specifically settler colonial nations, here we still see a parallel in the strategic use of settler agriculture.

CHAPTER 6

RURBAN CHANGE AND THE CONTINUED DECLINE OF AGRICULTURAL SETTLEMENT, 1977-2005

A. New Settlement Plans and the Liberalization of Settlement

In 1977, Menachem Begin was elected as prime minister as part the Likud party, representing a large change in the long-standing Labor establishment that had been politically dominant since the creation of the state. With this new administration came a number of large changes, especially in settlement activity. At the same time, agricultural settlement also faced internal change and restructuring in agricultural markets, changes in governmental support, and new opposition from environmental groups. These changes would lead to a progressive decline of agriculture's share of the economy, workforce, and its place in settlement. This chapter will discuss these shifts, with a focus on how these challenges and new settlement models replaced and became an alterative to agricultural settlement and their relations to its decline.

A new plan for settlement expansion was formed, devised by the newly appointed Minister of Agriculture, Ariel Sharon. The Sharon plan had a number of novel characteristics and was more aggressive in its actions of land confiscation and settlement (ARIJ Forty Years of Israeli Occupation, 2015). While the Allon plan had sought to establish settlement lines that created borders, usually in emptied or already peripheral areas like the Jordan Valley, the Sharon Plan looked to place settlements in the midst of Palestinian villages, often topographically in higher areas where they would sit above existing Palestinian areas (Yiftachel, 2010). This strategy already had its testing ground in the process of Judaization in the Galilee. The central Galilee was one of the last areas where a Palestinian population

remained a majority, an issue that settlement strategies hoped to change. While a number of development towns had been established in the area in the 50s and 60s, there was a renewed push by the Settlement Department to connect existing settlements and increase the Jewish population in the area to 100,000, mostly through non-agricultural settlement (Falah, 1991). This was taken up by the Sharon plan, which more aggressively established settlements through the creation of settlement outposts, *mitzpirm*, which could then hold the land for later development (Newman, 1984).

The Sharon plan also increased the security-oriented justification of settlements, with greater use of language around settlements as ‘control over main arteries’, ‘strategic points’ and ‘protection of national land’ (Yiftachel, 2010, pg. 89). Lastly, the Sharon plan also began to emphasize greater commercialization of settlements. This included making settlement establishment not just a government support program, but attractive to local investors in garnering support for their development (*ibid*). This new stance of the Sharon plan fit well with the outlook of the new government, which had a more liberal economic stance than the former Labor government (Hanieh, 2003) and with the settler model of the newly formed Gush Emunim. The movement had been instrumental in creating settlements in the mountainous areas of the Galilee and West Bank, and had created their own settlement plan that aimed to settle one million Jews within the territories occupied after the 1967 war (Newman, 1984). These visions were combined in the settlement drive after 1977. There was also more formal recognition of the movement, coming with its incorporation into the

government bureaucracy as the Amanah¹¹ settlement movement, and with much of the new settlements taking on the yishuv kehilluti form. Again this form was open in its structure, not requiring a definitive choice of occupation as in agricultural settlements, and had as its base a commuting population. This settlement type was easier to set up, as it did not require the planning of agriculture or industrial occupation, and could offer new settlers “the perceived social and environmental advantages of rural living” (Applebaum, Newman, and Margulies, 1989, pg. 104). Often dubbed “rurban” settlement, because of its mostly commuter economic base and its blurring of rural and urban settlement, under this form settlement expanded much more rapidly after 1977. By 1980, 37 of these rurban settlements had been established in the occupied territories (Newman, 1986).

While rurban settlement began to take the forefront in establishing presence in the occupied territories, agricultural settlement continued to receive large support from the government, most importantly through the continued flow of subsidized water and credit. Sharon, although one of the architects of the new rurban settlement plan, remarking later on his past support for agriculture said that “water is not merely an economic resource but a means of settling the periphery, protecting state land and a means of conserving farmers and farming” (quotes in Lipchin, 2006). Showing support for agricultural settlement was important as a point of political theater, as the kibbutz and moshav were still perceived by many to be performing the national mission of settling the periphery. In addition, despite its waning in importance both economically as part of Israel’s GDP and in the national cause of

¹¹ Although the Gush Emunim organization no longer officially exists today, the ideology and movement continues under the Amanah name. However this paper will continue to refer to the movement as Gush Emunim as it is still commonly known by this name

settlement, between 1970 and 1987 credit to agriculture increased more than it did for industry (Kislev, Lerman, and Zusman, 1991).

However, in 1979-80 a new settlement plan was drafted, which created a more official melding of the Gush Emunim movement and the Likud government's ideas. This Droble's plan mainly relied on commuter-focused rural settlements (Saleh, 1990) and while some agricultural settlements were included these would mostly be those that performed "sophisticated agriculture requiring a relatively small quantity of land and water" (United Nations, General Assembly, 1981). In addition, these settlements also shifted from having the Settlement Department of the JA as the main instrument of establishment, to creating a new Settlement Division within the WZO, which was headed by Mattityahu Drobles. Through this the JNF and JA could keep their tax exempt status, claim to be less involved in settlement of the occupied territories, and distance themselves from settlement structure that was not as adherent to the structured regulations of previous settlements (Dajani, 2005; Guttman, 2015). The plan also made explicit the "intention to keep the territories of Judea and Samaria for good" and to annex the West Bank, which had not been directly stated in the earlier Allon plan (United Nations, General Assembly, 1981). These radical changes in settlement outlook pushed agricultural settlement from its privileged place within the government and the Israeli establishment.

In addition, restructuring occurred within the kibbutz and moshav themselves, which made their agriculture far less important. The kibbutz movement had gone through a process of "embourgeoisement" whereby hard labor such as agriculture gradually played less and less of a role in settlement structure (Near, 1997B, pg. 316). Similarly, as mentioned before, in the moshav more individuals began complementing agricultural income with other activities

including employment in nearby urban areas (Applebaum and Sofer, 2012). Another part of this restructuring was the increase in hired labor within agricultural settlements. Although strictly Jewish labor had been part of the lease agreements of original JNF controlled land, throughout the 60s and 70s, both moshav and kibbutz had begun to hire larger numbers of wage labors (Strom, 2011). This increased particularly after the control and occupation of West Bank, where the war, displacement, and settlement had created a large group of unemployed Palestinians, who then could provide cheap labor (Saleh, 1990). Production on within agricultural settlement also began to change. Although market orientation, both domestic and international, had been a large part of settlement agriculture up to this point, focus shifted significantly towards particular specialty crops within global markets such as certain “fruits, vegetables, and flowers” (Kimhi, 2011, pg. 34). Farm size also began to increase, with fewer employed in agriculture and a consolidation of farmland (Tal, 2007). With greater emphasize on specialty niche agricultural products, particularly high water content fruits and vegetables, the amount of land under irrigation almost doubled from 1960 to 1985 (Troen, 2003). While later events would propel and continue these changes, here we see beginnings of structural changes within agricultural settlement.

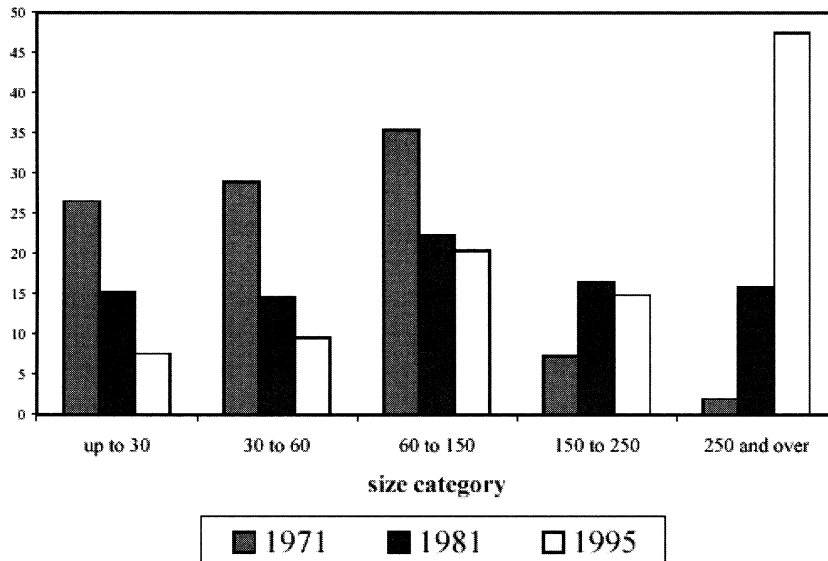


Figure 6.1: Farm Size Increase in Israeli Agricultural Settlement (Tal, 2007)

B. Events Within the Decline of Agricultural Settlement

Three of the largest events in this transformation and decline of agricultural settlement were the financial crisis in 1985, agricultural land restructuring in the 1990s, and peaking of agricultural water use and challenges from reflexive critiques. Because of continually rising inflation in 1985, the government instated a program to cut and restructure services to try to halt rapid inflation. The agricultural sector was greatly affected and this led to a quickening of the decline of agricultural settlement and an increase in some of the already occurring trends. Firstly, the highly indebted moshav and kibbutz had previously been able to rely on governmental bailouts from the Settlement Department, however after the crisis many agricultural settlements went into default and little government assistance was offered. This hit the moshav particularly hard as loan guarantees for the purchasing cooperatives had been a large part of their structure, and without these guarantees many of the purchasing cooperatives of the moshav became insolvent (Schwartz, 1999). A number of other changes occurred in agricultural settlement after financial crisis. Many other forms of

government support and protection for agriculture ceased (Sofer and Applebaum, 2006), however some crucial supports remained intact such as subsidized pricing for water. In addition, many of the functions of the Settlement Department were taken up by the Ministry of Agriculture, which became the Ministry of Agriculture and Rural Development. The budget for this ministry steadily decreased as the agriculture's share in Israel GDP declined (Sharkansky, 1988). This also left the WZO's Settlement Division as one of the main organs for settlement, mostly promoting rural development.

Another large change was the restructuring of agricultural land use. In the early 1990s a number of factors came together that reduced the amount of land available for settlement agriculture as well as disempowering bodies that protected agricultural land. These factors included the arrival of many new immigrants from countries of the former Soviet Union resulting in greater need for housing and employment, the debt crisis within agricultural settlements, and the general decline in the ability of agricultural settlement to absorb immigration. Agricultural settlement was not largely considered for much of this new immigration and instead plans for new housing in residential and community settlements were created in order to deal with this large influx of immigration. In order to provide housing the government quickly passed a law that made possible the building of urban developments on agricultural land without direct approval of the Commission for Protection of Agricultural Land (CPAL). The government also began to allow the involvement of private developers in partnerships for urban development on agricultural land. Part of the impetus for this was actually debt relief for kibbutz and moshav members, who could then use their agricultural land as a real estate asset. However, this further brought agriculture out of the settlement equation and promoted profit from residential development rather than

agricultural production. In addition, in the mid 1990s amendments were made to the Israel Lands Administration Law, which ensured that there would be fewer members of the ILA from the agricultural sector, and also generally shifted ILA interests further away from agriculture and towards housing (Hananel, 2010).

The new decisions for the conversion of land also created a backlash from a number of organizations. A number of environmental groups argued against the measures for converting agricultural land into urban development, mostly on the grounds that this would encroach on open space, as agricultural land had been classified as part of open space. This point will become more relevant later, as it became a way for larger environmental support for agriculture, but at this point the coalition criticizing the moves was “not politically or ideologically dominant” (Feitelson, 1999, pg. 443).

Lastly, the place of water in agriculture became a large part of the debate around the continued importance or irrelevance of agriculture to settlement. By the mid 1980s Israel had begun to exploit the water resources of the region to their fullest, as new irrigation developments continued to be built off of pipelines from the NWC and production of water thirsty crops such as fruits, vegetables, and flowers expanded. Israeli fresh water production peaked around 1985 at about 2000 MCM/year (Zeitoun, 2008, pg. 130) with Israel completing its hydraulic mission of totally exploiting waterways for human use. This complete use signaled change for Israeli water policy as all the fresh water flows that Israel could receive were already pushed to their limits. During the 80s, 90s, and into the 2000s the agricultural sector began to face criticism for its water use, as agriculture continued to account for upwards of 75% of total water use (Feitelson, 2005). These critiques generally took three narrative forms of environmental, characterized by water reduction for agriculture

and environmental degradation awareness; economic valuation, or seeing water as a scarce resource to be valued; and Integrated Water Resource Management (IWRM), or looking at water problems as issues of more integrated management (Allan, 2003). However, while these reflexive critiques challenged agriculture's water use and the agricultural development of the past, they did not fundamentally challenge Israeli settlement and occupation (Thomson, 2016). Many of these arguments were articulated around series of drought years in the early 90s and late 90s into the 2000s. During this time agriculture slowly started to become divorced from fresh water production.

From 1989 to 1991, Israel experienced periods of extended drought, and with water resources already being exploited to their fullest water reserves were drained to their limits. For these three years, precipitation was only about 60 to 80 percent of normal, Lake Tiberias was yielding around 350 MCM less than usual, and the area's aquifers were only being recharged at 70% of the normal rate (Ben-Zvi, Dlayahu, Gottes and Passel, 1998). As a majority of this water had been going to agriculture, the Water Commissioner called for cuts in the allocation of water to the sector. However, these requests were denied by the Minister of Agriculture. The conflict between reducing water for agriculture, for environmental or other reasons, while continuing to supply water to settlements is one that is reproduced many times during this period and shows the gradually shifting place of agricultural settlement. As mentioned, although agriculture had been displaced as the preferred method of settlement, Israel policy and politicians still continued to give rhetorical and material support to agricultural settlement. It was still the view that settlement, whatever its form, was the highest priority. Reflecting this sentiment, a former Minister of Agriculture commented on the reaction to the droughts saying that "the panic which we have succeeded in raising in

public about ‘red lines’[minimum permissible elevations] in the water system does not evolve from a shortage in water or money, but from preferring economic computations to national goals” (Ben-Zvi et al, 1998, pg. 71). While in 1990 the Minister of Agriculture eventually resigned and small cuts in water allocation to agriculture were enforced, during this time we see the beginnings of reflexive critiques of Israel’s use of water in agricultural settlement.

While an environmental movement had existed in Israel for some time, with the first large environmental organization being formed in response to the drainage of the Hula, there was an increase in activity and a greater inclusion of issues of water use around the continued drought. Feitelson points out that during this period, “several new environmental concerns gained prominence, as the widespread externalities of water development and use were increasingly recognized” (2013 pg. 24). Challenges to large water use in agriculture also came from critics looking at it from the economic perspective. This was greatly influenced by the concept of virtual water, by which Israeli economists began to account for water exported in crops like citrus and avocados (Allan, 2003B). This critique narrated the idea that it was false water pricing that had led to over consumption and water system degradation (Becker and Lavee, 2002). Through this, it was argued that water use needed to be better reflected in pricing and this challenged the agricultural subsidies that were provided for agriculture and agricultural settlement (Kislev, 2011).

Water managers and hydraulic experts also began to openly challenge the previous system of water use during this time. One example of this is the creation of the Committee of Concerned Water Scientists, headed by the prominent Israeli water expert Hillel Shual. This committee pushed for a change in water management strategies, condemning the single-

minded use of water for agriculture. In 1991, because of such pressures, and a state comptrollers report criticizing the Water Commission and Commissioner's actions, the Water Commissioner stepped down (Shuval, 2013; Shuval 2009). While each of these critiques challenged the place of water in agriculture, they did not fundamentally challenge settlement, they simply critiqued the uncontrolled, environmentally insensitive, and economically unfeasible support for a certain kind of agricultural settlement.

In 1995 the Oslo agreements somewhat changed the rules and systems in which settlement continued. The accords, worked out between 1993 and 1995, divided the West Bank into areas A, B and C, with Israel in complete and partial control of areas C and B and the newly created Palestinian Authority (PA) in control and partial control of areas A and B. Area A, initial comprising 3 but becoming 18% of the total, includes parts of East Al-Quds and other large cities such as Ramallah, Bethlehem, and Nablus, is under the authority of the PA; area B, containing 23-25% of the total, is under joint Israeli and PA control; while area C, the largest of the three, initially comprising 72-74% and eventually becoming 59% with shifting lines, is under Israeli control (B'tselem, 2002) The agreements recognized Gaza and the West Bank as one territorial unit under the PA. While this partially restricted the area of settlement construction, with most settlements established in area C, settlement establishment also creeps into area A and B (Kerem Navot, 2013). One very important part of this agreement, particularly as far as agricultural settlement is concerned, was the Paris Protocol. This was the economic piece of the agreements that regulated the interactions between Israel and the PA in areas of customs, taxes, labor, agriculture, industry and tourism. This created a single market with Israel in full control of imports and exports. Because of this Israel may protect its domestic agricultural markets by restricting movement of Palestinian produce,

while at the same time maintain a captive market in the occupied territories (Who Profits, 2014). Another part of this agreement was the establishment of the Joint Water Committee (JWC), whose purpose is to jointly manage the shared water resources in the West Bank and surrounding areas. However, this body generally did not create greater water control or access for Palestinians, but has mostly been used to continue water control with hegemonic means rather than the blunt force power used under the Civil Administration during the pre-Oslo occupation period. (Zeitoun, 2008; Selby, 2013). While giving Israel major control of the Mountain aquifer in the West Bank, silently maintaining its control of the upper Jordan, and excluding the Gaza's Coastal Aquifer, the agreement made Israel only responsible for Palestinians receiving 118 MCM per year, with additional future needs of 70-80 MCM (IWA, 2009).

However, water development and agricultural settlement continued to be slowly separated. One of the indicators of this was the moving of the Water Commission and Water Commissioner's office out of the Ministry of Agriculture and into the Ministry of Infrastructure in 1996. In 1999, another series of drought years kicked off a similar chain of events that responded to high water use in agricultural settlement. Between 1999 and 2002 time there was a repeated pattern of the Water Commissioner setting cut backs in water allocation for agriculture for the years of drought, which were then cut down and reduced because of the pressure of the agricultural lobby, the Ministry of Agriculture, and other concerned parties. Cuts to water allocation for these years were proposed ranging from 40-73%, only to be reduced to cuts ranging from 23-50% (Fischendler, 2008). In these incidents one sees the older narratives of security coming up against new narratives of environmental

quality. Fischendler discusses the use of agricultural settlement, with its so-called positive externality of security, clashing with environmental ideas writing that:

The positive externality that received the greatest emphasis was the contribution of agriculture to national security. Securitizing agricultural activities and highlighting their positive effects even in times of conflict allow many adverse implications to be swept aside. This argument was stressed by all groups involved in the water allocations except the environmental groups. (Fischendler, 2008, pg. 100).

With these events we see similar responses from Israeli environmentalists and water managers. Dan Zaslavsky, one of the former Water Commissioners who took over after the droughts in the early 90s, wrote that the ‘crisis’ of water in Israel greatly stemmed from the unscientific mismanagement of water resources and from threats from hostile ‘neighbors’ such as Syrians and Palestinians (Zaslavsky, 2000). Here Zaslavsky criticizes the old water management strategies of reckless over pumping water for settlement, but mostly sees these as problems of management, not as problems stemming from settlement itself.

At the same time that we see the beginnings of critiques of water management and use in agriculture, embedded within these are logics for the continuation agricultural settlement when technological and market means allow. One of these ways is through economic valuation logic, combined with the new technology of desalination. We can view this line of reasoning in comments from Shimon Tal, the first Water Commissioner after the droughts of the 2000. Tal argued that if water were properly priced, without its current

subsidies that “if someone is willing to pay the costs of desalinated water to wash their car, why should we impose restrictions?” (Tal, 2002, pg. 242).

In this way, a liberal logic is put forward that the market would restrict use and desalination could provide water for things like agricultural settlements, without government restriction. The next chapter will discuss more of the ways that continued agricultural settlement has been justified by recent critiques of past water management. After these drought events and the critiques put forward by environmentalists and water managers, water allocation and use for agriculture declined. Agriculture’s share in water use in the early 2000s dropped to between 50 and 60% (Kislev, 2011), and large freshwater flows moved more towards residential use. Trends within agricultural settlements, whereby less and less of their population depends on agriculture for livelihood creation, also continued, and by the early 2000s only 12% of settlers living in agricultural communities actually made the majority of their income from agriculture (Lipchin, 2006). While less moshav and kibbutz members work directly in agriculture, greater amounts of hired labor became a regular part of agricultural settlement, with two-thirds of agricultural workers in sector being hired employees. However, after the beginning of the second Intifada, foreign migrant workers began to make up larger portions of the agricultural labor force, particularly Thai workers. Although Thai workers had started to be employed in agricultural production during the 1980s, by the 2000s foreign workers began to make up about half of the agricultural workforce (Strom, 2011). This cheap foreign labor is linked to the partial resurgence of certain types for settler agriculture.

After nearly two decades of decline, in the late 1990s and early 2000s there began to be a resurgence of growth in agricultural settlement. Most of this occurred in the occupied

territories of the West Bank and Golan Heights, but also some growth within Israel, particular in the arid Naqab region. This increase came largely from two areas; a rise in agricultural settlement within religious/ideological settler movements and highly intensive and profitable agriculture (Kerem Navot, 2013). In addition, the continuation of agricultural settlement was also supported by environmental arguments around preservation of open space and expansion of technologies for novel water creation. While at times religious settlement agriculture and those promoting agriculture for open space have clashed, this disagreement has been over the sustainability of settlement agriculture not its existence. In the next chapter we will explore the recent increase in settlement agriculture and how it has been preserved and continues as a tool of settlement into the 21st century.

C. Analysis and Conclusion

During this historical decline of agricultural settlement, where residential, suburban and rural settlements became the main modes of settlement, one can view the tool of agricultural settlement stripped bare of other rationales such as food security and ideological commitments to agriculture. As agricultural settlement became a less effective tool to settle, secure, and hold land for the colonizing project, another form of settlement was taken up. One can see explicit acknowledgement of this with statements from members of ILA and the Minister of Agriculture, Avraham Katz-Oz, around changing of laws for agricultural land preservation. Katz-Oz commented that:

For the Jewish people the homestead had a clearly defined purpose. That it was later referred to as agricultural land is secondary. The principle is that the land belongs to the Jewish people. It is in the

nation's interest that you settle a certain place and draw your livelihood there. The aim is to give the Jewish people a place to settle, without any [necessary] connection to agriculture. In the beginning, all homesteads were agricultural because there was nothing else, but over time, other land uses have been introduced in order to earn a living . . . it is a national imperative (quoted in Hananel, 2010, pg. 1166).

While others such as Sharon, who was also part of the ILA during this time, conceded this point that, he also showed political support for agricultural settlers commenting that “There is no escape from the fact that we are making changes . . . Those who settled and worked the land for 70 or 80 years . . . and guarded the land with their lives, and the lives of their families, for decades, deserve the profit” (ibid). Here Kat-Oz and Sharon quite transparently state that agricultural development's main function was to settle the land, with its normal productive functions being secondary, and now that other means of creating livelihoods for settlers have become more available, agriculture has lessened as a functional tool.

This large shift of agriculture quickly falling from its place as the privileged form of settlement, to being criticized by mainstream water experts and politicians, is a move that was greatly influenced by shifts in the global agricultural economy and sanctioned discourses around water management.

In this period, the large changes that Israeli settler agriculture was experiencing, were being felt by many national agricultures during a restructuring within the global agricultural economy. While scholars have argued that these changes within the global economy do not account for a completely new food regime, there are a number of aspects that are relevant to the Israeli case. McMichael proposes a new corporate food regime where the rules of trade are set by large multinational corporations and international trade organizations, and where

there exists is a “division of agricultural Labor between Northern staple grains traded for Southern high-value products (meats, fruits and vegetables)” (McMichael, 2009, pg. 148). This is also highly tied to economic trends of neo-liberal privatization of state functions and of greater technological input and research in agriculture (Bernstein, 2016).

Interestingly in this conception of an evolving recent food regime, Israel seems to have shifted its production from that similar to a former Northern settler state, to production that is more comparable to agricultural economies of the global South. While previously, Israel had greatly protected and subsidized its agricultural production, during this period we see the break down of some these protections. The expansion of industrial crops like sugar beets and cotton had decreased, with large cotton farming being almost banned in some areas (Portnov and Safriel, 2004). We then see the dwindling and consolidation of agricultural settlement populations, particularly funneled into forms of intensive, high technology and input agricultural for global markets. Here the coming shape of Israeli agricultural settlement is heavily based on cheap labor and ‘the global fresh fruit and vegetable industry’ (McMichael, 2009, pg. 149). The restructuring of the global economy, which saw the steady decline of real prices in agricultural products, aided the push away from agricultural settlement into other more viable forms such as rurban residential development. Agricultural settlement then began in this period, and continuing into the next, to both seek out niche markets for specialty products, but also use agricultural as a naked tool of more religious settlement. More dynamics of this shift will be discussed and analyzed in the next section, however it is very interesting to note these influences in the continued development of settler agriculture.

In conjunction with these changes, during this period we see challenges to the older narratives of the hydraulic mission, which are reflected in larger paradigm shifts in sanctioned discourses of water development (Allan, 2003). During the periodic droughts of the 1990s and 2000s environmentalists, breaking from the ideas of water's priority for agricultural settlement, used issues of "grim water-quality indicators" to push for reductions in water allocation for agriculture (Tal, 2002, pg. 238). Increasingly environmental movements within Israel sought a decrease in water allocation to agriculture and for "putting water back into the environment" (Allan, 2002). This is parallel to reconfigurations of other hydraulic bureaucracies where "transformations in the dispositions of water bureaucracies... have been mainly triggered or forced by environmental critique" (Molle et al, 2009, pg. 337).

Water's high use in agriculture was additionally disputed by economic valuation of water, which asserts the value of water and "its importance as a scarce economic input (Allan, 2003, pg. 11). Lipchin discusses the issues of water pricing and subsidies writing that Israeli water subsidy for agriculture "provides a disincentive to water conservation" (Lipchin, 2007, pg. 95). Many others use this economic argument asserting that "if water were priced according to its real value" then there would be a reduction in use, greatly in agriculture (Becker and Lavee, 2002, pg. 366).

Calls also came from those who saw water in agriculture as an issue of integrated management. Zaslavsky, the former Water Commissioner, wrote in 2000 that the "organization responsible for the massive pollution and water source destruction in Israel is the Water Commission Office" (2000, pg. 4). Here he condemns the water ideas of the past and in his tenure as Commissioner put forward ideas of more integrated management. Water managers like Shuval also critiqued the management of the past saying water problems are

“no less the result of the long-term chronic problem of overutilization of its limited natural water resources. This resulted mainly from demands for more and more water from the agricultural sector” (Shuval, 2009, pg. 1). In these ways the shift in agricultural settlement and the parallel large-scale water development that fueled it became challenged during this time. Particularly, new sanctioned discourses and ideas of water management that were exchanged and promoted between many countries of the global North challenged these older notions of water use (Allan, 2003). However again, while these new reflexive critiques challenged the agricultural development of the past they did not fundamentally challenge settlement (Thomson, 2016).

Lastly, although there is less work comparing more recent narratives and strategies of settler states, one of the narrative parallels that arose during this time is that of a reflexive look at the agricultural development of the past. With the rise of environmental movements, weaving within recent environmental paradigm around water development, in many settler states there has been a reconsideration of the view on native landscapes as barren and empty and practices of indigenous populations as backwards. Gasteyer and Flora point out this narrative change, writing that:

Since the 1970s, there has been an enormous increase in both the science about wetlands and the public desire to preserve existing wetlands and revitalize old wetland areas to improve wildlife biodiversity and water quality. With the 1970s there was also a revisionist popular account of the North American Indians-portrayed by increasing numbers of people as victims of US expansion, not savages. (Gasteyer and Flora, 2000, pg. 139).

We see similarities in Israeli narratives of revising and critiquing past agricultural development. Gasteyer and Flora describe how “revisionist histories of the settlement of Israel and conquest of the Palestinian Arabs have coincided with moves to re-examine the formerly taken-for-granted goods of draining the Hula and irrigating the desert” (Gasteyer and Flora, 2000, pg. 143). However, while these parallel narratives exist they are not dominant in the mainstream and also come into confrontation with reassertions of neo-colonial narratives. We will see examples of this in the next chapter, where narratives of environmental preservation come into conflict with those of new settler movements that recall narratives of remaking the land.

The fall of agricultural settlement from its place of privilege was shaped by larger changes in global agricultural markets, shifting paradigms around water management, and also paralleled revisionist narratives of environmental movements in other settler states. It is interesting to note, and elsewhere could be given greater attention, why Israel shifted from agricultural production structured like a Northern settler state, such as the US, Canada, or Australia, where agricultural production is still supported by subsidies and insurances and where production is geared towards staple grains, often as industrial input for other foodstuffs. In the next chapter, we will discuss the partial resurgence of agricultural settlement between 2005 and the present. This reconfiguring of agricultural settlement, while not on the mass scale of previous agricultural settlement of the pre-state or newly post state period, continues along the lines of the emerging corporate food regime, however with interesting reappearance of old Zionist narratives and new ideological settlers.

CHAPTER 7

NEW AGRICULTURAL SETTLERS, WATER TECHNOLOGIES, ENVIRONMENTAL SHIFTS, AND THE CONTINUED USE OF AGRICULTURAL SETTLEMENT, 2005- TODAY

A. Conditions for Continued Agricultural Settlement

Despite its decline and change from the 1970s onwards, agricultural settlement remained a part of the settlement process, both within the recognized borders of the Israeli state and to a greater extent within the occupied territories. This section will examine the ways in which agricultural settlement was able to persist as part of settlement expansion, and the characteristics and dynamics of continued agricultural settlement within the shifting global agricultural economy, water management paradigms, and shared settler strategies. While a slow agricultural resurgence had begun before 2005, this year serves as a turning point as far as planning, means, and rationale for the creation and expansion of agricultural settlement.

As mentioned, much of this resurgence in agricultural settlement has been in highly intensive agriculture, with protected agriculture such as plastic greenhouses, highly technical farming methods, and larger more profitable farms; and in “hard-core religious-ideological settlements” where part of the adoption of agriculture production is both ideologically motivated and strategic (Kerem Navot, 2013, pg. 12). Later we will explore the characteristics of this agricultural settlement growth, but first it is important to look at some of the structural reasons behind its resurgence. Two of these are the new and larger development of water technologies such as desalination and wastewater recycling and the latest Israeli master plan, which has as part of its focus consolidated expansion in peripheral

areas.

Previously, moving forward with plans for greater desalination capacity was contingent upon calls from the Israeli treasury to reduce water subsidies for agriculture. However, the droughts of the 2000s reversed this position and plans for greater desalination were allowed to move forward (Feitelson, 2013). Before 2000 there had been some small-scale desalination in Israel, but nothing meeting any large-scale water demand. With fresh water resources pushed to their limits and continually expanding demand from urban and residential sectors, it is doubtful whether greater expansion or additional agricultural settlement would have been possible without novel increases in water availability from such technologies. In 2004, a new master plan was created proposing seven new desalination sites with a projected capacity of 775 MCM annually. In 2005, Israel's first large-scale desalination plant in Ashkelon came online, initially only having a capacity of 100 MCM yearly (Feitelson and Rosenthal, 2012). However since then, Israel has built four other large-scale desalination plants with a capacity around 600 MCM/year, meeting 70% of its domestic water use (Rinat, 2015). Israel also plans to expand such technologies, resetting the goal at 750MCM for 2020 and the establishment of five more plants between 2040 and 2050 (Spiritos and Lipchin, 2013). In addition to desalination, Israel has also made use of wastewater treatment technologies to further increase the capacity of water availability. Israel currently treats 86% of its water for reuse, with much of this water being used for agriculture, around 400 MCM in 2010 (Lenk, 2015; Feitelson and Rosenthal, 2012). Similarly, this capacity will be expanded, with the goals of wastewater treatment for agriculture in 2020 at 528 MCM and 645 MCM in 2030 respectively (Feitelson and Rosenthal, 2012). In this way, Israel has begun to decouple agriculture from freshwater sources (Gilmont, 2014), ensuring

that while there may be decreases in freshwater allocation to agricultural settlement, water can still freely flow to settlement agriculture. While some within water management and the Israeli environmental movement that have been critical of this supply-sided approach (Aviram, Katz, and Shmueli, 2014; Feitelson and Rosenthal, 2012), generally these technologies are seen at worst as “problematic,” but still “necessary.” (Lipchin, 2006, pg. 272). These technologies are also seen as part of Israel’s water future and among many in the environmental movement are viewed as “a pivotal means to securing a sustainable water supply in Israel” (Spiritos and Lipchin, 2013, pg. 101). Such technologies have also enabled the environmental movement to support agricultural expansion, particularly around the issue of open space. These new structures allowed for the continuation of agricultural settlement and should be counted as part of its recent expansion.

Another structural component of this growth has been the approval of the most recent national master plan. The Israeli Comprehensive National Outline Plan 35 (NOP 35) was approved by the government in 2005 and has guided expansion of agricultural settlement inside Israel. The NOP 35 looks at planning through 2020 and divides the country into five textures of urban, rural, mixed preserve, national preserve and coastal (Assif, 2007). One of the major ideas of this plan is that of “deconcentrated concentration,” which responds to environmental critiques of urban expansion and older style agricultural settlement. This idea proposes a ‘limited’ establishment of new settlement centers or localities in order to “complete the missing links along the national frontiers and respond to the needs of unregulated localities, especially in the Naqab” (Assif, 2007, pg. 6). It particularly supports growth of settlements in the areas of the Naqab, Galilee, and Al-Quds. Another important

part of this national plan are the new provisions for protection of open space, which have been a major way for environmental support of agricultural expansion.

Indeed, as part of the regrowth of agricultural settlement “environmental considerations are also indicated in the increased areas under agri-environmental schemes” (Sofer and Applebaum, 2006, pg. 325). Such supply-sided technologies and views of agricultural expansion as part of open space, have enabled support for agricultural settlement from environmental movements and others within the reflexive critiques. One example of this support is the change in position of prominent water expert Hillel Shuval. While earlier Shuval had lead the charge in criticizing large water use in agriculture, he has more recently written that such water supply technologies will enable Israel to “maintain a level comparable to its current one” as far as agricultural development (Shuval, 2013, pg. 142). And as far as water allocation for agriculture that “of course there is so much water, water is an endless resource. You can have all the water of the sea, if you can afford it, that is” (quoted in Alatout, 2006). With the continued expansion of sprawling rurban and suburban settlements and restructuring of farmland preservation within the ILA, environmental groups pushed back in favor of protecting agricultural land as open space (Tal, 2008; Orenstein and Hamburg, 2009). In this way an environmental argument was put forward for agricultural settlement that “joined the agricultural sector in claiming that agricultural production using water has a secondary benefit and as such justifies thinking again about desalinating water or importing it” (Becker and Lavee, 2002, pg. 355). While this new environmental prospective also critiques the agricultural methods of the past and challenges other forms of settlement, they give tacit support to a ‘greener’ form of agricultural settlement. In this way a number within the mainstream environmental movement have called this “revision of Zionist

thought” a kind of new ‘Green Zionism,’ which although splits from the ‘conquering the wasteland’ of old Zionist narratives, maintain support for the “renewal and the expansion” of ‘greener’ settlement forms (Han, 2008; Lipchin, 2006, pg. 251; Han, 2013; Shani, 2011, pg. 8). Later we will discuss confrontations between the narratives of new agricultural settlers and environmentalists, however the main point being that although there is disagreement about the type of form of settlement, both “ groups are underpinned by the same national foundation” (Shani, 2011, pg. 13).

B. Characteristics of Recent Agricultural Settlement Growth

Understanding these new structural measures within the state that enabled a regrowth within agricultural settlement, we can now look at the characteristics of this recent resurgence. This growth has come from the expansion of existing agricultural settlements, the conversion of land within settlements, and some establishment of new agricultural settlements. However, because of structural changes of settlement in 80s and 90s the distinctions between forms of kibbutz and moshav as modes of agricultural settlement have “become blurred since the 1990s” (B’tselem, 2002, pg. 23). Because of this blurring it becomes easier to talk about agricultural settlement with reference to place, rather than competing modes tied to certain types of production.

There are a number of larger trends that have been widely pervasive throughout recent agricultural settlement. One of these is that although settlement populations and those employed in agriculture on settlements have declined with the previous fall of agricultural settlement, the average area of cultivation per farmer has increased ten fold, with an “ overall

trend...undoubtedly, towards fewer and larger farms that rely less on family Labor” (Ahituv and Kimhi, 2006). While agricultural settlements initially were given a specific size area for their development, farm size increased as a result of settlers renting out land to neighbors, lax regulation of land transfer, increases outside the area allotted, and later official increase of size allocated to agricultural settlements (Kimhi, 2009). While agricultural settlements have often expanded outside of the area allocated and planned by settlement agencies, recent increases in agricultural settlement has also been aided by a 2011 increase in land allocation to agricultural settlements from 35 to 80 dunums. This has lead to a smaller number of agricultural settlers that have overwhelmingly opted to “increase their scale of operation by shifting towards more capital intensive enterprises, introducing new forms of agricultural niches linked to quality products, or renting more land for large-scale cultivation” (Bittner and Sofer, 2013, pg. 13). This has also meant an increase in low cost hired foreign labor still mainly from Thailand, but also some migrant workers from areas of North Africa like Sudan and Eritrea. For the kibbutz foreign workers make up around 95% of the agricultural workforce (Schwartz, 2014). This influx of hired labor has been “pivotal to the expansion of agricultural production” in Israel and in the occupied territories (Kimhi, 2015). Agricultural production also continued to move away from the mixed farming promoted on the post-state moshav and kibbutz, more specialized high-value crops. Lastly, much of this growth in agricultural production has been based on intensive, high input farming with increasing use of protected, season-extending covering like greenhouses and shade nets (Bittner and Sofer, 2013).

With these overall general trends, growth of agriculture has taken on unique characteristics within different regional areas and has continued to be used as a form of land

control, holding, and settlement. Within the West Bank area, agricultural settlement has increased to 93,000 dunums in 2013, an increase of 24,000 dunums since 1997. Settlement in the West Bank has also increased after the 2005 withdrawal of settlements from Gaza, with expanded grants available to settlers (Ma'an Development Center, 2010). While agricultural settlement within Gaza had also been a large part of the settlement presence there, with around 30% of settlers involved in the intensive and specialized production, we will talk about these populations integrated within the areas of resettlement after the Israeli withdraw in 2005 (Schnell and Mishal, 2008). Although full and uncompromising support for agricultural settlement fell away after the financial crisis in 1985, there are still many ways that Israel continues support this use of the tool of agricultural settlement. For settlers in the West Bank, grants are offered of up to 25% for establishing an agricultural enterprise, there is extended monthly financial support, reduced taxes, and continued water subsidies (ARIJ Water Trading Report, 2013).

C. Recent Agricultural Settlement Growth in the West Bank

Agricultural settlement within the West Bank lies mainly in two geographical areas, the Jordan Valley and the more mountainous, hilly central West Bank. 63% of the readily arable, agricultural land in the West bank lies within area C, which is controlled by Israel and so has been highly susceptible to seizure and settlement (Who Profits, 2014). As before, Israel has used a number of existing mechanisms for the confiscation of land in the West Bank such as seizing land for military purposes, allocating land transferred from 'absentee' property, claiming disputed miri or mawat land as state land, and the requisitioning of waqf

lands. These last two have increased in recent years. While it is prohibited to sell waqf land, as these cannot be considered state land, recently land registered as waqf has been transferred to agricultural settlements in the Jordan Valley. In addition, the cultivation of disputed land in order to make claim over the area as miri, and thus state land, has been used greatly as a method of land seizure. Individual settlers and settler movements in particular have used this method by taking land without the initial permission of the Israeli government then fencing off and planting the area (Kerem Navot, 2013). Private purchasing companies have also been part of this expansion in agricultural settlement, often gaining purchase of land through coercive methods (Braverman, 2008).

The agricultural expansion in the hilly around of the central West Bank has mainly driven by religious Zionists, some of whom are associated with the Gush Emunim movement (Schnell, 2011). Some of these new agricultural settlements have been transformed, starting as rurban settlements established after 1977 and then shifting to agricultural production both as a means of greater land control and for religious/ideological reasons. The rabbi of one of these religious settlements, Har Bracha, describes reasons behind agricultural settlement saying that:

We are well aware that the mitzva [biblical precept] of settling the land does not only mean conquering the land [...], but also settling throughout the land, so as to leave no place barren, that there should not be a single piece of good and sacred land left uncultivated. [...] This includes the mitzva to plant fruit trees, so that the land will be settled and yield its sacred fruit and be redeemed from its barrenness. (quoted in Kerem Navot, 2013, pg. 39)

While religious ideology has been part of this motivation, there is also explicit and open pronouncement of agriculture as a tool of land control and expansion of settlement. We can see this with statements like those of a representative of the Redemption of Land settlement purchasing organization, saying:

I planted 500 fruit trees in my former outpost...I don't bother to sell the fruit...I definitely planted the trees only for the purpose of seizing the land. I'm a lawyer; I don't have time to be a farmer (quoted in Braverman, 2008, pg. 472)

Here we see how any other ideological trapping fall away and agriculture is put forward, nakedly, as a tool of land control and later settlement. The main crops that have been planted in these religious settlements have been grapes, olives, and pomegranates. While there have been religious context for the growth of these crops, they also selected because olive orchards and vineyards require little irrigation and signal permanence (Braverman, 2010). Between 1997 and 2013, settlement agriculture within the mountainous region of the West Bank has increased from 8 to 15% of the total area of settler agriculture in the occupied West Bank (Kerem Navot, 2013).

The Jordan Valley is the other area of the West Bank where there is a large presence of agricultural settlement. Much recent expansion has come from the growth of formerly established agricultural settlements and recent intensive and specialty crop strategies. While many of the same land control mechanisms have been employed in the Jordan Valley, a number of new methods have also been used. One of these is the use of land swaps, or an exchange of private Palestinian land near a settlement block for another piece of 'absentee'

land in another area (Al-Haq, 2011). This allows for the consolidation of blocks of agricultural settlement. 94% of the Jordan Valley is under Israeli control as part of area C, and settlement regional councils have authority over 86% of the area (Who Profits, 2014). As mentioned, much of the agricultural production in the Jordan Valley settlements is based on high-value export crops with intensive growing strategies such as green house growing. While crops are grown by individual settlements, most are marketed and sold through large Israeli produce export and marketing companies. One example of this is the Agrexco company. Although the company, which was partially state owned, was recently sold to the Bickel Group, it was in control of 70% of all fresh produce exports from Israel, much of its product coming from settlements within the West Bank (Ma'an Development Center, 2010). The Agrexco company was revived in 2012 and continues to market and export large amounts of Israeli produce including 19% of the citrus, 50% of the avocados, 20% of the persimmons, 27% of the mangoes and 35% of the pomegranates (Who Profits, 2014).

Some of the main crops of agricultural settlement in the Jordan Valley include fruit trees, such as dates, citrus, pomegranates, and grapes; high-value vegetables and fruits, like tomatoes, peppers, potatoes, melons, and herbs; greenhouse crops, such as flowers and tomatoes; and some animal agriculture of dairy/beef cows, poultry, and sheep (Ma'an Development Center, 2010 and Kerem Navot, 2013). This wide range of specialty, exports crops are directly put into mainly European and American markets. A few of these crops dominate production, either space or return wise. One of these are date palms. Date palm field areas are the largest within the West Bank, producing 60% of the dates sold in Israel. Over two-thirds of the date crop comes from the Medjool cultivar, which is largely exported, with over 50% of the production destined for export. Israel and the occupied territories

supply half of the world's dates, with those coming from the Jordan Valley making up about 51% of this production (Who Profits, 2014). Settlement date field area has also been the agricultural area that has increased the most in recent decades, making up 44% of the settler agricultural area added in the West Bank since 1997 (Kerem Navot, 2013). Another of these important crops are herbs. Herbs grown in the Jordan Valley make up around 40% of the total fresh herb export of Israel. Around 80% of the fresh herbs grown in Israel are exported to Europe (Al-Haq, 2013). Peppers crops has also continued to grow in cultivation over the last decade. From 2005 to 2012, the area of settler pepper cultivation doubled, making up 3,743 dunums (ARIJ Water Trading Report, 2013). Grapes, both for fresh export and wine production, are another important crop within Jordan Valley settlement. About 70% of the grapes grown in the Jordan Valley are destined for export, composing half of the total grape export for Israel (Farming Injustice Report, 2013). Vineyards have been a "relatively easy and highly accessible means for taking over Palestinian land" because of the minimal effort required and a number of special advantages of wine development (Who Profit, 2011). In addition to support from the Ministry of Agriculture for planting, settler vineyards also can receive support from the Ministry of Tourism for the promotion of agricultural tourism. Vineyards in the West Bank have become part of the growing tourism apparatus that has helped support and sustain agricultural settlement. Recently, vineyards in the Jordan Valley have been placed on a "Wine Route" of vineyards to tour, helping to supplement the income of agricultural settlers (Avivi, 2014) Later we will see other areas where rural/agricultural tourism has been growing as part of agricultural settlement support. Interestingly, a number of wineries that have recently been re-established within original moshava settlements, like

Petah Tikva, and then later have moved production to the West Bank because of favorable real estate prices (Who Profit, 2011).

Later we will see other areas where rural/agricultural tourism has been growing as part of agricultural settlement support. Another added value for settler agricultural production has been increasing organic production. Many settler crops such as vegetables, apples, dates and eggs have been marketed as organic (Kerem Navot, 2013).

This recent growth in agricultural settlement in the West Bank has been directly supported by water from wastewater treatment, mainly coming from urban areas in East Al-Quds (Kerem Navot, 2013). This has also been supported by continued mechanisms of water control under the Oslo accords, actions of the JWC, acts of the Israeli Civil Administration, and activities of individual settlers. While less fresh water is used in these settlements, agricultural settlers in the Jordan Valley are provided around 1,312 liters per capita per day for their activities, which is about 18 times the water available for Palestinians in the West Bank (Al Haq, 2013) and individual agricultural settlements consume between 20,000 and 65,000 litres per day (ARIJ Water Trading Report, 2013). This is also more than is provided on average to agricultural settlers within Israel's recognized borders, where per capita per day consumption hovers between 980 and 750 liters (Zeitoun, 2008)

Agricultural settlement of this type continues to expand, with very recent land confiscation for such settlement growth. In January of 2016, Israel confiscated nearly 1,500 dunums of land in West Bank declaring them state lands (Times of Israel, 2016). Cultivation of these lands had already begun by agricultural settlers and will likely be given over to settlers for greater agricultural settlement growth.

D. Recent Agricultural Settlement Growth in the Golan Heights

Another area where agricultural settlement has grown is in the last decade is the Golan Heights. There was some restoration and return of agricultural settlement after the 1973 war, however recent years have witnessed agricultural settlement as one of the main forms of settlement there. Some of this growth has come from existing agricultural settlement, but also from very recent initiatives for new settlement establishment. The area was annexed by Israel in 1981, although it is still the only state that recognizes this action, but because of this state action there is not the same need for multiple mechanism of land confiscation as within the West Bank. Although there are still around 20,000 Syrian Druze living in the Golan, there doesn't seem to be the same push for total land control, however these communities receive none of the same supports as the settlement population within the area (Zaveloff, 2014). In 2014, the government authorized the creation of 750 new farm estates within the area over the next five years. For this project the Ministry of Agriculture invested \$108 million in agricultural training, water system upgrades, mine clearance, and other activities and began converting 30,000 dunums of land for agricultural use. Prime Minister Benjamin Netanyahu said of the plan that "residents of the Golan rely heavily on agriculture as a source of income, and this decision comes with the goal of expanding employment opportunities for them and creating anchors that will strengthen the communities on the Golan" (Ho, 2014). In this way agricultural settlement still is seen as a continuing tool to anchor and hold this disputed area.

Early on Israeli agricultural settlement production in the Northern Golan represented modes of production that are now pervasive throughout settlement agriculture, with intensive

farming of high-value export crops. The main agricultural production within the Golan includes wine grapes, apples, kiwis, other fruit trees, melons, herbs, dairy, and poultry products. Grapes from the Golan Heights supply a large percentage of the wine industry in Israel and wineries within the Golan have been a large model for those in the rest of the country and occupied territories. The Golan Heights Winery, which is the oldest of those in the area, makes up of 38% of total wine exports for Israel. Started in 1983, before the recent agricultural expansion, the two kibbutz and three moshav in the area that provide much of its production were helped in their coordination by a UC Davis trained wine maker, who hoped to model the vineyards production on those of the wine region of California (Who Profits, 2011). The methods and grape varieties used in this development have set the standard for how other settler wineries operate. Out of the 14 wineries within the Golan area, most were established in the early and mid 2000s (ibid). Another major crop within the agricultural settlements of the Golan are apples. The Golan has come to be known as “Israel’s apple basket” for its high apple production (Zaveloff, 2014). Much of this production flows through the large Israeli fruit company Bereshit, which is also located in the Golan and owned by a number of surrounding Kibbutz. Bereshit’s production and marketing is responsible for 30% of the deciduous fruit of Israel (Who Profits, 2014). Kiwi are another fruit tree that is in large cultivation in the Golan, with production in the area accounting for almost all kiwi production in Israel (ibid). Dairy products such as cheese have also been an important part of settlement agricultural production in the Golan. While a number of dairy producing settlements are part of those established within the Allon plan after the 1967, recently specialty products such as cheese have been more greatly sold to European markets (Jerusalem Post, 2014)

Settlement agricultural production has recently faced challenges from labeling within the European Union and other markets. Regulations within the EU, and a number of other countries such as Denmark and South Africa, require that settlement production from within the occupied territories should specify that it is not made within Israel's recognized borders. This has been damaging to agricultural production from the occupied territories and measures have been taken to try and skirt such labeling regulations (Al-Haq, 2013; Farming Injustice Report, 2013).

E. Recent Agricultural Settlement Growth in the Naqab and Galilee

Agricultural settlement growth within the 1948 borders of Israel has also grown along similar intensive, highly export-oriented production patterns, with a focus on settlement growth in the Naqab and Galilee. As discussed, the most recent NOP 35 focused on the areas of the Naqab and Galilee for increased population dispersal through “deconcentrated concentration,” which includes agricultural settlement as part of attempts to preserve open space. This growth in the Naqab has been planned, directed, and supported by a number of factors. Similarly to the West Bank, the growth in agricultural settlement has been influenced by a combination of factors including increased religious/ideological settlement, boosts from agricultural tourism, and larger profit and export oriented farms, all employing agriculture in their settlement endeavors. In addition to the NOP 35, the Daroma plan has also been proposed to increase development and settler population in the Naqab. The plan, submitted in 2005, proposed “the conversion of the Negev to a region attractive to residents and businesses, economically developed and offering quality of life and exciting residential

opportunities” (Orenstein and Hamburg, 2009) The plan was allocated 17 billion NIS for the project, to be spread over 10 years and also gained funding from the JNF and JA. Although the plan focuses mainly on attracting urban residents, it also includes planning for the creation of around 100 ranches for farming and tourism activities (Swirski, 2007). Finally, this plan has also been supplemented by the JNF’s Blueprint Negev plan. This plan intends to invest \$400,000 in establishing exclusively Jewish communities within the Naqab, with specific appeals to ‘skilled and motivated Western Olim’ or Western Jewish immigrants (Deger, 2013). This large increase in funding for settlement development in the Naqab has aided in the growth in agricultural settlement as part of this push.

In order to make way for these developments a number of mechanisms have been used for greater control of land and the area’s Palestinian population. A large portion of this population is composed of around 200,000 Palestinian Bedouin, making up almost a third of the population of the Naqab (Adalah, 2013). While processes of declaring security or military areas and claiming areas of disputed cultivation as state land have continued to be used, there has also recently been another issue around clearing populations off already declared state land. Currently much of the Naqab has been declared a closed military area, which includes overlapping nature reserve areas (Gordon, 2013). Around half of the Bedouin population live in unrecognized villages, and the relocating and clearing of these areas has been part of the plan for the expansion of settler development in the Naqab. One of these measures has been the 2011 Praver plan or the bill on Arrangement of Bedouin Settlement in the Naqab. This plan has sought the removal of 70,000 Bedouin from around 35 unrecognized villages and their relocation into a smaller centralized area (Schoenwald, 2014). The plan also seeks to cease any outstanding Bedouin claims over cultivated miri or mawat land, which amounts to

around 600,000 dunums of disputed land (Abu Rass and Yiftachel, 2012). It has also given the ILA large powers over the eviction of Bedouins from lands claimed by the state. This plan has been slowly initiated since 2011 (Jerusalem Post, 2015). These plans and greater land control have been part of expanding agricultural settlement in the area.

Around 40% of Israel's vegetables and field crops are produced in the Naqab (Felder, 2011). One of the largest areas of agricultural expansion in the Naqab has been in the Wadi 'Araba Valley¹², located in the Jordan Rift Valley near the Jordanian border. Agricultural settlement expansion in this area has been based mainly on intensive agricultural production, tourism supported agricultural, and influenced by religious/ideological factors. There has been gradual expansion of agricultural settlement communities in this area. The largest crop within the area are varieties of *capsicum*, peppers, (Shani, 2014) that are almost completely for export. Nearly 95% of the peppers grown in the Wadi 'Araba are destined for European markets, and their crop area takes up about 70% of the agricultural area in the Wadi 'Araba (Israeliagri, 2016). The main cultivars of peppers grown include the cannon, sobek, and ramona varieties, which are produced and marketed by the Israeli seed company Zeraim Gedera, part of the larger Syngenta group (Israelagri, 2016). Intensive cultivation of peppers is increased by the use of net housing and green houses. Another important agricultural product of the area is aquaculture, which produces thousands of tons of fish each year. While a large portion of this is in the edible fish production, barramundi, red drum, European seabass, North African catfish, and Nile tilapia, has been for domestic consumption, there has also been an expansion of ornamental fish production for export such as guppy, platyfish, green swordtail, freshwater angelfish, and armoured catfish (Applebaum, 2010). Much of the

¹² Commonly referred to by the Hebraized name; Arava

agriculture and aquaculture in the Wadi ‘Araba area is supported by desalinated seawater and surrounding brackish surface and ground water (ibid; Lipchin, 2006).

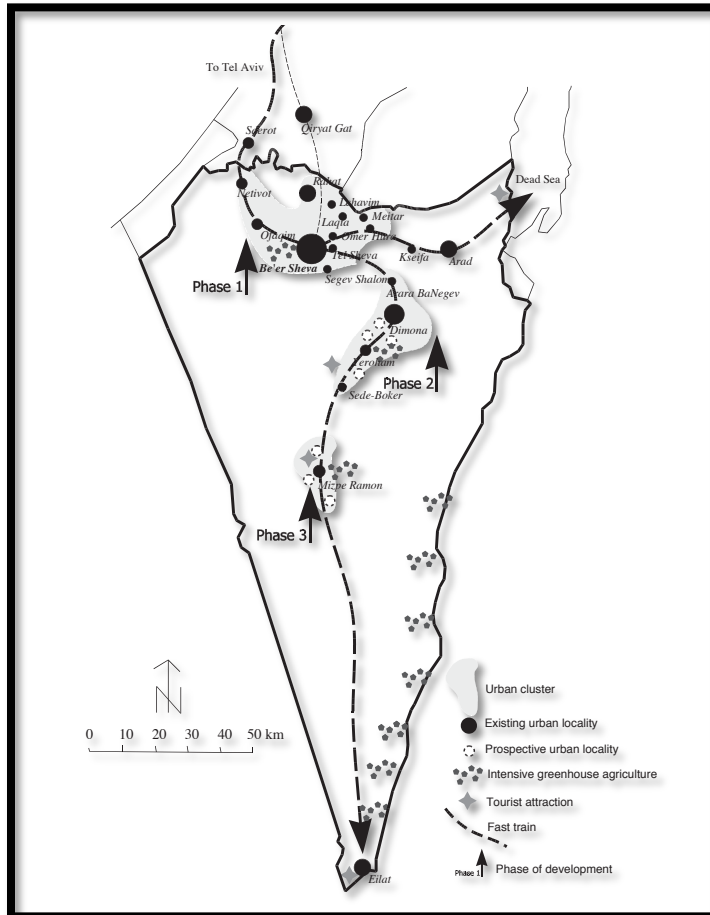


Figure 7.1: Intensive Greenhouse Production in the Naqab and Wadi ‘Araba (Pronov and Safriel, 2004)

In addition to agricultural production, growing tourism also supports agricultural settlement in the Wadi ‘Araba. Many agricultural settlers to the area have begun to supplement their income by creating guesthouses and accepting tourists. The head of the Arava Regional Council commenting on this phenomenon has said that this combining of agriculture and tourism is an “enormous economic potential” (quoted in Canetti, 2016).

While there are varied individual motivations for continuing the use of agriculture as a means of settlement, with some seeking profit or a rural idealized lifestyle, ideological

elements of older Zionist narratives continue to be pervasive. A survey of agriculturalists within the Wadi ‘Araba area finds that over half still agree that agriculture is important for the national security of the state and over 40% said that working to ‘make the desert bloom’ was part of their motivation’ (Lipchin, 2006). These continued and longstanding Zionist narratives, along with structural changes as far as water technology and state planning including expanded agricultural areas have been important in the maintenance of agricultural settlement in Israel.

Another section of agricultural expansion has been in the Central and Northern Naqab, here usually complimenting efforts of urban settlement. One of these areas is the Lakhish region. Many of the agricultural settlers of Gaza from the Gush Katif settlement group were transferred to this area after the Israeli disengagement from Gaza in 2005 (Hasson, 2012). Like other areas of expanding agricultural settlement, much of the production of this region is made up of intensive cultivation of high-value crops like tomatoes, peppers, grapes, and flowers. This has been aided by governmental support and programs like the Young Farmers Incubation Project, which is funded by the JNF as part of the Blueprint Negev campaign. Interestingly, in the settlement of this area one can observe conflict between differing ideologies of settlement and narratives around Zionism. Shani describes how new settlers to the East Lakhish region, many of whom are part of the Gush Emunim movement, encountered push back from environmentalist for their development in the previously marginally constructed Lakhish area. As discussed earlier, while environmental movements have created new Green Zionist narratives that continue to support certain types of agricultural development, they oppose the older Zionist ideas of conquering the wildness and remaking nature. Here we see a clash between new narratives of

environmental preservation and protection of open space and the new irritations of past narratives of recreating and dominating nature. However, as Shani points out how “this is not a conflict between Post-Zionists and Neo-Zionists, but a complex political struggle within the spectrum of the National Zionist consensus” (2011, 14). While these movements disagree on the exact form of settlement or its extent, both continue to support agricultural settlement in different ways.

Interestingly, in these recent expansions in the Naqab we can also see the continued dual use of agriculture and forestry as combined tools of settlement. Recently, the JNF has begun to plant large areas of the Naqab with dryland forest, a process termed ‘savannization.’ One of the reasons behind these projects has been to restrict the area available to growing Bedouin populations in the Naqab. In this process these “two new tactics for keeping Bedouin off of state land” have included the “planting trees (‘savannization’) and the establishment of Jewish ranches” (Orenstein and Hamburg, 2009, pg. 995). Bedouin grazing is not permitted in these areas where “Open forest was then planted in the areas that had previously been used by the nomadic and semi-nomadic Bedouin” (Perevolotsky, 1999, pg 3). In this way these dual forms are remain in use for such settlement and land control.

One of the last major areas where one can observe if not growth, then maintenance of agricultural settlement is the Galilee. While the upper and central Galilee had been the focus of previously state attempts to Judaize the area, much of this effort had been in the form of the community, rurban settlements. These sprawling settlements left little room for greater agricultural development and have even encroached up agricultural land (Orenstein and Hamburg, 2009). While this type of settlement dominates and has been the majority tool for land control in central Galilee area, agriculture in the Galilee, through new crop strategies,

has been maintained. Like with the Naqab, there have recently been renewed efforts for populating this area with Jewish Israelis. In addition to the development plans for the region of the NOP 35, the JNF, in combination with the Blueprint Negev campaign, also launched the Go North campaign that seeks similar development in the Galilee (Deger, 2013). Like with other areas inside Israel and the occupied territories, agricultural settlement in the Galilee has focused on high-value crops. One of the largest in the area are grapes for wine production. Combined grape production in the Golan Height and Galilee make up for 40% of grapes for the Israeli wine industry. Indeed the Israeli wine industry has attempted to combine the Galilee and Golan into one area, as far as grape production and labeling (Who Profits, 2011). The upper Galilee also become part of the growing wine tourism in Israel, further supporting continued agricultural settlement growth.

While this recent rebounding of agricultural settlement has not been on the scale of early post-state agricultural expansion, we can see that agriculture continues to be an important mechanism of settling the internal frontier and the occupied territories. This recent growth of agricultural settlement has taken on new characteristics that differ from mixed, family farm production of the moshav, and also the industrial field crop production of the kibbutz. Recent agricultural settlement has shifted to high-value, highly export focused production of specialty crops, with larger farms that are worked mainly by foreign hired labor and increasingly fed with recycled and desalinated water. This shift has been gradual and influenced by larger changes in global agricultural markets and changing discourses around water management. In some areas of Israel growing agriculture has been used to complement other forms of settlement, as part of larger plans for greater population dispersal. While in other areas like the West Bank, agricultural settlement has driven recent settlement

expansion and been a major tool for claiming and securing large areas of land.

Throughout this history we have seen the different shapes and forms of agricultural settlement, both pre and post-state. Within this development narratives around agricultural settlement have changed, from conquering the desert to being part of preserving open space, but in this history agricultural development's main goal has continuously been to hold, secure, and settle land. Agriculture, in combination with other tools like afforestation and industrial, urban, and suburban development, has been used to conquer and change the landscape and people of Palestine.

F. Analysis and Conclusion

In this recent resurgence of Israeli agricultural settlement one can observe the forces of global agricultural markets, ideas and discourses of water management, and multiple narratives around this growth. While we discussed some of these trends and molding market forces in the last chapter, this section will look at the greater extension of these, Israel's interesting place within the emerging world food regime, and the place of neo-Zionist narratives.

As discussed in the last section, in the gradual growth of agricultural production and the shifts in characteristics this production, the Israeli agricultural economy began to look more like that of developing country, where staple grains are largely imported and much agricultural production is in high-value exports like fruits and vegetables (McMichael, 2009). Israel has increasingly produced specialty export crops like dates, peppers, and herbs. Israeli agriculture also experienced larger trends that have been affecting much of the world's

agricultural economy, such as decreased state spending on agriculture, greater movement to urban employment, and larger farm size (Kimhi, 2009; Kimhi, 2011) with the state continuing to integrate itself into world markets. One of these moves was Israel joining the World Trade Organization in 1995, placing itself in one of the large trade organizations that helped shape the current food regime (www.WTO.org). Interestingly however, while in its production Israel's agricultural economy has come to more closely resemble that of a developing country such as Mexico, it also continues to behave like a first world former settler state in its relations with the Palestinian Authority in the occupied territories. One large example of this is the regulation of Palestinian agricultural markets and the dumping of Israeli products. Surplus dumping played a large role in extending the mercantile-industrial system in the global agricultural economy and was used strategically by the US and Europe (Friedmann, 2005). Israeli agricultural production is often used in a similar manner, frequently at times of peak production for Palestinian farmers, Israel produce is flooded onto markets in the occupied territories (Farming Injustice Report, 2013).

Another of these trends, integrating Israel in agro-industrial food chains, is the growth of large produce companies and the selling of Israel production to international food markets. The creation and growth of companies like Agrexco and Arava Export Growers, and Hishtil, have been part of this trend. These large companies, all of which have international subsidiaries and market Israel produce in many places around the world, have taken the place or been conglomerated from the smaller scale marketing of the moshav and kibbutz. This corporate growth of Israeli agricultural production is part and parcel of the emerging recent food regime (Friedman, 2016) and has been important for changing the structure of agricultural settlement. We also observe the continued shift in the role of the state. While

earlier agricultural settlement had been completely directed, funded, and supported by the state, neo-liberal movements within the government have made state support for settlement more a matter of “providing a ‘favorable environment’ for agricultural and industrial development through providing infrastructure, credit, technical assistance, and institutional innovations to enhance private profits” (Raynolds, Myhre, McMichael, Carro-Figueroa, and Buttel, 1993, pg. 1102). This is not to say that the state is not still highly supportive or involved, but that it has slowly begun to liberalize settlement development, providing a supportive environment for the growth of more private capital through firms such as Agrexco.

In this way, Israel’s agricultural economy and the path of agricultural settlement development has been influenced by recent global restructuring of trade rules and by actors such as large food and agricultural corporations. These factors have helped shift Israeli agriculture from the simple commodity production of the moshav family farm to larger less structurally rigid settlement production feeding into global agro-food chains.

Water and ideas around its management have also continued to shape the development of settlement agriculture. While in the most recent period we continue to see environmental, economic, and integrated management paradigms employed, the expansion of novel water technologies has further pushed water in agriculture away from past ideas like that of the hydraulic mission. One large part of this shift, combining with a liberalization of agricultural settlement in general, are neo-liberal policies actions within continued water development. Molle et al. describe how the breaking down of older ideas of water management often “capitalise on the rhetoric on privatization” (2009, pg. 342). We can observe this shift to greater private rather than state control of water resources within the recent paradigms

around water management in Israel, particularly those of the economic valuation and integrated management paradigm. For example, pushing for more rational valuation of water Lipchin writes that “scaling down hydrological subsidies and introducing market-based policies together with some form of local control can provide for long-term management” (Lipchin, 2006, pg. 265). Technologies such as desalination and wastewater recycling have been a part of making this privatizing shift within water management. The creation of these plants and areas of novel water production has decentralized the water authority of the state water company Mekorot. In addition, many of desalination and wastewater treatment plants are constructed as build-operate-transfer contracts, whereby private capital is responsible for the construction and operation of such facilities (Feitelson and Rosenthal, 2012). Through this process, Israeli water management has moved towards greater neo-liberal policies and privatization, with state companies like Mekorot having less power. This shift and the introduction of novel water technologies has undeniably had a influence on the shape of Israeli agricultural development. In this way such ideas within recent water paradigms have gone hand in hand with changes in the structure of global agricultural markets. These intertwining forces have helped shape the transformation of Israeli agricultural settlement patterns.

Lastly, in this recent agricultural development we have continued to see use of shared narratives and reflexive notions of nature preservation and protection of open space. While these narratives have attempted to deterritorialize issues of water and land (Thomson, 2016), we have also seen a growth in Neo-Zionist narratives that reassert older ideas of controlling, remaking, and claiming nature through agriculture. In the growth of agricultural settlement among religious/ideological movements like Gush Emunim, there is the reassertion of

narratives such as “desert reclamation, which reiterates Zionist traditions that Eretz-Israel is part of the global, white-man’s frontier” that encounters “backward Arabs, whose untamed nature must be refined” (Schnell, 2011, pg. 176). The juxtaposition of this reassertion of past Zionist narratives and recent reflexive narratives of environment protection is interesting to consider with parallels within the context of evolving settler colonial narratives. The resurgence of this highly territorial and aggressive narrative does not fit and often clashes with those of the reflexive paradigms. The contradiction of these multiple narrative streams and resurgence in settler territorial claims may possibly be paralleled in other settler societies with far right land movements. Parallels could be drawn with actions such as those of the occupation of the Malheur Wildlife Refuge in Oregon, where territorial claims were extended by US ranchers. Without further research it is difficult to analyze such parallels, but one may see the interplay between mainstream environmental movements and reactions of far right land movements in settler societies.

Within this recent history of Israeli agricultural development we can observe the partial resurgence of agricultural settlement. This has been supported, in varied ways, both by mainstream environmental narratives as well as greater use of agriculture by religious/ideological settlers. This growth has been shaped and influenced by changes in the global economy, new paradigms around water management, and novel water technologies. Although agriculture did not regain its privileged place within Israel settlement, it seems that going into the future in which it will continue to have a place as part of the settlement project.

CHAPTER 8

IMPACTS OF ISRAELI AGRICULTURAL SETTLEMENT ON PALESTINIAN SOCIO-ECOSYSTEMS AND LANDSCAPES

As discussed briefly throughout this long and shifting history, Zionist and Israeli agricultural settlement has had impacts on landscape change and affected Palestinian modes of livelihood and interaction with surrounding environments. This section of the work will focus on a number of these impacts that Zionist and Israeli agricultural settlement have made to these systems.

As mentioned in the introduction there is a large amount of work on the social and political effects of the violent creation of the Israeli state, multiple wars and military actions both internally and with surrounding countries, and activity in the occupied territories. There has been less study of the slower moving processes within Israeli state and pre-state activities, particularly impacts on the environment and ecosystem functioning. This section will analyze a select number of areas where agricultural settlement has had large impacts on socio-ecological systems and landscapes. While of course it is understood that the effects of these processes are incredibly numerous, varied, and addressing many of them are out of the scope of this work, this section will focus on a select number of these impacts. This section also does not seek to cover these impacts exhaustively, as each of these could fill their own separate volume, but to dip into these subject that are not as studied by other contemporary works. These selected impacts are both historical and more contemporary.

Throughout the history of Zionist and Israeli agricultural settlement we have seen that the Zionist project had at its core the ideal to recreate the landscape of Palestine, envisioning different landscapes and creating structures to “materialise these landscapes” (Long, 2009).

Zionism from its beginnings sought to tear down and recreate the landscape of Palestine. This idea is reflected by Herzl in his allegorical work *Altneuland*, writing that “if I wish to substitute a new building for an old one, I must demolish before I construct” (quoted in Wolfe, 2006, pg. 388). Attempting to add to scholarship looking at the relationship between settler colonialism and its impacts on environmental landscapes, this work builds off assertions of Long and Eyal Weizman that it was the stated goal of the Zionist project to change the landscape of Palestine by “making the desert bloom” (Weizman and Sheikh, 2015).

In looking at these impacts, this study will take the critical ideas of political ecology in mind that sees changes in environment not just as the processes of natural cycles, but also being influenced by social and political action. In addition, it will particularly use the idea of socio-ecosystems or “socio-physical constructions that are actively and historically produced, both in terms of social content and physical-environmental qualities” (Swyngedouw, 2004, pg. 56). Viewing these as created as part of more general landscape systems where “local contexts, including cultural and historical land patterns as well as natural features and ecological processes” come together into a projected landscape (Bailey and Buck, 2016, pg. 484). In this way peasant farmers, pastoralists, water cycles, and geomorphic forms interact creating socio-ecosystems that have shaped the landscape of Palestine and have been impacted by Zionist and Israeli agricultural settlement.

CHAPTER 9

DEPEASANTIZATION AND CHANGES IN VARIED FORMS OF AGRICULTURAL LAND TENURE

A. Mandate Policy, Agricultural Settlement, and Musha'a Tenure

Before the advent of the Zionist project, agricultural cultivation in Palestine took on many forms as far as tenure. As discussed in the previous sections these forms included the communal holding musha'a system, whereby parcels of land were held in common and redistributed periodically among members of the hamula; different forms of co-cultivation where land owners and farmers agreed up who would be responsible for different farm inputs and each one's share in the production; and other forms of share tenancy (Firestone, 1975 A and B; Nadan 2006). Musha'a was a common form of tenancy throughout the Levant and before the British Mandate around 70% village agricultural land in Palestine was held in musha'a tenure (Nadan, 2003). The system varied in its forms, with both open-ended and changing sizes of plot shares and more defined quantified plots shares. The most common form in Palestine were quantified plot shares and a redistribution rate of around two years (Nadan, 2003). This section will discuss how Zionist agricultural land control along with British Mandate policies, altered, changed, and lead to the decline of these various forms of agricultural tenancy. While it is not the goal of this section to intensely describe these forms of land tenure or argue for their economic or environmental sustainability, it does seek to show the place of Zionist agriculture, in conjunction with British Mandate action, in changing these long standing forms of tenancy that were part of the creation of socio-ecosystems in Palestine.

Both British and Zionist planners viewed many of these practices as backwards, as

part of the reason for the indebtedness of Palestinian peasants, and also part of land degradation. There was particular focus on changing the patterns of the musha'a system as it was thought that the "shifting occupation of land and good husbandry are incompatible" and that it led farmers to "exploit and impoverish" the land but "not develop it" (Bunton, 2007, pg. 10) This form of tenure especially drew Zionist focus as it was recognized as "a safeguard against alienation" from Zionist land purchase (The Palestine Royal Commission, 1937). This was because each small area would have to be purchased from individual members and communal members had pressure and support for not selling their land. Many of the British Mandatory reports, such as the Shaw, Hope-Simpson, and Johnson-Crosbie Report, however called for the partitioning of musha'a land, the abolishment of the system, and the 'rationalization' of agricultural production (Kamen, 1991). These ideas were influenced by colonial understanding of musha'a as parallel to European commons, which were seen as blocking progress and the expansion of individual property rights¹³ (Bunton, 2007). Because of this view, the Mandate government attempted to rid Palestine of cultivation under musha'a tenure. In this program, Zionist planners and Zionist agricultural modes played a large role and had converging goals, as these forms of tenure stood in the way of expanding Zionist agricultural settlement.

British Mandate officials such as Ernst Dowson, the designer of the Mandate settlement program, and Lewis French, the first director of the Mandate Development Department, studied ways to increase land registration and partition in order to stop the redistribution of land under the musha'a system. In his planning Dowson admitted the British

¹³ For greater analysis of the Western view of the idea of the commons see (Hardin, 1968)

obligation to the establishment of a Jewish presence in Palestine was part of the motive for land registration (Nadan, 2003). In this way the British saw land registration and privatization as able to make land more available for Zionist purchase and settlement. In addition, the British viewed Zionist methods of intensive rather than extensive agriculture as in line with the modernizing and development of Palestine. In some ways Zionist agricultural settlement was fulfilling both British and Zionist aims, as a modernizing project to make Palestine into a productive surrogate colony for the British (Atran, 2005) and as a way to settle, transform, and gain greater control of land for the Zionist project.

Both British efforts of land registration and individual parcelization and Zionist agricultural settlement played parts in the decline of these forms of tenure in Palestine, often one effort benefiting the other. Thus it is difficult to parse out each's contribution to their decline. However, here we will try to focus specifically on the effects of Zionist agricultural settlement. There are a number of ways that agricultural settlement played a role in the breaking up of these forms of land tenure and creating depeasantization. These include the major Zionist principle of the Jewish-only labor, the later targeting of smaller parcels of land, and the eventual large-scale clearance of Palestinian peasants from their lands.

While the early moshava settlements did not have this policy of strictly hiring Jewish labor, the later dominant kibbutz and moshav agricultural settlements adhered more strictly to the doctrine of the 'conquest of labor' (Shafir, 1996). Previously, the changing of land owners left sharecrop farmers and co-cultivators relatively intact, who could create new contracts and agreements with the purchaser. However, when land was purchased by Zionist buyers such as the JNF Palestinian cultivators were removed from the land and were not employed in the erected agricultural settlements. One British official described the process

writing that:

When one Arab sold land to another...landowner changed, but the tenants remained... the Zionist Policy is different. When the Jewish National Fund purchases land, not only the land lord is changed, but the tenants and all the Laborer class are to move...The result is the growth of a body of 'landless' Arab (quoted in Nadan, pg. 347).

Two particularly infamous examples of this were the large Zionist land purchases in Wadi Hawarith and those from the Sursock family. In both these cases large numbers of tenant farmers were displaced. While there were some Mandatory protections for these groups, Zionist land purchase and agricultural settlement began to create a large landless peasant class (Stein, 1984). This early depeasantization was greatly studied by the Mandatory government. The Hope-Simpson report gave the estimate that 29.4% of rural Palestinian families were land-less, and while some scholars have questioned the methods of this estimate (ibid), there is no doubt that Zionist purchase and clearance of sharecroppers and labors was causing displacement of these populations. The later French report compiled 3,737 claims by landless Palestinians who had been displaced. While this number was lower than expected, later scholarship has pointed out that the report did not take into account peasants who were cleared from the land before Zionist purchase as often sale contracts dictated that the land should be free of inhabitants before sale (Nadan, 2003). As much of early Zionist land purchase, prior to the 1930s, was from large land owners, it was peasants within forms of sharecrop tenure that were mainly impacted by these purchases. However, later Zionist purchase began to focus more on smaller plots where owner-cultivator, co-cultivator, and masha'a tenure forms were more prevalent.

Despite the masha'a tenure system's ability to partially protect against intrusion from

Zionist land purchase, British Mandatory policy continued to support the registering and partition of these plots. When these plots were registered and frozen becoming mafruz land, they were more easily available to Zionist purchase as the “single most significant effect of land settlement [encouraged by the British] was to accelerate the transfer of lands from Arabs to Jews” (Nadan, 2003, pg. 348). Stein describes the undermining process of Zionist purchase of musha’a shares writing:

Jewish often bought musha’a shares during the land-settlement process. Often the schedule of rights to musha’a shares was posted to allow potential claimants the opportunity to challenge the schedule before it was recorded. At that point, land was sometimes transferred into Jewish ownership. When time came for official registration of the shares or the designation of right to those shares, these unofficial transfers were entered in the Land Registry books and legalized. (1984, pg. 71)

In this way, British efforts at land registration worked in tandem with Zionist efforts of land control and purchase, as the bound musha’a system shut purchasers out, plot share registration and parcelization made these land more available. Because of these efforts, musha’a tenure declined rapidly, going from being the majority form before the mandate, to representing around 44% in 1930 and 25% in 1940 (Nadan, 2006). Understanding the place the system held in maintaining land, in many villages sales were prohibited to any outsider suspected of converting shares into settled plots. In this way “masha’a came to represent the last safeguard against the destruction of a whole way of life that was evidently collapsing all around them” (Atran, 1986, pg. 283).

This purchase and clearance of the tenure social system of the musha’a continued up

until the large-scale expulsion of Palestinians before and during the war of 1948. While it is not often viewed in this way, this can also be seen as a massive depeasantization. This process whereby “an increasing number of people who were involved in agriculture with direct access to the production of their means of subsistence became rapidly and massively concentrated in urban locations” is often used in the context of the slow transformation of peasants by capital (Araghi, 1995, pg. 338). Before their mass expulsion, many landless Palestinian migrants moved to towns, with “land alienation” being a large “contributing cause of the urbanization” (Lehn, 1988, pg. 90). While a majority of these populations would eventually be expelled, these processes of land purchase, agricultural settlement, and clearance by Zionist forces represent a complete transformation of the systems of previous peasant subsistence. Again, while it is difficult to know how much to attribute to agricultural settlement alone, it was a large piece in the process of changing the systems of the Palestinian peasantry, along with British Mandate policy and encroaching market forces.

Zionist planners were aware and celebrated this transformation and decline of these varied systems of tenure and cultivation. Granott writes that:

In the greater part of the State of Israel there no longer exists large land ownership based on tenancy, nor Mesha'a ownership or fragmentation of holdings and dispersal of divided plots. It is almost as though at one stroke all the elements which in other countries obstructed every progressive change, had disappeared. The large expanse of landed property remaining at the disposal of the State as a result of the War of Independence, provides the opportunity of preparing and initiating settlement operations, without suffering from impediments which forever stood in the way of such systematic planning (1956, pg. 275).

Here Granott explicitly shows how the depeasantization and expulsion of Palestinians left the path open for the transformation and claiming of the cleared landscape through agricultural settlement. In this way, Zionist and Israeli agricultural settlement was a part of the decline and breaking down of these systems of land tenure that had sustained Palestinian cultivators.

B. The Place of Tenure within Palestinian Socio-Ecosystems

While musha'a was the largest form of Palestinian agricultural land tenure before large-scale Zionist colonization and British Mandate control, other varied forms of tenure were also practiced. Some of these forms continue to today, mainly sharecropping with a set yield share and the sharaka, owner-cultivator partnership form. However, these are not the widespread functioning systems that existed before, and are mostly centered in the West Bank (Tamari, 1990). Despite the British and Zionist understanding of these systems of land tenure, particularly musha'a, we can examine how these systems fit into larger socio-ecosystems and had important places in social functioning. Again, although it is not the aim of this section to argue for some superiority of these forms of earlier Palestinian land tenure, it is to show the functioning of these systems within a socio-ecosystem, before the impacts of Zionist agricultural settlement.

Firstly, while it was a wide held belief among British Mandatory officials and Zionist planners that the musha'a system discourages investment in land, this concept was arrived at after very short term observation and study of the practice. It seems that one of the largest issues of these authorities with this system was that it was "geared to maintaining, rather than

increasing, the standard of living,” working towards subsistence rather with surplus production being complementary (Atran, 1986 pg. 277). This was done through basic crop rotations of winter cereal crops of barley and wheat for home consumption and to sustain farm animals. Then often followed a short cropping of green manure such as vetch and lentils, increasing nitrogen fixation, which were then ploughed under. Afterward a planting of summer crops such as millet or sesame followed. Nadan has shown that there were many ways that land was improved within this system of redistribution plot shares. One of these was through the joint investment of members in a plot that often came with the planting of trees on the land, as these would be more permanent investments that would be shared. In addition, if an individual made larger investments in the land, they could request to have this plot become permanent. (Nadan, 2003). The system of division and reallocation was also beneficial in the spreading around agricultural risk. If a crop in one plot failed or was unprofitable, the second crop in another small parcel of land could then make up for this loss, providing an insurance. (Nadan, 2006). The *musha’a* form had a large place in maintaining a “constant level of sedentary productivity in a politically and climatically fluctuating environment” (Atran, 1986, pg. 275). From such evidence of attendance to crop rotations and land investments it seems that “clearly, the contention that the agricultural regime of the peasantry took no account of soil management and improvement is unwarranted” (ibid, 278).

In addition to agricultural investment, the *musha’a* system played a role in greater community organization. The close co-ordination and co-operation that was engaged in by these villages aided in the social cohesion of these areas. Trust between members allowed for a cultivator to rent his plot out to adjacent neighbors, leaving one open to seek additional income outside the village while still receiving a share in the yield of their plot. Resolving

disputes between and within families were also helped by greater group decision making facilitated by the communal institution (Nadan, 2006). In these ways the musha'a system represented an "organic relationship between village social organisation and the agrarian regime" and was a part of making the landscape of Palestine (Atran, 1986, pg. 288).

The varied sharecropping and tenant relationships were also part of the maintenance of subsistence livelihoods before the advent of the British Mandate and Zionist agricultural settlement. Like with musha'a these relationships were also seen as part of the irrational systems of Palestinian agriculture by Mandatory and Zionist officials. As has been discussed, there were many forms of sharecropping and tenancy practiced with Palestine including the co-cultivation and sharaka partnership cultivation, simple landowner tenant share cultivation, and tenant cultivation in exchange for cash (Tamari, 1990). Because of the indebted economic situation of many Palestinian fellahin, arrangements like joint cultivation were preferable as they "enabled a more efficient use of the combined factors of production...also reduced the risk for both parties" (Nadan, 2006, pg. 193). Sharecropping relationships in this situation could also be beneficial to peasants because of the marketing assistance of landlords, who were often also merchants. Relationships of co-cultivation could also lead to small-scale owner cultivator operations, where a former tenant would be sold a piece of the land he had worked (Firestone 1975 A, Firro 1990). In these ways, these varied sharecropping relationships "seemed to be efficient, enabling a maximization of production" under the circumstances (Nadan 2006, pg. 1993).

These tenure systems were part of the construction of the social and environmental landscape of Palestine, such as the olive lined mountain terraces and cereal covered lowlands. These systems, particularly musha'a, declined and were replaced with quite

different systems that altered the landscape of Palestine. In the decline and large-scale depeasantization of Palestine, Zionist and Israeli agriculture settlement played a significant role. As the Mandatory government pushed policies of registration and parcelization of land, these areas were purchased by Zionist organizations and transformed into agricultural settlements. These forces, along with market and later military force, created large landscape changes and impacts on the previous socio-ecosystems.

CHAPTER 10 CHANGING WATERSCAPES

A. Overdevelopment of Water Resources and Drainage of Wetlands

In this discussion about the use and development of Israeli settler agriculture, understanding water and its changing relationship to these activities is essential to grasp this process more completely. Water is also the largest input of settlement agriculture and its decades of focused use directly to agricultural settlement, as well as the Israel efforts to change and develop existing water resources, has greatly impacted the hydraulic environment and water's use in Palestinian life. The impacts of Israeli agricultural and water policy are shaped within the varying topography and aridity of Palestine, water being pumped from the more water rich Northern part of the country to irrigate the South and the low-lying coastal aquifers being more susceptible to pollution and intrusion. In addition, these impacts are also influenced by the highly karstic, soft rock, geology of Palestine (Zeitoun, Messerschmid, and Attili, 2008). This section will look at the effects of agricultural settlement development on wetlands environments, overdevelopment and overexploitation of water resources, and waterway pollution from agricultural inputs and waste.

In early Zionist development of settler agriculture, the many wetlands and marshy surface water areas of Palestine were thought of as a hindrance to the continuing growth of the settlement project. The drainage, cultivation, and transformation of these areas was thought of as a necessary good, and drainage and reclamation activities took place in a similar fashion other settler nations. As discussed in the historical section, the JNF and PLDC were involved in such activities both in the pre-state period and after the creation of the Israeli state with the “value of eradicating ‘swamps’” being “axiomatic” for the Zionist

project (Tal, 2002, pg 117). This idea was later built into Israeli legislation concerning wetlands, with the Drainage Law of 1957. This law defined drainage as “any operation intended to concentrate, to store, to carry or to remove surface or any other water that harm or may harm agriculture” and gave the Ministry of Agriculture the right to establish drainage authorities, with it quickly establishing 26 of these bodies (Maruani and Amit-Cohen, 2009, pg. 913). The largest example of this wetland drainage was of the Hula lake and surrounding wetland areas between 1950 and 1958. The major impetus and force behind such drainage projects was the expansion of agricultural settlement and to expand water availability, also mostly used for agriculture (Hambright and Zohary, 1998).

Wetlands had greatly spotted the Northern and Central regions of Palestine and their drainage and transformation into agricultural settlement has had large impacts on ecosystems both in the surrounding areas and downstream. To quickly define terms, wetlands refers to low lying lands with shallow and sometimes intermittent waters, often referred to as swamps, marshes, ponds, or small lakes (Cohen-Shacham, Dayan, Feitelson, and deGroot, 2011). Levin, Elronb, and Gasith estimate in the late 1800s, before major Zionist colonization, as many as 600 wetland habitats may have existed, extrapolating from historical sources and land surveys. Today, this number has drastically dwindled, with only 35 wetland areas still in existence (2009). While not all of these were drained or disappeared because of agricultural settlement, drainage for such settlement as well as for irrigation development was one of the main factors behind wetland disappearance (ibid).

B. The Example of the Hula Wetlands

In order to observe the impacts of such activities, we can examine the major example of the drainage and agricultural development of the Hula lake and surrounding wetlands. The drainage of the Hula wetlands was a large step in creation of “material preconditions first for the Labor Zionist government agricultural and settlement imperatives” (Anton, 2008, pg 78). While the idea for the drainage of the Hula and its surrounding wetlands did not originate with Zionist planners, as there were existing Ottoman plans for drainage and the concession for this drainage was sold to Zionist organizations from a Syrian based company, these actions were in line with sanctioned discourses shared by Zionist planners (Anton, 2008). Prior to their drainage, the Hula wetland area covered around 85 Km², and had been part of the landscape of thousands of years (IISD, 2009). The surrounding valley had been inhabited and farmed mainly by the sedentary Bedouin tribe of the Ghawarna. The livelihoods and activities of these inhabitants were greatly involved with the surrounding wetlands. These included farming the area with crops such as wheat, rice, corn, barley, and sesame, some herding, fishing, and the collection of papyrus reeds that grew in the wetland areas. Population estimates for these communities in the 1940s range between 12,000 and 30,000, before their expulsion and clearance after the Zionist concession of these lands and after 1948 (Khawalde and Rabinowitz, 2002; IISD, 2009). Many of these inhabitants were sharecrop tenant farmers, using the varied resources of the wetland valley to create their livelihoods. The wetlands had provided wide-ranging ecosystem services, both for the local inhabitants and for those living downstream. The wetland yielded raw material such as the papyrus reeds that were also used making of thatch homes, hats, boats, ropes and mats, which

were a large source of income from the local population (Anton, 2008). They were the habitat for a large variety of fauna including fish, migratory birds, amphibians, and mammals. The water buffalo particularly were another defining feature of the area, which were raised and used by the surrounding inhabitants (Sufian, 1999). The wetlands also played a very important role in the regulation and purification of upper flows of the Jordan River. The areas acted as water storage and a nutrient sink for high sediment loads from the upper tributaries of the Jordan (Cohen-Shacham et al, 2011)

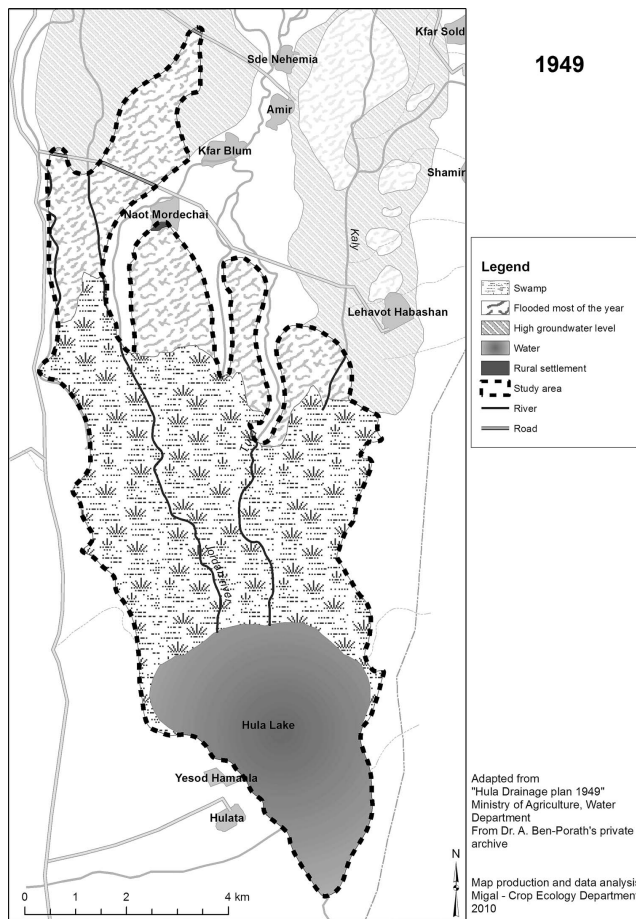
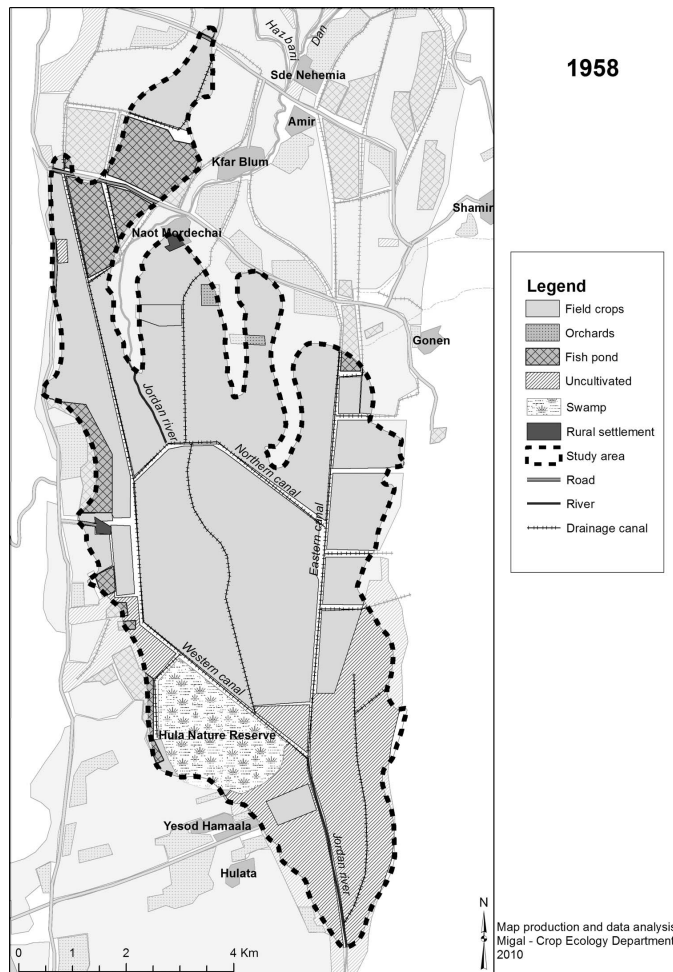


Figure 10.1: Hula Wetlands 1949 Before Drainage (Cohen-Shacham et al, 2011)

After the expulsion of the areas population and the wetland drainage, the former Hula area was rapidly developed as agricultural settlement. Israeli agricultural settlements

cultivated crops such as cotton and alfalfa, likely following the mixed dairy and field crop model discussed in chapter 5, relying heavily on the nutrient rich peat below the drained wetland area. The effects from this rapid change in landscape and sudden disappearance of ecosystem features were wide-ranging. There were large releases of nutrients loads into Lake Tiberias and further downstream, because of the removal of this sediment storage area and the high erosion of peat from agricultural activity. Large erosion of peat and gypsum created higher nitrate and sulfate runoff, and after drainage 2,800 tonnes of nitrate were washed into the Tiberias annually, impacting downstream fauna. In the Hula area the quick erosion of peat from agricultural settlement also led to large dust storms that whipped through the area, a kin to those of the Dust Bowl that swept the Western US. This loss of habitat and change in environment brought about the disappearance of large numbers of the varied species that had inhabited the Hula area. During the 36 years after the drainage of the wetlands 119 species were lost from the area and 37 species no longer appear within the country at all (Hambright and Zohary, 1998). As much of the study regarding the effects of this historical drainage focus on the impacts on surrounding fauna, there is little information on other impacts, such as those on downstream Palestinian communities in the lower Jordan area, which were on the receiving end of a sudden increase in nutrient loads, likely leading to eutrophication downstream. While there were later efforts to restore some of the wetlands area in the Hula, only a small portion of the former wetlands were reflooded (IISD, 2009). However, it was clear that this reflooding of the area was a far cry from its restoration, whose socio-ecosystem had been altered beyond restoration. Despite the historical perspective and evidence of the environmental impacts of the Hula drainage, this project continues to be a celebrated part of the narrative of making the desert bloom.



1958

Figure 10.2: Hula Area After Drainage 1958 (Cohen-Shacham et al, 2011)

In the drainage of the Hula wetlands and the replacement of local populations with Zionist agricultural settlement, large and irreversible impacts were brought upon the area's socio-ecosystems and landscape. The mixed use of the wetlands environment, with complementary activities such as papyrus harvesting and water buffalo grazing, had subsisted within the maintenance of a "climax state of equilibrium" within the wetlands (Anton, 2008, pg. 83). The drainage of the area was part of a larger "struggle to transform the water resources and nature," in which agricultural settlement and development were also at the forefront (ibid, pg. 76). While the Hula is the most studied case, as mentioned, much wetland

drainage took place in the pursuit of greater areas for agricultural settlement and for expansion of hydraulic development, likely also creating similar disturbances within wetland ecosystems.

C. Overdevelopment and Overexploitation of Water Resources

Another impact of agricultural settlement on water resource has been the rapid overdevelopment and exploitation of these resources in Palestine. This includes the diversion, over-pumping, and grabbing of water systems. As discussed in the historical section, much of Israeli settler agricultural growth rested on the idea that water not used for development was essentially wasted and that the greatest good for water use was in the national goal of agricultural settlement. We can see this idea illustrated in a quote from Menahem Kantor, Israeli Water Commissioner during the 1960s and 1970s, saying “there’s no choice but to dry up the rivers of Israel. We don’t have the groundwater available to dilute the streams. If you want a river full of water, it creates an illusion” (quoted in Tal, 2002, pg. 11). In much of Israeli post-state development “no plan for a new agricultural settlement was ever abandoned only because the cost of supplying water was too high” (Galnoor, 1978, pg. 375). While this idea has been heavily challenged by those voicing reflexive critiques of such policy, the single-minded use of water for agricultural settlement had large impacts on Palestine’s water ways.

Here again this section will examine a number of cases where this overexploitation of water resources for the drive of agriculture has led to environmental impacts and ecosystem changes. One of the water bodies where this can be observed is the Nahr al-Ajua. As

mentioned, Nahr al-Ajua was diverted in the mid 1950s serving to irrigate agricultural settlements in the Southern Naqab. In addition to this diversion, most of the springs that fed into the river were also pumped for irrigation use in surrounding agriculture. Before this diversion and pumping, Nahr al-Ajua yielded around 60 MCM per year, was one of the countries largest year round flowing rivers, and was habitat for a diverse range of plant and animal species (Bar-Or, 2000). However since these developments, the river has been in danger of drying up and has become heavily polluted. Indeed, Nahr al-Ajua became the poster child for parts of the Israeli environmental movement pointing out the overexploitation and pollution of the country's water ways. Agricultural pollutants from pesticides, fertilizers, and animal waste as well as a number of other pollution sources greatly contaminated the river. With little water left to dilute these, the biological integrity of the river became compromised (Tal, 2002). The draining and diversion of Nahr al-Ajua was pushed by the imperative of agricultural settlement in the 1950s and 1960s.

Other impacts of overdevelopment and overexploitation of water resources can be seen in the lower Jordan River and the Dead Sea. The largest historical cause of these was the creation of the NWC and the damming of Lake Tiberias. Even before the creation of the NWC, the Degania dam at the Jordan River's exit from Lake Tiberias began changing the flow of the lower Jordan River. The Jordan River is a waterway that has been continuously used by many groups throughout recorded history and has held a large place in the environment of the Levant for thousands of years. Before its damming in the 1930s, around 1,300 MCM of the lower Jordan flowed from Lake Tiberias into the Dead Sea. The lower Jordan area has been a very biologically diverse ecosystem, serving as a biological corridor for many species including many migratory birds (Becker, Helgeson, and Katz, 2014).

However since its large-scale diversion, the flows of the lower Jordan have been “reduced to a trickle,” with only between 5-3% of its historical flow (FOEME, 2010; Becker, Helgeson, and Katz, 2014). Although the use of the upper flows is shared amongst the transboundary countries, Israeli use accounts for more than half of the use of the upper flows (Al-Haq, 2013). Historically, much of this flow was diverted through the NWC and directed towards agricultural settlement. While, less of this fresh water is diverted towards agriculture today, the main reason for the diversion and development of this infrastructure was to feed into agricultural settlement.

This crippling of the lower Jordan flows has had large, wide-ranging impacts. The lower Jordan has lost around 50% of its species diversity due to decreased flow and increasing salinity; with long stretches of the river are at risk of completely running dry (FOEME, 2010). This has also had deleterious impacts on the downstream Dead Sea. The reduced flow of the lower Jordan River means much less recharge for the down stream body. The water level of the Dead Sea has dropped greatly over the last decades, from 212m to 422m below sea level, has increased in salinity, and is in danger of disappearing (Becker, Helgeson, and Katz, 2014).

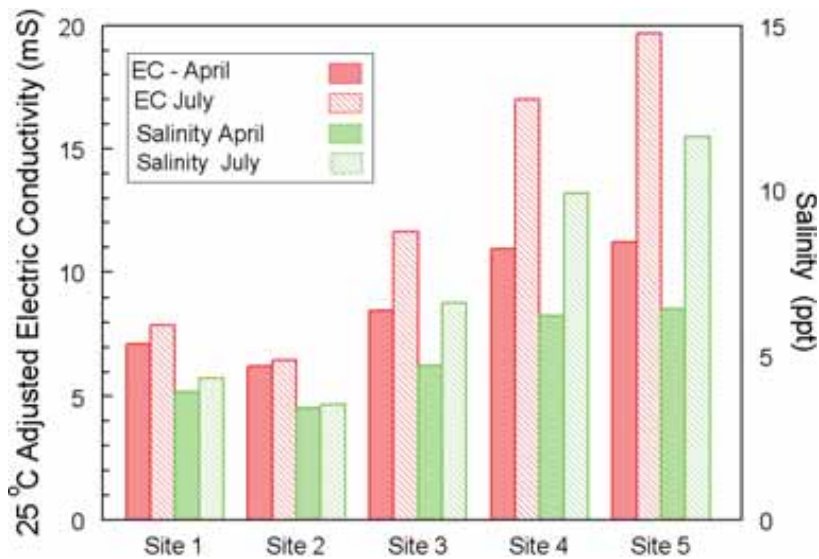


Figure 10.3: EC and Salinity Along the Lower Jordan (FOEME, 2010).

There has also been an increase in sinkholes that mark the Dead Sea area, with over 1,000 appearing in the past 15 years (Hammer, 2005) In addition to these impacts on surface water, the large-scale irrigation of more Southern parts of the country with this diverted water has also led to consequences for groundwater resources. As the water diverted from Lake Tiberias is relatively saline, its diverted irrigation use contributes highly to the salinization of groundwater resources like the Coastal Aquifer (Rosenthal et al, 1992; Tal, 2006). While Palestinians are not given a share in the division of the upper Jordan flows and restricted in their use of the lower Jordan and Dead Sea, this reduced flow also impacts the ground water level that many Palestinians within the area depend on (Al-Haq, 2012). While other factors have contributed to this degrading and near disappearance of these surface water resources, Israeli agricultural settlement is the largest factor. Israel continues to use the majority of the flow of the upper Jordan and has historically directed most of this water toward growing agricultural settlement.

In addition to the overexploitation from diversion and damming, over-pumping is another serious issue that has been greatly caused by rapid expansion of agricultural settlement. In this development “Israel’s agricultural and water authorities, dominated by the agricultural sector, embarked on a conscious program of overpumping of groundwater...beyond the limits of the mean annual safe yield” (Shuval, 2013, pg. 129). In the historical overview we saw the struggles over decreasing water allocation to agriculture during the large droughts of the 90s and 2000s, with issues over dangerously low ground water levels. During much of this history there were little mechanisms for any partitioning of distribution of groundwater between Israel and Palestinians within the occupied territories and Israel had unhindered access to much of the state’s groundwater. After the 1967 war Israel took control of much of the water resources of the occupied territories, limiting the capacity of Palestinian water extraction, and with little restraints on its extraction of groundwater resources (Zeitoun, 2008). While after the Oslo accords there was a division of largest groundwater resource, the Mountain Aquifer, this gave Israel control over most of this resource. In this division Israel is allowed annual withdrawal around 483 MCM, about 70% of its capacity, and Palestinians around 196 MCM, around 30% (IWA, 2009). However this allocation is in spite of the fact that 80% of the water recharge for the Mountain Aquifer comes from the West Bank area. Israel has also routinely overdrawn greater than agreed quantities from each of the areas of the Mountain Aquifer (Al-Haq, 2013). Again, while less and less freshwater contributes to Israeli agricultural settlement, historically most of this over-pumping was done into to feed growing agricultural settlement.

One of the dangers and impacts of this over-pumping is the degradation and increasing salinity of groundwater resources. This happens in a number of ways; through

direct encroachment of seawater in coastal areas, through the evaporation of saline surface waters such in wetland areas, and the solution of soluble salts in soils and rock surfaces (Vengosh and Rosenthal, 1994). In the Coastal Aquifer over-pumping has led to such high seawater encroachment, as well as other pollution, that between 90-95% of the water within the aquifer is unfit for human consumption (Al-Haq, 2013). This is the result of decades of over-pumping and pollution. During the 1950s and 1960s, as the result of overexploitation of the Coastal Aquifer, there was a high average yearly increase of chloride salts in this groundwater source (Rosenthal et al, 1992). While not all of this extraction has gone for Israeli use, with Gaza farmers also extracting water resources, the large majority of Coastal Aquifer use both today and over Zionist history has been by Israel. The Coastal Aquifer was not included in the Oslo agreements and Israel continues to use a majority of this resource, with its annual extraction around 420 MCM, or around 87% of its annual recharge rate (Lautze and Kirshen, 2009).

While the Mountain Aquifer is less susceptible to such seawater intrusion, this ground water resource has also been put at risk of pollution from continuous over-pumping. As the largest and most reliable groundwater resource in the country, the Mountain Aquifer has been a continually exploited resource for agricultural settlement growth. Looking at the history of Israeli groundwater extraction, Zeitoun, Messerschmid, and Attili have shown the long past of Israel over-pumping of this resource. Throughout the decades of growth of Israeli agricultural settlement, deep wells were sunk in the Israeli side of the Western Mountain Aquifer area, on average extracting more than 340 MCM a year. In addition, after the Oslo agreements, Israeli extractions have continually exceeded the agreed upon amounts by about 72 MCM per year. This over-pumping has “reduced outflow and lowered ground water levels

also increase the risk of saline water being drawn into the northern part of the aquifer” (Zeitoun, Messerschmid, and Attili, 2009, pg. 154). Through this history of over-pumping, the agricultural sector has always been the main force “driving, shaping, and obstructing Israeli water policy” (ibid, pg. 155).

In addition to these large examples of over-pumping, there have also been smaller instances of water capture by Israel and Israeli agricultural settlers. In 2002, Israel began constructing the separation wall, which cuts through much of the West Bank. In its construction the wall has also annexed 28 Palestinian agricultural wells, with a capacity of 4 MCM (Al-Haq, 2013). Also, while fresh surface and ground used within Israel has been used less for agricultural development, many settlers within the West Bank, particularly within the Jordan Valley, have captured private Palestinian springs for agricultural and agricultural tourism use. In 2011, the UN Office for the Coordination of Humanitarian Affairs identified 56 small springs that have either have already been completely taken by settlers or are in this process of being brought under settler control. Many of these springs have been integrated into the agricultural tourism within Israeli agricultural settlements, being part of wine and other rural tourism activities. This spring capture has greatly reduced the ability of Palestinian farmers within the Jordan Valley in their irrigation capacity and in water supply for livestock (OCHA, 2012).

This overdevelopment, over-pumping, and water grabbing, mainly in the drive for agricultural settlement, has had deleterious impacts on riparian environments and water quality. This has also greatly decreased the development capacity of Palestinian agriculture. Israeli over-pumping, water capture by settlers, and uneven agreements have meant that little water is available for growth of Palestinian agriculture. It was estimated that if Palestinians

within the occupied territories were given a more equitable share of Jordan River and Mountain Aquifer sources in order to irrigate the upwards of 400, 000 dunums of arable land that are currently unirrigated within the territories, this would yield millions of dollars within the agricultural sector (ARIJ Economic Cost of the Israeli Occupation, 2015).

D. Agricultural Pollution

The last environmental and ecosystem impact to water systems we will look at from Israeli settler agriculture is pollution from agricultural inputs and waste, such as fertilizers, pesticides, and waste from animal agriculture. As discussed much of the early Zionist and later Israeli agricultural models were built on high input farming, characterized by increased use of synthetic fertilizers. The runoff and leaching of these agricultural inputs and waste products has had large impacts on the pollution of water systems. During the central decades of Zionist and Israeli agricultural development, from 1930 to 1960, nitrate inputs into groundwater sources were at their highest levels recorded (Ronen, Kanfi, and Margaritz, 1983). Nitrate pollution has been particularly high in the Coastal Aquifer (Rosenthal et al, 1992). While fertilizer application and management have advanced, reducing the runoff of these inputs, they still continue to contribute to ground and surface water pollution.

In some of the cases we have discussed, diverting and overuse of a water resource has combined with run-off from agriculture, increasing the impacts on water systems. After its diversion and use for surrounding agriculture, Nahr al-Ajua with its much decreased flow has also been polluted from pesticides and animal waste from nearby agricultural operations (Tal, 2002). The lower Jordan has also seen large pollution from agricultural waste and run-off.

Much of the flow that is left after diversion of the upper river, “consists primarily of sewage, fish pond waters, agricultural run-off” with high presence of phosphorous from fertilizer runoff (FOEME, 2010, pg. 13).

Of these impacts on hydraulic environments and ecosystems, from wetland drainage to over-pumping, the drive to expand and increase agricultural settlement has been the main cause. In this way Zionist and Israeli agriculture has had large effects on the waterscapes of Palestine, removing water bodies that had been part of the landscape for centuries and changing flows of channels that have crossed the land for millennia.

CHAPTER 11

CHANGES WITHIN PALESTINIAN AGRARIAN LIVELIHOODS AND PRODUCTION

A. Zionist Agricultural Settlement and Mandate Policies in Agrarian Change

It has been observed by a number of scholars that even before the beginning of Zionist settlement, the economy of Palestine and other areas within the Levant were being pulled into larger world markets and becoming integrated within the world economy (Scholsh, 1982; Shafir, 1996). This had large impacts on the changing of many peasant societies throughout the Middle East. Indeed Shafir points out that often the large “force of capitalism” is underrated in its changing of the Palestinian economy (Shafir, 1996, pg. 218). However, the forces of capital expansion were not alone in the changing shape of the Palestinian peasant economy. Throughout this work has discussed how the goals and aims of the British Mandatory government and Zionist planners often aligned, with both attempting to create a productive colony within Palestine. This section will show the place of Zionist and Israeli agricultural settlement in changing other aspects of Palestinian peasant economy. Particularly, how this settlement aided in the greater penetration of capitalist development and some of the environmental and ecological implications that came with this shift. It will also include the impacts of agricultural settlement on the agrarian and pastoral livelihoods of Palestinian Bedouin populations.

While we have looked at the impacts of Zionist agricultural settlement on the varied forms of agricultural tenancy within Palestine, it is also important to explore the ways that the growth and expansion of Zionist settlement changed the continuing agricultural economy of Palestine. As with impacts on the decline in traditional forms of tenancy, here one can also

observe that agricultural settlement was part of multiple forces, including British Mandatory policy, which pushed changes within the agricultural economy of Palestine. Two of the effects observed of the Zionist and Israeli agricultural settlement on the Palestinian agricultural economy are its aiding in expansion of more capitalist agriculture and the increasing proletarianization of the Palestinian peasantry.

As discussed, much of early Zionist settlement was based on the moshava model, mainly financed through private capital and focused on monocrop export of citrus. This agricultural base and influxes of Zionist immigration created new conditions within the Palestinian peasant economy. One of these was a sudden new market for Palestinian agricultural produce. As the moshavot did not cultivate for mixed agricultural production that could supplement home consumption, and because of the food needs of urban and non-agricultural Zionist settlement, much of the Zionist settlers' consumption was purchased from Palestinians (Karlinsky, 2005). In the early 1930s, local Palestinian agriculture supplied 61% of Zionist settler consumption of vegetable produce, and even during the Arab Revolt it continued to supply 26% of this consumption (Nadan, 2006). This higher demand kept agricultural markets for such produce high and encouraged greater production for sale, rather than subsistence. Zionist intensive agricultural production, both from plantation moshava and growing kibbutz and moshav, also created greater competition in both domestic and international markets in what was an increasingly integrated economy within Mandate Palestine. In addition, a number of British policies under the Mandate government attempted to encourage the productive and capital growth of Palestinian agriculture. These policies included lowering agricultural taxes; introducing greater production of marketable livestock production, like layer hens; and, after changes in British policies, limiting Zionist land

purchase. The competition and consumption of Zionist agricultural settlement, combined with market oriented Mandate policies were part of a “steady expansion of a capitalist mode of production” within the agricultural economy of Palestine (Asad, 1976, pg. 7)

However, simultaneously to the “growing monetarization of the economy,” there was also competition and displacement from Zionist agricultural land purchase (Graham-Brown, 1990, pg. 54). Palestinian cultivators generally could not afford the high input farming of Zionist settlers, and few Palestinians were able to afford investments like expanded irrigation (Nadan, 2006). Encroaching Zionist land purchase also pushed out and cleared Palestinian agriculturalists, leading to the landless issue that was heavily examined under the Mandate in the Hope-Simpson, French, and other Mandatory studies.

In this way these two modes, both a greater capitalization and a rapid transition from agricultural livelihoods, were part of an increasing agrarian transition. Akram-Lodhi and Kay describe processes of agrarian transition writing “while peasants may be dispossessed as capitalism develops, capital can also subsume peasant Labor through hybrid forms that consolidate the peasantry... this is what establishes small-scale pre-capitalist peasant farms as small-scale petty commodity producers under capitalism” (2010a, pg. 182). In this way while changes within world markets and growing capital were already transforming Palestinian peasant livelihoods, Zionist and Israeli agriculture aided and sped up these processes. While Shafir rightly points out that large force of capitalist development affected both “Jews and Palestinians,” there is less focus on the ways that Zionist agricultural development was part of this expansion (1996, pg. 218). This is owing to the capital intensive and highly market oriented stance of Zionist and Israeli settlement agriculture production. While there is important work focusing on the disputes and labor struggles within the

ideologically socialist oriented second Aliya, or second wave of Jewish immigration, that pushed the collective kibbutz model, there is less attention paid to the majority of early Zionist agricultural settlement that was in large private moshava style production. Again, before the 1940s the majority of settler agricultural production and Zionist owned land was in the hands of the PICA and private land purchasers, with production that was highly oriented towards global markets, particularly in Europe.

In addition, despite disputes between Zionist leaders about the proper form of agricultural settlement, Zionist Labor movement leaders, who would soon become the heads and decision makers of the Israeli state, conceded to the need and use of private capital and market orientation. Discussing this issue at the fifth Zionist Labor convention, Ben-Gurion said:

The Hebrew economy under construction in Palestine rests on capitalist foundations. A Hebrew class society is coming into being in Palestine, and even the Labor economy that is taking shape in Palestine is taking on a capitalistic form in its outward actions (quoted in Karlinsky, 2005, pg. 40)

Indeed, later when the moshava plantation method had stagnated and the kibbutz and moshav modes were expanded, while internal state supported these forms, they were highly market oriented in their production. The goal of keeping agricultural settlers on the land through high wages that would be comparable to urban and industrial professions, expounded by Zionist agricultural planners like Ruppin and Volcani, set the planning and expansion of these forms towards small-scale commodity production. Thus moving the

agricultural economy of Palestine away from subsistence and more quickly toward market production.

In these ways, both in opening up the agricultural economy of Palestine to greater capital expansion and through Palestinian land purchase and clearance, Zionist agricultural settlement aided in agrarian transition that internally shifted Palestinian agriculture and pushed Palestinians towards other professions. Here we can include the large-scale depeasantization of the Nakba. While after the war in 1948 and the creation of the Israeli state, of those Palestinians that were not expelled, some 170,000, many have continued to live in rural areas, but with continually decreasing numbers creating livelihoods from agriculture. With less land and resources available, many increasingly began to shift to commuting to low-skilled jobs within Israeli cities and towns such as construction and service jobs. Between 1963 and 1972, Palestinians within Israel employed in agriculture dropped from 38 to 19% respectively and those employed in low-skilled construction, mining, and service industries increased from about 45% to around 54% (Zureik, 1979). Many of these individuals continued to reside in rural areas, but increasing commuted to towns and cities, being transformed into a kind of rural proletariat. While this group of landless former peasants do not easily fit into this class category, one can see this semi-proletariatization of this former peasant class. However, urbanization also began to slowly increase for Palestinians within Israel. This was not accidental, but part of Israeli planning and goals of Judaization of areas where large Palestinian populations remained (Khamaisi, 2006); and agricultural settlement was part of this process. In this way “the decline in the number of Palestinian farmers as a result of land expropriation and other Judaization measures, and their transformation into wage-earners” occurred (Falah, 1991, pg. 75).

Through these processes Zionist and Israeli agricultural settlement, combined with existing market expansion and Mandatory agricultural policies, aided in the transition of Palestinian peasants. As Zureik writes:

Although it is true that the present distortion of the Arab [Palestinian] class structure in Israel is the outcome of a longer historical process...the fact remains that the post-1948 period has managed to transform Palestinian Arab peasantry into a lumpenproletariat (1979, pg 141).

Indeed while the transformation of Palestinian peasant life was part of a long trajectory of capital development, this processes was aided and quickened by Zionist and Israeli settler agriculture. This is not unprecedented, with a number of scholars citing colonial policies as part of agrarian change and ‘modernization’ within the global South. Moyo, Jha, and Yeros (2013) have discussed how the export of the agrarian question and capital penetration from the North to the South was tied to colonial efforts of industrialization and advancing what were seen as backwards modes of production. Here Zionist colonization efforts played a part in the agrarian change and transition within Palestine

This process of agrarian transition has also been occurring in the occupied territories, under the auspices of Israeli policy. While Israeli policy towards agriculture and other settlement forms, rather than direct agricultural settlement, has played a large role in this transition, recent increases in agricultural settlement within the West Bank have meant a greater part in this process. As with the transformation of agricultural production within Israel, both internal changes and dispossession through settlement have created change within the Palestinian agricultural economy in the occupied territories. One of these changes

is the shift from traditional field crops and fruit trees, like olives, to greater production of higher value fruits, vegetables, and flowers (Graham-Brown, 1990). There has been a large shift towards market orientation and more intensive, higher input production (Awartani, 1994). Farmers within the West Bank and Gaza have been pushed by Israeli policy, as well as international donor programs, and by the PA, to focus more on such high value, export oriented crops (Zurayk, Gough, Sourani, and Al Jaajaa 2013). One of the founders of the Palestinian agricultural support network, *Sharaka*, describes this writing that:

Farmers are trained to manage their farms according to international quality management standards. And they are inspired to produce high value cash crops such as cherry tomatoes and flowers in order to earn additional income in the external market. Rather than focus on food production for subsistence, and selling the excess on the local market (quoted in Meneley, 2014).

Again, while this pressure has more to do with policy than settlement agriculture itself, the recent growth and expansion of agricultural settlement within the West Bank has decreased the area of land available to Palestinian farmers, pushing them both to other professions and to more intensive production (Adwan, 2009; Palestine Economic Policy Research Institute, 2010; Farming Injustice Report, 2013). In these agrarian changes, Israeli agricultural settlement has played a role, while this role has been complementary to forces of capital expansion, it has aided the shifts within the Palestine agricultural economy.

B. Socio-Ecological Impacts of Agricultural Settlement and Agrarian Change

These changes from Zionist and Israeli settlement expansion have radically altered the agricultural socio-ecosystems that existed in Palestine. These alterations include a decrease in agro-ecological biodiversity within agriculture in Palestine, effects on Palestinian food security, and impacts from multiple, and large-scale shifts to intensive, high input agriculture.

With the growth of Israeli agricultural settlement and changes within Palestinian agricultural production, there was a decrease in use of traditional seed varieties. Instead the use of Israeli seed stock grew within agricultural operations, with large marketing of Israel seeds through seed distributors and chemical input companies. The larger use of hybrid varieties within Palestinian agricultural systems has led to a “loss of genetic diversification” and less “biological diversity” (Kurzom, 2001, pg. 16). More recently, practices of large Israeli seed companies have become more monopolistic, with exclusive use contracts where farmers may not save seeds from year to year. Describing this situation, one of the coordinators of the Palestinian Union of Agricultural Work Committees Local Seed Bank initiative said that often when Palestinians begin buying seeds with such obligations it makes for the “loss the right to reproduced their own seeds for the next season as they used to” and the that the “result in losing their local seeds” (Zayed, Do’a personal communication, June 2016). Palestinian agronomists like Saad Dagher estimate that high numbers of traditional varieties of products like figs and almonds have disappeared (Oberender, 2015). In addition to the historical grow of Israeli seed use, recently a number of large seed and bio-technology companies have dominated the seed market within Israel and the occupied territories.

Companies like Evogene, Kaiima, and Hazera Genetics have grown greatly in the past decades and have dominated seed markets, particularly with use of transgenic seed varieties (Kloosterman, 2014). This growth is connected, with companies like Hazera starting in a kibbutz in the 1930s and growing into an internationally traded seed company, with large market share in Israel (Amit, 2015).

The changes and shifting orientation within the Palestinian agricultural economy, that have been pushed by Israeli agricultural settlement, have led to decreasing use of traditional seed varieties. The greater use of hybrid and transgenic seeds has led to large losses of biodiversity within Palestinian social and agro-ecosystems. In the longer trajectory of agrarian change within Palestine, Israeli agricultural settlement has played a large role in the advancement of capital orientation within agriculture.

Recent growth of Israeli agricultural settlement and its impacts on changes within Palestinian agriculture have also had impacts on issues of food security. Food insecurity is defined by the World Food Program (WFP) as the inability of a state or household to obtain access to sufficient, safe, and nutritious food required to maintain a healthy livelihood. In 2012 over 20% of the population in the West Bank and 50% in Gaza were considered to be food insecure. A 2008 report by the WFP, FAO, and UNRWA stated that the:

The main driver of Palestinian food insecurity is of a political nature, as key elements of vulnerability are rooted in the military and administrative measure imposed by the Israeli occupation - closure regime, permits, destruction of assets - as well as settlement expansion and derived infrastructure multiplication - access to land and water, bypass roads, etc. (quoted in Ma'an Development Center, 2012)

While other elements of the Israeli occupation and policy are in play, the growth of agricultural settlement, water use, and its impacts on changing Palestinian agriculture have played a large role in this situation. One of these, which we have discussed, has been the large use of water by Israeli agricultural settlement, both within the occupied territories and Israel. Another is the lack of land access for Palestinian agriculture because of Israeli agricultural settlement expansion. Over a third of West Bank agricultural land is constrained by Israeli measures, included areas of existing agricultural settlement and closed areas of possible settlement expansion. In areas where Israeli agricultural expansion and land restriction have been higher, such as the Jordan Valley, there have been higher rates of food insecurity. In Area C, which includes the Jordan Valley, rates of household food insecurity were around 33% (Palestine Economic Policy Research Institute, 2012).

Such land and water restrictions from Israeli agricultural settlement have also combined with changing production within Palestinian agriculture. With less and less Palestinian agriculture focusing on crops for domestic consumption, and pushed more towards export commodities, there has been less agricultural production available for domestic consumption (Zurayk, Gough, Sourani, and Al Jaajaa 2013). For example, Palestinian production of wheat was halved between 2000 and 2010, cutting domestic availability of this staple crop (Ma'an Development Center, 2012). In addition, with growing rates of urbanization and movement out of agricultural employment, there have been fewer farmers available to increase domestic production. Through its impacts on changes within Palestinian agriculture and restricting Palestinian access to land and water resource, Israeli

settlement agriculture has been part of this growing food insecurity. Through this it threatens the maintenance of Palestinian livelihoods and socio-ecosystems.

Finally, another impact from changes within Palestinian agriculture and moving away from agricultural livelihoods has been degradation from more extractive, intensive agriculture. As discussed, before large-scale colonization and British Mandatory control, much of the agricultural production within Palestine was based on subsistence, with some selling of surplus. Although Palestine had begun to slowly open more to world markets, the majority of agricultural production was still for subsistence consumption. However, as Zionist agricultural settlement methods grew, and were supported by Mandatory policy and favor over Palestinian extensive methods, more land cover was converted to agriculture that required greater inputs such as more water for irrigation, synthetic fertilizers, and pesticides. As Israeli agricultural settlement expanded and as Palestinian agriculture began to focus more on high value, high input export crops, land under these forms of intensive cultivation grew. While we have already discussed some of these impacts, such as those to water resources, the environmental implications of this shift are large and varied and can be seen in many countries where agricultural production shifted from subsistence to greater industrialization. Here again this study must recognize its limits, understanding that only a few of these may be touched on. Suffice it to say that the varied impacts of the high input agricultural methods practiced by Israeli during its main period of agricultural development, from the 1950s to 1977, have already been critiqued by Israeli environmentalists and water managers (Tal, 2002; Tal 2006; Lipchin, 2006; Shuval, 2009). This last point would only like to highlight that this shift from subsistence to more extractive, high input, and market

oriented agriculture, although part of larger changes happening within the global economy, was ushered in by the growth and expansion of Israeli settler agricultural development.

C. Agricultural Settlement's Role in Changing Bedouin Livelihoods

Lastly, we can also observe the effects of settler agricultural development on Palestinian Bedouin socio-ecosystems and landscape impacts from these changes. This is separated from impacts on other Palestinian agriculture because of some of the unique livelihood forms of Bedouin populations. As discussed in the introduction, before the British Mandate and large-scale Zionist settlement, there existed in Palestine a large Bedouin population who engaged in semi-nomadic pastoralism, as well as some groups that cultivated land in a more semi-sedentary fashion. Generally, Palestinian Bedouin populations were concentrated in both the Southern Naqab and Northern Galilee area, with seasonal pasturing area in the lower and central Jordan Valley. Although there had been previous Ottoman efforts to alter this nomadic pastoral livelihood, large Bedouin sedentization did not begin until the British Mandate and more fully under Israeli forces. Although some have argued that Bedouin sedentization took a more linear path from 1870 (Levin, Kark, and Galilee), sedentary Bedouin populations were not the majority before the British Mandate. By 1931 the Mandatory census of Palestine recorded that 89% of Palestinian Bedouins as deriving their livelihoods mainly from settled agriculture and only 10.7% gaining their livelihood exclusively from raising livestock. In addition, within a decade of the creation of the Israeli state, those Bedouins who were not expelled had become completely sedentary (Falah, 1985). There were a number of factors that contributed to radical change in Bedouin

livelihoods, with Zionist and Israeli agricultural settlement being part of this rapid change. While we have discussed some of these processes in the previous historical analysis, here we may touch on a number of unique circumstances to Bedouin populations as well as their impacts on socio-ecosystems and their function within this landscape.

Both British Mandatory officials and Zionist planners viewed Bedouin nomadic lifestyle as backwards, uncivilized, and damaging to the landscape of the county, often called a “wasteful system of nomadic grazing” (Falah, 1991, pg. 291). Like with ending forms of *musha’a* tenure, Mandatory policy emphasized creating registered and settled parcels of land, which meant the encouraging of Bedouin settlement through the registration of land, encouraging settled cultivation, and limiting of tribal grazing area (Stein, 1984). Zionist agricultural settlement also had a large part in the transformation of Bedouin lifestyle. Writing to WZO leader Chaim Weizmann, the British High Commissioner Herbert Samuel remarked that Zionist settlement and immigration was causing “complete revision of the present system of tenure and the abolishment of old tribal grazing rights and customs” (quoted in Falah, 1991, pg. 291). There were a number of reasons why Zionist land purchase and settlement began to impact Bedouin traditional grazing. One was that, like with other Palestinian agriculturalists who were tenants on the land of large land owners, these populations were cleared after Zionist land purchase. In addition, early Zionist land purchase often targeted easily acquirable land or lands that had little population within them. However, many times while this land may have had no permanent settlement within it, it had been used by Bedouin populations for semi-sedentary cultivation and grazing, on which now they were restricted (Falah, 1991).

While Zionist land purchase before the later 1930s hadn't expanded greatly into the Southern Naqab, after 1939 greater agricultural settlement was established in attempt to cement claims over the Naqab area. Between 1939 and 1947, some 25 agricultural settlements were established within the Naqab area. Many of these settlements were also of larger size than those established in the coastal and Northern areas of Palestine, because of initial extensive Zionist cultivation (Kark, 1983). This similarly limited the area of Bedouin grazing and cultivation.

During the war of 1948 much of the Bedouin population was expelled from the newly created state, with many pushed to neighboring countries. After the war only between 10,000 and 11,000 Bedouins remained within the Southern Naqab and 5,000 within the Northern area distributed among 19 tribes (Falah, 1985). In addition, Bedouin populations continued to be expelled after the war, with some tribes being pushed from the country in the mid 1950s (Goering, 1979). After the war the Naqab was put under military administration and the remaining Bedouin populations were moved to closed areas within the Northern and Central Naqab and small areas in the Galilee, only accounting for about 10% of the area previous occupied by these groups. Like with the expulsion of the majority of the Palestinian population, one of the motives behind this action was the clearing of the population to gain access to land for settlement. Illustrating this point, the one of the first military governors of Naqab, Michael Hanegbi, discussing the expulsion of al-Araqrib tribe from the Rahat region of the Naqab states that, "The Bedouins control an area of around 100,000 Dunams of fertile land in that area, which stands in the way of planning more dense settlement in the area and further development" (quoted in Gazit, 2013). Further, talking of the early settlement development in the Naqab Ben-Gurion remarked that "Naqab land is reserved for Jewish

citizens, whenever and wherever they want [...] we must expel Arabs and take their places... but in order to guarantee our own right to settle in those places” (quoted in Nasasra, 2012).

During the next decades the state proceeded in a number of activities to limit Bedouin grazing and force sedentization of the remaining populations. This included the activities of the Green Patrol and enforcement of the Black Goat law, discussed in earlier sections, and the creation of closed military zones and the confiscation of Bedouin claims of miri and mawat land. In addition, Bedouins living outside recognized settlement areas, in unrecognized villages, are continually at threat of having their crops destroyed, their flocks confiscated, and their houses demolished (Falah, 1985; Nasasra, 2012). This clearance made way for the growth and development of Israeli agricultural settlement and, as mentioned, this process remains on going with the recent Praver plan for the removal and resettlement of large numbers of Bedouins within the Naqab. The recent growth of agricultural settlement within the Naqab has continued to be part of this tool to keep Bedouin off contested “state” land.

D. Impacts from Changing Bedouin Livelihood Patterns

In this rapid transformation of Bedouin livelihoods, Zionist and Israeli agricultural settlement has been essential, from being a driving force behind Bedouin land clearance, to holding and confiscating this land. This large transformation of Bedouin lifestyle and their replacement with other forms of more intensive cultivation and land cover have led to large environmental shifts.

Firstly, in its role in Bedouin removal and sedentization agricultural settlement has aided in greatly altering the livelihood forms of Bedouin has greatly damaged the functioning of these socio-ecosystems. Bedouin livelihoods were “adapted to natural cycles and seasons of the desert” allowing for years continued subsistence in arid and hyper-arid environments (Abu Rabia, Solowey; and Leu, 2008, pg. 354). As a result and in addition to the human damage to Bedouin lives, the breaking down of these socio-ecosystems has resulted in a number of environmental consequences in the landscape. Despite the belief of British Mandatory officials and Zionist planners that “primitive’ Bedouin grazing practices (Atran, 2005) had caused the degradation of land, recent environmental scholarship has shown the advantages and environment harm resulting from the removal of Mediterranean land from active management such as grazing. A number of ecologists working in Mediterranean and Arid environments within the Middle East have described how agricultural practices like grazing have been dominant feature in shaping the landscape of these areas over the last 7,000 years (Zohary, 1962; Perevolotsky, 1999; Perevolotsky, 2005). Perevolotsky has described arid and semi-arid ecosystems of the Middle East as “fundamentally grazing-determined systems” whereby “grazing by domestic livestock has become a principal ecological driving force” and that landscapes in the region are “quite adapted or resilient to livestock grazing, due to a long history of co-evolution” (1999, pg. 3,7). In this way Bedouin socio-ecosystem have long been part of adaptive livelihood strategies that have shaped and alternately been shaped by their surrounding landscape. While of course over-grazing has long been part of environmental degradation such as vegetation loss and soil erosion, in these grazing adaptive landscapes “despite heavy use, the resulting system is stable and resilient” (Perevolotsky, 1999, pg. 6)

The removal and alteration of Bedouin grazing systems, which had served as active management of semi-arid shrubland and forest and continued to provide subsistence on arid lands, has created a number of environmental issues. One of these is large, damaging forest fires related to the built up of forest litter and changes in vegetative succession. With the restriction of grazing in JNF afforestation projects, and existing forests within Palestine, over the years there has been an increase in the build up of forest litter that has led to increased risk and occurrence of forest fires. This is particularly acute in the dry and mainly *pinus halepensis* forest areas. In reducing and preventing this increase in forest fires, “grazing could efficiently reduce understorey biomass in... planted forests, thus satisfying fire control standards” (Rueff, Kressel, and Schwart, 2004, pg. 114). While the setting of forest fires has also been an act of resistance by Palestinians against the use of forests as a land holding and clearance method (Braverman, 2009) it seems that by changing traditional grazing practices the Israeli state has had already put new and existing forests in a vulnerable state. Quite ironically the JNF has recently started employing Palestinians and Palestinian Bedouin pastoralists to graze their flocks in forested areas as a means of fire prevention (ibid). In this way the limiting of Bedouin grazing, of which the creation of agricultural settlements has been an important tool, has increased the instances of such forest fires and lessened the resilience of these forest ecosystems.

Another related impact is the effect that the removal of these traditional grazing practices has had on vegetative succession in the country’s low shrubland. Large areas of *garrigue* and *maquis* shrubland, made up of low lying grasses, bushes, and occasional trees, cover great areas of Palestine’s landscape. Many studies of management of Mediterranean woodland have shown that grazing causes “directional successional sequences leading to

shifting mosaics, thus contributing to the desired management for conservation” (Perevolotsky, 2005, pg. 207). With the removal of long standing disturbances, rapid woody growth often dominates and leading to less vegetation diversity within these areas. Other studies have suggested that in such Mediterranean climates, where grazing and other disturbances have shaped the landscape that, one of the main ways to conserve the ecosystem health of these areas and maintain high species diversity is through regimes of continued disturbances like grazing (Green, 1986).

Through the transformation of Bedouin livelihoods and the damage to this socio-ecosystem, Zionist and Israeli agricultural settlement, combined with tools such as afforestation, have impacted the health and functioning within these woodland and shrublands. By clearing and excluding native inhabitation in these environments there have been large changes within these landscapes. While recent Israeli activities, such as savannization and greater dry-farming within the Naqab, have attempted to more greatly adapt these settlement tools to the environment, by excluding local populations who had an active role in the shaping of these environments, it seems that these attempts at more ‘sustainable’ settlement are bound to continue environmental damage.

CHAPTER 12

FROM WHEAT AND OLIVES TO FODDER AND PINE: CHANGES IN LAND COVER/LAND USE

A. Land Cover/ Land Use Change and Agricultural Settlement Over Depopulated Villages

Throughout this work has argued that embedded within Zionist and Israeli settler agricultural expansion was a notion of changing the landscape. In this final section we will look at some of the changes in land cover/land use that occurred as the result of settler agriculture within Palestine. This examination will be more qualitative than quantitative, as mapping of land cover/land use change within Palestine over the history of Zionist and Israeli colonization is beyond the scope of this study.¹⁴ In order to look at land cover/land use change this section will take the proxy of changes from Palestinian agricultural and pastoral communities and their replacement with various forms of Zionist and Israeli agricultural settlement. This section will examine this historically, looking at land cover/land use change from the mid 1940s before rapid Israeli agricultural settlement to the height of Israeli agricultural settlement land cover in 1967.

To do this maps were used from Kadman (2015), which show areas where Israeli agricultural settlement took place on, partially on, or bordering former Palestinian villages. These maps were digitized and georeferenced using ArcGIS (v. 10.3). This data consists of those Palestinian villages that were depopulated before and during the war of 1948 and the agricultural settlements built in the proceeding years, mostly between 1948 and 1956, and is based largely on the numbers of Khalidi (2006) and Morris (1989). These do not include

¹⁴ For other investigations on land cover/land use mapping in Israel/Palestine see Orenstein and Hamburg's work at Brown University

Palestinian agriculture that was displaced by Zionist land purchase before Palestinian expulsion surrounding the creation of the Israeli state. This mapping and agricultural categorization was also aided by comparative georeferencing of maps from Weintraub, Lissak, and Azmon (1969) and Nijim (1984). These depopulated villages were then cross-referenced with their previous agricultural land use from Khalidi (2006). In addition, the agricultural production of the subsequent Israeli settlements were identified mainly through the websites of individual kibbutz and moshav that are freely available online¹⁵. In addition, because Bedouin villages and tent areas are not included in Kadman and Khalidi's numbers, mapping of these changes were gained from other sources. A Mandatory Survey Map, obtained from Levin, Kark and Galilee (2010) showing the position of Bedouin tent settlements within the Naqab was georeferenced and Israeli agricultural settlements from Weintraub, Lissak, and Azmon (1969) were overlaid upon it. Similarly, Falah's map of Bedouin villages within the Northern Galilee (1985) were digitized, georeferenced, and overlaid with agricultural settlement mapping from Weintraub, Lissak, and Azmon (1969). Lastly a Mandatory land cover/land use map, obtained from Kadman (2006), was also digitized and georeferenced in order to give a larger view of the land cover/land use of Palestine before the war of 1948. While this gives a limited picture of land cover/land use change, it can still provide an insight into the ways that agricultural settlement has changed the landscape of Palestine.

As we have discussed in chapter 2, prior to large-scale Zionist settlement, Palestine's agricultural landscape was composed of largely rain fed agriculture, varying by topography

¹⁵ While not the study was not able to find the agricultural production of each individual Israeli agricultural settlement, one can also infer use from larger land cover provided in the Israeli Statistical Abstracts

and climate. Below is a Mandatory land classification map, showing this varying land cover/land use in 1945, slightly before the end of the Mandate and large expulsion of Palestinians by Zionist forces. Here we can see that the agricultural cover of the Northern and Central mountains were mainly dominated by cereals (largely wheat and barley), olives, grape vineyards, and other fruit trees, planted mainly in terraced slopes. Then as we move towards the more arid south, there were large areas of cereal production complemented by crops such as melons. This then gives way to highly arid Naqab where there was seasonal grazing and small-scale cultivation when precipitation allowed. Use along the bordering Jordan valley consisted largely of seasonal grazing and pasture land with some irrigated cultivation near the Jordan River. Finally, in this map we can also already see some transformation of land use from existing Zionist agricultural settlement. In the coastal areas, while Palestinian citriculture had already existed and was expanded, it was competing with growing Zionist citrus growing. These areas of intensive cultivation and irrigated agriculture greatly overlap with Zionist owned land and give a visual representation to the expanding of Zionist intensive agricultural methods. While these observations are quite general, we may ground them by looking at the more specific changes where Israeli settlement replaced and was established over existing Palestinian villages.

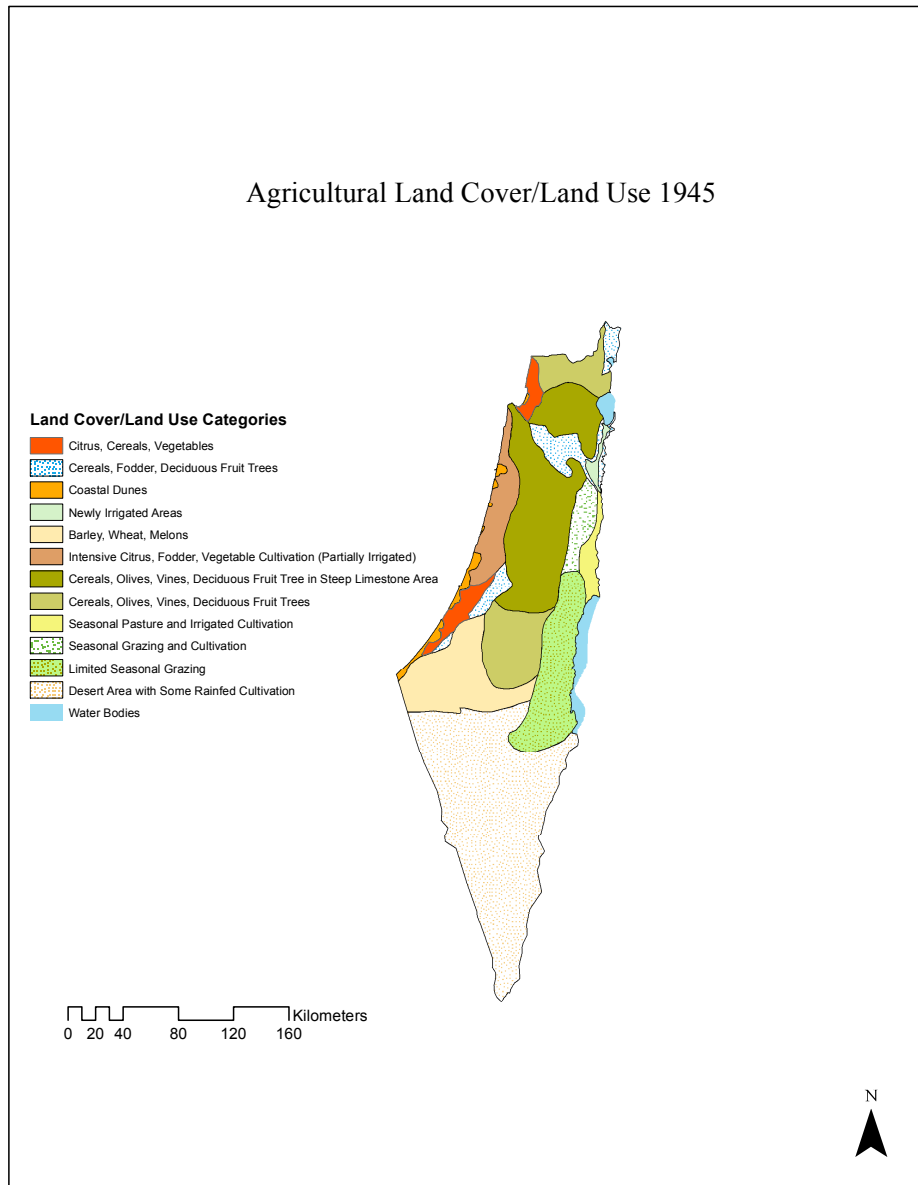


Figure 12.1: Agricultural Land Cover/Land Use 1945

We can further ground this general look at Palestine’s land cover/land use by looking at the areas where Israeli agricultural overtook Palestine village. Based off of Kadman’s study of Palestinian depopulated villages, at least 62 Israeli agricultural settlements were

established over, partially over, or bordering formerly Palestinian villages.¹⁶ A full list of these villages, the later settlements, and their agricultural production is available in the appendix. Of these 62 Palestinian villages that were cleared before and during the war of 1948, 61 are listed as having cereals as their main agricultural product, with it usually taking up the largest agricultural area in the village. One third of these villages had large areas of olive tree production, usually accounting for the second largest amount of agricultural land in the village. Other fruit tree orchard production such as fig, almond, and apple was present in 36 of the villages, with 8 of the villages also engaging in viticulture. 18 of these villages were involved in citrus production, mainly in the Southern coast of the Gaza district and Northern Acre district, with Zionist viticulture dominating in the central coast. In 10 of the villages other temperate agricultural products like bananas were also grown, similarly this was mainly in coastal villages along side citrus. These staples of Palestinian agricultural production were complemented by a range of other crops such as melons, tomatoes, and sesame. Besides this field production, 13 of the villages were listed as engaging in some form of animal husbandry, raising goats, sheep, or cattle. These villages are greatly representative of Palestinian agricultural land use, with large areas planted in wheat; fruit trees, particularly olive, and supplemented by animal husbandry and vegetable production making for a part subsistence, part surplus economy that had characterized Palestine's agricultural economy (Nadan, 2006).

From these patterns of land cover/land use we can see a large transformation under Zionist agricultural settlement. We may discuss generally some of these larger changes

¹⁶ Kadman's numbers are slightly higher as a number of settlements were excluded because they never had significant areas of agricultural production

within Israeli agricultural expansion after the creation of the state, and then move on to talk specifically about land changes within the former Palestinian villages. In observing these changes, we can again see the combined use of agricultural settlement and forestry as dual methods of land control and landscape change. In comparing these changes this study will look at land cover/land use in 1967, with data on agricultural land taken from the Israeli Central Bureau of Statistics Statistical Abstracts for the years discussed. This date is useful as in this year cultivated agricultural area peaked, declining afterward. Also by this date, with one exception, all of the agricultural settlements that specifically overtook Palestinian villages had been established for more than a decade.¹⁷

In 1967, Israeli agricultural settlement had expanded to cover around 16% of the state's area, or 3,390,000 dunums of cultivated land¹⁸. Of this, about half the cultivated land was irrigated. While within this cultivated land large areas were still devoted to cereals, there were increases in areas for fodder crops, vegetables, industrial crop production, and fruit tree area. These are indicative of the agricultural planning of the moshav and kibbutz models whose variants relied heavily on dairy, highly value vegetable crops, and industrial field crops like cotton and sugar beets. Complementing this expansion, Israel and Zionist organizations had afforested around 500,000 dunums of the country. This afforestation was 64% confers, almost exclusively pine.

Thus around 19% of land of the state was covered by Israeli agricultural settlement or afforested area by 1967. Of this changed agricultural land cover, again while wheat still made

¹⁷ The moshav of Shilat was established in 1977

¹⁸ Excluding the Palestinian territories, the Golan Heights and East Al-Quds, the area of the state of Israel is 20,770,000 dunums

up a large portion of Israeli agricultural settlement, 802,352 dunums in 1967, other new crop strategies had expanded. One of these areas was the growing of alfalfa hay and green fodder, greatly used as animal feed in expanding settlement dairies. In 1967, the areas of planted hay and green fodder were 469,440 dunums or 14% of the total cultivated area of agricultural settlement. By contrast, Palestinian agriculture at this time had less than 5,000 dunums planted in both hay and green fodder. While large area was also planted in barley, 385,031 dunums, almost all of this planting, 306,982 dunums, was by Palestinian agriculturalists. As far as industrial crops, 294,842 dunums of cotton and 48,371 dunums of sugar beets were planted during this time, exclusively by Israeli settlements. 160,512 dunums of vegetables were planted, with the largest of these crops being potatoes, tomatoes, cucumbers, and peppers. Lastly, fruit plantations made up 752,000 dunums of land, during this time, as plantation growth of fruit trees, particularly citrus had continued to growth after the creation of the state. From 1949 to 1967 settlement agricultural area under fruit tree production tripled and citrus production quadrupled.

In these areas of cultivation we can observe large changes within land cover/land use in Palestine with the expansion of Israeli agricultural settlement. While wheat remained as part of a large percentage of agricultural land cover, other traditional staple crops like barley declined, with little use of this in settlement agriculture. In addition, the large increase in hay and fodder crops, which had made up little agricultural area before Israeli settlement, now made up a 14% of all cultivated settlement land and 2% of the total land area of the state. Also increases in industrial crop area of cotton and sugar beets, which had not largely been cultivated before Israeli agricultural settlement expansion. While area under fruit tree production grew, much of this increase was in citrus, with decline and stagnation of

traditional fruits trees like olive. Except for their very recent use by Israeli religious settlers in the West Bank and early on in the Zionist project,¹⁹ olive trees have largely been excluded from Israeli settler agriculture. Throughout much of the expansion of Israeli agricultural settlement olive trees have been a target for uprooting and destruction. As the olive tree was often seen by Zionist and Israeli planners as a symbol of Palestinian backwardness and additionally as a threat of possible Palestinian claims on lands, many olive trees were uprooted in the creation of Israeli agricultural settlements (Benvenisti, 2000; Abufarha, 2008; Braverman, 2010). While it is difficult to find exact numbers for olive tree area, as the Israeli Statistical Abstracts do not list them separately from other fruit trees, we can infer olive trees were generally excluded from this expansion of fruit tree area. In these ways we can see large shifts in the land cover/land use of Palestine with the stagnation of traditional staples of Palestinian agriculture like barley and olive trees, and growth in the areas of crop strategies built into Israeli agricultural settlements like animal fodder, industrial crops, and high value fruits and vegetables.

¹⁹ In some of the its earliest activates the JNF created the Olive Tree Fund for planting work in Palestine, but this quickly gave way to other types of settlement

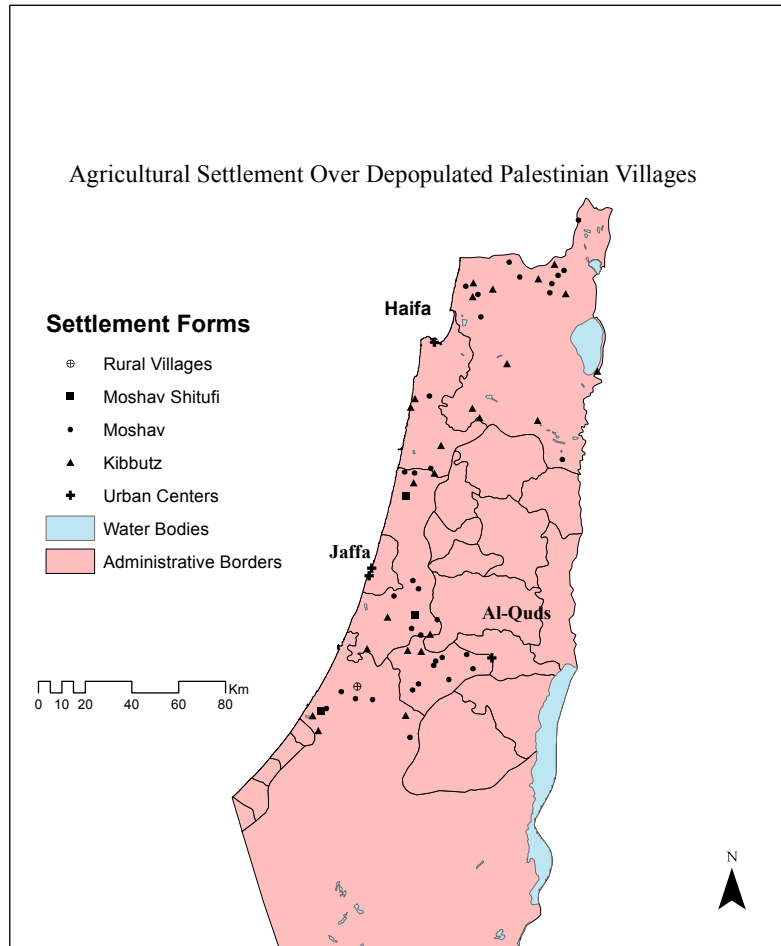


Figure 12.2: Agricultural Settlement Over Depopulated Villages

Again we can hone in on these changes by looking at the land use of those Israeli agricultural settlements that overtook Palestinian villages cleared after 1948. Of these 62 agricultural settlements 26 were established as kibbutz, 30 as moshav, 3 as moshav shitufi, and one rural village, which was the conglomeration of nearby farms and a regional center. Within the agricultural production of these settlements, for which data was available,²⁰ 42% of these engaged in dairy production, indicating the growing of hay and green fodder. 15% of these settlements grew citrus, 13% cultivated banana trees, another 13% grew avocados, and

²⁰ For 24 of these settlements no reliable data was available on their agricultural production

21% grew other fruit trees with their variety unspecified. 16% of these settlements grew cotton or another industrial field crop and 31% engaged in poultry farming. This is consistent with Weintraub et al's (1971) account of the type of agricultural settlements established in the 1950s, showing that majority of those established during this time were of mixed dairy production, followed by those based on field and industrial crops, and then mountain settlements based on poultry and field crops. Again while this is a limited view of changing land cover/land use, one can observe the large differences in production of Palestinian villages in the 1940s and Israeli agricultural settlements after their establishment in 1967. While we have seen indications from these changes in land cover/land use in other areas, such as greater irrigated fodder, vegetable, and fruit trees directing Israeli over pumping of water resources, here we can see more specifically how Israeli agricultural settlement changed land cover.

B. Land Cover/ Land Use Change in Bedouin Areas

Lastly, we can also look at these changes in areas where Israeli agricultural settlement overtook Bedouin agricultural and grazing activity in the Southern Naqab and Northern Galilee. Here while it is difficult to give any quantitative values to these changes we may observe where Israeli agricultural settlement overtook areas of Bedouin grazing and agricultural area in the main areas of Bedouin population, the Northern Galilee area and the Naqab.

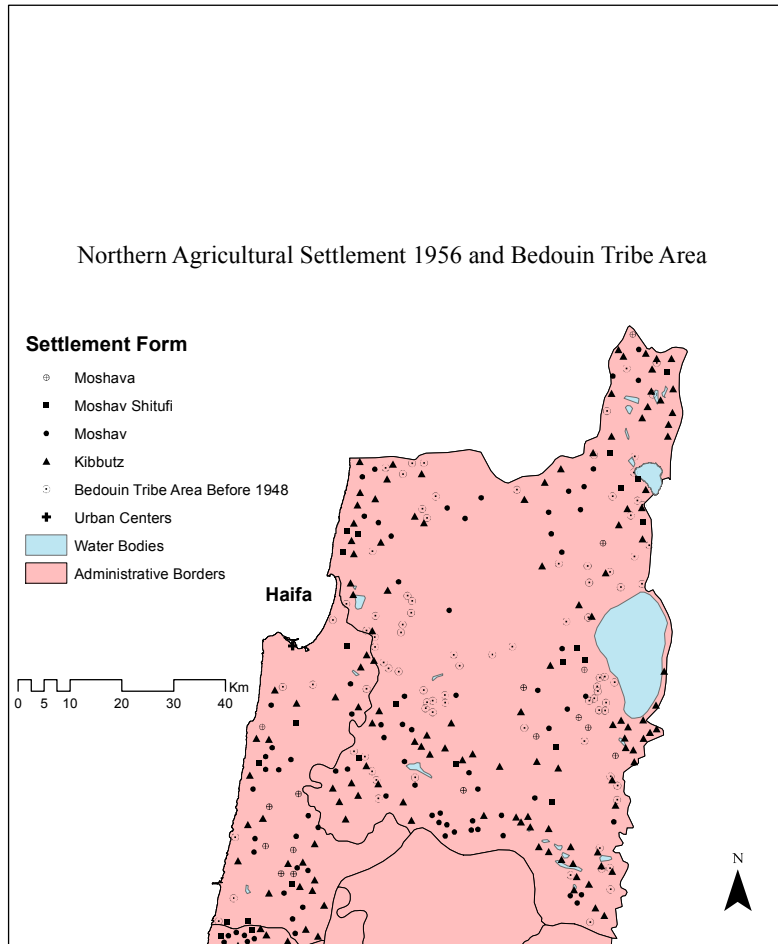


Figure 12.3: Northern Agricultural Settlement 1956 and Bedouin Tribe Area

First looking at the Northern area of the country, one can see that there are a number of areas where Israeli agricultural settlement up to 1956, was established near or over areas where Bedouin tribes had previous existed. It seems largely that kibbutzim in the Northern Hula area, South of Lake Tiberias, and on the border Southern border of the Haifa district were established near and on areas of former Bedouin areas.

Agricultural Settlement Naqab 1956 and Bedouin Tribe Area

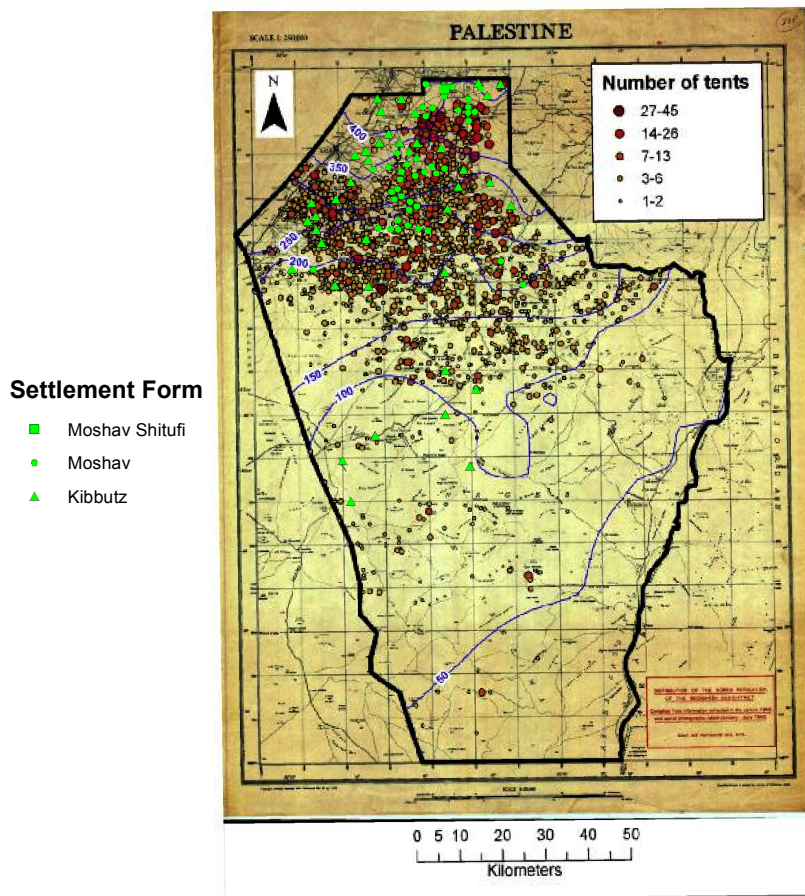


Figure 12.4: Agricultural Settlement in the Naqab and Bedouin Tribe Area

In the Southern Naqab, one can observe patterns of Israeli settlement mainly in the Northern portion of the Naqab. Here there is a large concentration of moshav and kibbutz settlements built over and near areas of observed Bedouin settlement, before 1948. As far as the land cover/land use implications from these changes of settlement pattern we can again discuss the differences in agricultural livelihood production of Palestinian Bedouin and Israeli agricultural settlers. In these areas of more concentrated Bedouin dwelling, the Northern and Southern portions of the country, land use was likely characteristic of Palestinian Bedouin “distinctive pattern of land-use specialization” with large pastoral

grazing area and areas of cultivation, mainly in cereals (Falah, 1991, 295). However land use/land cover transformation coming from Israeli agricultural settlement likely took the form of planned agricultural settlement models. In this way, the pastoral land and season rain-fed cultivation of these previous Bedouin areas was transformed to the more intensive production of the settlement forms of the kibbutz and moshav, relying on production of industrial field crops, high value fruits and vegetables, increasingly irrigated fodder for dairy, and poultry production. We have already discussed some of the other issues that stem from the change in Bedouin land use patterns, but here we can visualize some of the land cover changes, and their projection on the landscape.

In these ways Israeli agricultural settlement has had a large place in changing the land cover/land use patterns of Palestine. Combined with Zionist and Israeli afforestation efforts these activities have accounted for direct landscape changes in a large portion of Palestine. The shifting land cover/land use patterns stemming from Israeli settlement activities helped change the landscape of Palestine from being characterized by grazing area of low-lying scrub and grass land, vast areas of extensive wheat and barley cultivation, and terraced hills lined with olives, figs, and almond trees, to one of smaller intensive cultivation plots, large areas of hay and irrigated fodder, and growing monoculture pine forest. While the land use/land cover patterns of Israeli agricultural settlement have also been subject to change, with many of the agricultural kibbutz and moshav shifting to activities such as manufacturing, real estate development, tourism, or newer specialized agricultural production, in this section we can see a more visual representation how Israeli agricultural settlement impacted changes on the landscape of Palestine.

CHAPTER 13

CONCLUSION AND FINAL REMARKS

Like any tool, agriculture is neutral, and it is the ends, objectives, and forms of use that determine its outcomes and results of its development. Throughout this work we have seen that one of the main and largest reasons behind the advance and growth of Zionist and Israeli agricultural development was to gain control of and settle land. For decades agricultural settlement remained the privileged tool used in the settlement of the land of Palestine. In this use Zionist and Israeli agriculture was influenced and shaped by forces within world markets and large structures of agricultural trade, dominant ideas around water management and development, and the narratives and strategies of other settler colonial nations. In its early development we saw how Zionist agricultural production was shaped by the colonial center-settler colony relationship, where agricultural production of exotic and temperate crops like oranges were directed back mainly to the center of Britain. Also how this development was given direct guidance from experts and consultants from other settler powers. Later on, Zionist agricultural development began to shift into a more fully-fledged state agriculture, mirroring other settler states, and producing more durable agricultural commodities that could feed into larger food chains. This rapid expansion of state agriculture took the form of family farm moshav units, similar to the model suggested and exchanged through US settlement strategies. Within this growth exported ideas of hydraulic development supported the expansion of settlement agriculture. More recently changes within global agricultural markets and shifting paradigms around water management pushed the decline in the use of agriculture as a tool of settlement and its fall from the privileged

place of settlement. Also within the recent resurgence of Israeli agricultural settlement, we continue to see the shaping forces of global agricultural markets and new logics within recent water paradigms that allow for novel water creation for agricultural settlement.

In addition, while trying to change and reshape the landscape of Palestine, agricultural settlement was of course also shaped by the existing landscape of the country. In this way the adoption and influence of other settler models and strategies were adapted into changing the local landscape. The arid and hyper arid conditions of the Southern portion of Palestine made it so that to carry out intensive agricultural settlement, large irrigation and water diversion was necessary. The steep mountain areas of the country where it was difficult to implement previous forms of agricultural settlement, were part of the reason behind the decline of agricultural settlement use after 1977. The goal of conquering a land perceived as barren and wasted, fueled the rhetoric of Zionist and Israeli planners, seeking to work toward the “struggle between the desert and civilisation” (Granott, 1956, pg. 59). However this landscape was not a blank slate onto which a new one could easily be projected. The landscape of Palestine was the host of varying socio-ecosystems of dynamic and adapted livelihoods, complex systems of tenure, and long traditions of agricultural production. By rapidly removing a vital part of these previous socio-ecosystems, that being the people who had been active parts of shaping the landscape, and replacing them with new modes of livelihood production, Israeli agricultural settlement radically altered the previous socio-ecosystems of Palestine and the landscape they shaped.

While in the growth and development of agricultural settlement, Israel was influenced and shaped by global agricultural markets, water paradigms, and the narratives and strategies of other settler nations, during this development the agricultural model that came out of these

processes was curved by its use within the landscape of Palestine. Because of this, Israel has exported its model of settler agriculture back out both to the other settler nations and to developing nations, touting it as an effective model of agricultural development in arid environments. In this way the exchange of settler strategies became dialectic whereby Zionist and Israeli agriculture were shaped by the strategies of other settler nations and later Israel dispersing its own experience with settler agricultural development.

It is hoped that this work will encourage more scholarship on how settler colonial developments have impacted not only the indigenous peoples of colonial areas, but also the ecosystems and landscapes of these places. Also this study has striven to demonstrate the central importance of examining the settler colonial structure underlying settler development. It is also hoped that the framework of this study, taking into account global agricultural markets, paradigms around water development, and shared settler narratives, ideas, and strategies can be helpful in better understanding these settler colonial projects.

APPENDIX

Depopulated Palestinian Villages and Agricultural Land Use	
Palestinian Village	
Name	Type of Agriculture
Al-Manshiyya	Cereals, Fruit Trees
Khulda	Cereals, Vegetables, Animal Husbandry
Al-Kabiri	Cereals, Citrus, Bananas, Olives, Other Fruit Trees, Animal Husbandry
Al-Tantura	Cereals, Citrus, Bananas, Olives, Vegetables, Fishing
Khirbat Jiddin	Animal Husbandry, Cereals
Al-Samra	Cereals, Fruit Trees
Umm Al-Faraj	Cereals, Citrus, Bananas
Khirbat Bayt Lid	Cereals, Vegetables, Olives, Other Fruit Trees
Al-Sumayriyya	Cereals, Citrus, Bananas, Vegetables, Sesame
Sa'sa'	Cereals, Olives, Other Fruit Trees, Vineyards
Wadi 'Ara	Cereals, Animal Husbandry
Bayt Jibrin	Cereals, Olives, Other Fruit Trees
Qumya	Cereals, Fruit Trees
Suba	Cereals, Olives, Other Fruit Trees
Dimra	Cereals, Citrus, Bananas
Hirivya	Cereals, Citrus, Bananas, Vineyards, Sugar Cane
Al-Safariyya	Cereals, Citrus, Bananas, Vegetables (mainly tomatoes)
Al-Ghubayya Al-Tahta	Cereals, Fruit Trees
Saffuriyya	Cereals, Olives, Other Fruit Trees
Al-Qubab	Cereals, Vegetables, Fruits
Al-Dawayima	Cereals, Maize, Figs, Vineyards
Bir Salim	Cereals, Citrus, Animal Husbandry
Bayt 'Affa	Cereals, Vineyards
Saliha	Cereals, Fruit Trees
Daniyal	Cereals, Olives, Citrus
Kuwaykat	Cereals, Olives, Other Fruit Trees, Melons
Wadi Qabbani	Cereals
Khirbat Al-Majdal	Cereals, Fruit Trees
Wadi al-Hawarith	Cereals, Animal Husbandry, Grazing
Julis	Cereals, Citrus, Bananas, Vegetables
Rantiya	Cereals, Citrus, Bananas, Vegetables
Al-Sawafir Al-Sharqiyya	Cereals, Citrus, Vineyards, Other Fruit Trees
Jusayr	Cereals, Fruit Trees
Amqa	Cereals, Fruit Trees
Dayr Al-Qasi	Cereals, Fruit Trees

Tarbikha	Cereals, Fruit Trees
Biriyya	Cereals, Fruit Trees
Al-Tira	Cereals, Fruit Trees, Animal Husbandry
Kafir Lam	Cereals, Fruit Trees, Animal Husbandry
Salbit	Cereals, Fruit Trees, Animal Husbandry
Artuf	Cereals, Fruit Trees, Bees, Vineyards, Animal Husbandry
Mirun	Cereals, Olives, Animal Husbandry
Safsaf	Cereals, Olives, Other Fruit Trees
Alma	Cereals, Olives, Other Fruit Trees
Shilta	Cereals, Olives, Other Fruit Trees, Animal Husbandry
Al-Birwa	Cereals, Olives, Other Fruit Trees, Melons, Sesame
Bayt Mahsir	Cereals, Olives, Other Fruit Trees, Vineyards
Bayt Naqquba	Cereals, Olives, Vineyards
Al-Lajjun	Cereals, Vegetables, Citrus
Al-Barriyya	Cereals, Vegetables, Melons, Bee Keeping
Al-Jalama	Cereals, Vegetables, Melons, Citrus
Barbara	Cereals, Vineyards, Almonds, Fig, Olives, Citrus, Melon
Al-Jura	Cereals, Citrus, Bananas, Other Fruit Trees, Vegetables, Fishing
Ishwa'	Cereals, Olives, Other Fruit Trees
Hunin	Cereals, Fruit Trees
Al-Jiyya	Cereals, Citrus, Bananas, Other Fruit Trees
Ijzim	Cereals, Olives
Ajjur	Cereals, Olives, Animal Husbandry
Al-Ras Al-Ahmar	Cereals, Olives, Citrus, Other Fruit Trees
Allar	Cereals, Olives, Vineyards, Vegetables
Bayt Jiz	Cereals, Vegetables, Figs, Almonds, Olives
Bashshit	Cereals, Fruit Trees, Citrus, Olives

Israeli Settlements Established Over Villages and Agricultural Land Use

Settlement Name	Settlement Type	Area
Giv'at Haim	Kibbutz	Settlement Agriculture
Mishmar David	Kibbutz	Avacados, Citrus, Dairy, Poultry
Kabri	Kibbutz	Avacados, Maize, Vineyards
Nachsholim	Kibbutz	Bananas, Avacados
Yehi'am	Kibbutz	Bananas, Avocados, Cotton, Aquaculture
Ha'On	Kibbutz	Bananas, Citrus, Avacados, Dairy, Poultry, Wheat, Cotton
Ben 'Ami	Moshav	Bananas, Dates
Nordia	Moshav Shitufi	Dairy
Sdei Trumot	Kibbutz	Dairy
Sasa	Kibbutz	Dairy, Beef Cattle
Barkay	Kibbutz	Dairy, Beef Cattle, Citrus, Avacado, Apples, Kiwi
Beit Guvrin	Kibbutz	Dairy, Beef Cattle, Poultry, Avacados, Field Crops,

Ein Harod Ihud	Kibbutz	Dairy, Beef Cattle, Poultry, Field Crops
Tsuba	Kibbutz	Dairy, Citrus
Erez	Kibbutz	Dairy, Cotton
Karmia	Kibbutz	Dairy, Fruit Trees
Kfar Chabad	Moshav	Dairy, Poultry
Mishmar Ha'Emek	Kibbutz	Dairy, Poultry, Citrus, Field Crops
Tzipori	Kibbutz	Dairy, Poultry, Fruit Trees
Mishmar Ayalon	Moshav	Dairy, Sheep Raising
Amatzya	Moshav	Dairy, Vegetables, Fruit Trees
Netzer Sereni	Kibbutz	Field Crops
Yad Natan	Moshav	Field Crops, Citrus, Vineyards, Dairy, Poultry
Yir'on	Kibbutz	Flowers
Kfar Daniel	Moshav Shitufi	Fruit Trees
Beit Ha'Emek	Kibbutz	Fruit Trees, Poultry, Field Crops
Ha'Ogen	Kibbutz	Greenhouse Agriculture
Sde Yitzhak	Moshav	Melons
Ge'ulei Teiman	Moshav	Melons
Hodaya	Moshav	N/A
Nofech/Rinatia	Moshav	N/A
Merkaz Shapira	Rural Village	N/A
Menucha	Moshav	N/A
Amka	Moshav	N/A
Elqosh	Moshav	N/A
Shomera	Moshav	N/A
Biria	Kibbutz	N/A
Bareket	Moshav	N/A
HaBonim	Kibbutz	N/A
Sha'alvim	Kibbutz	N/A
Naham	Moshav	N/A
Meron	Moshav	N/A
Sifsufa/Kfar Hoshen	Moshav	N/A
Alma	Moshav	N/A
Shilat	Moshav	N/A
Ahihud	Moshav	N/A
Beit Me'ir	Moshav	N/A
Beit Nekofa	Moshav	N/A
Megiddo	Kibbutz	N/A
Beit		
Hashmonay/Azaria	Moshav	N/A
Lehavot Haviva	Kibbutz	N/A
Mavki'im	Moshav Shitufi	N/A
Ora	Moshav	N/A

Eshta'ol	Moshav	Poultry
Maragaliot	Moshav	Poultry
Ge'a	Moshav	Poultry, Fruit Trees
Kerem Maharal	Moshav	Vineyards
Agur	Moshav	Vineyards
Kerem Ben Zimra	Moshav	Vineyards
Mata'	Moshav	Vineyards
Har'el	Kibbutz	Vineyards
Aseret	Kibbutz	Vineyards

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