Chapter 5

National Planning in a Small Country: Challenges and Innovation

*"It is small, our land, and how great are its troubles ".*

S. Y. Agnon**,** *Only Yesterday* [[1]](#footnote-1)

*“Vulnerability is the birthplace of…creativity“*
Brene Brown, *Dearing Greatly*[[2]](#footnote-2)

The geography and demography of the State of Israel present its government with unique challenges. Israel is one of the smallest countries in its region and in the world. Long and narrow, the vast majority of the population lives in the center, while the periphery- desert land with heightened vulnerability to security threats- is inhabited far more sparsely. The state’s population growth over the last fifty years was among the highest in the world, and its growth rate in the coming fifty years is expected to be second only to the poorest of the world’s countries. With the population’s per-capita growth, Israel will be the world’s most crowded developed country in fifty years. As is typical of developed countries, Israel is very urban, and the majority of its population lives in cities. The population per-capita in cities has already surpassed other developed countries and is at the level of developing countries. The amount of land undergoing development is growing at rates common to undeveloped countries, yet the reserves of land ready for development are quickly dwindling, especially in highly sought-after areas. Security and environmental needs restrict the possibility of urban expansion. Israel has a plethora of natural treasures of which it wishes to make optimal use, as well as a unique nature, environment and heritage which it wishes to preserve. Agriculture is quite developed in Israel, but urban uses and environmental pressure pose a threat to its reserves of agricultural lands. Israel also possesses important stretches of coastline and highly valuable maritime space, but at the same time, is faced with the certain eventuality of an extremely strong earthquake.

All these factors make land usage and land policy planning in Israel a universally unparalleled challenge. This unique difficulty requires a degree of creativity and innovation on the part of the Israeli planning system as it attempts to grapple with the shortage of land and the many needs for it. This chapter will examine the way Israel deals with its planning challenges. After describing these challenges in greater detail, the planning apparati and its central principles will be reviewed, and finally, innovative plans for future development of underground and maritime space will be presented.

**The State of Israel’s Planning Challenges**

Israel is a small state, spread across 22,072 square kilometers.[[3]](#footnote-3) It is one of the smallest countries in the world at large, and in its region specifically. Although its territory is larger than that of city-states (e.g. Singapore and Monaco), various principalities (e.g. Lichtenstein and Andorra), or certain Mediterranean islands (e.g. Cyprus and Malta), and even greater than the territories of Bahrain, Lebanon, Qatar and Kuwait, it is significantly smaller than the territories of the rest of its neighbors in the Middle East, including Jordan, Syria, Egypt, Saudi Arabia, Iraq and Iran. In Europe, only Montenegro and Slovenia are smaller than Israel, and in South America, only El-Salvador.[[4]](#footnote-4)

Israel is not simply a small country. It is long and narrow. From north to south, it spreads across about 500 kilometers, but its population is mainly concentrated in a narrow strip, spreading about 200 kilometers along the coastline in the West and center of the country. The population becomes sparser and less concentrated the farther away from the center of the strip and the Tel-Aviv metropolis an area is.[[5]](#footnote-5) The state’s periphery accounts for most of its territory. Aside from some smaller and less economically established cities, the periphery contains most of the agricultural, open, green and desert lands. Most of the state’s territory is uninhabited desert in the South (the Negev and the Judean desert).[[6]](#footnote-6) Israel’s continental borders with Lebanon, Syria, Jordan, Saudi Arabia, Egypt, the West Bank and the Gaza Strip are also along the periphery. Its neighbors are largely hostile to it, and even when Israel is in good relations with them, the borders remain sites of terror activity against it. Border areas have always been considered more vulnerable to security dangers. Settling the periphery generally and the border areas specifically has always been considered one of the most important components for maintaining State sovereignty.[[7]](#footnote-7)

Israel’s population growth is among the highest in the world. The average annual growth rate from 1960-2016 was 3.7%. Few countries reached similar levels during those years, and those that did were mostly city-states (Singapore, Hong Kong, Andorra) or neighboring countries of larger area (Jordan, Kuwait, Qatar and the United Arab Emirates).[[8]](#footnote-8) While the current population growth rate, as measured in 2016, has slowed to 2%, it remains on the high end of population growth rates the world over, and is above the average rate for OECD member states, and for countries in North America, East Asia, Latin America and Europe. It is on par with average growth rates in the West but is lower than the rates in Jordan, Lebanon, Saudi Arabia, Persian Gulf countries, countries in Sub-Saharan Africa, and the West Bank and Gaza. This growth rate generally characterizes countries whose per-person income fluctuates between low (2.7%) to lower-middle (1.4%).[[9]](#footnote-9)

Israel is already an extremely crowded country. In 2017, its population stood at 395 people/square kilometer, more than double the rate in 1961, when the population averaged 161 people/square kilometer. This is one of the highest density rates of any country in the world. Holland is the only Western country more densely populated, with 505 people/square kilometer. In the Middle East, only the Gaza Strip and West Bank (756 people/square kilometer), Lebanon (587 people/square kilometer) and Bahrain (1848 people/square kilometer) have higher population density. Farther away, Israel’s population density falls short of highly populated countries (Bangladesh, South Korea, Rwanda, Burundi and India), city-states (Hong Kong, Singapore, Monaco and Macao), and island states (Bermuda, the Maldives, Malta and Mauritius).[[10]](#footnote-10) In the coming fifty years, Israel’s population is expected to increase on a scale somewhere between 54% (1.08% annually) and 170% (3.4% annually).[[11]](#footnote-11) If this prediction proves correct, Israel’s population density in 2059 will reach between 501 and 880 people/square kilometer. It would be the most densely populated developed country in the world, other than city states.[[12]](#footnote-12)

Israel is also a very urban country. According to the World Bank’s indeces, undeveloped countries are characterized by high rural populations, while developed countries’ populations dwell largely in cities.[[13]](#footnote-13) Israel is, in this regard, a typical developed country. The percentage of its urban population among the entire population is one of the highest in the world (around 90%).[[14]](#footnote-14) It is, however, lower than the typical rate in city states (e.g. Hong Kong, Monaco or Singapore), in some Persian Gulf countries (Kuwait, Bahrain and Qatar) and in Belgium, Malta, Iceland, Venezuela and Uruguay. Yet it is a higher rate than that in the vast majority of the Western countries and in neighboring Middle Eastern countries, including the Palestinian Authority and the Gaza Strip.[[15]](#footnote-15)

The average density in Israel’s residential regions stood at 7,700 people/square kilometer in 2003, which was a 6.6% increase from 1998 (7,200 people/square kilometer).[[16]](#footnote-16) When compared to the World Bank’s findings of population density, measured in 90 cities across the world in 2000, Israel fit with the average population density for developing countries (8,000 people/square kilometer). It is higher than the average in more developed countries (America, Canada, Japan and Australia – 2,300 people/square kilometer) and in Europe (4,345 people/square kilometer) but is lower than the average for South-East Asia (16,495 people/square kilometer), Central Asia (13,720 people/square kilometer) and North Africa (9,250 people/square kilometer).[[17]](#footnote-17)

The gap between the country’s center and its peripheral areas is also evident in their respective densities. The densest cities are concentrated in the center of the country, ranging from 8,000 to 25,000 people/square kilometer. The densest cities measured were those whose ultra-Orthodox Jewish populations have high birth rates, with Benei Beraq at the top of the list. The farther away from the center a city is, the significantly lower its population density.[[18]](#footnote-18)

Israel’s developed and urban lands are growing at a relatively fast pace. The developed land coverage was measured in 2003 at 1,224 square kilometers and in 2007 at 1,300 square kilometers, constituting between 5.5%-6% of the state’s land. Approximately 70% of these lands (4% of the state’s total territory) were residential (about 840 square kilometers in 2003 and 900 square kilometers in 2007). The other 30% included industrial and commercial buildings, quarries, tourist sites, army camps and roads.[[19]](#footnote-19) The cumulative growth rate of developed lands was 4.6% from 1998-2003 (48.4 square kilometers), and 7.8% from 1998-2007 (83 square kilometers).[[20]](#footnote-20) The annual growth rate of these lands in those years was 0.92% and 0.87%, respectively. This is a higher rate than what was measured in Europe in the 1990’s, based on a sample of 15 major cities (0.75%).[[21]](#footnote-21) According to research conducted by the World Bank, the average growth rate of developed lands in the greater Tel-Aviv metropolis, which constitutes the majority of the settled lands in Israel’s center, was significantly higher than the global standard, reaching 5.76% from 1987-2000 (from 166.5 square kilometers in 1990 to 340.31 square kilometers in 2000).[[22]](#footnote-22) For an illustration of the growth rate of urban lands in greater Tel-Aviv during those years, see Figure 5.

**Figure 5: Greater Tel-Aviv urban land growth, 1987-2000**[[23]](#footnote-23)



The average yearly growth rate during those years, as measured in 90 sample cities around the world, was 3.2%, ranging from 7.2% in Central and South Asia, to 2% in Europe and East Asia. High urban growth rates tend to characterize less developed countries, while more developed countries tend to have a slower urban growth rate.[[24]](#footnote-24) Israel’s growth rate was closer to those of under-developed countries. The fast expansion of urban territory, especially in the state’s core areas, may endanger the reserves of land meant for development and have a troubling effect on their degradation rate. For example, an average growth rate of 1% will exhaust 1,500 square kilometers of land in 100 years. The same amount of land will be exhausted in half that time with an average growth rate of 2%. The ability to control and restrict these growth rates is, quite literally, an existential necessity for the State of Israel.

Unique characteristics limit Israel’s potential for urban spread. First of all, its long structure means that most of its land reserves are in peripheral areas, while the reserves in the state’s center are continually shrinking. Already today, built-up land covers 64% of the Tel-Aviv region, while that percentage shrinks as the distance from the center of the country grows (5.95% in the North and 1.9% in the South).[[25]](#footnote-25) Second of all, Israel has faced security threats from its neighbors ever since its founding, and restrictions have been placed on urban development as a result. Army training grounds cover about 30% of the total territory of the state, military building restrictions are in place in 11% of the country, and another 5% of its territory are Army and the Ministry of the Interior compounds.[[26]](#footnote-26) Thirdly, a sizeable portion of the state’s open lands serve integral public purposes which the government wishes to preserve, including forest and park territories (7.3%), and agricultural lands (20%).[[27]](#footnote-27) In a state with thousands of years of history, there are also antiquity sites and ancient urban quarters to be preserved, which further restrict urban expansion.[[28]](#footnote-28) Widespread urban crawl may infringe on agricultural territories, lands used for security needs, and parks and nature reserves, while there is already pressure to restrict these areas. Infringing on those lands may have far-reaching economic, social and environmental consequences. Specifically in Jerusalem, Israel’s capital, there are additional political limitations which delay Eastward urban expansion.[[29]](#footnote-29) All of this has resulted in limited reserves of land for urban development, especially in the sought-after, core areas of the country. In a survey conducted on behalf of the Israel Lands Administration in 2004, the land inventory for development was estimated to be only 1,500 square kilometers, 7% of the state’s total territory. At that time, around 73% of that inventory, 1,095 square kilometers, was already in stages of planning.[[30]](#footnote-30) According to current assessments of the National Economy Council, even in optimistic scenarios for actualizing capping plans and existing urban renewal, the open lands planned for residential use will run out by no later than 2046.[[31]](#footnote-31) The Council warned that “Without urban renewal on a significantly larger scale, we will be faced with a planning catastrophe in which all open lands meant for development in the center of the country will run out”.[[32]](#footnote-32) The State of Israel is faced with a non-trivial challenge in determining how to most efficiently capitalize on its limited land resources, while maneuvering between the many and the contradictory needs of the public.

Israel has been blessed with natural resources. The Dead Sea, whose southern end is spread across 265 square kilometers within the state’s borders, is an invaluable quarry reservoir, especially of potash and bromine.[[33]](#footnote-33) Exploiting these resources has recently caused parts of the sea to dry up, levels to rise due to settling of salt high enough to reach beach-front hotels, and has created swallows near the water’s edge.[[34]](#footnote-34) Large natural gas reservoirs were discovered several years ago in Israel’s Exclusive Economic Zone (EEZ) in the Mediterranean Sea. The discovery enabled Israel to reach energy independence, and underscored the importance of its sea territories.[[35]](#footnote-35) Israel is possessed of multitudes of sun-soaked beaches, and the government means to increase the scale of electricity production from renewable energy sources such as thermo-solar and photovoltaic to 10% of all energy consumption by 2020.[[36]](#footnote-36) One of Israel’s foundational problems is its chronic lack of water, which has haunted the state and its agriculture since its establishment. The 1950s saw the inception of the project to send the Sea of the Galilee’s sweet waters from the North of the country to the South. Global weather changes over the last few years have only made the water problem even worse. In response, six of the world’s largest and most sophisticated sea water desalination plants are being built along the Mediterranean coast.[[37]](#footnote-37) As the Prime Minister of Israel declared before the United Nations General Assembly, Israel has become a “Global water power”.[[38]](#footnote-38) Israel’s planning systems have been required to provide planning solutions to many unique enterprises, including the allotment of land for infrastructure facilities and their means of transportation, and the planning of sea territories and their beaches.

Aside from nature’s blessings, the constant threat of an earthquake hovers over Israel. Israel borders the Syria-African geological fault-line. The seismological activity in the region has led to strong earthquakes in the country, and is expected to do so again. Construction standards which provide a sufficient engineering response to these dangers were only instituted in Israel in the 1970s. Plenty of buildings were erected prior to that and don’t meet necessary structural standards. Coping with the threat of an earthquake is just another challenge that Israel’s planning apparatus has dealt with intensively over the last several years.[[39]](#footnote-39)

In sum, Israel has faced many unique planning challenges since its founding: how to balance between the natural attraction to the center of the country with the desire to nurture and strengthen the periphery; how to deal with the population growth and density, and the increasing real-estate demand in the center of the state, while also wishing to preserve green visibility and land reserves for the future; how to develop the state’s infrastructure, and how to respond to nature’s blessings as well as deal with its curses. An additional unique challenge that the State of Israel has to deal with is related to the special status of minority groups. Certain aspects of this topic will be dealt with in this chapter, and it will be dealt with exclusively in the seventh chapter. Israel is not the only country to deal with such problems, but the unique factors of its nature intensify the problem to universally unparalleled levels. They push the government and the planning systems in Israel to develop creative, innovative ways to deal with the country’s unique problems. This trend is reflected somewhat in Brene Brown’s famous statement, quoted at the beginning of the chapter, that “Vulnerability is the birthplace of…creativity”.[[40]](#footnote-40) In the coming sections, we will examine the planning mechanisms which are supposed to give answers to the challenges listed above, the main political principles which guide the planning system in Israel, and the creative and innovative aspects of the long-term responses Israel is developing for its unique problems.

**Planning Mechanisms in Israel**

The basis of Israel’s planning and building laws was laid during the British Mandate period.[[41]](#footnote-41) Only in 1965 did Israel’s legislature enact its own planning law: The National Planning and Building Law, 5725-1965.[[42]](#footnote-42) Israel’s planning and building mechanism is a hierarchy consisting of three levels: National, Regional, and Local. National-level policy principles are established in “National Outline Plans” (NOPs) which receive government approval.[[43]](#footnote-43) The National Council for Planning and Building, the highest planning institute in Israel, is responsible for preparing the plans for government approval.[[44]](#footnote-44) The Council is appointed for five-year periods, is chaired by the Minister of Finance (previously, the Minister of the Interior) and the rest of its members, most of whom are appointed by the government or by ministers, represent various planning-related interests: thirteen government members or their representatives, three senior clerks (the administrator of the Planning Administration, a representative of the Minister of Housing who has had professional training in matters of housing and construction, the administrator of the Nature and National Parks Authority), eleven representatives of local government (mayors of the four largest cities and two additional cities, and the heads of five local and regional councils), and eight representatives of parties with planning interests (the Association of Engineers and Architects, women’s organizations, academic institutions, Zionist settlement institutions, a sociologist, and public bodies who deal with environmental preservation, a representative of an organization that deals with social and welfare issues, and a representative of the young generation).[[45]](#footnote-45)

Over the years, additional national-level planning bodies were established, often infringing on the National Council’s authorities. Their establishment generally reflected a desire to strengthen a certain planning interest. As such, two independent committees were established at the same time as the National Council, with the purpose of protecting agricultural land[[46]](#footnote-46) and the coastal environment,[[47]](#footnote-47) respectively. The authority of the former was expanded in 1995 to include protection of open territories.[[48]](#footnote-48) In 2002, the National Council’s authorities regarding national infrastructure planning were transferred to another body, called “The National Committee for the Planning and Building of National Infrastructure”. This smaller body was charged with the specific task of quick and targeted planning and licensing for national infrastructure plants.[[49]](#footnote-49) In 2014, the government transferred some of the National Council’s authority to the “National Committee for the Planning and Building of Preferential Residential Compounds”. This body’s purpose is to focus on the quick planning and licensing of residential compounds on government lands.[[50]](#footnote-50) The interests that each of these bodies are meant to advance may well clash with one another. For example, protecting agricultural land does not necessarily go hand-in-hand with developing residential compounds, on the one hand, or with protecting open territories and biological diversity, on the other hand. The National Council and the government attempt to settle the conflicting interests but always, eventually, are forced to choose one policy direction over the other. Ever since Israel’s founding, there have been constant changes in the planning system’s general preferences. In the state’s nascent days, protecting security interests and agricultural lands was the top priority. Over time, more weight was given to the protection of open and green territories. In the last few years, the planning system has delved headstrongly into the operations of developing infrastructure and catching up with the heightened housing needs. These changes are noticeable in the structure of the planning bodies as well, such as the establishment of special institutes for the specific purpose of advancing the government’s preferred policy.

Planning principles that are established on the national level are translated into greater detail on the regional and local levels. There are regional planning and building committees, comprised mainly of government clerks, who are responsible for ensuring that translation.[[51]](#footnote-51) They produce regional outline plans whose purpose is “the determination of the details necessary for the implementation of the national outline scheme in the district”.[[52]](#footnote-52) Translating the national and regional policy to detailed, operative plans that can be carried out and for which building and usage permits may be issued, is carried out in the framework of local city building plans. Elected officials of the cities and municipalities comprise the bodies responsible for producing the local plans, and are authorized to serve as local or district planning and building committees.[[53]](#footnote-53) These plans are meant to implement the national and regional planning principles while tailoring them to the interests of the local residents. The local plans are those which allot lands for various purposes, based on general frameworks for residence, industry, commerce and public needs dictated from above, and they are responsible for looking after the detailed development of the land, for preserving the agricultural designation of suitable lands, for preventing external influences on the planning process (health, sanitation, cleaning, safety, security, transportation, hazard prevention), for preserving architecturally, historically and archeologically important structures, for preserving nature and heritage sites, and for designating and expropriating open public lands, including parks.[[54]](#footnote-54)

The production mechanisms through which plans are produced suffer from various problems which degrade their efficiency. The mechanisms are extremely slow and bureaucratic issues plague the highest of them at the highest levels, as is typical of any policy planning at high echelons of government. The planning institutions are comprised of various and convoluted components which often serve to further slow the composition of desired policy. That planning is only made operational at the local level often creates a divide between the plans and their execution. Not only do the local governments have difficulties implementing the planning principles established at the national level, but at times they purposely confound their implementation. Opposition to plans as well as confusing licensing procedures delay the plans’ entrance into force and their execution. The tension between the desire to make the governmental system more efficient and between the fear of corruption and infringement on general public interests is at the foundation of an ongoing Israeli political debate over the degree of authority that should be granted to local government.[[55]](#footnote-55) The planning mechanisms have suffered from Principal-Agent Problems with elected officials over the last few years, as well as from corruption. The best known case is that of former Prime Minister Ehud Olmert, who was convicted of planning corruption in the “Holyland” construction saga, which took place while he served as Mayor of Jerusalem.[[56]](#footnote-56)

These problems result in plans that do not respond quickly enough to challenges, as is evident in Israel’s inability to supply the ever-increasing demand for housing. Apartment “production chains”, the average amount of time needed to build an apartment in Israel, used to be somewhere between twelve and fifteen years. A survey which examined plans approved in Israel beginning in 1990 for the construction of over fifty housing units measured an average of six years for preparing the plans, five for waiting and licensing, and two to three for building. The component of preparing the plans has since shortened and averaged three years, as of 2015.[[57]](#footnote-57) The extended period of time between planning and operation makes it difficult for plans to properly and quickly address updated market needs, and requires planning based on projections. From 2000-2010, plans for an average of 26,000 housing units were approved per year, while if the market were to keep up with the rate of population growth, the average should have hit 45,000. Actual construction during those years, including the execution of older plans, did not meet the market demand, and only reached 32,000 housing units. This resulted in a cumulative lack of 80,000 housing units.[[58]](#footnote-58) This further caused a continuous price-hike at high rates. In 2009, the price of apartments went up by 19%, and by 80% from 2001 to 2017 (a 5% average annual increase).[[59]](#footnote-59)

We have seen that the structure of the planning mechanisms has created an inherent difficulty in executing Israel’s planning principles. We will now examine these principles at the national level, as they are reflected in the National Outline Plans, and will see if, and to what degree, they deal with the planning challenges described above.

**Central Planning Principles**

National planning in the State of Israel deals with three major topics: infrastructure, land plot designation, and establishing general guidelines for urban construction. National planning of these topics is quite concentrated; the local government is generally left with only enough maneuvering space for the implementation of the national planning guidelines, which is usually carried out via urban planning and building. This is a direct consequence of the country's small size, of its limited land resources and of the many needs that demand them. Approximately thirty National Outline Plans are currently in place in Israel, with another five in preparatory stages. Most of these plans deal with infrastructure: roads, railroads, air and sea ports, water, electricity, communications, quarry digging, natural gas plants, sanitation plants, gas stations, cemeteries, prisons, hotels, heritage sites and hospitals (in preparatory stages).[[60]](#footnote-60) An NOP meant to consolidate all infrastructure-related instructions in one single plan was recently written, but it has yet to receive final approval and enter into force.[[61]](#footnote-61) The National Infrastructure Committee has created nearly 100 highly targeted national infrastructure plans, with emphasis on transportation and energy.[[62]](#footnote-62) This planning effort is meant to cope with three central challenges that characterize planning in Israel: First of all, the government has been attempting to make peripheral areas more attractive over the last several years. Efforts have included investing significantly in the improvement of transportation in and out of those areas, by upgrading and expanding train networks and highways. Major transportation systems have also been set up in the Dan region and Jerusalem. The majority of national infrastructure plans thus far have focused on this project.[[63]](#footnote-63) Repeated statements by Prime Minister Benjamin Netanyahu, that "we are bringing the periphery closer to the center", reflect the importance ascribed to it.[[64]](#footnote-64) Secondly, concentrated planning gives preference to plans which are oriented towards advancing Israel's attempts at energy independence, and meeting international standards in this field. As such, power stations for various types of energy, such as cogeneration, hydro-electric, pumped-storage hydro-electric, thermo-solar, photovoltaic and wind turbines have been planned on a national scale. Natural gas power stations and mains have also been planned.[[65]](#footnote-65) Finally, there are all the efforts invested in coping with unique problems that result from the geography and climate of the country, as well as man-made problems. As such, special emphasis has long been placed on establishing water desalination plants and mains,[[66]](#footnote-66) and a special plan has been dedicated specifically for protecting the Dead Sea from rising levels resulting from the industrial production of minerals at its southern end.[[67]](#footnote-67)

National Planning also deals with the important topic of protecting open territories. The main national outline plan of relevance to this is NOP 35, a national building plan focused on construction.[[68]](#footnote-68) This plan delineates land designations for construction and development, and outlines the principles which guide the preservation of open territories from the threat of expanding construction. The plan entered into force in 2005 and was updated in 2015 and 2016. Its normative status is higher than that of other plans, and it obligates all of the country's planning bodies. It is currently Israel's most important NOP.[[69]](#footnote-69) NOP 35's main goal is to preserve land reserves for future generations, as well as valuable natural resources, agriculture, landscape and heritage sites, and the rural character of agricultural settlements. It also takes security needs into account. It differentiates between regions suited to development and those suited to preservation, and directs most of its development efforts towards four metropolitan regions. It further attempts to prevent suburban development, and retain a stretch of uninterrupted open territory.[[70]](#footnote-70)

NOP 35 innovated a completely novel planning orientation compared with the standard that had been accepted ever since Israel's establishment. In the past, the government had pushed aggressive policy for spreading out the population, and to that end established hundreds of settlements, both rural and urban. The goal was to absorb immigrants on an enormous scale and to demonstrate sovereignty in peripheral regions and over absentee properties. These considerations became less pressing at the turn of the millennium, as the security situation improved and the immigration rate slowed down. The policy of population spreading had a heavy price: because of the distance from the periphery to the center of the country, its residents faced social and economic discrimination. That, in addition to the growing awareness of the need to preserve open territories in light of increasing urban crawl, led to the change in orientation.[[71]](#footnote-71)

By strengthening existing urban centers and crowding them by encouraging upward building, urban renewal and strengthened public transportation systems, NOP 35 is attempting to halt urban expansion. Its main operative instruction is that regional and local planning authorities should not approve construction that is not "wall-adjacent", i.e. that does not border extant developed territory.[[72]](#footnote-72) It also instructs that additional construction should only be approved if needs cannot be met through urban renewal and saturation of existing structures.[[73]](#footnote-73) Net minimal density requirements were instituted for residential construction in areas suited to development, as a condition for approving any new plans in regional and local planning authorities.[[74]](#footnote-74) Limits were also set for construction in rural settlements[[75]](#footnote-75) and for the procedures for establishing new settlements, and guidelines were set for determining their possible locations within areas suited for development.[[76]](#footnote-76) Guidelines for improving infrastructure systems and public transportation were set, so as to accommodate the higher population density.[[77]](#footnote-77)

Another goal of NOP 35 is to bridge the divide between the center of Israel and the periphery,[[78]](#footnote-78) with preference given to the development of Jerusalem, the Galilee and the Negev.[[79]](#footnote-79) The guidelines that increase density caps and prohibit expansion are stricter in central areas and laxer in the periphery.[[80]](#footnote-80) As noted above, the concentrated planning effort to improve channels of transportation is meant to aid in achieving this goal. Likewise, the National Committee for Planning and Building of Preferred Residential Compounds has been advancing shortened planning of thousands of residential units since 2014. A substantial portion of these units are being built or slated to be built in urban swaths of peripheral areas, where the state has greater land reserves. Construction is also happening at the edges of more demanded areas as well, but not in the heart of them.[[81]](#footnote-81)

National planning efforts are also undertaking the transfer of army camps and security compounds from Israel's center to the periphery. This is meant to achieve two goals at once: increasing land supplies in central areas and strengthening the periphery.[[82]](#footnote-82) Over the last several years, urban renewal has been developed as another direction for planning efforts. The government adopted a national housing plan which concluded that the speed of urban renewal in Israel, which stood at 12% in 2005, should be increased to 45% by sometime between the years 2036-2040.[[83]](#footnote-83) The National Economics Council is of the opinion that the average demand for housing from 2017-2040 will be 60,000 units per year, which translates to a total increase of 1.5 million units, or 60% of the current housing inventory in Israel today.[[84]](#footnote-84) The Council’s experts predict that without speeding up the rate of urban renewal, Israel will be faced with a “planning catastrophe”.[[85]](#footnote-85)

National planning also deals with operative plans for preserving the natural environment. A small yet significant portion of NOPs deal directly with nature preservation (national parks, nature reserves, landscape preservation and forests).[[86]](#footnote-86) Various laws and NOPs place special limitations on activity and construction in and around beaches, especially within 100 meters from the coastline.[[87]](#footnote-87) This topic will be expanded below. NOP 35 also includes parameters for restricting hazards and nuisances that development is expected to cause, and establishes mechanisms for assessing and preventing planning-related damage to the environment. The plan ascribes great importance to these goals.[[88]](#footnote-88) NOP 1, which is in advanced stages of preparation, deals with these goals as well. Its main directive is to establish principles for preserving territories for infrastructure by preserving open territories and developing them, while preventing environmental damage.[[89]](#footnote-89) As the pressure for urban development increases and land reserves in the central strip of the country decrease, it becomes far more difficult to protect the natural environment. For example, a bill to loosen the restrictions on beachfront construction of hotels was put forward, but ultimately was not passed.[[90]](#footnote-90) There is a constant debate in both the academic literature and among the Israeli public between those who believe that the planning authorities’ current measures for protecting the environment are lacking and those who claim that the environmental regulation unjustifiably suppresses development options in so small a country. There is, however, no argument that levels of environmental awareness and consideration have only risen over the years.[[91]](#footnote-91)

Another issue that has featured prominently in national planning of late and which complements the general densification trends, is strengthening homes in light of the expectation of earthquakes. As noted above, there is no question that a massive earthquake will hit Israel at some point, so any and all construction in the country must take the danger into account. The Standards Institution of Israel (SII) only formulated a standard for structural wherewithal in the face of earthquakes in 1975. It was amended several times, and was only finalized to meet international standards in 1995. All new construction in Israel must meet these standards.[[92]](#footnote-92) The real challenge that Israel is faced with is reinforcing older buildings that were erected prior to the institution of sufficient building standards. NOP for reinforcing existing structures in the face of earthquakes, number 38 (NOP 38), was approved in 2005 with the intention of providing a solution. It offers economic incentives to homeowners in multi-family homes to encourage them to reinforce those buildings. The incentives include the provision of tax-exempt building rights for reinforcement and additional construction which will cover the costs of that construction. There are five standard situations in which the rights are given: reinforcement only, reinforcement and expansion of existing apartments, reinforcement and construction of new apartments, demolishing and reconstructing reinforced buildings, and reinforcement with additional building rights in an adjacent location.[[93]](#footnote-93) Most requests submitted in the umbrella of these incentives are for reinforcing existing structures, while only a third of the requests are for demolishing and reconstructing.[[94]](#footnote-94) From the inception of NOP 38 in 2005 through 2016, reinforcement for 27,400 housing units has been approved, of which 14,7000 are new structures that were added in the reinforcement process.[[95]](#footnote-95) This is a miniscule percentage (approximately 2.7%) of the more than a million housing units which require reinforcement.[[96]](#footnote-96) This is the result of a number of weaknesses from which the NOP suffers. The worst of these is that it has not managed to incentivize structural reinforcement in peripheral areas. Its influence has been felt mostly in the Tel Aviv region, and somewhat in the central and Haifa regions. It has had almost no influence in the peripheral regions in the North and South, where there is a particularly high number of buildings which require reinforcement, some of which are seismologically predetermined to bear the major brunt of the earthquake.[[97]](#footnote-97) While the scope of the incentives is identical across the entire country, their value is impacted by property values, which differ based on location. The incentives’ value in peripheral areas is not high enough to motivate the major undertaking of reinforcement. This has been the main point of sharp public criticism of the plan. The critics claim that for all intents and purposes, the plan neglects the periphery and grants disproportionate benefits to economically well-established regions.[[98]](#footnote-98)

Another major vulnerability of NOP 38 is the difficulty coordinating between all apartment owners in shared building, delaying agreement on if and how to reinforce. In response, a law was passed to approve reinforcement based on majority, rather than unanimous agreement.[[99]](#footnote-99) The courts have dealt with numerous cases of homeowner opposition to majority-based decisions, generally upholding their legality even though, at times, they infringe of private property rights.[[100]](#footnote-100) Despite this, the challenges posed by the eventuality of an earthquake are far from dealt with.

**Planning Innovation: Underground Space**

The limited land reserves in core regions of Israel, coupled with the many needs for them, have led the government to designate development of two new expanses: the underground and maritime space. These spaces are plentifully available, respectively, right beneath and adjacent to the dense urban regions at the center of the country. They have been very minorly exploited thus far, in proportion to ground-level land territory. Former Supreme Court Chief Justice, Aharon Barak, has termed the underground space “The Terra-Nullius of the age of progress”.[[101]](#footnote-101) It is a fairly accurate declaration regarding the sea as well.

Back in 1999, the government decided to prepare for “more efficient land usage, including underground space and the integration and implementation of various infrastructure therein”.[[102]](#footnote-102) The last few years have seen Israel in a major building sweep of transportation projects which integrate underground tunnels, including the Carmel tunnel, the Tel Aviv light rail, road tunnels in the approach to Jerusalem and in a cross-country highway.[[103]](#footnote-103) The introduction of minimum standards for parking spaces has led to extended construction of underground parking garages.[[104]](#footnote-104) The space shortage has even inspired plans for underground cemeteries.[[105]](#footnote-105) The underground expanse is uniquely important from both a military and a political standpoint. Over the last several years, Israel has dealt with high-trajectory firing threats and underground terror threats from Gaza and Lebanon. The underground is a strategic component for protection and defense against these threats.[[106]](#footnote-106) Moreover, separation between the ground-level expanse and below-ground level expanse has been suggested in the past as a solution to the division of sovereignty over the Temple Mount between Israel and the Palestinian Authority.[[107]](#footnote-107) The rich history of the land and the countless antiquities it holds demand the separation of ancient strata, considered antiquities and therefore belonging to the State, from ground-level space, at times privately owned, and used for current needs. A prime example are the invaluable remains of the Crusader Knights’ palaces, located beneath private homes in the Old City of Acre.[[108]](#footnote-108)

The State of Israel has recently begun developing regulatory, professional, and technological infrastructure meant to integrate the government’s goal of multi-level land usage. Israel seems to be at the forefront of global innovation in some of these domains. It is, first and foremost, crystallizing standards for multi-level, 3D planning. Professional and engineering guidelines for preparing 3D outline plans have already been compiled. They instruct that multi-level planning take into account the minimum distance required between levels to ensure either adequate safety and engineering integrity for the intended usages of each level (“distance range”), or, alternatively, the required mutual usage rights for passage between levels, laying foundations, or parking.[[109]](#footnote-109) Likewise, from 2007 to 2011, the planning authorities developed an NOP for the protection and development of the underground expanse (NOP 40). A draft of the plan includes several noteworthy instructions. It recommends a requirement that multi-level planning place special emphasis on fully exploiting the underground level, and it advises establishing priorities for developing different land levels based on a “duration of stay” index, according to which, land usages which do not require extended human presence be located at underground levels. In consonance with this, it was suggested that the highest underground level be designated for human activity requiring relatively short-term stay, such as shopping, performances, conferences, sports, museums, theaters, and other cultural activities. The next level down would be designated for transportation centers and systems, such as roads and railroads, and parking and storage space. The deepest level would be designated for city infrastructure networks.[[110]](#footnote-110) Preparatory work on the plan reached advanced and publicized stages by 2011, but the rate of progress has since slowed. In March 2012, the government decided to consolidate all NOPs which deal with infrastructure into a single, uniform plan (NOP 1).[[111]](#footnote-111) Most of the ideas expressed in the NOP 40 draft are not included in the draft of NOP 1, which deals with only one aspect of underground space usage: the preservation of groundwater and runoff water.[[112]](#footnote-112) The media’s central assumption is that the plan’s shelving, or, at least, the censure of its further development from the public, is a result of security and military consequences that underground development may have.[[113]](#footnote-113)

The preparations for multi-level land development have been acknowledged as well in the areas of measurements and law. One of the Israel Survey Center’s aims is the construction of a 3D cadaster at globally leading standards.[[114]](#footnote-114) To that end, a national, 3D, geodetic oversight network has been created, and regulation of measurement systems and descriptions of 3D models has already been carried out.[[115]](#footnote-115) At the legal level, a government bill that would enable recognition of 3D plots of land as separate and individual property units has already been prepared.[[116]](#footnote-116) If the bill is passed, it would change the legal doctrine in force in Israel today, *Cujus est solum, ejus est usque ad coelum ed ad inferos,* that land ownership extends, like a cone, from the ground downwards towards the center of the earth and upwards towards the sky.[[117]](#footnote-117) Yet the law already allows the registration of apartments in multi-family buildings as individual units of property.[[118]](#footnote-118) The Supreme Court has likewise established, in the **Akunas** case (2000), that ownership of 3D spaces can be expropriated in order to construct tunnels.[[119]](#footnote-119) The land registry unit in the Ministry of Justice is making strategic plans to embed technology for individual, 3D land plot registration.[[120]](#footnote-120)

A question whose answer has yet to be agreed upon is to whom ownership of the underground levels remaining beneath the 3D property will be ascribed. The draft of NOP 40 suggested legislation that ownership of all land at a certain depth and deeper remain public.[[121]](#footnote-121) Former Supreme Court Chief Justice Barak expressed certain support of this in an obiter comment he made in **Akunas**, that “we must rethink the extension of ownership underground so that the law may suit modern life”.[[122]](#footnote-122) This statement fits with Barak’s distributive approach, which views expropriation of the underground expanse as the actualization of private property owners’ social responsibility. Such actualization justifies the infringement of private property rights because its purpose is of public importance, and the minimal damage it causes property owners is spread out randomly and equally between everyone.[[123]](#footnote-123) Another former Supreme Court Chief Justice, Miriam Naor, expressed a different attitude in the **Akunas** case, when she stated that “[…]no expropriation, even downwards, [should be permitted] beyond what is necessary”.[[124]](#footnote-124) In any event, the governmental appraiser developed an equation for calculating the damages to be paid to an owner whose underground land has been expropriated, according to which, said owner will receive payment even for expropriations which cause “no physical or planning damage” and even “in cases wherein the underground usage was not felt at all”. This privilege is, however, limited to expropriations up to thirty meters below ground.[[125]](#footnote-125)

**Planning Innovation: Maritime Space**

Another area that has aroused great interest in Israel over the years is the Mediterranean Sea. This expanse extends along 195 kilometers of coastline, west of the densely populated central strip of the country. Its total territory is greater than the total territory of the State of Israel, reaching 26,000 square kilometers.[[126]](#footnote-126) The entire territory is public but legally and geographically can be divided into different units that would be distinguished from one another based on the rights that the state has over them: the beaches and sea ports are situated along the coast and within the strip of territorial waters, which would mainly be owned by the state, and partially by the Ports Authority or municipalities.[[127]](#footnote-127) The strip of territorial waters, which is twelve nautical meters wide (approximately twenty two kilometers from the coast), is spread across a total area of 4,000 square kilometers and is under complete state sovereignty.[[128]](#footnote-128) To the west of the territorial waters, the strip of the “adjacent area” extends the distance of another twelve nautical miles. According to the sea treaty in that area, the state does not have full sovereignty, but is allowed to enforce certain customs, immigrations, sanitation and archeological authority there.[[129]](#footnote-129) The EEZ can extend up to 200 nautical miles (approximately 370 kilometers) from the coast according to the sea treaty,[[130]](#footnote-130) but in Israel it reaches only 110 nautical miles south of the Mediterranean coastline, and around seventy nautical miles northward, with a total area of 22,000 square kilometers (approximately the total land size of the country).[[131]](#footnote-131) It extends until the halfway point between Israel and Cyprus, as agreed upon by the two states.[[132]](#footnote-132) Longitudinally, the border should reach to whatever the accepted limit is between the relevant countries, but there is no agreement or treaty on the matter with Lebanon, the Palestinian Authority, and Egypt.[[133]](#footnote-133) The dispute over the EEZ border with Lebanon was intensified in 2017 when the latter’s government publicized a tender to grant offshore licenses in disputed maritime areas.[[134]](#footnote-134) Israel has not signed the maritime treaty but has accepted its customary instructions, including those relating to maritime territory. However, the passage of legislation to officially establish the status of maritime space, especially that of the EEZ, has been delayed for many years.[[135]](#footnote-135)

The use of maritime space has increased in recent years: searches for natural gas and fuel have increased, resulting in the discovery of natural gas reserves at a great depth below the sea, and the further need to create production plants and main lines.[[136]](#footnote-136) The maritime space has been used for years for fuel and coal terminals, as well as for pumping and releasing cooling water from power plants located near the shore.[[137]](#footnote-137) Maritime transportation has grown more common, and there are plans to expand the sea ports.[[138]](#footnote-138) Desalination plants have been erected on the beaches.[[139]](#footnote-139) The need for laying underwater communication infrastructure has grown.[[140]](#footnote-140) There are plans to expand aquaculture (fishing cages)[[141]](#footnote-141) and even to erect artificial islands.[[142]](#footnote-142) All this, in addition to the traditional uses of this space, including fishing and recreation.

Awareness of the ecological and environmental importance of the coastlines and their waters has also increased. In 2004, a law was passed with the purpose of protecting “the coastal environment”, meaning “an area extending 300 meters inland, measured from the Mediterranean coastline…as well as the area measured from the Mediterranean coastline…seaward to the limit of the territorial waters”.[[143]](#footnote-143) The purposes of the law were defined as the protection of the coastal environment and the natural treasures and heritage sites within it, their preservation for the utility and benefit of the public and future generations, and the establishment of principles and limitations of its management, development, and sustainable use.[[144]](#footnote-144) Israel signed the Barcelona Convention for the Protection of the Mediterranean Sea, together with twenty one other countries.[[145]](#footnote-145) The importance of nature reserves has garnered greater recognition, and there are nine recognized maritime reserves in the Mediterranean Sea’s expanse to date.[[146]](#footnote-146) Awareness of the risks that nature may pose to residents of densely populated coastal areas, such as tsunamis caused by earthquakes, has also increased.[[147]](#footnote-147)

The increasing attraction to maritime space has led to innovative planning initiatives aimed at facilitating more efficient, intensive use of it. Primarily, the Israel Survey Center and the Ministry of Justice have commenced the project of mapping and registering the state’s maritime space rights.[[148]](#footnote-148) A small number of nautical blocks in the Mediterranean Sea have already been registered to the state.[[149]](#footnote-149) Additionally, the government’s ministries have begun to compile Maritime Strategy, through which maritime space planning will be conducted. The planning process is being carried out in cooperation with the European Union’s Integrated Maritime Policy in the Mediterranean (IMP-MED) project, which supports dialogue regarding maritime policy among nine countries with Mediterranean borders: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Tunisia, and the Palestinian Authority.[[150]](#footnote-150) Policy principles for the future have yet to be articulated and published at the governmental level, although a chart was published showing three main planning avenues: traditional uses (security, shipping, recreation and fishing), new developments (marine and coastal structures, aquaculture, hydrocarbon production) and environmental planning (preservation and prevention of pollution).[[151]](#footnote-151)

At the same time as the government, a team of researchers from the Technion, The Israel Institute of Technology, published ideas for an Israel Maritime Plan.[[152]](#footnote-152) This plan is also part of a wide international cooperation for the encouragement of Marine Spatial Planning to the end of achieving sustainable use and biodiversity conservation in coastal areas.[[153]](#footnote-153) The plan’s vision clearly defines the purpose of maritime space in future National Planning:[[154]](#footnote-154)

In accordance with this vision, the plan suggests more focused, though still quite general guideline for implementation. As one of the members of the plan’s integrated team wrote, the very idea of planning maritime space “breaks new ground, both in the planning and in the public policy fields[s]”.[[155]](#footnote-155) The plan recommends twelve policy measures for the maritime space. Most of them relate to additional, innovative development of fields that are already at play in the maritime space, including protection of the maritime environment, energy source development, shipping and ports development, and aquaculture and coastal development.[[156]](#footnote-156) The most innovative recommendation is to “use the marine space as an alternative for land uses”, but at this stage it is still limited, for environmental and engineering reasons, to development of “small facilities that do not require a fixed connection to the shore…and that could be placed on foundation piles or developed as floating and anchored facilities”.[[157]](#footnote-157)

"The marine area will be an integral part of the Israeli space and an essential component of its future economic well-being, environmental resilience and social and cultural development for the benefit of its residents, guests and future generations."

The Technion’s plan advises against using maritime space for urban development in the short term, preferring that such an option be left for future generations to decide. The Technion’s researchers believe that the engineering feasibility and the economic ratability of such a course of action are presently doubtful, and they worry that “artificial offshore urban development could be expected to divert investment and focus from the country’s main urban goals for the next few decades- urban regeneration and development of the Negev and the Galilee”.”[[158]](#footnote-158) They recommend leaving the possibility of producing urban development adjacent to the coastline to “generations to come”.[[159]](#footnote-159) Likewise, the plan proposes zoning the maritime space by dividing it into marine areas, differentiated by their intended purposes.[[160]](#footnote-160)

**Summary**

Are Israel’s planning systems properly dealing with the unique challenges posed by its geography, demography and geopolitics? As has been demonstrated in this chapter, Israel’s planning apparatus has provided a relatively quick and adequate response to the country’s infrastructure regulation. It expressly supports transportation and energy projects that have been established over the past several years. The planning in this field is largely concentrated. The planning apparatus has also demonstrated creative, innovative ability in the fields of underground and maritime space development as well. It has had more trouble dealing with the gap between the center of the country and the periphery, with the increased demand for urban land in core regions, with preparations for reinforcing homes in anticipation of earthquakes, and with the clash between those factors and the shrinking amount of open territory and the awareness of environmental needs. Grappling with these problems cannot be restricted to the national level, because they require coordination with local-level planning bodies and rights-holders of private property. As such, the system suffers from problems caused by human coordination, bureaucracy and corruption, in addition to those caused by nature. There is no doubt that efforts to cope with these problems, which are expected to worsen in the future and may even bring about a “planning catastrophe”,[[161]](#footnote-161) will continue to characterize planning in the State of Israel for decades to come.

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144. Ibid, at §1. [↑](#footnote-ref-144)
145. Amendments to the Convention for the protection of the Mediterranean Sea area against pollution (Barcelona Convention) 56 Kitvei Amana 1 (ratified 29.9.2005, In force 29.10.2005). [↑](#footnote-ref-145)
146. Israel Marine Plan, supra note 126, at 7; §15 NOP 13; supra note 87; Ruth Yahel, Nir Engert, Conservation Policy in the Mediterranean 6 (Israel Nature and Parks Authority, 2012) (Hebrew), <http://www.parks.org.il/ParksAndReserves/yamTichon/Documents/mediniyutYamTichon.pdf>. [↑](#footnote-ref-146)
147. Planning Authority, Policy Paper, supra note 136, at 302-304. [↑](#footnote-ref-147)
148. Srebro, Implementation of Marine Cadastre in Israel, supra note 35, at 6ff. [↑](#footnote-ref-148)
149. The Israeli Map Site (Hebrew), <http://www.govmap.gov.il/>. Mark as "*Shhavot*" (layers) "*gushim*"(blocks) and "*helkot*" (parcels) and zoom on the Mediterranean area); Copy of registration of block 60036 parcel 1 from the Haifa Land Registry, 19 August 2014 (The owner: The State of Israel. The Land Registrar's comments: "Ownership - public lands, sub-marine land"). [↑](#footnote-ref-149)
150. Planning Authority, Policy Paper, supra note 136, at 19. [↑](#footnote-ref-150)
151. Planning Administration, Marine Policy - Proposed Policy, <http://iplan.gov.il/Pages/Maritime_space/Maritime_policiy.aspx> (visited 15.12.2017). [↑](#footnote-ref-151)
152. Israel Marine Plan, supra note 126; Technion-Israel Institute of Technology, Israel Marine Plan-Implementation and Monitoring Report (December 2016)(Hebrew), <http://msp-israel.net.technion.ac.il/files/2017/06/%D7%93%D7%95%D7%97-%D7%94%D7%98%D7%9E%D7%A2%D7%94.pdf>. [↑](#footnote-ref-152)
153. UNESCO & Intergovernmental Oceanographic Commission (IOC), Marine Spatial Planning Program-Israel, <http://msp.ioc-unesco.org/world-applications/middle-east/israel/>. [↑](#footnote-ref-153)
154. Israel Marine Plan, supra note 126, at 22. [↑](#footnote-ref-154)
155. ; [Portman](http://www.sciencedirect.com/science/article/pii/S0308597X15001906#!), *Marine spatial planning*, supra note 132, at 14. [↑](#footnote-ref-155)
156. Israel Marine Plan, supra note 126, at 22. [↑](#footnote-ref-156)
157. Ibid, at 37. [↑](#footnote-ref-157)
158. Ibid, at 38. [↑](#footnote-ref-158)
159. Ibid, ibid. [↑](#footnote-ref-159)
160. Ibid, at 45ff. [↑](#footnote-ref-160)
161. Ibid at note 32. [↑](#footnote-ref-161)