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Will We Always Have Paris? Israel's Tepid Climate Change Strategy

Alon Tal

Alon Tal is the incoming chair of the Department of Public Policy in Tel Aviv University. His research involves environmental law, risk assessment, forestry, water management, population policy, and sustainability. Professor Tal has held appointments at the Harvard School of Public Health; the University of Otago, New Zealand; Renmin University in Beijing; Michigan State University; and Stanford University. He was founding director of Adam Teva V'din (The Israel Union of Environmental Defense) and the Arava Institute for Environmental Studies. Tal was a member of the Israeli government delegation to the UN Convention to Combat Desertification and chaired the committee that oversaw Israel's forestry policy between 2006 and 2015.

Introduction

On November 14, 2016, the Israeli government ratified the Paris Agreement on Climate Change.¹ It was the 113th country to do so—bringing the total of greenhouse gases represented by participating countries worldwide to some 79 percent.² The decision came while Israel's delegation was already in Marrakesh, where the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) was convening to continue international efforts to prevent an impending climate crisis. The year 2016 is set to become the hottest recorded year globally,³ the third consecutive year that temperature records have been shattered.⁴ More and more scientists warn that concentrations of atmospheric greenhouse gases will soon cause irreparable climatic chaos.⁵ The time for hesitation is long past. Because climate-associated impacts are non-linear, immediate action is required to reduce greenhouse gas emissions and stabilize atmospheric carbon concentrations.

Earlier, in December 2015, the Paris Agreement was approved, representing a possible turning point in global efforts to combat climate change after two decades of disappointment following the failed implementation of the 1997 Kyoto Protocol.⁶ The twenty-first Conference of the Parties of the UNFCCC (hereinafter: COP 21) convened in the French capital in the shadow of the ISIS terror attacks that had occurred the previous month. After years of preparation and two weeks of bickering, the delegates reached an agreement that was hailed as a final chance to slow climate change before positive feedback loops unleash an

out-of-control cascade of physical changes onto the planet.⁷ For the first time, the countries of the world—rich and poor—adopted concrete targets for the reduction of greenhouse gases. For environmental and climate activists, this represented a rare moment of temporary satisfaction.

The renewed enthusiasm generated by the Paris meeting and the associated commitments were not lost on Israeli leaders, who came prepared to make meaningful pledges to do their part for global greenhouse gas mitigation efforts. By then, signs of climate change were commonplace throughout Israel, manifested in rising annual temperatures; increased intensity and frequency of floods, droughts, and heat waves; reduced agricultural yields; and relentless sea-level rise.⁸ Israel had already submitted a document to the UNFCCC Secretariat with its Intended National Determined Contribution (INDC), which promised to reduce per capita greenhouse gas emissions to 7.7 t CO₂e by 2030—a 26 percent drop below 2005 levels. Prime Minister Benjamin Netanyahu stood before the delegates and vowed that just as Israel was playing a leading role in the fight against terrorism, it would also do so in addressing climate change, especially through the innovative development of technologies.⁹ It would take a full year for Israel's government to translate this bold announcement into the formal mechanics of ratification. Even so, it is hardly clear that the country is on track to meet these critical new international obligations.

We will begin here with a brief description of the 2015 global climate agreement and why it engendered such a sense of optimism, even among usually frustrated climate change advocates. Then Israel's specific commitments under the Paris Agreement will be reviewed, and the measures that have been set in motion to meet these commitments evaluated. Based on the historic record, there seems to be little reason to believe that Israel's declared intentions to reduce its carbon footprint will produce results meaningfully better than its abysmal performance to date. Nevertheless, a heroic effort to transform Israel into a low-carbon local economy, as part of a global effort to stabilize atmospheric concentrations of greenhouse gases, is more valid—and morally imperative—than ever.

The Paris Agreement on Climate Change

At the very least, the UNFCCC Paris agreement is clear about what it hopes to achieve: The 180 countries party to the agreement endorsed an aggregate greenhouse gas emissions ceiling that is projected to limit rises in average future global temperatures to “well below” 2°C, as well as to pursue “efforts to the limit the temperature increase to 1.5 °C above pre-industrial levels.”¹⁰ These objectives were deemed both attainable and plausible for avoiding the worst effects of global warming.¹¹ After years of deadlock, the agreement contained many concrete commitments that took the community of nations beyond the empty declarations

that had often characterized the UNFCCC's previous meetings, especially the disappointing COP17 in Copenhagen.¹² One could argue that the Paris Agreement was primarily a diplomatic success that saved the UNFCCC process and faith in international collective action after twenty-three years of failure.

One reason the Paris Agreement can be considered a success is that for the first time, the bifurcated standards set for “developing” versus “developed” nations began to blur. The principle of “common but differentiated responsibilities” had always allowed the community of nations to overcome the reluctance of poorer nations to meet tough international standards by establishing lenient expectations for them. In practice, that principle enabled countries with prodigious contributions to global greenhouse gas emissions, such as India and China (and Israel), to opt out of greenhouse gas emission ceilings, with the attendant restrictions on industrial and energy production. Western nations, especially the US, began to balk. Most notably, President George W. Bush justified his refusal to promote the adoption of the Kyoto Protocol because it put American manufacturers at an unfair disadvantage relative to competitors in non-Annex 1, developing countries.¹³

These dynamics began to change in Paris. For instance, a uniform assessment/verification rule for all countries was adopted, with only modestly different standards for affluent nations. Least developed nations were compensated with the promise of expanded economic aid—\$100 billion per year—to help them make the transition to a lower carbon economy. Of particular importance, the world's largest greenhouse gas emitter, China, for the first time agreed to more aggressive efforts to curb greenhouse gases, declaring that the country's emissions would peak by 2030 and then begin to drop. Moreover, China was willing to make a RMB 20 billion (\$3.1 billion) donation to the UNFCCC financial mechanism and its Least Developed Country Fund to help developing countries meet the challenge associated with anticipated climate change.¹⁴ Even Vietnam offered to make a \$1 million donation.¹⁵ India, which had always refused to set concrete emissions targets, was ultimately willing to set a short-term objective of obtaining 40 percent of its electricity from renewables and other low carbon sources, and a general 33–35 percent emission intensity reduction.

Not surprisingly, climate justice activists, who have long drawn attention to the plight of the countless indigent climate casualties, were highly critical. They argued that the new agreement still spelled disaster for people in low-lying island nations such as Tuvalu and Vanuatu, as well as the African continent. Unlike in the Kyoto Protocol, which began with scientifically validated emissions targets, wealthy countries were ultimately allowed to choose their own emissions targets and pick convenient baselines. Moreover, they were not legally bound to any particular timeline, let alone a strict one. Worst of all, under the agreement, developed countries are absolved of any future liability to climate change victims. The Less Developed Country Fund exists to help the most vulnerable

countries with “urgent and immediate” adaptation needs, but its assistance hardly constitutes compensation. The Paris Agreement in no way obligates wealthy countries to pay reparations to poor countries for climate change-related damages. In other words, as the world moves toward a 3° warming, the most affected nations, which did practically nothing to create the climate problem, will suffer the consequences—stripped of any legal rights to claim restitution.

In the end, however, the voices of pragmatism won out. The international community decided that it was better to have an imperfect, operational agreement than to hold out for a perfect, fully equitable one, which may never be attained.

There were clear practical advantages to the approach approved in the Paris Agreement. What made the Paris strategy unique was that the UNFCCC had collected commitments from countries around the world even before the conference convened. Experience had demonstrated that there is a significant gap between what countries declare due to the peer pressure and enthusiasm arising from international gatherings and what actual operational ratification efforts follow a conference. Accordingly, during the summer and fall of 2015, member nations of the UNFCCC submitted the aforementioned INDCs that detail mitigation progress. Granted, these reports have varying degrees of resolution and ambitiousness, but they are subject to international review. Undoubtedly, they represent a new level of concreteness in global mitigation efforts. Moreover, the Paris Agreement sees this process as dynamic. New and more ambitious INDCs are to be prepared and implemented after five years.

It is important to emphasize that the Paris Agreement is hardly a panacea. Even if all countries actually meet their emission pledges, models suggest that CO₂ concentrations in the atmosphere will still spiral up to levels that will cause a 3° increase in average global temperatures.¹⁶ This is far above the 2° threshold beyond which cataclysmic feedback cycles are expected to create unacceptably chaotic weather conditions.¹⁷ That is why full compliance with INDC-driven commitments, at the very least, is deemed absolutely critical.

Israel Comes to Paris

On September 29, 2015, Israel formally announced the submission of its Intended Nationally Determined Contribution. Ostensibly, it is a very bold document. It opens by setting forward clear societal objectives for the next fifteen years: “Israel intends to achieve an economy-wide unconditional target of reducing its per capita greenhouse gas emissions to 7.7 t CO₂e by 2030, which constitutes a reduction of 26 percent below the level in 2005 of 10.4 t CO₂e per capita. An interim target of 8.8 t CO₂e per capita is expected by 2025.”¹⁸

This relatively ambitious orientation and enhanced level of specificity may have explained why, for the first time, Israel's most senior elected official decided to attend a UNFCCC meeting and address the COP21 delegates in Paris. In the past, Netanyahu chose not to attend major UN environmental gatherings. Presumably he did not see the climate change issue as sufficiently salient to spend the time in attendance; or perhaps he was justifiably concerned about being confronted by hostile audiences, or as official communiques explained, the costs of the extensive security detail. For example, in 2009, it was deemed more prudent to send then-President Shimon Peres, a popular international figure, to head the Israeli delegation at the widely anticipated, but ultimately disappointing, COP 15 in Copenhagen.¹⁹

It was there, on December 17, at the "high-level segment" of the UN gathering, that Peres officially conveyed Israel's first GHG emissions reduction target. There was much apprehension about the actual target he would announce, as Israel's elected government had not yet made such a determination. Relying on calculations cobbled together in a hastily prepared analysis by management consultancy firm McKinsey and Company,²⁰ Peres called for a 20 percent reduction in Israeli GHG emissions by the year 2020—relative to a "business as usual" (BAU) scenario. Presumably this emission level was a compromise between the position of the Ministry of Environmental Protection, which argued that Israel had already committed—and needed—to do more, and that of the Ministry of Finance, which did not feel that the Israeli economy was ready for such a formidable investment.²¹

The trouble was that probably unbeknownst to him, Peres's 20 percent reduction target was in fact misleading. What seemed to be a balanced and conscientious level of commitment was in fact a fairly pathetic "punt." "Business as usual," as projected by the BAU, involved roughly a doubling of Israeli emissions over the coming decades. Therefore, the declared 20 percent drop was something of a sleight of hand: Stated more plainly, Israel expected a dramatic 80 percent growth in its GHG actual emissions—an increase only exceeded by Singapore, among developed countries.²²

Unfortunately, even these very modest Israeli targets were never pursued seriously. Subsequent to COP15 and Peres's pledge initial follow-up looked promising: A committee headed by the director general of the Finance Ministry, Haim Shani, began work in 2010 with a mandate to design a national climate change plan. Reasonable financial resources were available. The government approved an investment of NIS 2.2 billion in projects related to energy conservation during fiscal year 2011–12. Ultimately, however, only NIS 509 million was allocated for the program. This represented some 0.07 percent of the government's annual budget. When compared with the 2 percent average of government budgets invested by European countries such as Sweden, or even the 0.3 percent of that of the US,²³ the magnitude of Israel's anemic performance becomes clear.²⁴ To make matters worse, soon thereafter, a new government was elected and the entire climate change program budget

was frozen by the new finance minister, Yair Lapid. In the summer of 2015, it was entirely scrapped by the next government.²⁵

Civil society was not complacent in the face of the government's retreat. Beyond the chorus of protestations in the press, a successful Supreme Court action was filed by the NGO Adam Teva V'din (The Israel Union for Environmental Defense) to force the government to submit an energy conservation plan the cabinet had committed to preparing. But even after a court-set deadline, the government tarried.²⁶

This lack of a comprehensive climate change strategy is pervasive. For more than a decade, a series of governments have promised the imminent publication of a national energy masterplan. But thus far, such assurances have not been validated, even by the release of an early draft. And once it is finally prepared, there is little reason to believe that it will be a comprehensive, holistic, and effective national strategy. That is because the task of preparing the blueprint was delegated to the Israel Electricity Authority. This is a peculiar choice, considering the narrow bureaucratic expertise of an agency whose sole responsibility is setting the price of electricity. That means that it is completely disengaged from areas such as transportation, fuel production, agriculture, and construction.

Nevertheless, environmentalists hoped that all this would improve, as the Paris Agreement promised to induce a far more serious Israeli climate change commitment. Given the recent terrorist attacks in the city, Netanyahu did not hesitate to bring his perspective on the issue to world leaders. In his address to the hundreds of delegates assembled at COP21, he was nothing short of passionate:

... even as Israel plays a leading role in the fight against terrorism, we are also playing a leading role in addressing climate change. This is a pivotal issue of our time. It's a pivotal issue for developed nations; it's a pivotal issue for developing nations. We are one planet, and climate knows no bounds... Israel has had to optimize all its life. We had no material resources. We had precious water, very little water; we had to do more with less. Since I mentioned water, understand that our rainfall in the sixty-seven years of Israel's independence has almost halved, our population has grown ten times, our GDP per capita has grown forty times. We have no water problem. We have learned to do more with less. This is what we as a planet must learn to do. We must learn to do more with less.²⁷

Israel's Half-hearted Implementation of the Paris Agreement

Given those "fighting words," there was ample reason to believe that Israel would embrace a significant national effort to back up the rhetoric with action. Europe had certainly set a good example. All told, greenhouse gas emissions in the EU

decreased by 23 percent between 1990 and 2014. During the same period, its GDP grew 46 percent.²⁸ Israel only became a member of the OECD in 2010, so the organization's expectations for full participation in global greenhouse gas mitigation efforts were not yet salient during the Copenhagen COP15.²⁹ Now, as a proud member of the exclusive club of prosperous—and environmentally responsible—nations, Israel could be expected to do its part. Indeed, greenhouse gas emissions are falling in almost all other OECD countries.

Such a shift would by no means be anomalous. Israel has a proud tradition of being a pioneer in renewable energies. After the country gained independence, founding father David Ben-Gurion not only established a research council within his office that included a solar energy group, but he went as far as personally recruiting Harry Tabor, a British scientist, to help lead the team. In the early 1950s, passive solar water heaters were already being manufactured commercially; by 1967, 50,000 systems were sold each year. This technology became ubiquitous locally after Israel's Interior Ministry drafted regulations in the 1970s that required new residential buildings up to 27 meters high to install solar water heaters.³⁰ Today, more than 85 percent of Israeli homes sport an infrastructure for heating their water via solar collectors.³¹

Sadly, anyone who expected the reemergence of innovative and intrepid leadership in renewables was soon disappointed. Despite the prime minister's rousing oration in Paris, during the year subsequent to the Paris Agreement, Israeli implementation of its INDC commitments has been halfhearted at best. This may in part be due to the resignation of Environment Minister Avi Gabbay in May 2016. This meant that the position of "chief lobbyist" for climate-related allocations in national budgets was essentially vacant for much of the year. But Gabbay did not leave his post before attaining a modicum of engagement from his fellow ministers: In April 2016, the government approved an eight-page decision detailing its climate change strategy. It is long on ideas but short on concrete objectives and economic allocations.

As opposed to the 2010 government decision that earmarked NIS 2.2 billion for conservation projects, the April 2016 government decision limited its energy efficiency grants to NIS 300 million (~\$80 million) in total. In addition, a revolving grant fund of NIS 500 million was created. This money is to be spent over the next ten years to provide loans for investments that improve energy efficiency and greenhouse gas emissions reduction.³²

One might have hoped that the 2016 allowances would only be the first in a litany of government-sponsored, renewable grants programs. But this does not appear to be the government's intention. Section 17 of the cabinet's decision specifically intimates that no other moneys for grants and loans will be allocated to further climate change mitigation—presumably until the year 2030.

In its defense, a few important objectives can be identified in the new government strategy. Various ministries have been assigned a range of tasks; for instance, the finance minister is expected to grant tax benefits via a 20 percent accelerated depreciation rate for photovoltaic commercial facilities over a three-year period. Most importantly perhaps, the energy minister has been instructed to continue to “work toward achieving the target of 10 percent of total electricity generation from renewable energy sources” by the year 2020 or the 17 percent, 2030 goal for renewables.³³

Critics are quick to point out that Israel’s government has already made a string of commitments to renewable energy targets that it never met. For instance, Israel Government Decision No. 4450 of 2009 declared that by 2014, 5 percent of Israeli electricity would come from renewable sources. At present, only 2.6 percent of Israel’s electricity comes from renewables and the rate continues to fall behind that of the rest of the developed world, which is increasingly beating its own renewable energy goals. For example, in 2015, Europe invested \$328 billion in renewable energy projects—with 44 percent of all new electricity plants on the continent using renewable energy.³⁴ In 2015, 42 percent of Danish electricity came from wind turbines alone.³⁵ Renewable energy sources supplied 33 percent of German electricity that year.³⁶ And Costa Rica is fast closing in on its goal of producing 100 percent of its electricity from renewable sources.³⁷ Given Israel’s prodigious supply of sunshine, a 2.6 percent renewable energy rate is pitiful. Experts also are highly pessimistic of Israel meeting the government’s promised 10 percent renewable target within the next four years.³⁸

For the most part, the Israeli government program is vague, with precious few quantifiable milestones. The construction and housing minister should explore the possibility of mandatory energy ratings in new residential buildings and offices. A plan for promoting public transport use and reducing private car usage is to be prepared by June 2017. Other plans are to be developed to encourage electricity conservation and incentivize the adoption of green building standards. Economic tools to promote infrastructure for altering the available mix of fuels should be evaluated. A bird sensitivity map is to be drafted by the environmental ministry, presumably with the goal of expediting more wind-generated electricity facilities.

Work on many of these plans is already underway. But the actual magnitude of emission reduction each is supposed to achieve is never specified. Nor is it clear whether the programs will eventually be funded or even adopted. For instance, the government decision also stipulates that any climate-change related measures must meet a “cost–benefit” standard, which is not clearly characterized.³⁹ The message appears to be: “This time around there will be no technology forcing; let’s hope that the price of renewable energy continues to drop.” In short, seven months after the Israeli cabinet’s post-Paris decision, it is not at all clear

whether the broad but nebulous vision to transform Israel into a low-carbon economy is progressing any more than it did following the government's post-Copenhagen abandoned pledges.

Moving beyond Israel's Climate Policy Chaos

Despite the sluggishness of implementation, environmentalists are encouraged by a few positive developments that emerged in the year following the Paris Agreement. To begin with, they welcomed a recent decision by Minister of Infrastructure Yuval Steinitz to begin disabling coal-fired units 1–4 in the Hadera-based Orot Rabin power plant within the next six years and replacing them with natural gas.⁴⁰ Natural gas, now available in relatively abundant quantities in the Israeli economic zone of the Mediterranean Sea, has roughly half the carbon footprint of coal. The Hadera units would remain “on hold,” and in the event of a natural gas supply crisis, they could be operational again within two weeks. The Ministry of Environmental Protection has prepared an economic evaluation of the move that suggested that shifting production to natural gas would actually save consumers some 12.5 million shekels.⁴¹

There are some impressive local stories that offer a “proof of concept” of just how different things could be: Daytime energy in the rural, sun-rich region of Eilat is already 70 percent solar powered.⁴² With plans for expanded solar fields already in place, the area anticipates complete energy independence within a few years.⁴³ Somewhat further north, in the Negev highlands, a mixed solar tower/thermal/photovoltaic facility in Asahalim supposedly will become operational in 2017 and produce 2.5 percent of Israel's electricity.⁴⁴

Perhaps the brightest political development involves the engagement of the Knesset, in particular the efforts initiated by parliamentarian Yael Cohen-Paran. The chair of Israel's green party, the Green Movement, she sits in Israel's Knesset as part of the Zionist Camp coalition. Cohen-Paran recently submitted a bill with parliamentary colleagues that would cancel the exemption that buildings standing twenty-seven meters or higher have enjoyed on the installation of solar water systems. (It is reported that some 8 percent of recently built Israeli apartments exceed this 10–15 story height.⁴⁵) The bill explains that over the years, passive solar technology has developed, and the original rationale behind the limitation is no longer valid.⁴⁶

Cohen-Paran's main accomplishment, however, is the establishment of a special sub-committee of the Knesset Science Committee that she chairs, with a mandate to evaluate the implementation of the Paris Agreement. This has led to a legislative effort to remove some of the more vexing bureaucratic obstacles to renewable energy dissemination. For instance, legislation that she successfully

sponsored provides an exemption from property taxes for solar panels installed by private citizens.⁴⁷ Over the years, scores of Israelis were dissuaded from installing photovoltaic systems on their rooftops due to the anticipated taxes that changed the economic calculus of such private solar initiatives. But even these praiseworthy efforts remain inadequate. For instance, it is unfortunate that due to government objections, attempts to offer the same exemption to small businesses or industries proved unsuccessful.

Those speaking on behalf of the Israeli government claim that the scope and magnitude of present government efforts to mitigate climate change are fundamentally different than previous initiatives. The 17 percent 2030 renewable goal and 26 percent per capita greenhouse gas emission drop are deemed to be highly ambitious. They also argue that there is nothing wrong with the government preferring *not* to fund energy efficiency and renewable energy projects directly, but rather to make loans accessible. The new funding programs are considered especially lucrative for municipalities. They are also quick to mention what a small percentage of global greenhouse gas emissions come from Israel's economy (roughly 0.19 percent), implicitly inferring that any Israeli mitigation effort is magnanimous and heroic.⁴⁸

Inexplicably, the government sees its promise of a per-capita drop as laudable, explaining that typically, countries only commit to an absolute drop in emissions, with Israel's per-capita target deemed more authentic. But this conveniently ignores high baseline emissions levels within Israel. Although total emissions may not be significant globally, per capita, Israelis releases more greenhouse gases than people in countries such as Germany, France, Japan, India, and Italy.⁴⁹ The position is also disingenuous, as it ignores the reality of Israel's rapid demographic growth. The truth is that with an annual population growth rate of 2 percent,⁵⁰ Israel's population is projected to grow by 35 percent by the year 2030. In other words, if the 26 percent per capita emission reductions are indeed achieved by 2030—a dubious prospect based on failed past targets—total Israeli emissions of greenhouse gasses will still have increased by at least 9 percent. This may be an underestimate, as Israeli lifestyles are increasingly energy intensive, with omnipresent air conditioning, rising car-ownership rates, frequent international travel, etc. In short, Israel will be expanding its emissions during a critical period in which the world's scientists call for at least 40 percent reduction in global levels.⁵¹

While official Israeli representatives are happy to repeat a mantra of climate change providing an unprecedented economic opportunity to seize market share in a global low-carbon economy, the reality is very different. Under the Paris framework, \$1 trillion is being mobilized around the planet for climate change-related work and research during the coming decade. But thus far, Israel has contributed so little money to the fund that it is not at all clear that Israeli researchers will be eligible to apply for grants.⁵²

Critics of current Israeli efforts claim that despite government decisions over the years, the country still does not have a fundamentally coherent policy in place.⁵³ Although several academics, such as Technion researcher Ofira Ayalon and her team, have produced thoughtful and constructive national strategies,⁵⁴ they have had little traction among decision makers. To begin with, senior decision makers are decidedly disengaged from the global dynamics of climate change politics. For example, in order for the Paris Agreement to come into force, the protocol stipulates a minimum ratification by “fifty-five Parties to the Convention accounting in total for at least an estimated 55 percent of the total global greenhouse gas emissions.” As nations around the world raced against the clock to reach 55 percent ratification levels prior to the commencement of COP22 in Marrakesh, the Israeli government was curiously complacent. Then, once the 55 percent participation level was attained, it was the Israeli government that needed to scramble to push ratification through so that the Israeli delegation would be able to fully participate in the deliberations without embarrassment.

The challenge, however, is ultimately far more “local” than “global.” As Israeli parliamentarian Dov Khenin explains: “It is important to see the international climate crisis as a local opportunity: to translate the global system into implementation among local systems. The climate crisis can mean less pollution in the Haifa Bay. It can mean more public transportation. It can mean technological development. And we can do this tomorrow.”⁵⁵

Part of the problem may be the lack of a single entity to lead and coordinate the disparate national efforts. The nature of greenhouse gas mitigation—even without adaptation efforts—is that it involves almost every aspect of life. At least five or six ministries need to be directly engaged in implementing a national program.⁵⁶ In the absence of a “super-agency” that might oversee the many parallel interventions, many initiatives became bogged down or simply forgotten by ministries that have other, more pressing priorities. It is also well to remember that many of the core missions of government agencies involve promoting activities that increase greenhouse gas emissions rather than reduce them. The construction of highways by the Transportation Ministry; subsidies for meat production (making Israel the fourth-highest meat consuming country per capita in the world, just behind Argentina);⁵⁷ the sponsoring of new neighborhoods in forested areas; and even the desalination of seawater—all legitimate ministerial initiatives—are part of Israel’s greenhouse gas emissions problem.

The installation of rooftop photovoltaic units in private homes is an excellent example of the institutional chaos. As mentioned, a private intervention by green Knesset lawmakers finally exempted private homes from income taxes on revenues received for selling electricity back to the grid. But conscientious homeowners face more headaches. Municipal governments are planning to impose property levies on installations they see as expanded, taxable real estate; the Israel Land Authority,

which leases the lands on which so many houses are located, also wants a cut of the anticipated profits. It doesn't end there: The Ministry of Environmental Protection is demanding that citizens receive radiation licenses for domestic PV installations. The fire department is demanding a separate licensing procedure.⁵⁸ Under these circumstances, only truly committed tree-huggers or the clinically crazy would opt for a photovoltaic unit on their roof.

One clear casualty of the flawed implementation by the Israeli government is the local solar industry. In the past, there was considerable entrepreneurial effort, and start-ups focused on upgrading solar energy technologies. But industry representatives claim that as oil prices fell from the 2008 all-time high, profits and patience for the bureaucracy dwindled among solar investors. Many companies quietly shut their doors. The availability of inexpensive natural gas unquestionably benefits the Israeli economy and hopefully will improve the country's GHG emissions profile. But rather than being perceived as a transition energy source, natural gas sabotages efforts to make renewable energy a compelling economic alternative. Indeed, Hebrew University professors Itay Fishendler and Eran Feitelson argue that a variety of factors, including the sunk costs in the existing energy infrastructure, have created an "energy coalition" that clashes with environmental forces on the future role of solar electricity. The coalition, including the Ministry of Energy and Water as well as the Israel Electric Corporation, prefers a national climate-change strategy that does not emphasize renewable sources.⁵⁹

In many countries, climate change mitigation interventions are actually spearheaded at the local and municipal level. That was the idea behind the establishment of the Forum of 15, a consortium of major cities that are home to 40 percent of Israel's citizens—and that service 80 percent.⁶⁰ It was hoped that they could improve Israel's mitigation performance by coordinated municipal policies. While there have been several impressive isolated achievements, the results have fallen short of local efforts in other countries, especially in Europe. The forum representatives explain that the extraordinary achievements in such cities as San Francisco or Freiberg, Germany are ultimately irrelevant to Israel. That is because the central government is extremely controlling. Municipal decisions makers have limited authorities for legislating or incentivizing lower-carbon activities by local businesses and individuals under their jurisdiction.

In November 2016, Americans elected Donald Trump as their president. Trump has gone on record on numerous occasions denying the very existence of anthropogenically induced climate change.⁶¹ This places the future of international efforts to stabilize atmospheric carbon concentrations and future climate conditions in greater doubt than ever before. There are, however, ample reasons for hope. For instance, in 2015, CO₂ emissions in China, the world's largest producer of greenhouse gases, dropped by 3 percent in absolute terms, notwithstanding the growth in its population.⁶²

There is considerable danger that the Israelis will see American withdrawal from its leadership role in climate change mitigation as an excuse to do even less to curb the country's greenhouse gas emissions. It is well to remember that reducing greenhouse gas emissions is not just a function of top-down policies but also of public engagement. There has been far too little effort to engender the behavior changes that should be part of a comprehensive, societal effort to address climate change, which demands moral leadership. One well-known adage from the ancient Jewish *Ethics of the Fathers*, written two thousand years ago, says, "In a place where there is no one worthy, strive to be worthy" (Avoth, 2:5). Any ethical standard of intergenerational equity requires that every country on the planet, including the State of Israel, do more to stabilize the climate.

Notes

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