

ENERGY IN A CLIMATE OF OCCUPATION

**THE IMPACT OF RURAL
ELECTRIFICATION ON
VULNERABLE PASTORALIST
COMMUNITIES IN THE
OCCUPIED PALESTINIAN
TERRITORIES**

1

Energy in a Climate of Occupation:

The Impact of Rural Electrification on Vulnerable Pastoralist Communities in the Occupied Palestinian Territories

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An amendment enacted by the Israeli Knesset as part of the governmental campaign against Israeli civil society obliges us to point that most of the sources for Comet-ME's budget are donations from foreign governmental entities. Needless to say, we are proud to have on our list of donors democracies who share with us the belief that electricity and clean water are basic human rights for all people, and specifically for those living under military occupation.



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A few acknowledgments To Ilene Cohen, Natalie Melzer, Natasha Dudinski, and Inbal Arnon, who read, commented, and helped make the text as clear and precise as possible. To the UK FCDO and the British Consulate General of Jerusalem, who not only funded the energy systems in the community but paid many visits with its team, headed by Consul General Diane Corner—and helped to advocate for the community. To Hagar Gefen, Gil Hammershlag, and Shahr Shilohach, who provided a protective presence and witnessing for the community on some of their most difficult nights.

Lastly, and above all, we wish to thank the people of Ras al-Tin for welcoming us into their homes and lives and letting us tell their story.





Photo Tomer Appelbaum

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PROLOGUE

It is impossible to present this report without acknowledging the tragedy that has befallen the community at its heart over the course of the year in which this study was conducted.

In early July 2021, Comet-ME, in partnership with the Arava Institute for Environmental Studies, set out to examine the impact of Comet-ME's renewable energy systems on vulnerable Palestinian communities in the occupied Palestinian territory. We selected Ras al-Tin, a Bedouin community in the central West Bank, as our case study. Besides the fact that the people of Ras al-Tin are exceptionally welcoming and warm and that they agreed to let us intrude on their lives for the months to come, we chose Ras al-Tin because of the unique characteristics and structure of the community, characteristics that had defined its resilience well before their energy system was installed: specifically, the way in which half of its families navigated temporally and spatially within the bounds of a single space every year for more

than two decades. Comet-ME had installed several renewable energy systems in the community only a month earlier, in June 2021, and we anticipated observing how access to electricity might enhance these already well-developed tools of resilience and how the energy system, as their only permanent piece of infrastructure, might shape their present and their future in expected and unexpected ways.

What we did not anticipate was the series of human-made disasters that the formal and informal agents of the Israeli Occupation would mete out to this community over the course of the year that followed. These acts cut down the pillars of resilience on which the community had supported itself and ultimately forced the community to leave the place it had called home for more than two decades.

It began early in the morning of July 14, 2021, when the Israeli Civil Administration arrived without warning, accompanied by military forces, trucks, and workers. They closed off the area and seized all of the tents, animal shelters, water tanks, tractors, water trailers, and solar panels comprising the summer compound of the community's leader, Ahmad Ka'abneh (Abu Salameh) and his extended family.



From that day forward, these families were enveloped by an ever expanding socioeconomic, humanitarian, and psychosocial crisis. The mass confiscation was tantamount to the expulsion of the families from their summer area; they paid thousands of shekels out of pocket to retrieve seized equipment, in particular water tanks and trailers; they could not return to their summer location with their herds come late May for fear of further confiscations; settlers seized three of their cisterns and drained their water tanks; and their precarious water situation was exacerbated by the high cost and difficult logistics of transporting water for the herds to their winter location, where they were stuck in the ensuing summer months of 2022. At a certain point it seemed that the electricity system was the only thing allowing them to stay in place waiting for the tide to turn in their favor.

And then came the last straw. In June 2022, violent settlers from the nearby outposts, who had been increasingly encroaching upon the community and their grazing areas for the past 3–4 years, began brutalizing and terrorizing the families inside their own homes, threatening the women and children, bringing soldiers along with them to stand by and even participate. On June 14, 2022, it was the family

of Abu Yasser, Abu Salameh's younger brother; on July 6 it was the family of Abu al-Abd, their elder brother. As a result, the community had no choice but to leave. On July 12, 2022, the 18 families and more than 100 people comprising Abu Salameh, Abu Yasser, and Abu al-Abd's extended families left the area after more than two decades.

All this happened as we were in the final stages of writing this report, leaving us with the question of whether and how to present it and how to frame it. Thus, whereas the pages that follow show the potential of renewable energy to mitigate the hardships experienced by Ras al-Tin and dozens of other Palestinian-Bedouin communities living in Area C of the occupied Palestinian territories, they also show that this is not enough. The coercive environment has intensified so greatly over the past few years that a broader change in strategic thinking is required, and we invite readers of this report—members of the international community, stakeholders in the region, and other people of goodwill who care—to begin to share in this rethinking.



July 14 2021, people of Ras al-Tin watching the confiscation of Abu Salameh's summer compound. Photo courtesy of the community

INTRODUCTION

Comet-ME is an Israeli-Palestinian NGO that since 2009 has supported vulnerable off-grid Palestinian communities through the provision of sustainable renewable energy and clean water services. Comet-ME's work is focused exclusively in Area C of the occupied Palestinian territories (oPt), where Israel holds full military and civilian control, and where harsh climatic conditions are compounded by a coercive political environment in which herding and farming communities live disconnected from all infrastructure, including access roads, electricity, running, potable water, and internet, and are under constant threat of forced displacement.

As noted in the Prologue, Comet-ME and the Arava Institute for Environmental Studies embarked on this study in summer 2021 to assess the impact of Comet-ME's renewable energy systems and services on rural Palestinian communities in Area C of the oPt.¹

1 Since 2012, Comet-ME has commissioned three different anthropological studies. The first, "Like Water for the Thirsty..." (2012, accessible on [Comet-ME's website](#)), commissioned from social anthropologist Shuli Hartman, addresses the impact of the introduction of Comet-ME's renewable energy systems in the herding and farming *fallah* communities of the south Hebron hills. In 2014 and 2017, respectively, Comet-ME commissioned Hartman again to write expert opinions to support Supreme Court petitions on the matter of Maghayer al-Abeed in the south Hebron hills, and Jib al-Dhib, in the Bethlehem area.

Adding to previous studies commissioned by the organization, this one more specifically considers the impact of Comet-ME's renewable energy work in the Bedouin-Palestinian communities in the central West Bank, which have been the focus of much of Comet-ME's installation efforts since 2017.

The community selected as a case study for this report is Ras al-Tin, a Bedouin community belonging to the Ka'abneh-Zweidin tribe and originating from the southern West Bank and Negev/Naqab desert. Forced by the Israeli military to relocate from the south Hebron hills in the 1970s, the families have lived since the early 1980s in the area near the spring known as Ein Samya, to the northeast of Ramallah. Several forced relocations in that area ultimately led them to their present location, known as Ras al-Tin, where they have lived for more than two decades. Historically, the families of Ras al-Tin were semi-nomadic, changing their location within their territories regularly, depending on the seasonal conditions (rain, heat, wind, floods) and availability of water and grazing lands. This type of local seasonal mobility, reflecting pastoralist communities' capacity to adapt to and survive challenging environmental conditions, has been gradually limited over the years in the face of closed military zones, restriction of grazing areas, and burgeoning settler violence. However, these limitations on mobility are not compensated with infrastructure, roads, water, or electricity grids—thus exposing Ras al-Tin and communities like it to even greater environmental hardship.

In June 2021, Comet-ME began providing energy services to the 29 households in the community. Due to the unique topography of Ras al-Tin and the distances between the various compounds,

Comet-ME installed two small micro-grids as well as eight solar home systems. The systems provide each household with 2.5 kWh of electricity over the course of 24 hours a day, enough for refrigeration, illumination, cell-phone charging, television and radio, washing machines, butter churns, and fans. Following the installation, Comet-ME signed a service contract with each household that ensures ongoing maintenance and management of the systems, in exchange for the users' payment of an electricity bill.

The study looks at the ways in which the electrification project impacts the lives of the women, men, girls, and boys of Ras al-Tin, from multiple perspectives. Beyond the direct impact of the everyday use of electricity, this study also asks how the electrification process is truthfully experienced on the ground—how it illuminates broader pressures, challenges, and relationships. This report is aimed at a broad audience and therefore it avoids academic jargon and framing. However, it draws on the methods and conceptualizations of political ecology, taking as a point of departure the idea that power structures and the struggle for natural resources are inextricably linked, and that scholarship should inform actual change.²

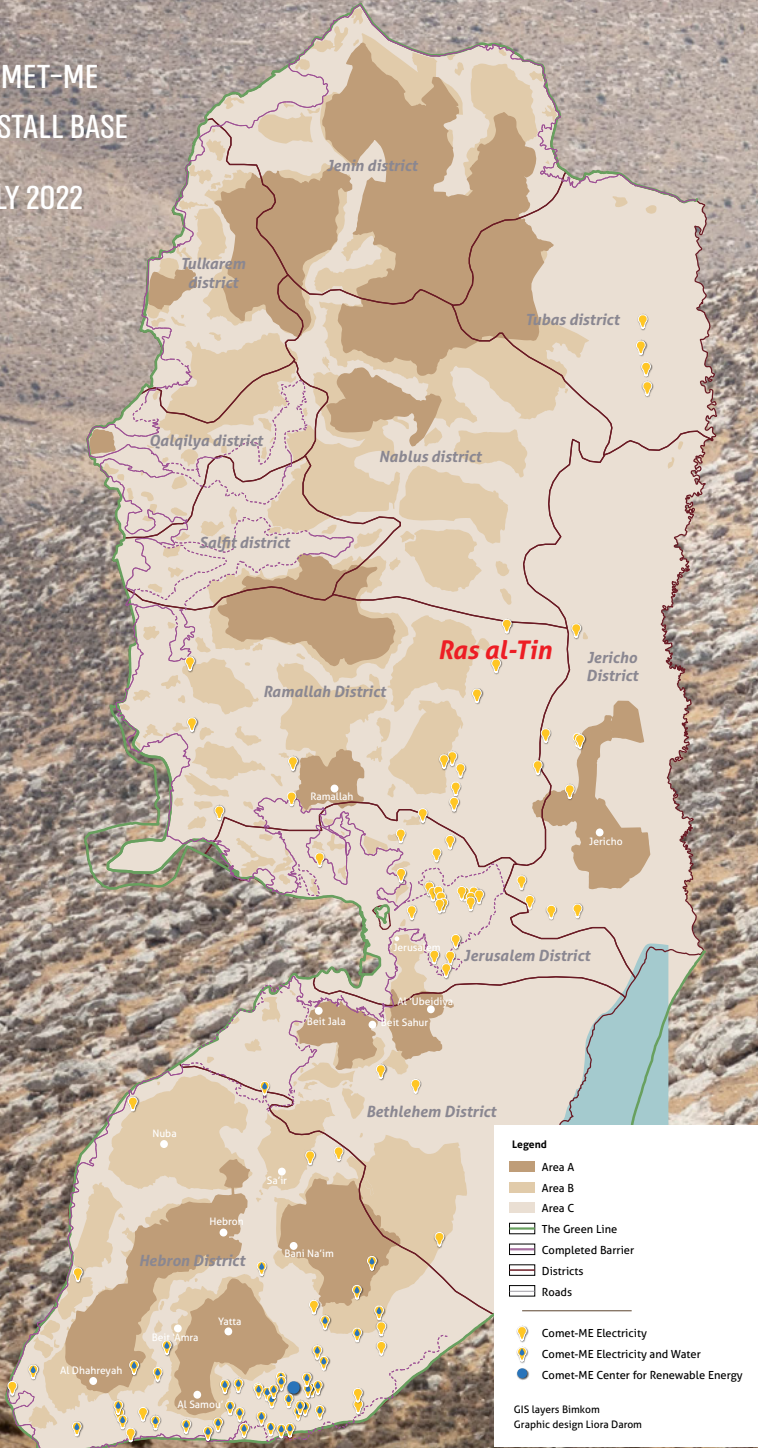
The study finds, broadly speaking, that the provision of reliable access to energy compensates for the loss of traditional mechanisms and ways of coping with environmental extremity and changes. Having electricity affords women greater flexibility in organizing how they use their time. It facilitates communication and education in the face of

geographical remoteness and political marginalization. While the compounded challenges of the Israeli Occupation and changing climatic conditions³ increase the Bedouins' vulnerability, reliable access to energy may help them gain back some aspects of resilience as they are forced to modify their environmental traditions. Perhaps most significantly, Comet-ME's commitment to provide maintenance and service for the users from the moment the systems are installed provides the community with a sense of stability and a modicum of normalcy within a highly coercive and stressful environment.

2 See Lavi-Neeman and Shiloach 2022.

3 Current climatic changes that are already noticeable in the region are described in research as three main documented trends, including: a drop in average annual precipitation, a rise over the years in longer periods of droughts, and changes in the intensity of rainfall (influencing soil percolation). Together these have caused an overall shortage of water and changes in the availability of natural pasture. (Ziv et al. 2014)

COMET-ME
INSTALL BASE
JULY 2022





METHODOLOGY

Conducting a study in pastoralist communities in Area C entails coping with the routine instabilities and the unexpected that characterize everyday life in these communities. It therefore requires flexible and multiple methodologies. Field research was conducted over the course of 12 months—from mid-July 2021 through mid-July 2022. The research included field visits and interviews with members of several extended families in Ras al-Tin—at different times of the year, in different locations, and at different times of day. Methodologies included participant observations, open-ended interviews, and focus group discussions with men, women, and children, in the spaces where they reside and work, as well as at the community's school.

The first visit for the study took place less than two weeks after the traumatic event that rippled throughout the period of the field research. As recounted in the Prologue, the Israeli Civil Administration arrived in force—with IDF personnel, trucks, and workers—early on July 14, 2021. They immediately closed off the area and confiscated all of the property: tents, animal shelters, water tanks, tractors, water trailers, and solar panels⁴

comprising the summer compound of the extended family of the community's Mukhtar Ahmad Ka'abneh (Abu Salameh). The impact and aftershocks of this traumatic event reverberated throughout the interviews and conversations with community members conducted over the subsequent months, helping us and indeed giving us no choice but to understand energy and electrification in their wider social and political context. Further, the enduring impact of the trauma highlighted the challenges faced by the community in its attempt to maintain its way of life and continue to live in dignity in the place that it has called home for the past two decades.

⁴ These were old solar panels, not provided by Comet-ME, that the families were using in the interim, as their new micro-grid had been installed in their permanent winter compound, per their request and in coordination between the community and Comet-ME.

Dairy products are a mainstay of the economy for pastoralist communities in Area C. Electric butter churns save women hours of physical labor preparing the dairy products, and the use of cold water in the process increases the yield per liter.

Photo Tomer Appelbaum



THE LAY OF THE LAND

Ras al-Tin is located northeast of Ramallah, to the east of the Palestinian villages of Kufr Malek and al-Mughayyer, near the Israeli settlement of Kochav HaShachar, and in the crosshairs of the violent outposts that this and other settlements have spawned in recent years. To reach the community one turns off the main road (Highway 458) at a small sign pointing (in Hebrew only) to the "Kochav HaShachar Quarry." Ras al-Tin itself is not visible from the main road. In the middle of the quarry, amidst mounds of heavy, blinding dust and machinery, the road forks.



Taking the right fork in the middle of the quarry leads you uphill toward the winter residence of Abu Salameh, as well as to the year-round compounds of his brothers, Abu Yasser and Abu al-Abd. The dust road eventually gives way to a semi-paved road and then to rocky terrain. Driving up this way, the view clears to reveal the landscape: on the right one sees the green fenced settlement of Kochav HaShachar and its recent outposts; in the distance is Ein Samya, the area where the community lived as long as they could until the late 1990s. Ein Samya is named for the spring where the families of Ras al-Tin go to this day to purchase the water that they transport to the community throughout the year.

At the top of the ridge, Abu Salameh's winter residence appears on the left, set strategically into the side of the mountain. This compound is characterized by relatively stable, aluminum structures, with concrete bases. The houses remain in place year-round. Traditionally the winter area provides protection from the damages of rain, winds, and floods; and the families are able to access cisterns in the area that are a source of water during the rainy months.

Going back through the quarry and taking the other fork in the path leads you to a stretch of cultivated land. This area is also known as "al-Kabun." At the end of a stretch of fields on the left side is a compound where 12 families live throughout the year and where a school was built in the summer of 2020 with aid from international organizations. For six months of the year—on the right along the length of the field—one would see a neat row of burlap and plastic tents placed at fixed intervals of about 200–300 meters, and behind them again an array of animal shelters, water tanks, and tractors. This was the summer compound of Abu Salameh, the Mukhtar of the community, before it was decimated by the Israeli authorities in July 2021.

Driving through the Kochav HaShachar quarry to reach the community. Taking the fork (at the arrow on the photo) to the right takes you over the ridge to Abu Salameh's winter residence and the compounds of Abu Yasser and Abu al-Abd. Taking the fork on the left leads you to the fields and the area known as "Al-Kabun," which contains Abu Salameh's summer compound and the "school compound."



Above: The area known as al-Kabun. Since the school was built in 2020 it is also known as “the school compound.”

Below: Abu Salameh's winter compound, June 29, 2022

Photos Tomer Appelbaum

HISTORY OF THE COMMUNITY

Displacement and the arrival in Ras al-Tin

The history of Ras al-Tin, like most of the Bedouin-Palestinian communities in the West Bank, is one of constant uprooting and transfer. In the wake of the 1948 war, the families of the Ka'abneh Zweidin tribe were expelled from the Naqab/Negev desert in what became the State of Israel.⁵ During the decades of Jordanian rule, they settled in the area of Um Daraj, southeast of Hebron, and continued to live there after the 1967 war, until 1970, when Israel declared part of the area a closed military zone. In 1971 the community settled in the region of Ein Samya, northeast of the Ramallah subdistrict, an area named for the spring that served as their water source. In 1977 Israel built an army base in the area where the community resided and declared it a closed military zone, forcing the community to relocate to an area

known as "al-Khandaq," east of the army base. A few years later, the settlement of Kochav HaShachar was established in the location of the army base, from which the community had been expelled. In 1986 the area of "al-Khandaq" was also declared a firing zone and became a military training site, forcing the community to relocate once again. In 1987 the community returned to the Ein Samya area, drawn to its grazing lands and water resources. In 2000, however, due to the lack of living space in Ein Samya, some of the families began to move to Ras al-Tin, where they live to this day.

Establishing a home: seasonal and environmental conditions

Abu Salameh, now in his fifties, was a boy when his family was displaced from the south Hebron hills and settled in Ein Samya, and he has lived through all of the family's movement since then—the move to "al-Khandaq," the establishment of the Kochav HaShachar settlement, the return to Ein Samya, and eventually the transition to Ras al-Tin.

There were several reasons for the decision to settle in Ras al-Tin in the late 1990s and early 2000s. First was the availability of grazing land. Second, the topography of the area was suitable for seasonal movement: the winter area provides protection from rain, wind, and floods, while the summer area experiences more pleasant weather and the location affords easier access for tractors and trucks bringing in water purchased from outside. Third, there are caves in the area that can shelter the flocks, as well as

5 Our thanks to Alon Cohen-Lifshitz of Bimkom – Planners for Planning Rights, for sharing the expert planning opinion written to support a court petition challenging the seizures in Ras al-Tin, which informed this and the previous section of the report.

cesspits and rainwater cisterns. Abu Salameh's eldest brother, Mahmoud, known as Abu al-Abd, whose home is a few hundred meters down the slope of the hill facing Ein Samya and the settlement of Kochav HaShachar, says that he was the first of his brothers to move to the area, in 1997. "I chose the area because it wasn't in a firing zone, and because of the grazing areas," he recounts, adding with an ironic smile: "now I have a settler who lives right next door."

Abu Salameh's family has access to several cisterns, which he and his sons renovated about eight years ago. Each son is responsible for one of the cisterns, in which they collect rainwater during the rainy season, making them less dependent on tanked-in water for a few months of the year. "But in summer the consumption of water is so high; each goat needs 10 liters daily [...] and the tractors can't move on the rocky terrain with a full tank filled with water," says Abu Salameh.

He explains that the summer place is not viable as a living area in winter because it becomes full of mud. Moreover, the landowners from whom they lease the land cultivate it in the winter months, and Abu Salameh's family move down to the fields after the harvest, in late spring/early summer. The symbiosis between Abu Salameh's family and the landowners, as well as the use of the different terrains and spaces within the community at different times of the year, is an example of the community's preservation of its seasonal way of life within the constraints of the Occupation and climate.

In the wake of the confiscations of July 2021, many family members, in particular the women and children, moved back to the winter place much earlier than usual, in August as opposed to October. Some of the

men stayed in the fields in order to take care of the herd, staying in makeshift or donated tents. Huda, Abu Salameh's daughter-in-law, speaking from the winter place, refers to them as "those who remained," using a verbal form of the word *sumud*—steadfastness—to refer to the family members who stayed in the fields for the rest of the summer. Comet-ME provided a small solar system for the men to use while staying there, despite the risk that it might be confiscated. It is a partial solution, but serves some essential needs for the men: "At night you'll see ten cell phones lined up, all plugged in," says Abu Salameh's son Omar, laughing. He and his wife are expecting a baby in the fall. When she is born, they will name her Sumud.

But the women and children moved to the other side of the mountain ridge, where they at least would have a roof over their heads and would not have to live in fear of further confiscations. What makes the premature move bearable, primarily, is the presence of electricity. "We had to make a hasty move from our summer place to the winter place, but fortunately the electricity system was already working. It is not easy to live here in the summer, but we used the fans and opened the windows in our houses to get fresh air."

rarri





Photo Tomer Appelbaum

A PRECIOUS COMMODITY

In the summer, cold water is a precious commodity. A lot of calculation takes place before removing a bottle from the refrigerator and opening it—unless it is for guests, of course.

On our first visits to the community in late July and early August 2021, in the area where the tents and animal shelters were recently confiscated, the morning temperature is near 40 degrees centigrade (104 degrees Fahrenheit). Um Salameh's kitchen is outside, completely exposing women who are used to much less visibility and more privacy to the outside as well as to the extreme weather conditions. There is no electricity because their old solar panels had been confiscated. Um Salameh is overwhelmed by the events of two weeks earlier. She can't offer us cold water, but she sends one of her daughters-in-law to bring small bottles of water (by now warm) that they have received from relief

agencies. She looks despondently at the water tanks, also provided in emergency relief following the confiscation. "We can't even have a shower with such hot water, how are we supposed to drink it?"

Several hundred meters from Um Salameh's home, a group of women gathers in Um Ali's tent, newly connected to one of the two micro-grids provided by Comet-ME. A young child enters the tent and approaches Um Ali. She has been sent from Abu Salameh's hosting tent, about 300 meters away. She has come to ask for a bottle of cold water from the new refrigerator, for Abu Salameh's guests. When Um Ali opens the refrigerator, it is filled almost entirely with water bottles. The women exchange gazes and hesitate for a moment, calculating cautiously, before the precious bottles are taken out and the child carries them over to the men's tent.

Photo Tomer Appelbaum



GENDERED POWER: WOMEN IN RAS AL-TIN

Women and children are naturally the main beneficiaries of the introduction of electricity, as they are responsible for most household tasks, taking care of the ill and children, and tending to the herds within the domestic space—feeding, milking, and producing the dairy products. As the ones who are exclusively responsible for all household tasks, they are experts on the local use of electricity and a pivotal window into how electricity may reshape, stabilize, and improve life in new ways.

Saving time and strength

Um Salameh, aged 59, was married at age 21. She married relatively late since her father passed away when she was young, and as the oldest of her sisters she stayed with her mother and helped raise her siblings. She is originally from the south Hebron hills and her family still lives there. She and Abu Salameh have 14 children—9 sons and 5 daughters. Most of their sons and their families live alongside them in Ras al-Tin, while the daughters have for the most part married away into other Bedouin communities, some not too far away.

The days in Ras al-Tin begin very early, when it is still dark. Women wake up when darkness is still deep, between 3 and 4 am, depending on the household and the type of tasks required. At these early times of the day they pray, prepare breakfast, bake, tend to the goats, help the children get ready for school, and begin the process of other tasks such as producing dairy products, cleaning, and doing laundry. Moving from one task to another throughout the day, women rarely have a moment to rest.

Um Salameh says, “We now have washing machines, especially the families with children. At my age I’m not strong enough to keep doing the laundry by hand. And for the women who have young children, they can just turn on the washing machine during the day and finish other chores.” “I usually wake up at 3 am every day, and I wish I could have an hour of rest,” says Manal, Um Salameh’s daughter and a young mother. “Electricity saves so much time for us instead of spending hours doing laundry, you just use the washing machine. But I still don’t have time for TV or anything like that.”

Watching television, whether it be families gathered together in the evening or on Ramadan, or children during the day, is a rare moment of leisure in lives defined by hard work.

Photo Tomer Appelbaum





BETWEEN GRAZING AND FEEDING

On one visit to Abu Salameh's winter compound in early October, we speak with a group of women while sitting on a rock and waiting for the herd to return from pasture. The memory of the confiscation from the summer is still raw, but now the weather is more pleasant and there is a degree of comfort in being in their winter location as the summer gives way to autumn.

Women are responsible for tending to the herd in the space of the community. With the restrictions on grazing that have been imposed on the herders over the past decades and years, the communities need to buy more and more fodder for the animals. Here the women are filling the troughs to greet the herd when it comes back from pasture.

Photo *Tamar Cohen*



Energy, community, and communication

Now that electricity has provided some stability, the families are excited at the prospect of joining Comet-ME's new internet pilot, which builds on the energy infrastructure in place. Communication is essential for the pastoralist community members who live apart from each other, and particularly for women who often leave their own families behind and spend much of the day on their own without men who are off to work and children who are off to school.

Reception is particularly poor in most parts of Ras al-Tin. Men and women both emphasized repeatedly their urgent need for good internet connectivity. Connection with the children, whether they are out with the herd or walking to school, and with relatives living in other communities or even at the far end of their own community mitigates the sense of loneliness and also provides security. Omar, whose wife was in advanced stages of pregnancy, said that he's worried she'll go into labor and won't be able to reach him. Moreover, the community members feel exposed and vulnerable in light of recent frictions with authorities and settlers. "Safety is from God," says Um Salameh in January 2022, "but when settlers come here when we are alone, we need a network to call or reach anyone. We don't know what to expect from this government; they always want us to leave. We are always worried about settlers. Two weeks ago they came and stole goats and we were afraid to complain so we wouldn't get in trouble and be expelled."

Many of the women in Ras al-Tin came to the community following marriage, leaving behind close family members. Sitting in Abu Salameh's winter

compound, Manal expressed sorrow at not being able to communicate with her distant family members. "It's too hard to walk up the mountain just to make a call, so I usually go three months without seeing or talking to my sister." Um Salameh adds that she used to walk up a few hundred meters to sit by the road for reception, but she can't go there anymore for safety reasons; a new military base had just been established down the road and military vehicles pass by frequently now. Having electricity, allowing people to charge cellular phones and perhaps in the future to have a wireless network, provides a feeling of anticipation and hope.

Staying in place, and moving forward

The Abu Kbash family, a *fallah* family originally from al-Samou' in the southern West Bank, joined their fate with that of the Bedouin of Ras al-Tin "by chance," according to Abu Salameh, a little over twenty years ago. After moving from the south, Fatima Abu Kbash and her husband moved briefly to Ein Samya and subsequently to Ras al-Tin at about the same time as Abu Salameh's family.

They live slightly apart from the rest of the community. Not being Bedouin, their sense of belonging lies somewhere between sharing in the pastoralist identity of Ras al-Tin and orienting toward the nearby town of al-Mughayyer, where one daughter is about to complete high school. Along with boundaries come mutual respect and solidarity between the Abu Kbash families and the Ka'abneh-Zweidin families of Ras

al-Tin. On the morning of the confiscations, when the army closed off the area and began seizing their neighbors' homes and property, the eldest son of one of the Abu Kbash families ran down to help and was himself injured by the soldiers.

The Abu Kbash family lives down near the fields in the area known as al-Kabun, several hundred meters from the community's new school. Since settling in Ras al-Tin, they have moved seasonally only once, preferring to adjust their living space to the seasons as they come. "The longer we are settled here the more we adapt with the seasonal changes, we now know the physical environment and how we can control it to work in our favor," says Fatima.

Since June 2021, they have been connected to the second of the community's two micro-grids. Before the installation of the micro-grid, the family used a diesel generator to operate an electric butter churn, which made the process polluting, noisy, and expensive. On our first visit to the Abu Kbash family in early October, the family is preparing for winter, removing the light covers of the tents and replacing them with multiple layers of thick plastic covers. Fatima also uses rocks and clay to shape a water canal in case there are floods. "We don't often have floods, but it's for the best to have water paths that drive water away from the tents. We have electrical appliances now and we don't want them to be damaged by the water."

The women of the Abu Kbash family explain how having electricity has allowed them to stay where they are while taking steps toward a better future by saving money and investing in the education of their daughter. The Abu Kbash family has quite a few electrical appliances, including a blender and an iron, in addition to a simple washing machine, butter churns,

chargers, lamps, and two refrigerators. Refrigerators are used to store food, medicine, cold water, and dairy products. "Before we had refrigerators we used to throw away a lot of food as the food would go bad. So the refrigerator actually helps us save money." In addition, Fatima explains that during dairying season, electricity is pivotal. After the children have gone off to school and the men to work, she begins by milking the goats with the help of her older daughters. They produce milk, cheese, and, at the end of the season, *jameed* (a type of dry yogurt they cook with regular yogurt). Their products are in demand until July. They sell some of it in nearby towns and so are providers of family income as well. "Without electricity it used to take the whole day," she says. "With the electric butter churn, it takes only 30 minutes."

In the hot summer days, fans provide great relief. "[This summer], on very hot days, we kept the fans on almost all day long." Other appliances are used with caution, however, and the women must calculate their use in order not to exceed the daily limit allotted in the Comet-ME system. The daily limit of 2.5 kWh per household is a feature of the Comet-ME micro-grid, designed to prolong the life of the systems. The women learn with time to gauge how much electricity they use, so they can work within the limitations. Fatima developed a particular expertise in the subject within only three months of being hooked up: "Almost everything that produces heat consumes a lot of electricity," she says. She uses the blender to crush chickpeas and to blend yogurt for cooking, but refrains from using the iron as other needs are more important. She is learning to work within the limits of the Comet-ME system: "You can't use too many appliances at the same time."



*"On very hot days, we kept the fans on all day long."
Fatima Abu Kbash, reflecting on the first summer with
the electricity system.*

Photo Dalia Hajhamad

Fighting to learn

Alaa Abu Kbash, Fatima's 17-year-old daughter, describes how since having electricity she is able to help out at home and then study after sundown, which previously was not possible, though her mother "prefers she focus on her studies rather than help with the chores."

Alaa has her own laptop, which her parents purchased for her, and she aspires to become a graphic designer. Online learning is a challenge because of limited cellular service in the community, but she and some of the other women in the family have found a spot with good reception and have created an improvised router using their phones as a hotspot. On exam days she wakes up at 3 am to get ready and leaves at 7 am, walking to school on her own or with the neighbor's daughter. The walk to school takes about an hour, she says, and on rainy days, having to walk through the muddy valley, she carries an extra pair of shoes with her so she can enter the classroom clean. On her way, Israeli soldiers often stop her and question her or search her phone, but her mother is more concerned about the settlers. At school she learned how to use her laptop and she taught herself about graphic design through the internet. Now, with reliable electricity at home, she can keep up with her classmates and dream about the future. During holidays she can also watch TV like other children or chat on her phone with a friend. Thus, having electricity helps her family stay where they are but also to expand the world in which they take part.



Um Salameh and some of her grandchildren. Ras al-Tin, June 2022

Photo Tomer Appelbaum



ENERGY FOR EDUCATION: THE RAS AL-TIN SCHOOL

The small school building in Ras al-Tin was built in summer 2020 with international aid and is run by the Palestinian Education Ministry. Before the school was built, the children of Ras al-Tin attended elementary and high school in al-Mughayyer, traveling there either by a bus provided by the education ministry or by donkey. Rainy days posed a particular challenge. Since the school opened inside the community, the principal contacts the parents on rainy days and makes sure that the kids arrive and leave the school safely. According to Abu Salameh, "The most important benefit of the school is that the kids get a more solid education, with higher marks." Omar, whose young children attend the school, says that the small classes and the teachers' attentiveness to their special needs have improved the children's progress tremendously.

Soon after its original construction, at the beginning of the previous school year, the Israeli Civil Administration issued a demolition order for the school.⁶ Despite its small size and the challenging road some of the

children must still walk (or ride by donkey) to get to the school (the kilometer and a half or so from their winter residences on the other side of the mountain), high attendance attests to its necessity. The school is the only public structure in the community and, until the installation of the Comet-ME micro-grids, the only shared facility.

The first visit to the school, at the end of August, is part of a needs survey Comet-ME is conducting for a new internet project that aims to provide several communities in its energy user base with wireless internet coverage. Since Comet-ME installed the energy systems, there have been repeated requests for assistance in improving their internet connectivity, as entire parts of the community have no cellular reception whatsoever, including the school and the compound of homes surrounding it.

The children and staff returned to school two weeks prior to this visit, in the heat of August. The presence of electricity in the main office (the first room in the row of small rooms constituting the modest building) is palpable. A large stand-up fan is rotating, providing some relief from the heat, already heavy despite the early hour. In addition to tea, dates, and chocolates, the principal's assistant serves cold water from the cooler, which is in the next room. For now the water cooler is reserved for the school staff only. The children must bring their own bottles from home, where they also now have working refrigerators.

In the entrance to the room on the left, two desks in an L shape display a printer/copier, two desktop drives, a screen, and a laptop. Under the desk is a CD player. Maryam, the school's vice principal, explains the

⁶ Aaron Boxerman, "Two months after opening, Palestinian school threatened with demolition" The Times of Israel, November 14, 2020.

devices are all new, since during the previous school year they did not have any electricity. The laptop and printer are functioning, though for now the printer is only functioning as a copying machine since there is no internet connection between the laptop and the printer, part of the general lack of internet reception in the community.

Attached to the office is a kitchen and off the kitchen is a bathroom. Maryam explains that the kitchen and bathroom were built this summer but that there is no plumbing: they cannot put a water tank on top of the building because the demolition order prohibits adding anything to the structure. A small water storage container with a tap serves the kitchen sink, for washing fruit and vegetables and doing dishes. For drinking water, the staff uses the cooler in the next room. Because, as explained, the toilet is not in use, that space is serving as storage. There is an out-house on the far end of the school, which, Maryam explains, is only for the use of the staff. "The children go out in the fields and rocks."



The main office. Photo Tamar Cohen



Children's drawing of the Ras al-Tin school, with electricity



A classroom. Photo Dalia Hajhamad

It is clear that the amenities the electricity enables are essential for both the staff and the children, in different ways. For the staff, who come from outside the community and are not accustomed to the harsh living conditions in Ras al-Tin, the modest amenities that the electricity system affords makes the “national mission” of serving in this isolated school in this vulnerable community a little bit easier. Noura, the school principal, originally from Sebastia and living in Ramallah, has been at the school since it opened a year earlier, in 2020. According to her, many people tried to discourage her from accepting the position in the school, as it is located in one of the Bedouin communities that have been harassed by the Israeli

authorities. She describes the time she began to work in the school as challenging, saying that two of the schoolteachers gave up and left the school due to the rough conditions. Not only is it time consuming and costly for the staff to reach the school, but last year the floors of the classrooms were still under construction, and there were no windows, no lights, and no fans during the hot months. Now with the electricity, the teachers can do more in less time—using computers, printers, and other appliances. Now that the school can function regularly and is attended by children and teachers despite the harsh conditions, there is hope that some of its other challenges may be resolved.



The Ras al-Tin elementary school, October 2021
Photo Dalia Hajhamad

MITIGATING HARDSHIP

Mustafa Ka'abneh (Abu Yasser), Abu Salameh's younger brother (48), is the most recent arrival in Ras al-Tin interviewed for this study, having moved here from Ein Samya in 2019. He lives in the compound with his first wife Hajar, originally from Wadi Seeq, and two school-age children, as well as two of their adult sons and their families. He has a separate tent in which he lives with his second wife, Nayfeh, who is originally from Ein Samya.

The conditions for Abu Yasser's family are far from ideal, and their move there was not out of choice. Visiting them in early August 2021, they explain that they would like to think of this as a temporary place. "If we could go back to Ein Samya we would," Mustafa and Nayfeh explain. "We used to pay less for water in Ein Samya, it's hard to get up here and we need tractors now to transport it here [...] The soil there was more fertile, as this soil is mostly rocky." In their current location in Ras al-Tin the summers are unbearably hot but "the winters are worse," says Abu Yasser. It is colder and windier than in Ein Samya; and there is often flooding. In Ein Samya they lived in caravans that protected them from the winter's cold and the summer's high temperatures. Ein Samya even started getting electricity from Comet-ME a year earlier, but Abu Yasser's family was no longer there. As part of the electrification project in Ras al-Tin, Abu Yasser's family received three home solar systems, one for each of the nuclear families. For Abu Yasser's family, the electricity serves a basic role of mitigating hardship, in particularly for the women who carry out the daily tasks of tending to the home and the herd.



*Abu Yasser's home solar system,
June 2021*

Photo Tamar Cohen

THE SEARCH FOR SHADE

At Abu Yasser's compound, conditions are particularly harsh. The search for shade and relief from the scorching sun is palpable. Every patch of shade—provided by a car, a water tank, the side of a tent or a cliff—is occupied by an animal, a person, or both. The goats and sheep crowd under a small piece of cloth stretched at the corner of the cliff; it is not sufficient to provide shade for the entire herd, let alone for the women who milk them. On a particularly hot day in September, the women of Abu Yasser's family milk the goats in the harsh sun. It's hard to even balance a stool on the rugged terrain. The hardship is palpable, but "having lights, refrigerators, and butter churns allows us to save the cheese-making for the evening, which is less tiring than in the mid-summer day."

Photo *Miri Lavi-Neeman*



While Abu Yasser and his family left Ein Samya two years earlier to flee settler harassment, they now had to deal with a new settler, who moved near to them in their new location. He had already made their lives difficult, surveilling them and making it impossible to put up any new structures. The tiny shading element they put up for the animals (which barely provides shade for a quarter of them) was already under demolition order “because the settler reported it,” says Abu Yasser.

Ultimately, the precarity experienced by Abu Yasser’s family—created by a harsh climate, fear of demolition orders, and escalating settler violence—would be sealed by a vicious attack by settlers on Mustafa, Hajar, and two of their grown sons. According to testimony by the family, and as reported in both [The Guardian](#) and [Ha’aretz](#), around 7:30 PM on June 14, 2022, 15

to 20 settlers drove up to their encampment and proceeded to beat the family members with spiked clubs. They beat 50-year-old Hajar in the head and she fell unconscious. They beat Mustafa with a club and pepper sprayed him in the eyes. Israeli soldiers, whether arriving with the settlers or only after the attack was underway, arrested Mustafa’s two sons, as well as Mustafa himself, once he was released from the hospital. The boys were detained at Ofer Prison for a week and Mustafa for three days. Hajar lay in a hospital bed for a week with hemorrhaging in her head and a broken arm. When the family returned home from this ordeal a week later they made the final decision to leave Ras al-Tin. On July 3, the three nuclear households and 14 people making up Abu Yasser’s compound packed up their lives and moved on, leaving behind another station in their rolling exile.



The tiny shading element for the herd at Abu Yasser's received a demolition order after the settler from the nearby outpost reported it to the Israeli authorities.

Photo Miri Lavi-Neeman

ENERGY IN A CLIMATE OF OCCUPATION: LIMITS AND POSSIBILITIES

In this report, we have learned that energy deprivation is not simply the inability to secure or receive adequate levels of electricity in the home. We have seen how energy precarity is politically induced and articulated more generally as a lack of right to the land and to life, and how it is integrated with many other pressures. Contesting these vulnerabilities through provision of access to energy therefore goes beyond the household level. Most broadly, it has the potential to help communities adapt and continue to conduct their way of life in dignity in the face of the violence and instabilities created by the combined effects of the Occupation and the challenging environment.

It is often argued with regard to pastoralist Bedouin communities that, despite their dependence on the land, they are less sensitive and more environmentally resilient than, for example, those depending on vegetative agriculture. Looking at the environmental knowledge, flexibility, and resilience exhibited by the people of Ras al-Tin, this indeed would seem to be the case. But what served them in the past is increasingly threatened and targeted by the formal and informal mechanisms of the Israeli Occupation.

For the people of Ras al-Tin, as other pastoralist communities in Area C, the Occupation is experienced as a form of climate violence—producing and reproducing environmental exposure, vulnerability, and uncertainty. Through state-led confiscations of water resources and equipment, displacements, enclosures of land for military use or settlements, and through “informal” yet strategic settler violence, land grabs, and constant disruption to their everyday environmental conduct, pastoralists’ traditional behavior and wisdom are targeted. The seasonal and spatial mobilities that helped them cope in the past are constantly reevaluated according to friction with authorities and settlers.

Due to restrictions on grazing they must buy food for their animals, which, in turn, leads to the deterioration of their economy and the health of their animals. They are forced to overuse the land they can still access, increasing the grazing pressures on the land and exacerbating its degradation. Restricted from access to natural water resources such as springs and cisterns, they have no choice but to purchase and transport water at great expense. Unable to maneuver in space and choose the best location for winter and summer, their exposure to heat, floods, and cold, as well as their economic fragility, are exacerbated.

Our study shows that electricity is an “intermediate” commodity that should be valued not only for its own sake as for what it enables. Illumination and powering appliances and equipment are extremely significant to the residents of Ras al-Tin, alleviating the harsh conditions in which people live, helping reshape the conduct of life and the patterns of labor and economy within the household, and creating avenues and opportunities for development.

But electrification also has broader unanticipated benefits, such as increasing different types of connectivities that allow a sense of security—helping to reestablish connections between distant and not-so-distant family members and enabling people to maintain and establish connections with the world beyond. We have seen how it enhances the positive impact for the community of the new local elementary community school and how it supports the integration of young people from Ras al-Tin at the regional high school. We have also seen how by facilitating communication, it has the potential to provide safety for men, women, and children. But all this has its limits.



Photo Tomer Appelbaum

EPILOGUE

Three days after Abu Yasser and his family left Ras al-Tin, the settlers returned, this time to the home of Mahmoud (Abu al-Abd), the eldest of the three brothers. We recall that Abu al-Abd boasted first rights among the family to having chosen to settle in Ras al-Tin, twenty-five years earlier. Abu al-Abd's encampment is several hundred meters away from the main cluster of homes comprising Abu Salameh's winter compound, and, more importantly, just spitting distance from the recent outpost. On the night of July 6, starting around 9 pm, settlers came and surrounded his home. This time there were no soldiers. The settlers lit bonfires and, for more than four hours, danced and shouted, set fire to property and animal fodder, and slashed tents. Community members say they called the Israel Police more than ten times, but no one came to help them.

The following day, the final decision was taken, and instead of preparing for 'Eid al-Adha, all 16 families and 100 souls comprising Abu Salameh and Abu al-Abd's compounds, prepared to leave Ras al-Tin for good. Over that weekend and into the holiday, as they packed up their belongings and dismantled their homes, communication with relatives and with activists was indispensable. The energy systems made a big difference up until the last moments of life in this place: the solar panels, meters, cabinets, cables, and electricity room were the last items to be dismantled, helping them leave the lights on throughout the long nights of packing up decades of life in Ras al-Tin.



Dismantling two decades of life in Ras al-Tin, July 11, 2022.

Photo Tamar Cohen

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A woman in a red headscarf and black dress and a man in a brown jacket and red-and-white checkered headscarf are holding hands and looking out over a desert landscape. The woman is on the left, wearing a black dress with a red and white patterned sleeve. The man is on the right, wearing a brown jacket and a red and white checkered headscarf. They are standing on a rocky, uneven ground. In the background, there is a vast, arid landscape with rolling hills and a small cluster of buildings on a hillside. A white car is parked on a dirt road in the distance. The sky is blue with some light clouds.

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TO THE
PEOPLE OF
RAS AL-TIN**