

In this interview, Karim Eid-Sabbagh and Ulrich Ufer discuss how the case of the public infrastructure crisis in Lebanon highlights the importance of including analytical dimensions of critical political economy and global financial dynamics in technology assessment alongside a technology-society-governance perspective – in particular when focusing on the Global South. The Lebanese crisis has built up through long-term structural problems that include the legacies of colonialism, the country's peripheral position in global capital relations, elite nepotism, sectarian strife, and the state's dependency on international donor funding to build and maintain public infrastructure. These have coincided with short-term disintegration and disaster events over the past two years: mass migration, countrywide anti-government protests in fall 2019, the outbreak of the Covid-19 pandemic in early 2020, the destruction of large parts of the country's capital by the devastating explosion in the port of Beirut in August 2020, and the spiraling devaluation of the Lebanese currency.

**TATuP:** *You have analyzed and lived through many years of structural and recently accelerating national crisis in Lebanon. Let's enter this discussion with a look at the current situation in Lebanon regarding the disintegration of public infrastructure.*

**Karim Eid-Sabbagh:** The crisis is of almost unimaginable proportion, and its immense dynamics are frightening. It wreaks havoc on public infrastructure: Roads, telecommunications, electricity, health, education – there is progressive collapse and disintegration everywhere. Greater Beirut, the capital with almost two million inhabitants, is threatened by failure of public water supply. Some Lebanese villages have been literally left dry for some time.

*Is this a technology problem, or a government and governance problem?*

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## *Critical political economy of the public infrastructure crisis in Lebanon*

How can critical political economy perspectives contribute to technology assessment for countries in the Global South?

Can one separate them? It is a crisis of both, although I see government more political and distinct from rather managerial notions of “governance.” The current crises have led to a near collapse of public revenues. Fee collection rates of the public water utilities and agencies have been weak in the past and have continued to decline as hyperinflation has destroyed the value of both private and public Lebanese lira revenues and reserves. This means that operation and maintenance of supply infrastructure, e. g., fuel and spare parts, have become far too costly.

*How have Lebanese households dealt with water supply shortages or failure?*

Over the past decades, alternative forms of water supply have come into existence because of the failure to maintain and expand public water supply. Public networks still supply most of the water for domestic use, but supply is intermittent, i. e., available only for a certain period during the day. For supply during intermittent periods, Lebanese buildings are usually equipped with rooftop or ground level tanks for intermediate storage of water. Many households now rely on drinking water delivered in plastic containers and by bulk truck delivery, or they draw it from springs and wells where such are available. In a sense, this shows the resourcefulness of the Lebanese people to find alternative, socially organized solutions where large technical systems fail. Though, obviously this comes at considerable social and ecological cost. The cost burden is considerably higher for poorer households, and public infrastructure also needs to deal with waste. Together with colleagues, I have documented in a film the interaction between the water and waste crises, which is largely connected to the hyper-consumption of plastic containers for water supply.<sup>1</sup>

*If we look at other sectors of public infrastructure, experts such as from the United Nations Development Programme consider photovoltaics an answer to Lebanon's power supply challenges. With well over two hundred hours of sunshine on average per month, this looked like a promising solution for distributed power generation in the face of failing centralized networks.*

Right, there is a huge potential for innovative distributed energy supply in Lebanon, and one does see growth of photovoltaics at the private level. This makes sense because, much like the water sector, power supply is heavily dependent on non-public supply. Public supplies meet only half of the country's estimated en-

<sup>1</sup> “We made every living thing from water” is available for free online viewing on YouTube and Vimeo in English (<https://youtu.be/reJEh0jM5-8>; <https://vimeo.com/259600292>) and Arabic (<https://youtu.be/wO9yfG6H1Ws>; <https://vimeo.com/285329026>).

ergy needs, and the intermittent nature of service meant power cuts for three to 12 hours per day depending on location; around half the population had to manage power cuts of about 12 hours per day even before the current crisis. But, Lebanon's power generation is nowhere near a transition to photovoltaics; power plants primarily run on fuel oil. Throughout the country, intermittent public supply is compensated for by diesel generators that supply electricity to neighborhoods or individual buildings. Civil war as well as recurrent attacks on public infrastructure by Israel have repeatedly set back development and modernization. And similar to water infrastructure, increasing public debt and nepotism in the public sector have further crippled the effectiveness of *Électricité du Liban*, the public utility company. In fact, the power supply system is degrading and has never caught up with demand. Instead of necessary modernization, floating oil fuel power plants along the Lebanese coast have supplied additional power over the past ten years, but these 370 megawatts, or about a quarter of the country's total production capacity, have just been disconnected from the grid as the contract with the Turkish company ended with the state owing over 100 million U.S. dollars of unpaid dues.

*This must surely lead to frequent blackouts and brownouts.*

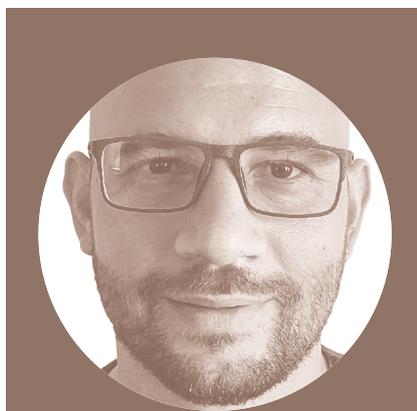
Brownout has been the ordinary network state for decades, but it has all become worse through the crisis. In mid-October 2021, the country's power grid totally collapsed for days due to a lack of oil fuel in the two main power plants, which reduced national production to below 200 megawatts. Grid rebuilding efforts were complicated because the national control center had been destroyed in the Beirut port explosion of 2020. And here we are back to financial, economic, and governmental aspects of the public infrastructure crisis as well as their social consequences. The collapse of the Lebanese currency and decreasing foreign reserves have put a hard brake on all sorts of imports, but importantly on oil deriv-

atives, which are essential to keep public power stations or private generators running. Accordingly, households, businesses, hospitals etc. have had to ration electricity drastically.

*In the highly industrialized countries of the Global North, the functioning of "public infrastructure" is taken for granted, a constantly humming background noise to which hardly anyone*

## *Brownout has been the ordinary network state for decades, but it has all become worse through the crisis.*

*pays attention, while in Lebanon, and in countries of the Global South more generally, its precariousness creates constant alarms and makes public infrastructure awareness an important aspect of the organization of society and everyday life.*



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is an independent researcher and documentary filmmaker based in Lebanon. His research focuses on political ecology, imperialism and sovereign development, water resource management, and agrarian transformation in the Global South. He holds degrees in civil engineering, urban planning and development studies.

Right now, many have access to electricity for no more than a couple of hours per day, and the poorest lack access for days. Currently, the power situation has improved due to recent oil imports, but when the energy crisis peaked during the summer of 2021, the effects were massive. Even telecommunications suffered local interruptions, e. g., because the antennas of mobile network operators depend on backup generators that run on

fuel oil when not connected to the public power grid in remote regions. Also, due to power supply failures, even charging a mobile phone became a challenge at times. To illustrate the extent of power shortage in households due to lack of supply or purchasing power: Before the crisis, five amperes was the minimum subscription to a private generator, now this has been reduced to three amperes – just enough to run a fridge and a couple of light bulbs, but certainly not hot water or heating. Work schedules and household chores have necessarily been adjusted to the rhythm of electricity supply. Overall, the rhythms of work, schooling, social networks, or any other domains of everyday life have been interrupted and toppled over.

*I think this illustrates very well how cascading effects of a public infrastructure crisis bear on the social lifeworld. What about their impacts on other central public services, such as mobility, health, or education?*

Mobility has been dramatically affected by hyperinflation and collapse of the Lebanese lira. Twenty liters of fuel currently cost about half the monthly minimum salary, so even bus rides and shared taxi rides become unaffordable to many. In terms of public infrastructure, there is

a slow but noticeable decay of roads and road safety due to years of lack of maintenance, and with the state in default now even more so. Tunnels without lighting are eerie and dangerous places. Increasing numbers of road casualties seem to confirm this.

The health sector has been devastated through shortages of medicine, lack of power, or the exodus of trained and qualified hospital staff in times of pandemic. To give but one example, Beirut's public

*global levels of analysis. They can help focus on how local individual experiences of crisis and local failures of public infrastructure relate to historical structures in international relations and to larger dynamics in the global capitalist system.*

This perspective is important. The peripheral position of a country like Lebanon in unequal global capital relations and political relations of domination is also an effect of historical structures. Pu-

sis. Lebanon has a sectarian system that works through nepotism and clientelism, wheeling and dealing, without any accountability or oversight. But these are inherited structures, Lebanon has always been a place of many sects, but it was only in the 1860s that these aspects became increasingly instrumentalized through collaboration between local elites and the increasingly influential French regime, which concentrated capital and economic capacity among Ortho-

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hospital, the main recipient for Covid-19 patients repeatedly had to turn off air conditioning in some sections of the hospital at way above 30 degrees Celsius in order to supply the necessary power to intensive care units. But beyond the provision of health services, mental illnesses such as depression are on the rise as a psychological consequence of crisis.

As for schools, they have barely been open over the last two years due to anti-government protests in 2019 and the ensuing pandemic. Official exams were cancelled because the ministry could not afford exam papers, which were later donated by UNICEF. Given the problems with power supply and telecommunication services, online education remains a challenge for many. In Beirut specifically, the port explosion did considerable damage to public and private schools, and now some schools have delayed reopening because of the fuel crisis.

*I think that our understanding of national crises such as the current one in Lebanon is often hampered by historical myopia and by insufficient understanding of crisis contexts. To go beyond reductionisms such as "erosion of governmental power" or "failed states," we should also talk about critical political economy approaches that link local, national, and*

public infrastructure failure and crisis in Lebanon must be understood not as a purely technical phenomenon of the present but as economically, socially, and historically embedded. For Lebanon, as for many other social formations in the Global South, one can ask whether given technologies and emerging technological innovations are in fact appropriate to their political economic reality. I think that the technological and socio-technological models exported from the world's leading industrial countries are often inappropriate as they are predicated on the "de-development" or "development of underdevelopment" of the Global South, i. e., the drain of resources and value flows. They function where enough wealth has already been amassed, i. e., in the global centers of power, and they rely on peace, social stability, and a country's economic and financial capacity and self-determination. Most of these conditions do not apply to countries of the Global South.

*Could you please elaborate on the historical relationship between capital, technology, and society in Lebanon?*

Where or when does one start ...? I think here I can only give a very short outline of the structural contradictions that are coming to a head in the present cri-

sis. Lebanon has a sectarian system that works through nepotism and clientelism, wheeling and dealing, without any accountability or oversight. But these are inherited structures, Lebanon has always been a place of many sects, but it was only in the 1860s that these aspects became increasingly instrumentalized through collaboration between local elites and the increasingly influential French regime, which concentrated capital and economic capacity among Ortho-

dox and Maronite Christians as they were displacing the Ottoman rulers. The colonial French and English division of the Arab world in 1920 drew lines of conflict that continue to exist and eventually institutionalized political sectarianism. After independence in 1943, the forced displacement of Palestinians to Lebanon after 1948 and into the 1970s, the civil war (1975 to 1990), as well as the continuing state of war with Israel and recurrent military clashes destabilized the dominance of Christian capital – that is, the network of bankers, traders, and politicians that largely controlled the fate of the country. With the Taif Agreement of 1989, a new sectarian balance was instituted, giving Christian, Sunni, and Shia leaders each one of the highest offices in the state. But even the post civil war political settlement did not take effect until U.S. interest in Syrian cooperation during the first Gulf War produced an entente. This sectarian arrangement was predicated on consensus, which in turn was either achieved through a division of the spoils of government and reconstruction funding or resulted in political gridlock. Political gridlock has wreaked havoc on the development of public infrastructure by hampering the functioning of institutions, governmental agreements on loans, public spending, and so on.



A private diesel generator at ground-level for alternative power supply at a street corner of Tyre, southern Lebanon. It runs and emits exhaust fumes for about 18 hours a day. Photo: Karim Eid-Sabbagh

*Can you provide some examples of how international capital flows and the political system interlink?*

Lebanon has historically been locked into unequal capital flows from and to Western countries, even before the civil war. Investors from Western countries used Lebanon as a gateway to the Middle East – many of the goods, services, and financial capital flowed through Beirut. Local industry or agriculture, while expanding, have therefore never been sectors with much support among elites or international investors. With their focus on trade and financial services, Lebanese elites have basically been milking the state over the past decades, in close cooperation with the international institutions that provided the ideological backbone. Neoliberal governance prescriptions focusing on privatization, private sector profit, and full cost recovery of public infrastructure investment from user fees have been the central mantra of Lebanese development policy, if one can call it that. Central to this are the workings of the Lebanese financial system. Post civil war reconstruction plans promised to remake Lebanon into the Switzerland of the Middle East, with unrealistic expected GDP annual growth rates of 8% over 25 years – promises that appear as ideological ob-

fuscation considering that Israeli forces continued to occupy South Lebanon until 2000 and Israeli air strikes on Lebanese public infrastructure were a recurrent phenomenon. To perform this miracle, banks had to be recapitalized through public debt at outrageous interest rates in the mid-1990s, i. e., elites were lending their money to the state through banks at around 40% interest. And in order to stabilize the currency, the Lebanese lira was progressively pegged to the U.S. dollar at a rate of 1,507 to one. However, this arrangement necessitated the attraction of U.S. dollars to build reserves to maintain the peg. To achieve this, again, the central bank has been offering interest rates on U.S. dollar deposits of well above 10% for the last 25 years.

*This looks very much like an elaborate international and large-scale Ponzi scheme. What have been its effects on the present public infrastructure crisis?*

Obviously, the productive sector could not compete with profit rates offered in the financial sector. So, Lebanon's lack of maintenance and modernization of public infrastructure is closely related to international capital flows and the ways in which the country has been turned into a vehicle that has long allowed elites and interna-

tional investors to reap high and relatively risk-free profits from their investments in government bonds and other financial products. By pegging the local currency to the U.S. dollar, the local economy became dollarized and, just like in many other countries of the Global South, foreign investment did not benefit local industrial production or agriculture but instead was largely funneled into short-term profit-making ventures, in particular financial products and real estate speculation. Speculative growth, e. g., in urban real estate, served to maintain the illusion of real GDP growth. But any Ponzi scheme will come to an end at some point when inflows can no longer cover the outflows. By 2016–2017, the central bank resorted to ever more desperate tricks to keep the system afloat, arbitrarily giving away money to banks to keep them from going under. Also, there were some desperate attempts to increase state revenues, such as a tax on WhatsApp messages in 2019, which led to public demonstrations that within a day morphed into a general uprising. International institutions such as the World Bank and the International Monetary Foundation had known at least since 2016 that the system was at breaking point, and international financial capital started divesting from Lebanese banks around that time. Deutsche Bank, which owned 20% shares in one of the largest Lebanese banks, offloaded these after having reaped considerable profits. Wall Street banks did the same.

*At the end of this long-term Ponzi scheme is the current dramatic devaluation of the Lebanese lira, which has fallen from its accustomed peg at 1,507 LL for one U.S. dollar to just below 25,000 LL in November 2021 and is expected to continue its downward spiral. What was the short-term cause of this collapse?*

International donor conferences in 1999, 2001, and 2007 repeatedly stabilized the state by providing funds for public infrastructure – e. g., for wastewater treatment plants – thus allowing the system's beneficiaries to maintain the profit bonanza with little care for infrastructure develop-

ment. Also, the 2008 global financial crisis provided respite by turning Lebanon into a short-term safe haven for panicked international capital, with significant amounts of capital coming in also from the oil producing states of the Arabian Peninsula. But in 2019 it became clear that the Cedar Conference would end without an agreement on further international donor funds, because Western and Gulf Arab donor countries in particular

within the global economy. Remittances in U.S. dollars from Lebanese expats now represent the primary capital inflow to the country and mainly finance household consumption. Many now can barely afford food, electricity from generators is increasingly becoming a luxury, and health problems mostly spell financial disaster.

As mentioned before, spare parts or oil derivatives – all priced in U.S. dollars

major driver of wealth and comfort in the Global North, but also of climate change, which has brought human civilization to the brink of the abyss and which already negatively affects Lebanon, e. g., in the form of water shortages during excessively dry periods. The negative effects of energy stability in the world's industrialized countries are thus socialized on a global scale. Reparations for climate debt will be necessary for sovereign and sustainable social and technological development in the Global South.

What can be learned is that dependency on external energy and capital inflows, whether the latter come from donors or not, makes any country vulnerable to the vagaries of the “free market,” to foreign powers, and to structural exploitation. For countries of the Global South, this means that foreign direct investment should not be considered the only or sufficient path for the development of national production, public infrastructure, or agriculture. Rather, technological development can only be sustainable on a sovereign and people-centered economic basis. A critical political economy perspective that is able to coherently analyze global and local structures of wealth distribution remains crucial to decipher and address the structural imbalances that affect socio-technological development. From this perspective, what is needed is accumulation from below, indigenous development, technologies that are easy to repair and appropriate for local conditions, and distributed public infrastructures that benefit populations in socially just ways and that minimize the risk of cascading collapses that in many ways characterizes centralized networks.

were reluctant to finance a state in which the *de facto* power balance had shifted in favor of a political alliance including Hezbollah and opposed to U.S.-Israeli dominance in the region. Together with the instability brought by the Syrian war and U.S. sanctions on Hezbollah and Syria all this affected investor confidence and put a break on capital inflows so that the ever-growing need for U.S. dollar inflow could simply not be met anymore.

*The country's dependence on a global market and on global institutions to provide the means of sustenance – from energy to consumer goods and medication – clearly indicates the complexity of local-global dynamics and of the social, financial, and political factors that drive technological disintegration.*

Eighty percent of Lebanon's food needs, virtually its total energy supplies, any medicines, and almost any other consumption goods are met through imports. With the dramatic decline in U.S. dollar inflows, necessary imports have drained the central bank reserves and caused hyperinflation, thus devaluing both Lebanese currency and labor. In other terms, people living in Lebanon have been rendered worthless in an economic sense

on the world market – have become unaffordable for state institutions, and degradation is accelerating. And with no improvement in sight, the destruction this entails will be of gigantic proportions and enduring consequences. Probably the worst aspect is the brain drain. Trained professionals are leaving in droves, particularly in the medical sector, where the Covid-19 pandemic has created considerable demand in Europe, North America, and the rich Arab countries. So, Lebanon's main export today, as it has been for the last 50 years, is labor through emigration, and the remittances this generates are the last lifeline for those who remain behind. In many ways, the Lebanese are exposed to global systemic violence and suffering, and having little alternative, people find that their capacity for suffering can be expanded – this is very much what “adaptation” can mean in the Global South.

*What are the lessons to be learned from the Lebanese public infrastructure crisis for other countries of the Global South as well as Europe?*

What is taken for granted in highly industrialized countries, e. g., energy stability and energy abundance, has been the ma-

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