Field Notes: Dispatches From Ghana's Floating Power Plant

School of Middle Eastern and North African Studies
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Field Notes is an occasional series in which UA faculty members write about their field research. If you have an idea for a Field Notes column, send an email to Kyle Mittan at mittank@arizona.edu [1].

Gökçe Günel [2], is an assistant professor in the School of Middle Eastern and North African Studies whose research is at the intersection of anthropology, energy and climate change. In this Field Notes column, Günel writes about her time in Ghana on a ship that provides nearly a quarter of the country's electricity.

In addressing urgent electricity demands, many countries in the global south — those in Africa, Central America and Latin America, and most of Asia — are looking toward quick power generation systems. An increasingly popular form of such energy systems is the powership: a floating power plant that anchors at a harbor, plugs into a national grid, and generates electricity with natural gas or heavy fuel oil, a common marine fuel.

Currently, the only commercial producer of powerships in the world is a family-owned Turkish company, which builds the ships on spec in various shipyards in Istanbul and leases them to places with high energy demands. A barge called Osman Khan that is anchored at Tema, a city in southeast Ghana, now provides 23 percent of the country's electricity. The company also has built powerships that provide electricity to Iraq, Lebanon, Indonesia, Zambia, Sierra Leone, Gambia, Mozambique and Senegal.

As of March, the company owned 43 vessels. More than 20 of these were powerships, while others were service ships that deliver fuel or provide housing to crew in locations where accommodations are difficult. The company labeled its powership venture “The Power of Friendship,” presenting it as a campaign to bring quick and cheap electric power to those in need.

I visited Osman Khan in July and chatted with the crewmembers who run the ship. Many of them are experienced Turkish seamen accustomed to long-haul trips on oil tankers across the world, who no longer noticed the ship's sweltering heat or its intense vibration. They told me that seamen discipline and hierarchy helped organize the powership, which meant that everyone would be on standby all the time, ready to attend to a maintenance issue or any type of emergency.

Every employee spent 90 days aboard, followed by 23 days off. One of the crewmembers explained how he enjoyed this dedication to a single ship, as it allowed him to know the
machine closely.

"As a seaman, I was never allowed to spend more than six months on one vessel," I recall him telling me. "I signed up for the longest journeys so that I could have more time on one ship."

His experience in Tema, he said, allowed him to cultivate an intimacy with the ship, which he was forbidden to develop as a seaman. During their time in Tema, the crewmembers always worked, the same way they would on a regular ship. They did not have weekends. While some were provided apartments in Tema, many of them lived on this expansive power plant.

The powership has been key in alleviating the persistent electric power outages that Ghanaians had been experiencing, christened "dumsor," meaning off and on. During the most recent dumsor episode, which occurred between 2012 and 2015, power for businesses and homes would be out for 24 hours, then back on for only 12 hours. Although Osman Khan has helped put an end to dumsor for now, many Ghanaians believe it could return any time.

Forced to diversify the country's energy portfolio, Ghanaian decision-makers initially imported diesel generators, and then switched to power stations operated by heavy fuel oil, a resource much less expensive than diesel. The Ghanaian government eventually leased a powership, and signed a 20-year contract with the Turkish company that builds them.

During research trips between 2016 and 2018, I observed that public opinion in Ghana was divided: Some believed that the government paid too much for what seemed like a temporary fix, and could have built a longer-lasting solution instead; others were glad to have left dumsor behind thanks to the powership.

One of the largest power plants in Ghana, Osman Khan is linked to the electricity grid via 9-kilometer-long, high-frequency cables. Since its only connection to the land are these high-frequency cables, the powership seems more tenuous than land-based plants, giving the appearance that it could leave anytime. Yet it remains to be seen whether such temporary power infrastructures are a stopgap or a new permanent solution.

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[1] mailto:mittank@arizona.edu
[2] https://menas.arizona.edu/user/g%C3%B6k%C3%A7e-g%C3%BCnel