

THE DISPOSITION OF THE OIL PALM INFRASTRUCTURE

The Tzen oil palm plantation in the northwestern corner of Wide Bay in Pomio District, East New Britain Province, Papua New Guinea, is a highly infrastructured space. Roads surround and order the oil palm plantings into a grid-like space and connect the main estate to the plantation's extensions in the surrounding area. A sawmill, workshops, and a mill, with a pipeline running from the mill to the seashore all stand on the main estate. Not only is the plantation an area characterised by these 'hard infrastructures', but the plantation was established in 2008 as a part of a large combined logging and agriculture project aimed at bringing income, employment, and road infrastructure to the rural and remote Pomio District (Tammisto 2018: 1–2, 123). In fact, until 2015, Pomio District on the southeastern side of New Britain Island, was not connected by roads to the broader roadway network nor to the island's two provincial capitals.

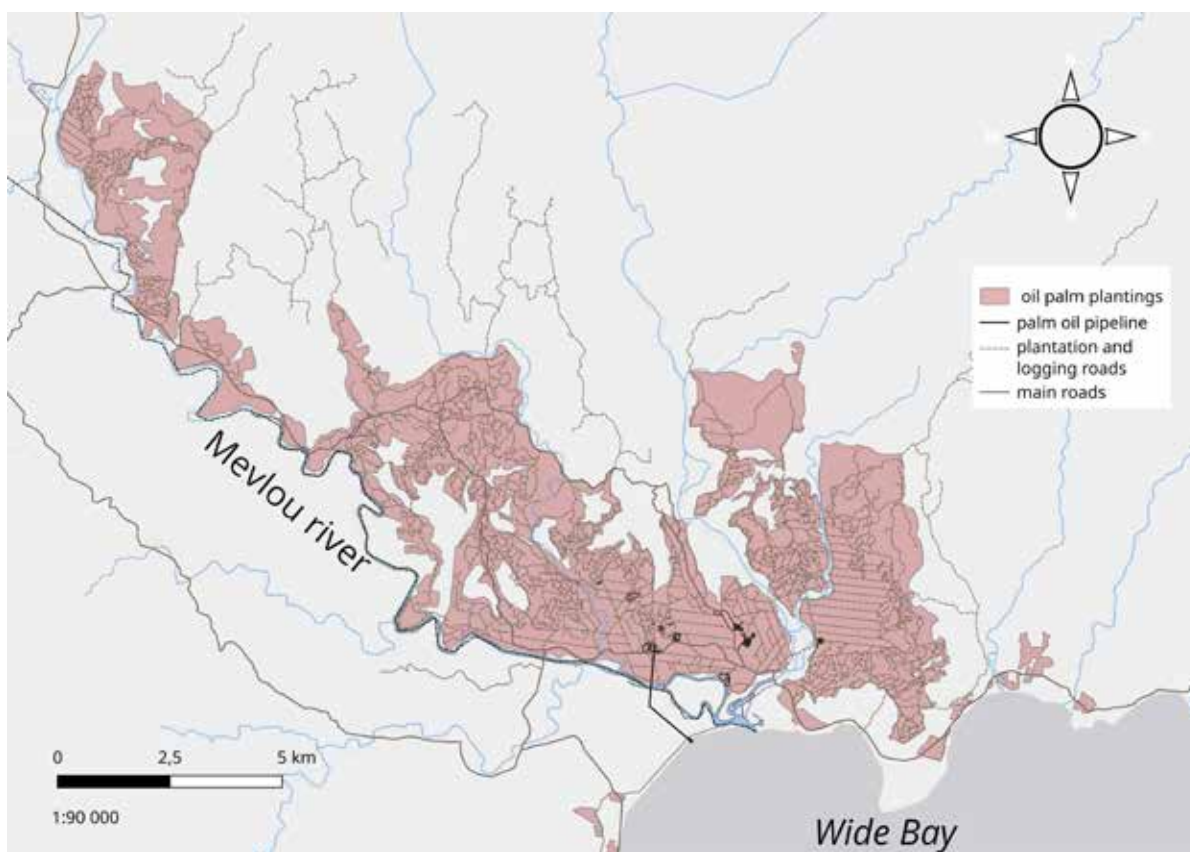
The combined logging and oil palm project was initiated by the then MP of Pomio with the intention that, in exchange for logging concessions and land leased from customary owners for oil palm plantations, the logging and plantation companies would connect the existing logging roads of Pomio to the provincial roadway network. According to the plan, a sustained company presence would ensure road maintenance and serve as the economic motor for a nearby township or for a growth centre (Tammisto 2018: 123). The Tzen plantation then is not only a highly infrastructured space, but the provision of infrastructure was

embedded into the larger plan according to which the plantation was established.

In this essay, I examine these two infrastructural features of the Tzen oil palm plantation. I begin by examining the specific components of the wider infrastructural system of the plantation, such as the road network, the palm oil mill, and the palm oil pipeline connected to the mill. Following Brian Larkin's definition (2013: 328) of infrastructure, I examine them as built networks that 'facilitate the flow of goods, people or ideas', allowing their exchange over space. Human agency, such as that of the plantation workers, is a crucial part of this network, since things, people or ideas would not 'flow' without it.

In addition, the systemic quality of the infrastructure built is important in directing, constraining, and modulating the flows, as architects and scholars of infrastructure Keller Easterling (2014) and Eyal Weizman (2007: 18, 142) noted. By examining roads, the mill, the pipeline, and its pumping station, I focus specifically on the chokepoints of the system and the unintended effects of the infrastructural system. I then turn to the logging and agriculture projects as a part of the plan established by the plantation.

The roads, the pumping station, and the plan represent active forms of the infrastructural system (Easterling 2014: 73). The roads and the pipeline serve as 'wiring', along with activity is channelled and directed across space. The mill and the pumping station are 'switches', which regulate activity on the wiring. Finally, the



MAP: The infrastructure space of the plantation ca. 2020 (Map by Tuomas Tammisto).

logging and agriculture project is the ‘protocol’, or the plan according to which the system is expanded (Easterling 2014: 75, 76, 78). The properties of these components and their interrelations constitute what Keller Easterling (2014: 21, 72, 83) calls the disposition of an infrastructural system. ‘Disposition’ here refers to the ‘immanent tendencies’ or ‘potential agency’ within an infrastructural system. This tendency, or disposition, of the system accounts—for the most part, at least—for what systems actually do and enable, which, in turn, might greatly differ from the stated intentions of the planners and controllers of the system (Easterling 2014: 21, 72, 83).

ROAD CONNECTIONS AND DISCONNECTIONS

The Tzen plantation, like other oil palm plantations, is characterised by uniform plantings of oil palm and by roads. Following the harvest and within 48 hours, the fruit of the oil palms must be transported to the mill (Li and Semedi 2021: 95). For this reason, each individual oil palm needs to be planted within a set distance from a road, so that workers can carry the harvested fruit by wheelbarrow to the roadside. Workers carry the fruit to the sides of these infield roads surrounding and criss-crossing the oil palm plantings. Then, other workers load them onto trucks, whose drivers next transport the fruit to the mill. Like arteries, the roads are all connected to the mill—the

heart of the plantation—where the fruit is pressed into crude palm oil. This crude palm oil is then—literally—pumped out of the mill onto tanker ships and onto the world market.

The material properties of the oil palm fruit and labour, thus, place particular demands on the plantation infrastructure. Roads must be sufficiently close to the palms so that workers can carry the fruit to them and the plantings must be sufficiently close to the mill (Bissonnette and De Koninck 2017: 928). Conversely, the production infrastructure and changing economies of scale place shifting demands on the oil palm environments: in 1934, a mill needed 2000 hectares of surrounding oil palms to be economically viable (Byerlee 2014: 583–584). Today, mills require 10 000–20 000 hectares of oil palms (Cramb and McCarthy 2016: 34; Li and Semedi 2021: 20–21). This change in the economic rationale means that the number of oil palms needed for the mill has increased five to ten times over a period of about 80 years.

Most of the roads of the Tzen plantation are arterial infield roads running from the plantings to the mill, although the main plantation is connected by a secondary road to the main roadway, which then connects rural village communities along the coast with one another. Extension plantings of oil palms lie near some of these communities. Trucks regularly run from the main estate on the main roadway, such that truck drivers sometimes give rides to locals traveling between villages. Because the plantation is an infrastructural hub, it is sometimes used as a base by the police, who come by boat from the provincial capital and use local cars to travel to rural villages.

Roads represent one of the ‘active forms’ constituting the infrastructural system of the plantation (Easterling 2014: 72–73). Roads are the ‘wiring’ channelling activities, built to enable

the transport of palm oil fruit to the mill for processing. But, because the ‘wiring’ is connected to the existing logging roads of Pomio, and, as of 2015 to the provincial capitals, they also direct various impulses, such as the projection of the police force, merchants travelling by car to the plantation to sell commodities on the market, and other merchants who buy betel nut in rural villages to sell in the cities. Similarly, enterprising local people from Pomio repair cars and transport village produce to sell in infrastructural hubs like the Open Bay timber plantation, one such hub located on the New Britain Highway, which connects the provincial capitals.

On the main estate, the infield roads form a grid as well as a network allowing cars to reach the mill via several possible routes. However, the routes northward to the New Britain Highway and south to the remainder of the Pomio District rely on single road connections. This makes the road connections beyond the plantation frail, becoming potential chokepoints. Indeed, several of the bridges built by the plantation company have been swept away by rains, and, when I conducted research in Pomio in 2019, villages on the south side of Wide Bay were inaccessible by car.

Roads as the ‘wiring’ of the infrastructural system allow and direct activities across space. Some of these activities, such as the easier movement of violently behaving police units to villages, are unintended uses of the infrastructural system. But those activities become part of the ‘disposition’ or underlying tendencies of the system. Similarly, as the road connections beyond the main estate are potential chokepoints, the system is also ‘disposed’ to major hiccups and a severing of connections. Another potential chokepoint is the palm oil pipeline, to which I now turn.



PHOTO: The interface: palm oil from Wide Bay pumped onto a tanker ship and onto the world market (Photo credit: Tuomas Tammisto, 2019).

THE PIPELINE AND PUMPING STATION

Because New Britain is an island, sooner or later on their way to global markets commodities must be transported by sea or by air. The provincial capital of Kokopo with its port in Rabaul is, however, relatively far away from the plantation and can be reached by land only via the new and frail road connection described above.

Instead of transporting palm oil by land to the faraway port, tanker ships sail to Wide Bay to load the palm oil and export it to buyers and refineries (Global Witness 2021). The Tzen plantation mill is situated some kilometres inland; the company, therefore, built a pipeline so that palm oil could be pumped from the mill

to the tankers. On the coast, the pipeline ends at a pumping station with a few valves and levers. When the tanker ship arrives, workers attach a large hose with floaters to the pipeline, pulling it to the ship using tugboats.

The end of the pipeline, located on a sandy beach at the northwestern corner of Wide Bay, is what Keller Easterling (2014: 75] calls a 'remote' or a 'switch'. Remotes or switches are nodes in an infrastructural system used to generate effects at a distance or down the line, activating a distant site to impact a local condition or vice versa. Remotes or switches serve to modulate the flow of activities (Weizman 2007: 143; Easterling 2014: 75)—channelled by 'wiring', such as the pipeline or the roads described above. The end of the pipeline in Wide Bay is quite literally a switch: when the ship arrives, workers use the

levers to open the valve allowing the palm oil to flow onto the ship. Much like the mill (Li and Semedi 2021: 166), the pumping station is a potential chokepoint.

To me, one of the most impressive things about the end of the pipeline is its unimpressiveness. The pipeline ends on an empty beach, the hose lies on the ground next to the pipeline, and a shipping crate nearby sits within which tools are stored. Apart from the pipeline itself, there is no other infrastructure. The tanker ships anchor in the bay, but there is no port infrastructure such as a pier. Yet, this end of the pipeline is—quite literally—the point of contact between the plantation in Pomio and global markets. By operating the levers, the workers—again quite literally—regulate the flow of palm oil for export.

The pipeline then does not simply connect the plantation and its mill to ships and to the world market. As the pipeline crosses the Mevlou River, it crosses several boundaries—both administrative and local. The plantation on the northern side of Mevlou is located on land leased for 99 years from the Simbali, the customary owners who forfeited their rights to the land for the duration of the lease. As the pipeline crosses over to the south side to another local-level government area, it crosses onto the customary lands of a neighbouring community. The Sulka- and Mengan-speaking inhabitants of that community have not, however, leased their lands, but granted permission for the establishment of the pumping station on their land, for which the company pays them rent.

The plantation company wanted to place the pumping station at this site, because that is the shortest and most convenient route from the mill to the coast. However, in doing so, it placed a key component—that is, the switch—of the entire production system into the hands

of the neighbouring community. Until now, the Sulka–Mengan have not interfered with this switch or with the flow of palm oil. But, the placement of the switch grants important control over the plantation's operations to the community situated beyond the actual plantation and the land. The potential for the neighbouring community to interfere with the flow of palm oil is—again quite literally—built into the disposition of the system.

PROTOCOL

As noted, the Tzen plantation was established in 2008 as a part of a larger combined logging and agriculture project initiated by local politicians to bring road infrastructure to Pomio. As a part of that plan, another large oil palm plantation was established by another company further south in Pomio, where it has met much resistance by the former customary owners and inhabitants (Lattas 2012). The general plan was that the logging and plantation companies would connect the existing logging roads of Pomio with the provincial road network. This would necessitate building an as-yet missing roadway link on the east coast of New Britain.

Instead, the Tzen plantation was connected by an inland route to the New Britain Highway running along the northwestern coast of the island. As noted above, the road connections beyond the Tzen plantation remain frail. When the Tzen plantation company logged south of the main plantation in East Pomio, it built bridges so that its trucks could transport the logs onto ships. The bridges were built of raw logs and lasted only long enough to enable the logging operation. But, flooding rivers during the subsequent rainy seasons swept them away. The road connection to these areas is now again broken and the company has no

need to maintain the bridges since the logging operation has ended.

Similarly, the concrete bridges crossing the large rivers on the plantation have been swept away by rain, sometimes several times. This is a nuisance for the plantation company, but because company vehicles such as large trucks and tractors can ford the rivers, the lack of bridges does not stop its operations. Thus, the maintenance of the bridges is not an urgent issue for the company.

Besides ‘wiring’ and ‘switches’, one of the ‘active forms’ affecting the disposition of an infrastructural system is the ‘protocol’ (Easterling 2014: 78), namely the underlying plan for infrastructural expansion. In the case of the Tzen plantation, the ‘protocol’ is the plan, according to which it and other plantations were established aimed at creating and maintaining the larger road infrastructure of Pomio. The creation of infrastructure was then built into the plan—that is, the protocol—of the combined logging and agriculture project. Conversely, the extractive logic of logging and oil palm development was built into the protocol of infrastructure development.

Bettina Beer and Willem Church (2019: 6) note that infrastructure is the primary vehicle conflating the interests of the state and multinational enterprises in Papua New Guinea, where companies can, for example, offset taxes by using their own equipment and engineering capacity to finance public infrastructure (Bainton and Macintyre 2021: 133). Through this ‘protocol’, the extractive logic becomes a part of the disposition of the infrastructural system. This tendency manifests itself, for example, when companies do not maintain the roads or bridges they no longer need—and, here, public and private interests may differ greatly.

CONCLUSIONS

In this essay, I have examined the oil palm plantation infrastructure in Wide Bay by focusing on roads and pipelines built to enable the flow of palm oil produced on the plantation to buyers, refiners, and consumers across the globe. This flow, like the production of palm oil, hinges upon human labour, of course, since it is the plantation workers who plant the oil palm, harvest its fruit, press it into palm oil, and transport it.

However, as I have shown in this essay, thinking about the infrastructural components in relation to each other and as parts of a system helps us to see not only what the system is designed to do and how it does it, but also what other activities the system affords, encourages, and enables. Or, as Keller Easterling (2014: 21, 72) puts it, this allows us to see how the system is disposed. Disposition refers not only to the intended and unintended effects of infrastructures, but also to latent tendencies and potentials built into the system.

In this brief essay, I have discussed how the creation of infrastructure was built into the plan of the large-scale logging and plantation project in Wide Bay. But, this goes both ways. Thus, the extractive logic was built into the plan to develop Wide Bay’s infrastructure. And, because of this, the disposition to seek a private gain through extraction may very well trump public expectations related to the provision and maintenance of infrastructure.

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