It was the worst drought in probably a half century, perhaps much longer. Though it's hard yet to fully prove, global warming appears to intensify El Nino effects in the South Pacific, during which the ocean super-heats, the wind currents change, and dry-sweeping air drives out the normal life-giving rains in South and Southeast Asia, Australia — and New Guinea. By August 2015 there had been almost four months without precipitation in the Gebusi's rainforest, a forest with no rain. September was similar, and by October, large parts of Gasume Corners had disbanded. A few traveled to all the way to Kiunga, hoping for better fortunes in town. Others scattered to the bush, trying to eek out a few calories from hunting and foraging. This strategy was especially developed by southern Gebusi at Yehebi, whose trained hunting dogs led them deep in the bush where wild pigs and cassowaries could be found.

The normal gardens totally dried up: no bananas, no sweet potatoes, no cassava or taro or manioc of any kind. There were now no forest greens as vegetables, no corn, beans, squash, peanuts or pumpkins. The breadfruit and nut trees — Tahitian chestnut and okari nut — had stopped bearing. Hard as it is to imagine, the blazing sun and parched land claimed so much of the withered foliage that even good leaves for wrapping things up were hard to find.

In addition to food, water was also scarce. The springs and creeks had totally dried up, and the larger streams had turned into brackish trickles that were impossible to drink. The only remaining water, from the larger rivers, was drained and full of sediment; it easily caused gastric illnesses and diarrhea when drunk, inflicting dehydration amid malnourishment. But people had no choice. We found from the record at the Nomad health center that cases of diarrhea increased by 150% for the period from August to October in 2015 as opposed to the same period a year earlier – 126 cases as opposed to 51. And this was among just those people fortunate enough and close enough to get to the Nomad Health Clinic for at least minimal treatment.

The more populous Bedamini people just east of Gebusi, their aggressive tribal nemesis, were especially hard hit. Tied more firmly to their gardens, and with little expansive forest to exploit, they withered along with their crops, drank very poor water, and some of them died. The chief medical officer at Nomad told us of one poor Bedamini boy who died of dehydration while his parents searched desperately for drinkable water.

We had followed the news, insofar as we could get it, from the US and France. We knew that the huge Fly River had sunk to such low levels that supply boats could no longer reach Kiunga, and that the huge Ok Tedi mine to its north -- and its associated major town of Tabubil – had been completely closed. We knew that Papua Guinea had tried to maintain its national pride and honor by refusing food aid from Australia, trying instead to organize its own relief efforts. And we also knew that the poor quality of infrastructure, services, and trained personnel – along with a dearth of government funds and the everpresent scourge of graft and corruption -- doomed these efforts to being inadequate and in some cases nonexistent.

But for Gebusi themselves we knew nothing; there was no way we could get information about them – or let them know our concern. I became obsessed thinking over the various possibilities. Maybe there were largely sick and some of them dying. Reports had surfaced of people dying from the drought in

some other parts of New Guinea even in their 20s and 30s – the prime of their life from a health perspective. And Gebusi were assessed through triangulation to be in the most severe category of health – one of only two or three pockets in the whole country in category 5 food shortage. But knowing their incredible resourcefulness, I continued to hold out hope. They were incredibly resourceful, had access to plenty of land, had the advantage of mixed subsistence -- combining gardening with foraging – had not lost their traditional skills of obtaining food, including in the deep forest. So even as I prepared for the worst, I tried to be optimistic. Perhaps there was there some way my friends could find creative ways to eek out limited resources based on past traditions. Little could I imagine that in October 2015 the people of Gasume Corners mounted one of their most important and successful feasts ever.

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By all accounts, Sayu took charge of organizing the young men. Limited now to the resources of their two biggest rivers, the Kum and the Sio, many in Gasume corners had by October temporarily relocated along their banks. At least there was water to drink, even if muddy and polluted with sediment. Many of the children got sick. Everyone lost weight and got withered, but by October no one died, apart from Susen, a young girl who got bitten by a death adder. Most of the adults stayed at least moderately healthy. Their main food source was the scattered sago palms that dotted the river banks, especially where a tributary or low spot fronted the main watercourse. Here the tree could be chopped down and enough water accessed from the main river to laboriously leach the starch pith and produce the traditional dried cakes of sago starch. Sago had always been a dry season food for Gebusi, and it was also a feast food as well when combined with coconut, greens, nuts, or pork. Now however, this sometime staple became a life-saver. Processing sago from palms along the banks of their largest rivers, which generally have steep banks, was neither easy nor a regular customary practice. But the creative use of this resource became crucial -- a survival sawdust of pure starch. Without it, many would have died.

Some other food, some way to get protein, also had to be found. With the rivers low, the best option was to fish in the surviving rivers, the Sio and the Kum. Having become adept with canoes, people from Gasume Corners avidly took up this pursuit, even though it was largely unsuccessful. Especially in the Kum, their own main river, fish seem to have largely disappeared, perhaps themselves depleted from lack of food or having retreated to the river's deeper crevices. Results were slightly better in the Sio, but still very modest and uncertain.

Given all this, pressure increased to more concerted campaign to wrest protein from the Gebusi's biggest river. Sayu organized the young men who were the village's best and most adept divers. A collection of newer and older fishing goggles was ferreted out for use, including home-made goggles laboriously fashioned from scavenged pieces of glass or plastic that were filed to shape and fashioned with strips of rubber and molded resin glue to tightly around the face.

Armed with almost two dozen of these devices and an equal number of young men, the assault of the Sio began. Holding their breath, the young men found they could dive to a depth of about 15 feet while scouring the riverbed beneath. We asked Sayu if he was scared of crocodiles, some of which were extremely large, which were known to frequent the Sio as well as the Kum. He laughed and said that crocodiles don't open their jaws to catch or eat prey beneath the surface, as they would take in too

much water. But he did admit while out fishing to have seen a very large croc and to have swum away frantically for his life.

After further prospecting, however, he found the biggest prizes. Diving as deeply as he could, he spotted a very large stone on the river bottom. Scanning back and forth as long as possible, he suddenly saw the stone twitch: it was alive. Coming up for air and going down again, he could hardly believe his eyes: an enormous river turtle was lying on the bottom of the river. He quickly marked the spot by thrusting his fishing spear in the river bed bottom, came up again for air, and told the others.

The turtle was so large that it took a fleet of your men to lift it from the bottom of the river, and their prey was no willing subject. As it thrashed with clawed feet, teeth, and sharp tail, they had at once to ride on its back, subdue its attempts to bite and claw its escape, and avoid their own injury. Eventually they got it up on the river bank – and returned to hunt for more.

Eventually, seven large river turtles were found on the bottom of the big Sio River and brought to the surface. One was so huge that it took at least four grown men to even lift it off the ground. The beasts were kept alive by plying them with water. This was crucial, since allowing them to die would leave their precious meat decaying and putrid in short order. Despite the young men's own hunger, only one of the animals was cooked and eaten at the river itself; the rest were saved for collective distribution to the community at large.

As the beasts were too large to transport by canoe, the rowboat of the Catholic church was brought all the way down to the Sio River. The turtles were heaped onto it and kept alive by putting water in the boat. Then the gold mine mountain of protein was rowed and tugged upstream from the Sio to the Gilum to the Kum River and the Fulam tributary all way to Gasume Corners.

Villagers flocked to welcome them home, bursting with happiness. The six turtles had been brought back to provide a feast of survival at the height of the famine. Everyone in the community was invited, and everyone got a share. Sago from the Kum and the Sio rivers was brought to cook along with the prizes — a perfect combination of pure starch and enormous protein. Turtle meat was carefully distributed to each and every member of the various sub-corners of Gasume. Each turtle was steam-cooked with sago in the traditional feasting style, even though it was hard to find leaves to wrap them for the cooking fire.

By all accounts, the atmosphere was the epitome of festivity, an assertion of life and livelihood in the face of famine, sickness, and the very real possibly of death. Once again, Gebusi asserted ingenuity and collectivity – a triumph of *kogwayay*, the collective benefit of the common good, over environmental risk, limited self-interest, and potential calamity. Would that Western societies could somehow learn to do the same.

The drought did not end with the famine feast. It continued in full for another two and half months until the rains finally returned, as if a godly present, at Christmastime. A senior woman of the community, Dasom, died in January. And the former "Councillor" of the entire village, Agiwa, died the following month. Though neither death can be directly traced to the famine – Dasom was very aged, and Agiwa had had severe "short wind," pulmonary disease, for several years – lack of food and proper water during the drought likely pushed them over the edge.

Since then, conditions have gradually and then more fully improved. Rains have been regular and "normal," and gardens have again begun bearing. There is no even local food for sale at the Nomad

twice-weekly market. Though many major foods are not yet available – including sweet potatoes, which are a starch staple – bananas are now yielding in quantity, breadfruit seeds are plentifully in season, some nuts are available, and sago is widely available for effective processing now that smaller streams and marshy areas have filled back up. As is common following major droughts, however, recovery has been slow and uneven. Even with rain, the various watercourses take time to recoup their freshness and drinkability. The first crops of new gardens often fail or are eaten up. The chemical composition of soil is hammered by drought, taking a second or even a third planting cycle for its nutritional balance to be effectively restored. And having themselves been starved by drought, insects often decimate the first plantings and yields of post-drought gardens, being primed to feed and to breed when the rains resume.

Eventually, the international community did take notice. Thanks to the intrepid efforts of Michael Bourke and other drought relief specialists, the extent and severity of PNG's food crisis eventually came to be more widely known. In the Nomad area, Sally Lloyd, the daughter of the longstanding missionary of the Bedamni, Tom Hoey, publicized the drought crisis with personal accounts, photographs, and a compelling interview on the Papua New Guinea news documentary television show, *Tok Piksa*. Eventually appointed as the World Food Program Director of drought relief in PNG's Western Province, Sally helped arrange a mass distribution of rice to Nomad and other hard-hit outstations. In March, 2016, food relief flights supplied Gebusi and other neighboring peoples 10 kilograms of rice for every man, woman, and child. The rice was paid for by the Ok Tedi Development Fund – the trust fund of royalties from the Ok Tedi mine – with air transport supplied by Digicel, the cell phone service provider. Given that gardens had not yet begun to fully bear, despite three months of regular rain, the rice was very greatly appreciated. A second, similar shipment took place as we are now ourselves were in the field, two months later, in May and June.

It is very common for drought relief efforts, despite the best intention of the international community and private donors, to be mis-timed and mis-placed. Often the worst hardship and threat is greatly reduced or totally gone by the time that relief arrives. Often as well, areas that are not so hard hit or even well off get the lion's share of relief effort due to political strings pulled and the leverage of graft or corruption. As such, the most marginal people, at the end of the line and most at risk, are also often the last and the least to get effective relief.

These problems also afflicted food relief in the Western Province. Stories abounded of rice delivered for political or electoral reasons by government officials to areas that already had plenty of food. In other provinces, conveys of trucks left full of rice but arrived at their destination virtually empty – the contents having been stolen, sold, or otherwise pilfered. Results such as these are difficult to fully and effectively document – and even then, to publicize, as officials may not be above retribution against those who pursue such investigations.

In the Nomad area specifically, thanks to Sally's efforts, relief efforts have been straightforward and have ultimately hit their intended targets, even if later than would have been ideal. Gebusi themselves respect and emphasize in their own conversations that relief rice should not be given away in collective feasting – that there is a big taboo against this, and that they need to eat it gradually over time as intended for individual families, including children and old people, on a household basis. Nonetheless the largesse of the present post-drought relief effort – including sixteen shipments of gargantuan food aid arriving at the Nomad airstrip in large airplanes, about 24 metric tons of rice -- does raise questions

that relate to local understanding and expectation – including the perception that the outside world has huge and practically infinite resources that can be had for the asking if only one knows how to effectively shake or politically pursue the endless lottery of external money trees. Amid this mix, hundreds of thousands of kina continue to be spent every year on government salaries and administration of the Nomad station while the station itself has no administrative personnel or activities in its central office, which is supposed to support at least eight tribal groups and tens of thousands of people across the entire Nomad Sub-District. This hardly supplies an effective model of productive work for earned wage payment or compensation that supports the society as a whole. For that, Gebusi are arguably better off, as in the famine feast, to rely on themselves as opposed to outsiders.

-Bruce Knauft (Lightly edited from an essay written in the field on 30 May 2016)