

# Helping with the SAGO HARVEST

PNG's first sago mill heralds brighter future for Gulf women

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Construction of PNG's first mechanised sago processing mill in a small village deep in the interior of the remote Gulf Province has transformed the lives of its womenfolk in a way few outsiders could imagine. It has always been women and girls in this region who clear the jungle to cut, scrape, pound, wash, squeeze and otherwise extract the sago into its edible

form - so the arrival of a machine that does this for them in a fraction of the time is a 'game-changer'. "Before, we had to go into the bush, in the rain, sometimes the rivers would be flooding, which made our work very hard," says Mumu Mairi, one of the Poroi 2 villagers involved in the trial sago mill on a bank of the Purari River. As well as being hard physical labour,

Poroi 2 village is deep in the interior of the Gulf, up the Purari River



processing sago the traditional way leaves women little time to attend to other responsibilities - including growing garden foods that will give nutritional variety to their family's diets - and pulls their daughters from their schooling. Young girls start to learn how to make sago around the age of five or six and by the time they're eight or nine, know how to make it on their own, Mumu says. "The girls who go to school will join their mothers after school and make sago until late in the afternoon. Sometimes girls don't go to school because they have to make sago. If there is no sago, there is no food, so sago is their priority." The pilot project, estimated to have cost around K400,000, is the result of a collaboration under the umbrella of the International Finance Corporation (World

The new sago mill in operation at Poroi 2 village



**"Sago is everywhere across PNG and we really take it for granted. Imagine if we had these setups in every village and worked towards making it a product for export. Just imagine the empowerment of the SME!"**

Bank Group) between landowner company Koko Nene Henaru Resource, which paid for the equipment; Total, the French operator of the Elk and Antelope onshore gas fields in the Gulf, which provided logistical support (helicopter flights, barges to carry machinery and boats to transport people up and down the Purari) and manpower; and private partner Oilmin Field Services, which donated the building and acted as project managers. Under the guidance of IFC project co-ordinator Tony

Uechritz (who is also Oilmin's senior field manager), women and men from Poroi 2 set up the mill in just three weeks, processing their first sago log in mid-May 2020 with a yield of 439kg. The mill has a capacity to produce up to 93 tonnes a year. Research of sago harvesting in the Gulf's Kerema region by PNG academics Terence Miro Laufa and David Kavanamur found that it took six women about six days to process the sago from one log for a yield of 120-150kg. The calories used in the effort were greater than the



A sago log is fed into the rasping machine



Liquid sago goes into the settling tank



Young girls start learning to make sago from the age of five or six

calories gained from eating the sago! In just half a day the same log processed in the mill can yield two or three times this quantity, and it is of a far superior quality. Both the Koko Nene group and Total are now investigating ways to get the new certified

restaurant-quality sago to market in places like Port Moresby, while Oil Search and the IFC have shown interest in establishing mills at other locations. There are also opportunities to follow the lead of PNG's neighbours in Indonesia and Malaysia and develop a range

of byproducts - cakes, puddings, biscuits and chips made from sago flour, while the waste can be used to grow mushrooms and sago grubs, and make charcoal briquettes (fuel for barbecues), stock feed and ethanol. Unless you have access to a helicopter, getting to Poroi 2 from POM involves a long journey in a PMV bus, a treacherous boat ride across the Papuan Gulf, and then another boat trip up the muddy Purari River. The impenetrable jungle overruns the edges of both banks and a sense of timelessness permeates the air. The village is a short but slippery walk up a bank that varies in height depending on the level of the river, which has been known to rise more than 5m in an hour if there is heavy rain upstream. The lands of the



Sago project coordinator Tony Uechtritz with new mill worker Eliza Jomu, who chairs the Elk & Antelope Women's Association

Pawaian are abundant with wild sago but their gardens lack nutritional variety, the people's literacy rates are extremely low, particularly among girls and women, there are food safety concerns from using dirty river water to wash sago pith, there are no modern communication networks and access to townships is virtually impossible due to the dangers associated with travel by dinghy or canoe. Like 64% of PNG's population, the Pawaian people are dependent on sago as a staple food source. In the Gulf there is an estimated 400,000ha of wild sago and 5000ha of semi-cultivated sago, making the mechanisation of sago production on an SME-scale transformational. Tony Uechtritz says the smallholder model is one that can be easily replicated. "It's certainly the model that works in Indonesia, most of the production is from smallholders, which is great, because the sago industry can have a wider impact." The main component of the mill is a rasping machine - a high-speed rotating drum embedded with stainless steel spikes driven by a 20hp diesel motor. The spikes pulverise the lengths of sago trunk (billets) into a fine mash, much finer than can be gained from manual pounding

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**Stuffing bamboo with sago for cooking**

and with double or more the starch content. The mash is manually squeezed through a sieve similar to traditional straining methods, before the milky liquid is left overnight in a tank to allow the sago sediment to settle to the bottom and the water to be drained off the top. Key to the quality of the end product is a ready supply of clean water, which is captured upstream and gravity-fed to two 9000l tanks, from where a 5hp pump reticulates it across the mill site. It takes 20l of water to release enough starch particles to make 1kg of dried sago flour. Tony's brother Peter Uechritz, a consultant on the project who has inspected several community-run sago mills in Indonesia, says Papuan Gulf villagers are already skilled with outboard motors and chainsaws, and the mill's machinery is no more complicated to operate than these. "It is also robust enough to last for a long time - I saw several operations in Indonesia where these motors were still operating after 30 years," Peter said. "We bought our machines from Indonesia but there is no problem manufacturing them here (in PNG). We hope to get engineers to design around the imported principles and make a better machine that can be replicated and reduced in cost.

"We also have a smaller 'micro' version of the rasping machine that can still process a log a day that could be distributed throughout the villages within the price range of families, clans and community groups." Tony, who has been working in the Gulf region for the past eight years, most recently as project coordinator of the new IFC-funded Gulf Province Transport Route impact study, says his interest in sago started from a curiosity in the wet cakes he would see for sale at local market stalls. "It was obvious how important sago was to the lives of the people in the Gulf, and that there were potentially significant opportunities to be explored in sago processing and development," he says. Much of Tony's drive comes from a family legacy rooted in agricultural development in PNG. "I am a fourth generation PNG-Australian, my great-grandparents essentially established agriculture in PNG and my father was a didiman (farmer); they have all done wonderful things to contribute to the development of agriculture in the country. Being the youngest of 10, and the only one working and living in PNG on a regular basis, there's a sense of obligation to continue the family legacy." He says his involvement is underscored by the desire to release women and girls from the strenuous daily task of manual sago production, which is customarily women's work. "I have seen what the struggle is like here and I'd like to make a difference, and this is my way." One of the causes for joy among the women of Poroi 2 has been receiving the PPE (personal protective equipment) they are required to wear to operate the plant, to the point they are reluctant to take it off at the end of their rostered shifts on the mill floor! When first told

they were to get PPE, "Our ears stood up, we were so happy to hear this! Women here, we never get PPE, it's only the men. This is the first time, we thought, 'This is history!'" says Eliza Jomu, who chairs the Women's Elk & Antelope Association set up by Total. Before the mill, Eliza described a typical day for village women involved leaving early in the morning to find a sago palm in the bush, cutting it down and preparing the area to do the processing. "Mothers who have babies have no choice but to take their babies with them; they hang them in bilums while they work. The babies are bitten by all types of insects, sometimes they get sick. She gets an axe, removes the bark, then splits the log. She gets ready a sheet of plastic or a bag then starts to scrape the sago the way our ancestors have taught us, then she takes the scrapings to the river to wash. She will work one whole day with no food. If they get very hungry, they'll eat the dry pith of the sago. Once they are done with the processing,



**A woman collects water from the river to wash the sago scrapings**

**"Before, we would work hard all day to make one bag of sago. Now it is easy work, we spend less time and make five bags from the same amount of the tree"**

they have to find bamboo, cut the bamboo for cooking the sago, and carry everything back home."

What makes the introduction of this mill even more life-changing is that Pawaian women have traditionally led a very prohibitive existence, bound by social rules that forbid eye contact or even talking to males outside their family. In a first, equally as empowering as the start of a new era in the production of sago for smallholder farming, is the transformation of gender equality in this village. "Before, the men would not help us make sago," Mumu declares. "They said it is the responsibility of the woman. Now that the machine has come, the men want to help us. We are very happy to have them help us. The machine makes it easier and with the help of the man it makes it even more easier." She adds that she is amazed at the amount of sago the mill can produce. "Before, we would work hard all day to make one bag of sago. Now it is easy work, we spend less time and make five bags from the same amount of the tree." Another Elk & Antelope group member Anna Simon describes her first taste of sago from the machine. "It was so sweet; it tastes much better than before. We told others in the village about this and they say they will buy our sago so they can taste it too".



**Mothers will have more time for their children thanks to the new processing system**

This is not simply a prototype that has the potential to create jobs and income for Gulf sago harvesters, it sets a benchmark for the evolution of gender relationships in a land where violence against women remains alarmingly, unacceptably high. A key objective of the team carrying out research and development of the mechanised sago mill is that 50% of participating farmers will be female, allowing them a strong role in the development of the business group and access to existing and newly created markets. The promotion of women's participation in key positions along the entire value chain, including in non-traditional roles, aims to develop a cohort of women leaders and role models for the community. All of the women interviewed speak of how hard life is for women in the village and how the mechanisation process will benefit them. They agree that education is important and envision the day their children will be able to attend good schools. A deep-seated and openly expressed desire for self-determination is now a foreseeable reality. It has

brought an immeasurable sense of worth to the women of Poroi 2 and a corresponding desire by its men to be involved in and work alongside their women. The allocation of work in its future development stages will be determined by merit, education and ability, not by gender. Mineral Resource Development Company managing director Augustine Mano, after seeing the mill in action at Poroi 2, described it as a "game-changer" that will "change how Papua New Guineans view sago, particularly in terms of the opportunity to develop SMEs across the country". "Sago is everywhere across PNG and we really take it for granted. Imagine if we had these setups in every village and worked towards making it a product for export. Just imagine the empowerment of the SME! That's where I see the potential." As a final word, Eliza Jomu describes how the new mill makes her feel. "If I was a dog my tail would turn! The happiness is in my stomach, all day and night I feel it. When we walk around our feet do not touch the ground, we are walking around on air." ▲