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Into the Steep

Runways with steep approaches may seem benign but there's a reason extra training is required

Hope floats with Samaritan seaplanes

BY MARK HUBER

Samaritan Aviation's amphibious air ambulances serve Papua New Guinea's river villages.

A small, volunteer group of seaplane pilots, mechanics, and nurses are making a life-saving difference in one of the most impoverished places on the planet.

Life in Papua New Guinea (PNG) is short, brutal, and poor. It is one of the few places on the planet where polio and tuberculosis have made comebacks and cholera outbreaks still kill thousands. Malaria afflicts 164 of every 1,000 people. Average life expectancy is just 65.

Population has quintupled since 1960. Most of the nation's 10.5 million residents scratch out a living via subsistence fishing and farming; 88 percent remain rural and they speak more than 840 languages. Crops grown on riverbanks flood when water levels rise. Average per capita income is just $2,500. The infant mortality rate in some regions is as high as 40 percent. Most children who do survive leave school after the fourth grade. Tribal warfare is a regular fact of life. So is crime.

According to the U.S. State Department's Country Security Report, "PNG's crime rate is among the highest in world" and the country ranks 136 out of 140 in the Economist Intelligence Unit's livability index, a score indicating that "most aspects of living are severely restricted."

Boram Hospital is where the 25,000 residents of Wewak go for advanced care. So do the 350,000 residents of East Sepik Province who live in 120 villages along a 700-mile stretch of the Sepik River. While the area is served by 40-odd clinics, they are little more than dispensaries for rudimentary antibiotics capable of handling only minor illnesses and injuries. Most don't even have X-ray machines. People in need of more advanced care must make the arduous, three-day river and land journey to Wewak. The mortality rate for those making the trip was not good, until Samaritan Aviation began operations in 2010.

PILOT AND PASTOR

Samaritan was founded by Californian Mark Palm, the son of a minister and the grandson of a seaplane pilot. Palm is very much a product of both: A&P mechanic, pilot, pastor, and graduate of both Bible and aviation technology college programs.

He remembers his first mission, at age 16, building houses in Mexico for people who were living in cardboard boxes. Three years later, in 1994, he arrived in PNG for the first time. Organizations such as Mission Aviation Fellowship had long-served villages there in the highlands with wheeled gear single-engine turboprops, conducting medevac missions and flying in food, medicine, and supplies. But for river basin dwellers, there was no such relief.

Palm immediately saw the need—and the opportunity. "We heard stories about people dying trying to get to hospitals—and there was water everywhere," he

said. From that experience, the idea of Samaritan Aviation was born. After years of research, preparation, and fundraising, Palm returned in 2010 with his wife and three children—along with a used, disassembled Cessna 206 on amphibious floats, stuffed into a 40-foot ocean container.

Since then, Palm personally has flown more than 1,500 medical missions. Over the years, Samaritan's fleet has grown to four aircraft. A small staff of dedicated volunteers collectively have flown more than 2,800 accident and incident-free missions, delivered more than 230,000 pounds of medical and other critical supplies, and saved thousand of lives.

Samaritan does all this on a shoestring budget of $2.68 million annually with administrative costs under 5 percent and a mere 1.6 percent spent on fundraising. Most of its budget comes from individual and foundation donations. Another 30 percent is contributed by grants from district, provincial, and national PNG government units that see the value of Samaritan's service and would like to see it expanded.

Samaritan pays its pilots exactly nothing. Pilots must find their own sponsors. Even so, qualifying to fly for Samaritan is not easy. Flying skills are tested. Pilots undergo psychological evaluations. Spouses are interviewed. Then a "vision trip" to PNG is required. "It's really a calling," said Palm.

Flying the Sepik River is dangerous, even under the best of conditions. Samaritan flies only daylight hours, but it does other things to mitigate risks: good pilots flying well-equipped airplanes. Samaritan operates only used 206s—and it's not just a matter of cost. "They're lighter [than new production aircraft] and can carry more," Palm explained, noting that useful load comes in at around 1,030 pounds.

THE 'NEW' 206

Sama ritan's latest "new" 206 is a 1980 model. Samaritan customized it with new paint, amphibious floats, a Continental IO550F engine for more boost, an all-composite 86-inch seaplane propeller, specialized cargo floor, Robertson STOL kit and wing extensions, a mod that allows the rear cargo doors to open when the flaps are down, V2track dual-mode cellular/GPS tracking, texting, and voice, and modern Garmin avionics with autopilot.

The flight is in constant communication with the Boram triage nurse, and V2 allows it to be tracked in real-time by Samaritan. All-up, Samaritan invests about $650,000 in each 206 that it buys.

Samaritan Aviation operates a fleet of four Cessna 206s on floats.

Medical equipment aboard is basic but functional: a stretcher, attendant chair, medical oxygen tank, and a drug bag with various intravenous solutions and injectables. Aircraft crew includes the pilot and the flight nurse. Patients are generally required to bring along a caregiver as well, usually a relative. Longest flights are approximately 140 nm or about 1 hour and 20 minutes, Palm said. The average flight is 45 minutes.

The 206s' average fuel burn is 14.7 gallons per hour. The 100LL fuel the 206s require is not readily available in PNG, so Samaritan has it shipped in, eighty 50-gallon drums at a time for prices that range between $10 and $12 per gallon. Even at that price, running the piston engine-powered 206s makes more sense than converting to single-engine turboprops that burn more plentifully-available and cheaper jet-A fuel.

"Your up-front cost [per plane] would be at least three times as much and those planes burn 50 gallons per hour," Palm noted. While turboprops could accommodate larger loads, he insists that "the 206 fits the job best for what we do and that's why we are still bringing them over [to PNG]." He does admit that finding affordable used ones in good condition is becoming more challenging, and a transition to turboprops may be inevitable. "I think we might be forced to do it at some point."

Samaritan's mission does not end when the patient is delivered to the airport at Wewak. Samaritan has its own ambulance and staff for the last part of the journey to the hospital. After hospital admission, Samaritan follows up, bringing the patient clothing, food, and other necessities.

"We're small, it has taken a long time, but we're getting some traction right now," Palm said of Samaritan's program. "It's exciting, being able to expand our capacity and serve a need that's always been there. These people deserve a chance."