From: The Economist

Medical drones in Africa

Help from above

A new way round an old problem

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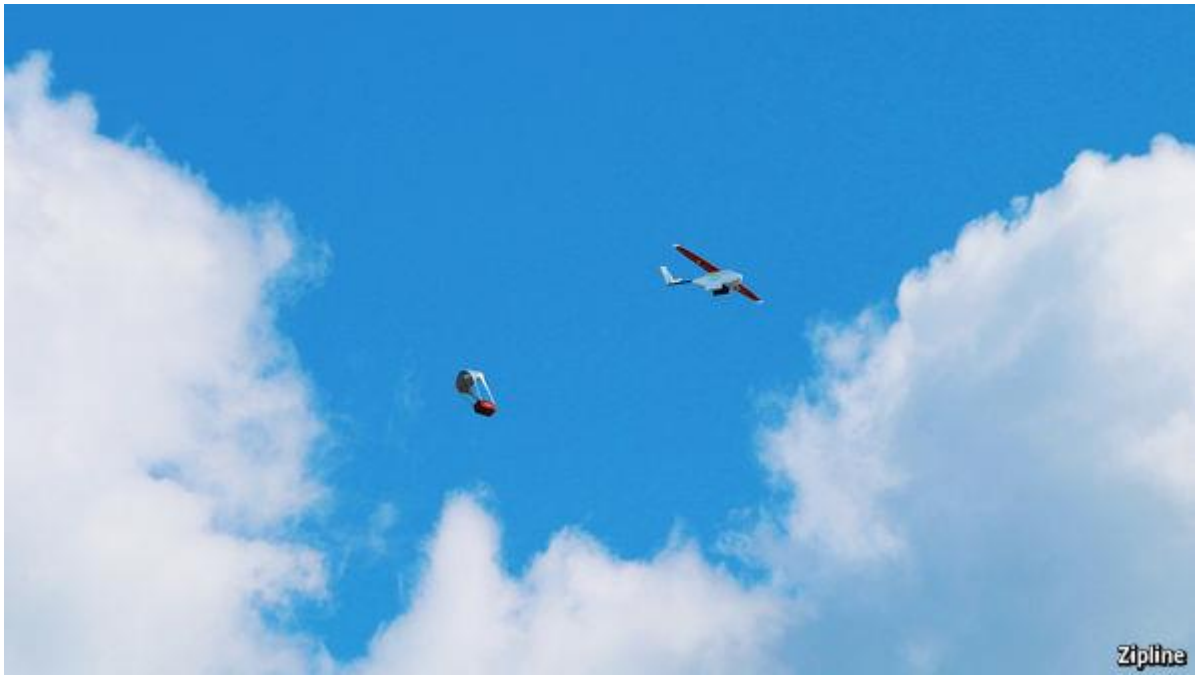

Blood from the sky

“LAND of a thousand hills” is an apt nickname for Rwanda. The tiny, landlocked country ripples with steep, terraced hillsides. Under its single-minded president, Paul Kagame, it is also determined to become a technology hub for Africa. It is not, therefore, surprising that Rwanda will soon be a laboratory for one of the most hyped technologies around.

Zipline, a Silicon Valley startup, will start testing delivery drones (otherwise known as Unmanned Aerial Vehicles) at a site 40 minutes drive south-west of the capital, Kigali, in August. If deemed safe by the government, a month or two later the fixed-wing “Zips” will be dropping off blood for transfusions in small boxes with parachutes at 21 hospitals and health centres within a 75km (40 mile) radius. The aim is to open a second hub in the east to cover the rest of the country within a year, and to start delivering vaccines and other medicines as well as blood.

If all goes well, drones could cut a 3.5-hour trip by car to and from one of the country’s five blood banks to less than 45 minutes, a potentially life-saving difference for a mother haemorrhaging after giving birth. Even more time could be saved during the rainy season, when many of Rwanda’s roads become impassable, says Zipline’s co-founder, Will Hetzler.

Another firm, Mobisol, wants to use drones to deliver spare parts for its pay-as-you-go solar-power systems in Rwanda and Tanzania. The quadcopters it is developing would land on roofs, where they could be recharged using customers’ excess solar energy.

Perhaps the most ambitious idea comes from Redline, a 40-person company founded by Jonathan Ledgard, a former journalist for *The Economist*. Mr Ledgard envisions fixed-wing drones, manufactured for less than $3,000, carrying up to 10kg (22 pound) loads between small cities and towns that are poorly connected by road. A ‘droneport’, designed by Norman Foster, a British architect, could be built for $300,000—less, Mr Ledgard claims, than a new petrol station. Rwandan ministers are supportive, and Redline hopes to start test flights by the end of the year.

There are plenty of potential pitfalls. Mr Ledgard’s Flying Donkey Challenge, a competition for drones to carry loads around Mount Kenya, was shelved in 2014, after a series of terrorist attacks meant that a nervous Kenyan government was unwilling to give the go-ahead. In South Africa drones have been used to track poachers and tested out as a crime surveillance tool. But strict regulations imposed in July 2015 mean you have to pass skills and theory tests, and be medically examined by a doctor, to get a licence to fly one.

Malawi’s leaders were keener on a recent study by the UN Children’s Emergency Fund (Unicef) into the

feasibility of using drones to transport the HIV test samples of newborn babies. But although all 93 flights in the two-week period in March passed off without a hitch, the cost of the drones from Matternet, another Silicon Valley startup, tends to be more than using motorbikes, thinks Judith Sherman, Unicef's HIV/AIDS chief in Malawi. "The technology is still immature," she says.

Nonetheless, Unicef is working with Malawi's government to come up with a better way to transport lab samples. Drones may turn out to be the best option for islands in Lake Malawi, for example. The country is also interested in using drones in agriculture, forestry and conservation, as well as disaster surveillance. No one pretends that drones can ever be a complete substitute for good roads. But as drones become cheaper, they could help countries with patchy infrastructure and tricky terrain shift light, valuable goods more quickly.