

International news

Africa declares war on its invisible scourge

Ambitious plan to end centuries of poverty by killing off the tsetse fly

James Meek
near Lake Abaya, Ethiopia

One evening last week a small column of white, four wheel drive cars passed through the villages of the Great Rift Valley in southern Ethiopia, in a chocolate smell of long-dry earth wetted by the early rains.

To the local people coming home from their fields of banana, teff and sugar cane, it must have looked like one more foreign aid agency on the move. But the vehicles were Ethiopian, and the man with the greatest responsibility on board was Ugandan: John Kabayo.

It is not a small thing he wants. Starting here, in six months' time, Mr Kabayo hopes to see the beginning of the destruction of an animal which has held Africa back since the Bronze Age.

The endeavour is so ambitious and so counterintuitive that at first hearing it is hard to comprehend: the extermination of an entire, common insect species, the tsetse fly, by poison, deceit and the release from aircraft of billions of radiation-sterilised insects. The cost and timescale are unknowable, but they certainly exceed billions of pounds and several decades.

It is not only the money and the time. The job requires perfect coordination between a cold war-era nuclear agency in Vienna, sceptical donor countries — Britain is among the project's opponents — and 36 African nations, all of them poor, all struggling with other serious illnesses such as HIV and malaria, and some in a state of armed conflict.

The difficulties, and the numbers, are horrendous. So too is the cost to Africans of the disease carried by the tsetse fly: sleeping sickness in humans, nagana in livestock.

Sleeping sickness is less well known in rich countries than malaria is because it is a disease of the countryside, not cities or resorts, and does not figure on tourists' list of jabs and prophylactics. It infects between 300,000 and 500,000 Africans each year, and if not treated, it is fatal. More than a thousand people die of the disease each week.

Even the standard treatment for late-stage sleeping sickness, a drug based on arsenic, is so poisonous that it kills up to 10% of those who take it.

"We are not saying we're going to finish it tomorrow. What we're saying is that we have do do something," said Mr Kabayo, who heads Pattec, the Pan-African Tsetse and Trypanosomiasis Eradication Campaign, set up by the Organisation of African Unity. "It's not acceptable that we suffer from a disease which can be stopped. If it takes us 100 years, we are going to do it."

Alongside sleeping sickness, tsetse has a second, perhaps more devastating effect. The parasite it carries weakens and kills humankind's essential quintet of large domestic animals — cattle, sheep, goats, pigs and horses — meaning that for thousands of years African farmers in a vast belt across the centre of the continent have been unable to carry out the kind of mixed farming, using draught animals to pull ploughs and fertilise fields, which gave their northern counterparts the economic advantage to conquer the world.

"There's nothing that has made its mark on this continent as much as tsetse fly," said Mr Kabayo. "It's so subtle and invisible, and doesn't get in the news. But this is the reason why crop and livestock production are separate here.

"You can imagine what it has meant for the continent that you have to walk everywhere on foot, and that all farm work has to be done by hand."

Like mosquitoes, tsetse flies feed on blood. During feeding, they can transmit and pick up parasites called trypanosomes, which attack the animal's or human's nervous system.

Working area by area, Pattec's plan is to



Cattle farmers in the part of Ethiopia's Great Rift Valley which is outside the vast area affected by the tsetse fly can make their living free from the peril which the insect brings Photograph: Klaus Koch

reduce tsetse numbers by the use of millions of targets: cheap, simple rectangles of black and blue cloth stretched on stakes which fool the flies into thinking they are animals. As soon as they descend on the cloth to bite, the insects are killed by a dose of poison. At the same time, cattle in project areas will have an anti-tsetse insecticide painted on them.

Once tsetse populations are reduced to 5% or less of their previous size, aircraft will release millions of male flies which have had their sperm damaged by radiation. Females will mate with the irradiated males — who will outnumber the fertile males — and conceive, but will not produce offspring. After months of such bombardment, the population should dwindle to zero.

The insects themselves are not radioactive. The technique has already been used to eradicate the screwworm fly from the southern US, Mexico and central America as far south as the Panama Canal. It also eradicated tsetse flies from Zanzibar, off the coast of Tanzania, in 1997.

Irradiated

On the outskirts of Addis Ababa, the capital of Ethiopia, the scaffolding is going up over a new tsetse fly breeding facility. Inside the existing, smaller centre, racks hold hundreds of garden sieve-like drums of insects, which feed off shallow trays of cow's blood overlaid with a porous membrane.

Once sexed and graded, the flies are sent in chilled flasks to be irradiated in a lead drum containing cobalt-60, the material used for cancer radiotherapy.

Ethiopia, a poor country landlocked by equally poor countries, is spending £11m of its own money on the first phase of tsetse eradication near Arba Minch, together with £14m of aid from abroad.

The transfer of nuclear technology to Ethiopia is being mediated by the Vienna-based International Atomic Energy Agency (IAEA).

Flying over Arba Minch on an IAEA-organised trip to the continent, it was possible to see something of the Ethiopians' misfortune. On the hilltops, above the 1,600-metre cut-off point where it is too cool for the tsetse to survive, the farms

cluster in their thousands, tiny plots of marginal land wedged into every available space, even at the head of steep gullies, each farm having to support a large family. Below 1,600 metres, in the tsetse zone, the farms are fewer, and sweeps of fertile land lie uncultivated.

More than 23,000 sq miles of Ethiopia's southern nationalities region — an area almost the size of Scotland — has tsetse, and until the recent control efforts began, the insect was on the increase.

In the small community of Lante, farmers gathered in the shade of three old warka trees and described how they were only now beginning to recover from the tsetse's ravages in the 1990s.

"When I was rich I had 50 cattle. Forty died. Now I have six," said Berza Bassa, who has eight children, two wives, and 1.5 hectares of land. "We lost our draught oxen. We lost our milking cows. After that we were poor."

But opponents of the tsetse programme have powerful arguments on their side. They say that traps and targets, combined with drugs, can make the disease so manageable that the expense of the sterile insect technique is unjustified.

They say that there is too much chaos in Africa to enable the cooperation that will be needed to stop tsetse-free areas being re-invaded. They say that the continent's game parks survive only because the tsetse keeps farmers' livestock out.

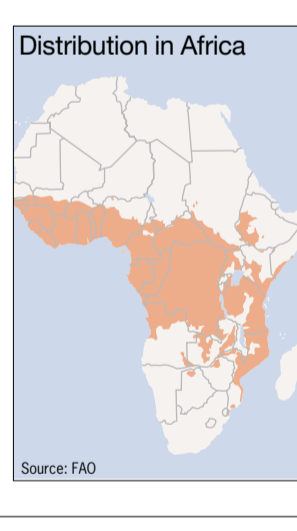
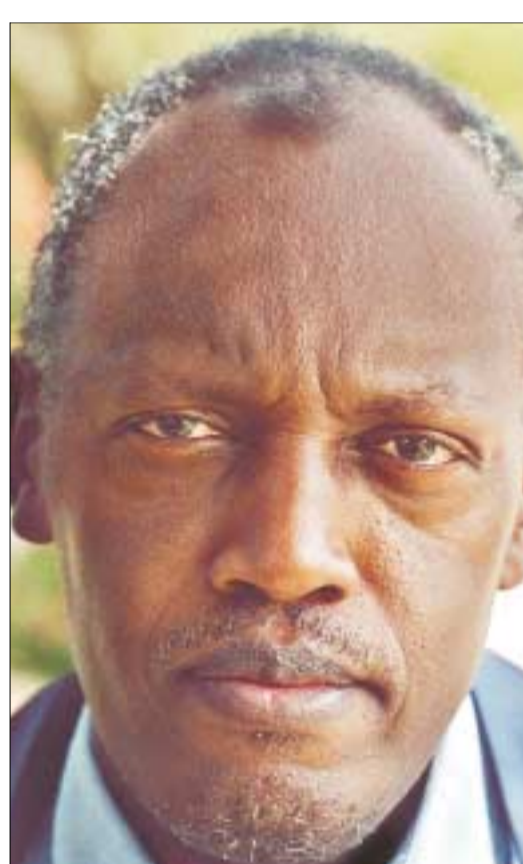
Most of all, there is just too much tsetse out there — an infested area the equivalent of 37 Britains. Each sub-species of tsetse needs its own sterile insect programme, and some countries, such as Kenya and Tanzania, have five sub-species.

Britain gives millions towards tsetse control and research, but does not believe that eradication could happen. "It will not be possible to eradicate flies from the continent," Clare Short, the development minister, said earlier this year.

With a secretariat of two in the OAU headquarters in Addis Ababa, Mr Kabayo has had little power so far to exert pressure on African governments to live up to the declarations they made when Pattec was set up, or travel the world lobbying donors.

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John Kabayo



Mr Kabayo knew tsetse as a boy. Now 53, he was born into a semi-nomadic, cattle-herding family in western Uganda, and helped move the livestock from place to place, avoiding the insect.

With the encouragement of his uncle, the Bishop of Uganda, he went to secondary school, ultimately gaining a PhD in biochemistry at Warwick University and doing post-doctoral work on blood at Bristol.

Epidemic

In his homeland today, there is an epidemic of sleeping sickness on the shores of Lake Victoria. In a treatment centre at Namungawe, a collection of simple concrete boxes with beds where relatives of the sick gather outside to cook meals for their loved ones, one sufferer said his village has seen 30 cases this year.

The disease begins as a fever, like malaria, with a headache and joint pain. Sufferers then begin to doze off and become confused; they may become impotent and incontinent. Without treatment, they go into a coma and die.

At the treatment centre, some patients seemed normal, if subdued. Others lay awake, but unable to respond.

Rose Kyega, 24, could not talk. She sat up in bed, rigid, swallowing, confused, as if she had no idea where she was. Each patient had their medical history lying on the bed, in a cheap green school jotter.

Faustin Maiso, a sleeping sickness specialist from the Ugandan health ministry, said that they were grateful for aid — but until the fly itself was eradicated, they would be vulnerable.

Drug resistant forms of the parasite were spreading. Western companies were reluctant to spend to research new drugs. Donors' priorities have changed.

Mr Maiso said: "Late-stage treatment costs about \$100, early about \$50. In Uganda the amount allocated per person for the whole year is \$5. Without help, without donor support, there's hardly anything to be done."

"We're able to control it for as long as we have enough assistance, but once the assistance has gone, the epidemic comes up again. So as a long-term solution, why not get rid of the fly?"