



## THE TSETSE FLY AND AFRICAN TRYPANOSOMOSIS: TOWARDS A LASTING SOLUTION

Dr. John P. Kabayo, Regional Coordinator, Pan African Tsetse and Trypanosomosis Eradication Campaign (PATTEC), P.O.Box 200032, Addis Ababa, Ethiopia, E-mail: jkabayo@hotmail.com for H.E. Ambassador Lawrence Agubuzu, Assistant Secretary General, Community Affairs Department, Organisation of African Unity, Addis Ababa, Ethiopia

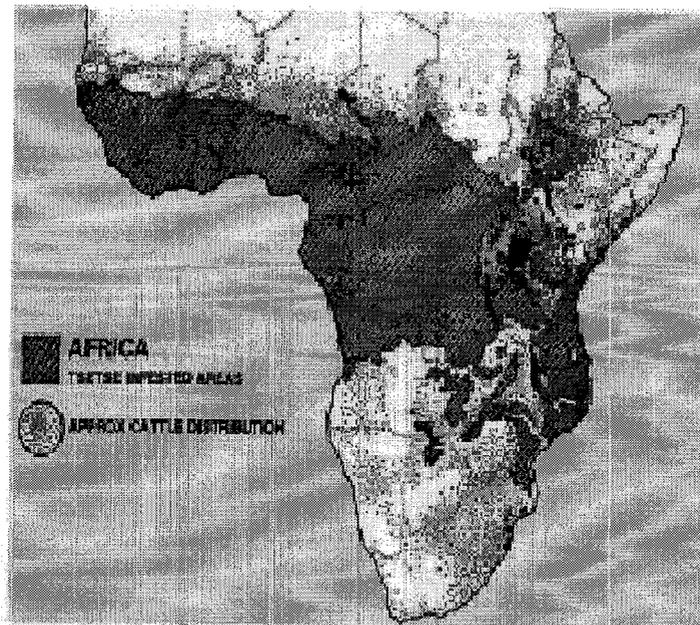
### Introduction

Tsetse flies carry and transmit infective microscopic parasitic microorganisms, called trypanosomes, which cause sleeping sickness in man and a similar devastating disease in domestic animals, known as nagana.

Over the past couple of centuries, periodic epidemic outbreaks of sleeping sickness wiped out entire communities in villages and settlements in various parts of Africa and caused massive depopulation of many areas. Many communities lost their domestic animals to trypanosomosis and gave up livestock production altogether; they concentrated on crop production, preferring to settle in elevated areas where they were comparatively safe from the diseases commonly found in low-lying areas. Other communities persisted with livestock production and settled in areas, e.g. savanna plains, where the limited vegetation cover was relatively tsetse-free. Over the years, this pattern of settlement, and the attendant separation of crop production from livestock production, has changed little. Significant mixed farming is only found in areas where tsetse and trypanosomosis no longer exist (see Figure). The uninhabited, undeveloped areas in between, often known as *Africa's green desert*, are usually home

Tsetse flies infest about 10 million square kilometer of fertile land spread across 37 countries.

### The Root of Poverty - TseTse



**Out of 165 Million cattle in Africa, 10 Million are found in the TseTse fly belt.**

These are mostly low-producing breeds, which are maintained on high drug management regimes to keep trypanosomosis in check.

to wild life which not only provides a source of blood on which tsetse flies feed but also serves as the trypanosome reservoir. While wild animals are relatively tolerant of trypanosomosis, they act as a reservoir of the disease.

### ***Socioeconomic Importance of Tsetse and Trypanosomosis***

The tsetse fly is to a great extent responsible for the fact that, in most of Africa, horses and other beasts of burden are conspicuously absent. Similarly, the use of animal draught power in agriculture and transport, common in other parts of the world, has not been significantly developed. Largely because of trypanosomosis, and unlike anywhere else in the world, livestock production has usually been separated from agriculture. Except in tsetse-free areas, mixed farming has not been extensively practised in most of Africa. The phenomenon and cultural practice of nomadism is largely a result of having to play hide-and-seek with the tsetse fly, in an attempt to avoid the risk of exposing people and their livestock to the disease. It is difficult to exaggerate the consequences and effects on Africa's history and socioeconomic development of having to till the land by hand and trudge long distances on foot. The absence of mixed farming has tended to limit the availability of animal protein and manure, with severe consequences on the nutritional status of many African communities, and on the fertility and productivity of soils in many places.

The tsetse fly forced most of Africa to stock low-productivity animal breeds which, compared to exotic breeds, are relatively trypano-tolerant and are generally more capable of surviving infections of trypanosomosis. The disease and its threat caused depopulation of large areas of good pasture and agricultural land and led to overcrowding in the limited tsetse-free areas, creating a variety of problems ranging from competition for land to overgrazing, land degradation and a variety of ecological disruptions. Ironically, immense expanses of Africa's potential farming lands are uninhabited and undeveloped, because of the presence of the tsetse fly.

Tsetse flies occur in 37 countries of Africa in an area known as the tsetse fly belt, which covers about 10 million km<sup>2</sup> and stretches from Senegal in the north to South Africa in the south. This area, similar in size to the entire USA, is the most fertile land on the continent. There are about 165 million cattle on the African continent, of which only 10 million cattle are found within the tsetse fly belt. Tsetse-free South America, with about 70% of Africa's grazing area, stocks 465 million cattle.

To maintain the 10 million cattle of mostly unproductive breeds within the tsetse belt, the affected African countries consume 35 million doses of expensive trypanocidal drugs every year in futile efforts aimed at treating the disease, and engage in various activities to control the tsetse flies. The FAO estimates that every year Africa loses about \$ 1.2 billion in lost milk and beef production, and in costs connected with the efforts to treat or prevent the disease. Africa loses over 3 million domestic animals every year to causes directly traceable to tsetse-transmitted diseases. These losses can be as much as \$ 4.5 billion every year, if the losses in opportunities traceable to the presence and effect of the tsetse fly are considered. And these estimates do not include the cost of the effect of the disease on human health and productivity.

### ***Elimination of tsetse flies will break the vicious circle of poverty and diminished productivity in Africa's rural areas***

Communities in Africa's tsetse-free areas are able to stock higher productivity breeds of livestock and practise mixed farming. Contrary to the fears propagated by opponents of tsetse eradication, tsetse-free areas invariably show no signs of land degradation or other evidence of ecological disruption often predicted to accompany tsetse eradication. Stocking higher productivity breeds of livestock in these areas makes it unnecessary to maintain large herds. A consequence of mixed farming is the possibility to produce manure, improve soil fertility, leading to increased crop yields and at the same time improving the nutrition of the community.

Farmers in tsetse-free areas are not only relieved of the costs of treating or preventing trypanosomosis, but they also experience gains in increased productivity, especially if the possibility for the use of draught animals in agricultural production and transportation is considered. Coping with trypanosomosis in livestock accounts for over 90% of the expenses in animal husbandry care costs, and therefore the absence of tsetse flies represents a major saving indeed. Many communities whose areas have been rendered tsetse-free have witnessed the combination of savings and increased livestock production with consequent dramatic improvements in the quality of their lives and livelihood. No other development scheme or policy can generate the same evidence of success in guaranteeing sustainable development and alleviation of poverty in rural areas. The recent example of

Zanzibar is a vivid illustration of the proposition that tsetse eradication should be a primary component of every development policy in affected areas.

### ***Success in Zanzibar***

Tsetse eradication was declared in Zanzibar in September 1997, after a 3-year campaign that involved a combination of suppression of the tsetse population with conventional insecticide-based methods and the Sterile Insect Technique. Since then, reports of an economic turn-around for the island have attracted attention and confirmed the view that tsetse eradication has indeed been the missing key in Africa's rural development schemes. In the absence of tsetse flies on Zanzibar, farmers have introduced exotic breeds of livestock and have reported increases in milk production. This success has inspired countries in the rest of Africa to initiate programmes aimed at eradicating tsetse flies and eliminating the associated constraints to land use and agricultural productivity.

### ***The Pan African Tsetse and Trypanosomosis Eradication Campaign (PATTEC)***

In July 2000, the African Heads of State and Government meeting at the OAU Summit in Lome, Togo, passed a Decision to eradicate tsetse flies from Africa. A Plan of Action, based on the proposal for a phased systematic elimination of isolated infestations of tsetse flies, was drawn up, and a campaign to generate the necessary action in each affected country is now being initiated.

There is confidence that once the threat of tsetse-transmitted diseases has finally been eliminated, development efforts aimed at fighting rural poverty will bear fruit. Consequently, emphasis should converge on the practical means and mechanisms of making tsetse eradication the initial objective of rural development policies and programmes.