



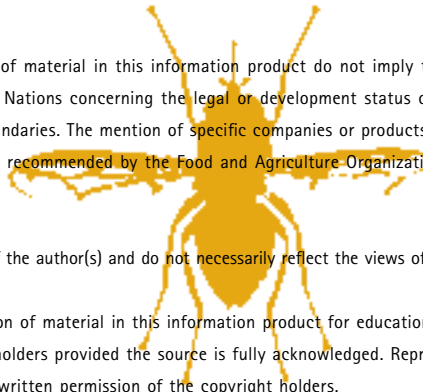
ON TARGET  
AGAINST  
POVERTY

THE PROGRAMME AGAINST  
AFRICAN TRYPANOSOMIASIS

— P A A T —

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Pathogen and vector: trypanosome (above/left) and tsetse fly taking a bloodmeal (right).

Left: Healthy livestock are assets that can be used as route out of poverty. Multi-owner village herd in Togo.

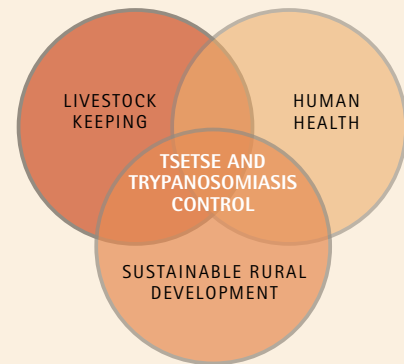
## >> WORKING TOWARDS THE MILLENNIUM DEVELOPMENT GOALS (MDGs)

The mid-1990s marked a bleak period in the history of the battle against trypanosomiasis and its vector, the tsetse fly. In many African countries, dedicated tsetse control units found themselves facing dwindling resources and reduced donor support, often losing their separate status within the government ministries responsible for agriculture and livestock production. Thus African livestock keepers were left to deal with the disease alone, relying almost exclusively on trypanocidal drugs to cure or prevent the disease. At the same time, there were alarming signs of a massive resurgence of the disease in people: human African trypanosomiasis, which is more commonly known as sleeping sickness.

Donor interest in tsetse, the disease in livestock and even in livestock development in Africa had waned, while sleeping sickness was regarded as a colonial disease that had been eliminated and could be relegated to history. In addition, research institutes both in Africa and overseas, were tending to reduce their research commitment to tsetse and trypanosomiasis.

Nevertheless, there remained a large and diverse number of organizations actively involved in both tsetse and trypanosomiasis research and control. They recognized the need for a forum that would bring together the key international organizations with national and multinational bodies. To meet this need, PAAT was set up with four mandated organizations: the

African Union's International Bureau of Animal Resources (AU-IBAR), the Food and Agriculture Organization of the United Nations (FAO), the International Atomic Energy Agency (IAEA) and the World Health Organization (WHO). PAAT's existence was formally ratified in 1997. In the decade since then, much progress has been achieved.



**Almost more than any other disease affecting both people and livestock, trypanosomiasis straddles the ground between human health, livestock health and agricultural production and thus rural development. Therefore, dealing with this disease has the potential to impact on all eight millennium development goals (MDGs).**



## MDG 1: >> ERADICATE EXTREME POVERTY AND HUNGER

**S**ustainable rural development underpins the fight against poverty in low-income countries due to the high weight of agriculture and livestock in their national economies. Sleeping sickness affects mainly active adults due to their greater contact with the vector. As a consequence, it has a major impact

in reducing productivity in affected rural communities. In addition, the important role of livestock in poor people's livelihoods is increasingly being recognized. As well as providing a source of steady income in the form of milk or eggs, livestock are a vital component of households' coping strategies; they can be sold for cash

when food supplies run short or illness strikes a member of the household.

In livestock, trypanosomiasis lowers milk yields, birth rates and draught animals' ability to work. It can also lead to weight loss and death. Such health problems in livestock impose a heavy burden on the poor. In the case of trypanosomiasis, with single treatments

**Trypanosomiasis currently causes annual losses of some USD1.5 billion and, over the long run, has had the effect of limiting Africa's agricultural income to some USD4.5 billion a year below its potential level.**

**"The animals of the poor are particularly vulnerable to disease... Animal diseases reduce the already limited asset base of the poor livestock-keeping household... The result is a livelihood strategy that must accommodate lower than expected productivity from the household's livestock, and often rules out adopting better management or more productive livestock activities."**

Brian Perry *et al.* (2002) Investing in animal health research to alleviate poverty.



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Losing a valuable animal to disease can spell disaster for a household.



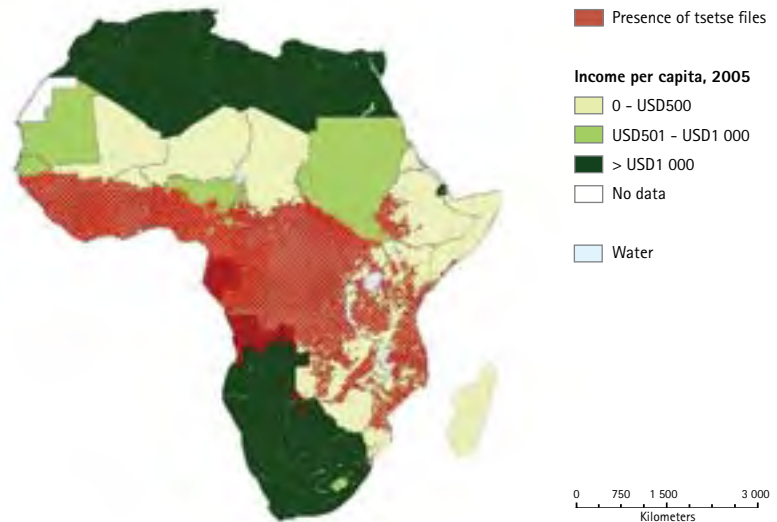
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Donkeys, the universal beast of burden in Ethiopia, are also affected by trypanosomiasis.

Left: Farmers have to spend considerable sums on drugs to protect their draft oxen from trypanosomiasis.

costing up to USD3 each and pour-on insecticide formulations often even more expensive, poor households can seldom afford to protect their animals against the disease and its effects.

Trypanosomiasis also acts as a major block to livestock breed improvement and the intensification of animal production in Africa, especially where it occurs alongside tick-borne diseases. Furthermore, the presence of the disease has greatly influenced Africa's land-use patterns. Draught animals, particularly work oxen, are highly susceptible to the disease and need preventive treatment in order to work in tsetse-infested areas.



**The problem of tsetse and trypanosomiasis lies at the heart of Africa's struggle against poverty. It affects 37 countries in sub-Saharan Africa; including 21 of the world's 25 poorest countries. Thus, tsetse and trypanosomiasis occupy the area recognized as world's greatest poverty spot.**



Left: Work oxen and carts are also widely used for transport, especially of crops at harvest time.

## MDG 1: >> ERADICATE EXTREME POVERTY AND HUNGER

Thus, trypanosomiasis has limited the use of animal traction in much of sub-Saharan Africa. Farm sizes are often smaller in tsetse-infested areas and transporting crops to market is difficult. The lack of livestock also reduces the amount of manure available to fertilize fields. In this way, trypanosomiasis continues to have a major impact on agricultural productivity and overall rural development.

Against this background, PAAT and its mandated organizations worked to ensure that the problem of trypanosomiasis was accorded a high profile internationally. In 1999, it was brought to the attention of Africa's leaders, and a resolution was passed at the Organization of the African Union (OAU) summit, in which they committed the continent to a programme of gradual elimination of the vector and the disease.

Thus was born the Pan-African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC), owing its existence to this initiative of the African Heads of State. PATTEC has achieved great success in mobilizing funding from the African Development Bank to clear some 200 000 sq km of tsetse in three countries in West Africa – Burkina Faso, Ghana, Mali – and three in East Africa – Ethiopia, Kenya and Uganda.

**"This assembly... recognizes the seriousness of the problem (caused by tsetse flies) as one of Africa's greatest constraints to socio-economic development, severely affecting human and livestock health, limiting land use, causing poverty and perpetuating underdevelopment on the continent."**

Organization of the African Union Summit, Lomé, 2000.



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Left: The challenge of educating the next generation – boys at a cattle market in an endemic sleeping sickness area.

## MDG 2: >> **ACHIEVE UNIVERSAL PRIMARY EDUCATION**

Livestock also play a major role in underpinning education. Throughout Africa, school fees are frequently funded by livestock sales. Better livestock productivity also means improved nutrition for rural children. Better-nourished children are more able to attend school and an adequate protein intake enhances their ability to learn.

Poor health is another reason for non-attendance at school. In some situations children have to stay away from school in order to care for sick parents. This is why dealing with a chronic, highly debilitating and difficult-to-diagnose disease, such as sleeping sickness, is an important component of ensuring access to primary education for all.

PAAT has maintained a strong commitment to adult capacity development and further training at all levels. It has produced a series of training manuals for field workers, and held or contributed to training courses on Geographic Information Systems and data management in the context of tsetse and trypanosomiasis.

**"In Kenya's Busia district, where trypanosomiasis is endemic, over half of goat sales and a quarter of cattle sales are nevertheless made to finance school fees."**

Christine Thurairira (2005) Socio-economic factors influencing livestock keeping in western Kenya.



Left: Milking and marketing of milk is usually undertaken by women.

## MDG 3: >> PROMOTE GENDER EQUALITY AND EMPOWER WOMEN

Livestock, particularly small stock, are traditionally kept by women, who are often also responsible for milking cattle and marketing livestock products. This enables women to ensure that children have access to livestock protein and to maintain a separate source of income that they can use for themselves. However, women

seldom have the spare cash to fund veterinary medicines and treatments, such as trypanocides. Trypanosomiasis lowers milk yields and substantially reduces the number of lambs, kids and calves born. Thus, programmes to deal with tsetse and trypanosomiasis are particularly helpful in protecting women's investment in livestock and the incomes they obtain from this.

PAAT's efforts to promote tsetse and trypanosomiasis control in the context of sustainable rural development have always included a gender issues component, ensuring that women's role in livestock keeping is considered and that measures are in place to ensure that they have full access to project benefits and are involved in community planning exercises.

**"Within populations of poor peoples, women are particularly likely to benefit from improved animal health."**

Brian Perry *et al.* (2002) Investing in animal health research to alleviate poverty.





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Left: Sleeping sickness also affects mothers and their children. Patients waiting for treatment in a rural hospital in Sudan.

## MDG 4: >> REDUCE CHILD MORTALITY

**A**ddressing the tsetse and trypanosomiasis problem also means directly addressing human health, by trying to control sleeping sickness. While this is not specifically a disease of children, they are nevertheless among the affected groups. Recent studies in Uganda have shown that just under a quarter of those affected by the

acute, East African form of the disease are children under nine years old. Many of the very young children affected also have mothers with the disease, as the two of them tend to be in the same place being bitten by the same flies.

Reducing the impact of the disease on livestock makes it possible to improve children's protein intake and

thus, via a more balanced diet, will also help increase child survival rates.

Over the past decade, WHO's support of African governments' efforts to find and cure individuals with sleeping sickness is estimated to have saved the lives of some 80 000 children and to have prevented many more from becoming infected.

**As well as directly saving children's lives by treating and preventing sleeping sickness, dealing with tsetse and trypanosomiasis has the potential to impact very highly on protein-energy malnutrition. This plays a major role in over half of deaths of children under five years of age in developing countries. These deaths are increasingly concentrated in Africa, where in 2006 some 4.8 million children died before reaching their fifth birthday – over half of the global total. Child mortality is also considerably higher among children living in rural areas.**



Maasai mother in the United Republic of Tanzania's tsetse-infested Handeni District.

Right: Mother bringing her baby to be tested for sleeping sickness in Uganda.

## MDG 5: >> IMPROVE MATERNAL HEALTH

**T**here are two routes by which dealing with trypanosomiasis helps to improve maternal health. The first is by controlling sleeping sickness. As well as helping those mothers with the disease, reducing the incidence of the disease removes a significant burden of care borne by women. The process of obtaining a correct diagnosis often involves three

or more visits to health facilities and treatment can require up to five weeks of hospitalization. During the latter stages of the disease, sick individuals become totally dependent and require a great deal of help. The task of looking after the sick individuals and accompanying them on visits to the doctor and during their hospital stay almost always falls

on women, usually mothers who have children to care for as well.

Secondly, because controlling tsetse and trypanosomiasis helps empower women by adding to the incomes they receive from keeping livestock, it helps to promote maternal health, especially by increasing the supply of home-produced protein accessible to women.

**Sleeping sickness is a disease of poverty, occurring in remote rural populations; it is the poorest of these individuals who lack the resources for the many visits to health centres to pursue a correct diagnosis and obtain the right treatment. Diagnosis is complex and difficult; many patients are incorrectly diagnosed as having malaria or AIDS. The disease is always fatal in these untreated individuals.**



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In some areas of Africa, such as south-eastern Uganda, cattle are the main reservoir of acute sleeping sickness.

Waiting for treatment in Uganda.

Left: Large-scale screening campaigns are vital in order to find sleeping sickness patients, treat them and reduce transmission of the disease. Mobile unit in Chad.

## MDG 6: >> COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES

Until recently, sleeping sickness was regarded by many as just another colonial disease, of little relevance in today's world. After the pandemics of the first half of the twentieth century, during the 1960s and 1970s the disease seemed to be under control, with a few thousand cases a year being reported. However, with less funding and much political disruption in some endemic areas, surveillance declined. By the late 1990s the number of cases reported had risen to nearly 40 000 a year. However, owing to the difficulties of diagnosing this disease and the remoteness of the areas where the disease is found, WHO estimates that the real number of people infected was closer to 300 000.

Epidemics of the acute form of the disease occurred. Animal reservoirs play an important role in this form. Often the infection is maintained in cattle, so that the disease imposes a dual burden on people and their livestock.

To deal with the crisis, which was compounded by the fact that there was a danger that production of the few drugs capable of curing sleeping sickness was about to cease, WHO succeeded in setting up a ten year partnership with sanofi-aventis for the period 2001–2011. They and Bayer AG agreed to continue production of the necessary drugs and supply these free of charge. Bilateral donors (especially Belgium, France and Spain) and NGOs (in particular Médecins Sans Frontières) also made significant contributions, while national

governments allocated new resources to sleeping sickness control.

As a result of this highly successful venture, the number of people screened annually rose from one million to three million, and about 385 000 people were treated for the disease between 1997 and 2006, representing some 10 million disability adjusted life years (DALYs) averted, mostly due to the prevention of premature death. The number of new cases being found has now decreased by 70 percent. Thus, a timely intervention by a highly successful public-private partnership, has both found and cured infected individuals and, by reducing the number of people infected, prevented new infections and stopped the epidemic in its tracks.

**One of the peculiarities of sleeping sickness is its ability to be maintained at a very low incidence for years and then to flare up into epidemics which wipe out whole communities – for this reason the rapid increase in reported cases at the end of the 1990s had to be treated as an emergency.**



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Left: Virtually all of Africa's game parks and protected areas contain tsetse which can threaten tourism and thus conservation. Buffalo in the Okavango Delta, Botswana.

## MDG 7: >> ENSURE ENVIRONMENTAL SUSTAINABILITY

**T**setse flies occupy some 8.7 million square kilometres of Africa. In some areas, very high livestock population densities in tsetse-free areas have led to overgrazing, while nearby tsetse-infested areas are underutilized because of the risk of the disease. While some tsetse populations have regressed in areas of the continent where the expansion of farming has eroded their habitat, elsewhere climate change is allowing tsetse to invade new areas, so that mixed farming is threatened. Tsetse control would make these pastures accessible and relieve land pressure elsewhere so that more sustainable land-use patterns can

emerge. Wild animals are carriers of trypanosomiasis, affecting both people and livestock, so the peaceful coexistence of game reserves and crop/livestock farming communities also depends on finding a way to deal with tsetse.

During the past decades, new integrated tsetse control approaches have been developed that include components that do not rely solely on the use of insecticides. Major progress was also made in the formulation and use of insecticides as well as in environmental impact assessments and related monitoring. In 2001–2002 Botswana applied ultra-low-volume formulations of non-persistent

insecticides from aircraft to eliminate tsetse from 16 000 square kilometres of the Okavango Delta – an environment of wetlands with a wealth of animal, bird and plant life. This was motivated by the desire to protect the area's tourism by addressing the risk of disease to tourists and local people. Detailed environmental monitoring revealed no evidence of unacceptable ecological effects.

Those working in the field of tsetse control have long been aware of the need to protect Africa's flora and fauna. In this context, PAAT has emphasized the need to link tsetse control with sound land-use planning and is providing guidelines.



At the level of local projects, focus groups are important – meeting with women in Pangani, United Republic of Tanzania.

Left: Delegates at the 11th PAAT Programme Advisory Group Meeting in October 2006, Botswana.

## MDG 8: >> DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT

**W**orking towards this MDG is at the core of PAAT's mission. Over the last decade PAAT has organized at least two high-level meetings annually in Africa and Europe, which have brought together key players across the development spectrum. In addition to its mandated role of harmonizing and coordinating the activities of the AU, IAEA, FAO and WHO, these have included

bilateral donors, the European Union, other UN agencies (the International Fund for Agricultural Development – IFAD, the UN Industrial Development Organization – UNIDO), leading national and international research institutes, representatives from medical and veterinary pharmaceutical companies, individuals working in large multi-country tsetse control projects, such as two EU-funded

sub-regional projects and, most importantly in recent years, PATTEC. Another recent PAAT initiative is a partnership with the International Federation for Animal Health (IFAH) on quality control and assurance for trypanocides.

PAAT also contributes to the International Scientific Council for Trypanosomiasis Research and Control (ISCTRC), an AU statutory body which meets every other year.



**For ten years, PAAT has acted as the international forum for all those working on tsetse and trypanosomiasis. Its regular meetings, where issues could be debated freely and solutions found, have underpinned the global effort to deal with this disease, its vector and their role in perpetuating poverty in Africa. PAAT is unique in bringing together three UN agencies as well as the African Union.**



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Sheep provide meat for festivals but can be sold for cash in times of need.

A milk cow is a much-valued asset.

Left: Village scene in a region affected by sleeping sickness.

## MDG 8: >> DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT

PAAT meetings benefit from the support of a multi-disciplinary group of highly experienced international experts, whose knowledge has been assembled in a series of scientific and technical studies, summarizing the current state of knowledge, informing policy and setting out guidelines on all aspects of dealing

with tsetse and trypanosomiasis. These are recognized as being definitive works in each discipline.

PAAT also publishes *Tsetse and Trypanosomiasis Information*, a twice-yearly digest containing summaries of important meetings and abstracts of all new publications in the field: a vital and unique

resource for researchers and developers alike. Together with the tsetse maps, livestock population and land-use information, these make up the PAAT-Information-System, which has become a widely consulted central archive of information for all involved in research on and control of tsetse and trypanosomiasis.

# PAAT

SECURING THE FUTURE: INVESTING IN THE HEALTH



OF AFRICA'S PEOPLE AND THAT OF THEIR ANIMALS





## THE PROGRAMME AGAINST AFRICAN TRYPANOSOMIASIS

# PAAT

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### OTHER RELATED WEBSITES

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