

SECTION A – NEWS

GALVmed AWARDED £8 MILLION TO DEVELOP TOOLS FOR BETTER CONTROL OF AFRICAN ANIMAL TRYPANOSOMOSIS

On 19 May 2011, GALVmed announced that it had been awarded £8million by the UK Government's Department for International Development (DFID) to facilitate the development of new and improved drugs, diagnostics and perhaps even a vaccine for the control of African animal trypanosomosis.

African animal trypanosomosis, also known as trypanosomiasis, nagana or simply tryps, has been estimated to cost Africa US\$5 billion a year. The disease is caused by several species of single-celled protozoan parasites and is spread by tsetse flies as they feed on animals' blood. The first step in GALVmed's ambitious 5-year programme will be to review current control options and scan the horizon to identify promising on-going research that could lead to better tools. The focus will be on tools that can be used at the level of the individual livestock keeper. The research groups who are working on the most promising leads will be invited to join forces with GALVmed. In developing the current initiative, GALVmed's board and management has been inspired by recent successes in the control of the closely related human disease sleeping sickness, which is also transmitted by tsetse flies. A public-private partnership between the World Health Organisation and several pharmaceutical companies has seen the number of sleeping sickness cases in Africa drop by more than 80 percent over the past four years. And the campaign "Stamp Out Sleeping Sickness" (SOS), involving partners from universities in Uganda and Edinburgh, a veterinary pharmaceutical company, private philanthropists and national authorities, has succeeded in halting the spread of the disease in Uganda.

Steve Sloan, GALVmed CEO, explains: *"Initially GALVmed's role will be catalytic, injecting new energy into tryps research and securing the funding necessary to make real progress. We recognise that tryps is an intractable problem that has engaged many of the best minds in the sector. So, the implementation of our plan to develop a better tryps toolkit will see the world's best scientists working closely with the world's top veterinary pharmaceutical and diagnostic companies. Our scoping work over the past two years has revealed research which appears to have high-potential to lead to powerful new drugs, vaccines and diagnostics. We will maximise the chances of success by building on these leads. Our "portfolio approach" means we will constantly and rigorously review the performance of the different research and development components, channelling resources to those areas that show the most potential and stopping those that fail to deliver against their initial promise. This approach and the recent progress made in the control of sleeping sickness gave DFID the confidence to make its first major investment in tryps research for more than a decade."*

To implement this ambitious undertaking, GALVmed is in the process of recruiting a programme manager for the African Animal Trypanosomosis Project. The manager, who will be based in Southern Africa, will be responsible for ensuring that the agreed deliverables with different partners are met within the timeframe and budget, and overseeing the contracts with the funders, DFID, and all other project partners. There will be a large number of partners involved in the delivery of the various strands of this work, including the development of candidates for new drugs, field diagnostic assays and evaluation of potential candidate vaccines. To cope with the large workload involved in putting the necessary contracts in place, GALVmed will be relying on different types of expertise, including a team of interns. GALVmed will also use the opportunity this project presents to strengthen its capacity building initiatives with African institutions and scientists.

WHO PRESS RELEASE 23 MAY 2011

New cases of human African trypanosomiasis continue to drop

Decline strengthens prospects for elimination

The number of reported cases of human African trypanosomiasis, more commonly known as sleeping sickness, dropped further in 2010, signalling that the disease may be approaching elimination as a public-health problem. A total of 7131 new cases were reported to WHO from 36 endemic countries during 2010, compared with 9878 cases in 2009. This represents a decrease of 28 percent in one year.

"Sustainable elimination of sleeping sickness as a public-health problem is feasible and requires continuous efforts and innovative approaches," said Dr Pere Simarro, Medical Officer in charge of WHO's programme to control human African trypanosomiasis. *"Systematic screening of patients and disease surveillance activities should be gradually integrated in health services while maintaining capacity to react rapidly".*

In 2004, more than 17 600 cases of sleeping sickness were reported and in 1998 almost 38 000. The Democratic Republic of the Congo, Angola, Sudan, Uganda, the Central African Republic and Chad are among the countries reporting high numbers of cases.

Control and surveillance

Strengthened control and surveillance activities by national sleeping sickness control programmes in endemic countries, often using cumbersome tools, are producing results.

Collaboration between WHO and two of its regional offices – the Regional Office for Africa and the Regional Office for the Eastern Mediterranean – has contributed to reducing transmission of the disease. This reduction has been made possible by support provided to endemic countries and through improved surveillance and case reporting. A partnership between WHO and Sanofi-Aventis has enabled the systematic screening and treatment of affected populations. Bilateral cooperation and support from nongovernmental organizations as well as a drug donation from Bayer Healthcare have also contributed to these achievements.

In her address to the 64th World Health Assembly on 16 May 2011, WHO's Director-General Dr Margaret Chan commented that progress achieved in controlling sleeping sickness has been "against all expectations," noting for the first time that the disease "looks slated for elimination in the near future."

New tools and funding

Institutional support and adequate funding remain fundamental to eliminating sleeping sickness and in avoiding any lapse in control activities, such as occurred in the late 1960s, triggering the re-emergence of the disease in many countries. Less cumbersome diagnostic methods and new treatment tools need to be developed to facilitate the elimination process and the sustainability of results.

Human African trypanosomiasis is a parasitic disease transmitted by the bite of an infected *Glossina* insect, commonly known as the tsetse fly. The disease affects mostly poor populations living in remote rural areas of Africa.

Left untreated, human African trypanosomiasis is usually fatal.

PAAT INFORMATION SERVICE PUBLICATION

Linking sustainable human and animal African trypanosomosis control with rural development strategies

This document analyses best practices for the strategic planning of mixed agricultural development in areas affected by trypanosomosis in people and livestock. Along with the other papers in the Programme Against African Trypanosomosis (PAAT) series, this paper has been produced to fulfil PAAT's remit to provide normative guidelines for dealing with tsetse and trypanosomosis (T&T).

The T&T problem lies at the heart of Africa's poverty. Estimates of gross national per capita income show that 20 of the world's 25 poorest countries are affected by T&T. Some 60 million rural Africans and 50 million of their cattle live in tsetse-infested areas. Trypanosomosis thus affects three key sectors: human health, livestock health and rural development. This paper places the T&T problem within the context of current thinking on how best to secure sustainable agricultural and rural development by providing an enabling environment and engaging in participatory processes within a sustainable livelihoods framework. Following a logical sequence, it takes the reader through four steps in the planning and implementation process while drawing on recent examples of T&T control (T&TC) programmes.

The first step involves setting priorities and making plans based on an appropriate analytical framework. Useful historical perspectives can be found in structural adjustment programmes that have embedded health, agriculture and rural development objectives in strategies for reducing poverty. In the health field, for example, the Alma-Ata and Bamako initiatives, which were designed to revitalize primary health care and increase equity of access, identified these multifactorial characteristics of poverty: 1) low levels of income, particularly among women and young people; 2) inadequate access to basic infrastructure and social/productive services; and 3) weak institutional capacities of community-based organizations (CBOs) and/or local organizations managed by the poor themselves. The key requirements for alleviating this poverty were found to be empowerment, economic opportunity, basic social services and infrastructure. T&TC intervention was not included in the remediation list, nor is it mentioned explicitly in most current national Poverty Reduction Strategy Papers (PRSPs). Similarly absent are explicit strategies for livestock development, despite the essential contribution that livestock makes to the economies of many sub-Saharan countries and the important role it can play in poverty reduction. Given this context, the inclusion of T&TC interventions in national and regional planning is essential to reducing poverty in these areas. Such planning can also benefit from the use of geographic information systems (GIS) to help set priorities. Once suitable areas for intervention have been identified, ongoing projects and programmes in health and rural development can be considered alongside land-use plans. Additional insights can be obtained at the community level from community development plans, frameworks involving local councils and other local governing bodies, farmers' organizations, public and private extension/advisory agencies, research organizations and other relevant stakeholders such as line departments (health, forestry, livestock, land management, tourism and conservation).

The second step in formulating an effective T&TC intervention is identifying and then consulting the stakeholders who will be involved in implementing the programme. These stakeholders range from the farmers, livestock keepers and other rural inhabitants who are the ultimate beneficiaries of better human and livestock health to all of the people involved in the

delivery, implementation, administration and funding of the programme. This work requires the alliance and coordination of many groups, including the community, the private and public sectors (together with research and development), non-governmental organizations (NGOs) and civil society organizations (CSOs). It also requires coordination across sectors – especially human health, livestock, wildlife, tourism and rural development. This paper discusses the importance of participatory processes, such as sustainable local participation and institutional instruments and arrangements, in furthering effective coordination. The importance of institutions – that is, the relationships, customs, policies and laws that govern everyday social and economic interactions – is a recurring theme in this paper. The participatory paradigm depends on an understanding of the social relations and power dynamics/structure present in a particular poverty setting. Important factors that must be understood include social fragmentation, economic differentiation, power utilization and distribution and the other structures and mechanisms that lead to poverty or wealth. Such a framework implies the involvement of all stakeholders from the initial identification and monitoring phase through to the final evaluation. In this way, the programme can be underpinned by learning-by-doing and observational processes. The involvement and informed participation of local stakeholders can also be reinforced by building local-level capacity in T&TC techniques. The third step in creating effective T&TC is analysing the requirements for implementation and delivery, especially within the context of approaches used over the past 50 years. For a T&TC intervention to be effective, it must connect the health and extension services that act as facilitators for rural populations and their organizations to research and training activities as well as to service providers. In recent years, public-private partnerships (PPPs) have been especially useful in controlling resurgent human African trypanosomosis (HAT), while government agencies have been primarily involved in policy planning and funding. Funding issues remain important, however. For example, in both human and veterinary medicine, there exist trade-offs between “horizontal” delivery (that is, through primary health care and veterinary services) and the need for specialized units to deal with a particular disease such as HAT. The degree to which communities mobilize labour and funds to support T&TC programmes depends a great deal on the extent to which these activities are perceived as public or private goods. Therefore, this paper looks at the public/private nature of the various components of T&TC interventions. The fourth and final step in securing the benefits of T&TC intervention is the creation of an appropriate and enabling institutional environment. An example of a programme that faced the difficult challenge of linking T&TC with an integrated approach to health and livestock development is the Farming in Tsetse Controlled Areas (FITCA) project. In this context, the sustainable livelihoods framework offers particularly useful insights for analysing the effects of T&TC interventions on the poor. The framework provides a checklist of important issues, highlights key elements and processes and emphasizes the interactions among factors that affect the livelihoods of poor people. By helping identify appropriate and efficient links among T&TC, human health delivery and livestock development strategies, the sustainable livelihoods framework also focuses attention on processes and structures that need to be reformed (as determined by assets identification and a diagnosis of the vulnerability context). Using a synthesis of macroeconomic, mesoeconomic and microeconomic perspectives, this paper highlights the structural and institutional factors mediating the effects of such policy reforms. Specifically, it discusses the mesoinstitutional forces at the interface between government and the private sector that urgently need to be reinforced. For example, for livestock development initiatives to reach poor rural households through an efficient policy chain, transaction costs and other mesoeconomic and intermediate level constraints must first be reduced or mitigated.

Finally, the practical measures needed to reinforce and sustain T&TC have to be planned, budgeted for and implemented. These measures include, in general terms, support from the human and livestock health services, extension advice, market reinforcement and regulation. More specifically, they consist of technical activities required for the protection of gains already made by T&TC, such as surveillance for HAT and the creation and maintenance of barriers to prevent the reinvasion of zones previously freed of tsetse.

**31ST GENERAL CONFERENCE OF THE INTERNATIONAL SCIENTIFIC
COUNCIL FOR TRYPANOSOMIASIS RESEARCH AND CONTROL (ISCTRC),
BAMAKO, MALI, 12-16 SEPTEMBER 2011**

The International Scientific Council for Trypanosomiasis Research and Control (ISCTRC) is a strategic partnership platform to promote international cooperation in the fight against trypanosomiasis, a disease that is one of Africa's greatest constraints to socio-economic development and that severely affects human and livestock health, limits livestock productivity and land use, causes poverty and perpetuates underdevelopment on the continent. The ISCTRC biennial general conference is one of the organs of the Council where reports of researches, intervention activities, and developments in Member States are presented and training, dissemination of relevant information and publications are advanced. It is also a forum for promoting exchanges between researchers, field and control workers.

Stakeholders

Ministries of foreign affairs, Ministries of public health, Veterinary departments, Medical departments and laboratories, International organizations, Academic institutions, Research institutions.

Thematic area 1: Review of research and control activities

Country reports, covering 2009-2011 only, Pan-African tsetse and trypanosomiasis eradication campaign (PATTEC) reports, existing and future strategies for tsetse and trypanosomiasis research, control/eradication.

Thematic area 2: Protozoology, immunology and diagnosis

Identification of trypanosomes, life cycle and *in-vitro* cultivation, physiology of trypanosomes, experimental pathology, immunological methods of diagnosis.

Thematic area 3: Entomology

Geographical distribution of *Glossina* spp., effect of physical and climatic changes on tsetse population distribution, biology of *Glossina* (behaviour, genetics, attractants etc.), taxonomy studies (conventional, cytotaxonomy, isoenzymes etc.).

Thematic area 4: Human trypanosomiasis

Epidemiology, clinical signs and pathology, diagnosis, chemotherapy.

Thematic area 5: Animal trypanosomiasis

Epi-zoology, pathogenesis and pathology, chemotherapy, chemoprophylaxis and chemoresistance, trypanotolerance.

Thematic area 6: *Glossina* control and eradication

By insecticides, by traps and targets, by insecticide-treated animals, by biological methods, by sequential aerosol technique (SAT), by other methods, effect of insecticide treatments on the environment.

Thematic area 7: Land use and Environment

Natural resources, community participation.

SECTION B - ABSTRACTS

1. GENERAL (INCLUDING LAND USE)

15615. **Aksoy, S., 2011.** Sleeping sickness elimination in sight: time to celebrate and reflect, but not relax. *PLoS Neglected Tropical Diseases*, **5** (2): e1008.

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Sleeping sickness, also known as human African trypanosomiasis (HAT), is one of the neglected tropical diseases of sub-Saharan Africa that has plagued human health and agricultural development. In West Africa, infection with *Trypanosoma brucei gambiense* gives rise to a chronic disease that mainly affects humans. Infection with *T. b. gambiense* accounts for more than 90 percent of reported sleeping sickness cases. In East Africa, infection with *Trypanosoma brucei rhodesiense* generates acute disease in humans, and also circulates in a relatively unaffected livestock reservoir. Both Gambian and Rhodesian sleeping sickness are fatal if left untreated. The parasites are transmitted to the mammalian host through the bite of an infected tsetse fly. Since its discovery a century ago, several waves of HAT epidemics have plagued the continent. During the colonial regimes, it was possible to bring about a steady decline in the number of reported *gambiense* cases from the 1930s onwards with systematic screening, treatment, and patient follow-up in western and central Africa. However, during the post-independence period of the 1960s when HAT cases declined, control programmes within the endemic countries gradually were run down, resulting in a steep rise in incidence during the following 40 years. It has been difficult to estimate the true burden of HAT, as the disease affects the most neglected populations living in remote and rural settings where the majority of people affected are beyond the reach of health care systems and are not reported in any of the health metrics. The World Health Organization (WHO) Expert Committee on HAT control and surveillance estimated in 1995 that the true number of cases was at least 10 times more than that reported considering the huge uncertainties between the reported cases and the factual field situation. Thus, from the 30 000 reported cases annually, it was estimated that some 300 000 infected individuals remained infected in the field.

In this issue of *PLoS Neglected Tropical Diseases*, Pere P. Simarro and colleagues from WHO report that the number of new cases diagnosed with HAT in 2009 has dropped below 10,000 for the first time in 50 years, signalling a possible end to the latest epidemic cycle as a major public health problem. This decline was achieved through an ambitious campaign led by WHO, and many nongovernmental organizations (NGOs) and thanks to a public-private