

Extract from launch meeting for Stamp Out Sammore

(Formerly known as the CIDLID Project community-based interventions against tsetse and trypanosomiasis on Nigeria's Jos Plateau). Launch workshop summary report – Abuja, Nigeria 31 May – 3 June 2010

Full report available on RIU Website – Commissioned Work – Stamp Out Sammore (SOS Nigeria)

Experience and lessons learned in Uganda

A panel of experts (Charles Waiswa, Sue Welburn and Joseph Mubanga), who had been involved in the SOS campaign and the preceding research programme in Uganda and elsewhere which provided its evidence base, were interviewed in front of the workshop participants. The five-phase conceptual framework was used as the basis on which to explore the work done in Uganda. Participants asked questions and made observations throughout the sessions and these contributions are captured in the notes below.

1. Problem statement

Uniquely, Uganda is affected by both forms of tsetse-transmitted human Africa trypanosomiasis (HAT), also known as sleeping sickness: *Trypanosoma brucei rhodesiense* and *T.b. gambiense*. During the last decade or so, the rhodesiense (acute) form of the disease has been spreading northwards from its traditional foci in the southeast of Uganda and there was a real danger that the two forms of the disease would soon co-exist. Because the diagnosis and treatment of the two diseases in people are different, this would have complicated the management of the disease, increasing the burden on already overstretched medical authorities. Although it was thought that cattle constituted a significant reservoir of human-infective rhodesiense parasites, the diagnostic tools available at that time were relatively crude: trypanosomes collection in the field was cumbersome requiring inoculation of blood samples into mice for amplification of trypanosomes and subsequent storage in liquid nitrogen; also no reliable tests were available to distinguish the human-infective *T.b. rhodesiense* and non human-infective *T.b. brucei* parasites circulating in cattle. By 2005 it was recognized by both national and international agencies that this was an emergency situation and that the northward spread of acute sleeping sickness must be halted.

2. Basic research

To address the situation outlined above a programme of basic research was undertaken, primarily funded under DFID's Animal Health Programme (DFID-AHP). The main findings of this work are summarised below:

- a case control study revealed that cases of sleeping sickness in previously disease-free districts were clustered around cattle markets

- advances in molecular biology facilitated studies which demonstrated that the organisms *T. b. brucei* and *T. b. rhodesiense* differed by just one gene: this discovery enabled a new sensitive and specific PCR tool to be developed to distinguish the two types of parasites
- application of the new tool revealed that up to 46% of cattle in the affected areas were carriers of *T. b. rhodesiense*
- in southeast Uganda, the locally predominant tsetse species, *Glossina fuscipes*, takes around 50% of its bloodmeals from people, with the remainder coming from monitor lizards and pigs: very few large wild animals remain in this part of Uganda
- Only 1 in 1000 tsetse are infected with trypanosomes: it is much more cost-effective to treat cattle than attempt to control tsetse
- in Uganda a unique umbrella agency, the Coordinating Office for Control of Trypanosomiasis in Uganda (COCTU), is responsible for coordinating the activities of the seven ministries involved in tsetse and human and animal trypanosomiasis. The Uganda Government was very receptive to new ways of working
- the private sector (the veterinary pharmaceutical company CEVA Santé Animale) was a willing partner from the outset
- the affected community and local government were also supportive
- with the benefit of hindsight, not enough basic socio-economic research was undertaken in Uganda

Intervention trials

Informed by the above basic research findings, a series of intervention trials were carried out which focused on treatment of cattle. This was potentially risky as the tsetse control lobby was very strong. The trials were:

- mass treatment of cattle with the trypanocidal drugs diminazene aceturate (therapeutic) or isometamidium (prophylactic). Modelling studies had indicated that 86% of cattle needed to be treated. 3 months after treatment there were no trypanosome infections in treated cattle; after 6 months, although *T.b. brucei* infections were detected in cattle no *T. b. rhodesiense* were detected
- work in Zimbabwe, also funded by DFID, had shown that pour-on formulations of the insecticide deltamethrin could effectively control tsetse when only applied to the legs and belly of cattle. Further work carried out in Zambia extended this approach to spray formulations of deltamethrin. This work led to the development of the restricted application protocol (RAP)
- trials in Uganda verified the efficacy of the RAP under local conditions
- the trypanocidal drugs and insecticide spray formulation required for the intervention trials was donated by CEVA
- although tsetse feed on a various livestock species, cattle are particularly attractive to them, represent larger targets than goats, sheep or pigs, and are also much longer lived than the other species. It follows that it makes sense to target RAP primarily to cattle
- in Uganda tick-borne diseases are a significant threat to cattle. Importantly the RAP does not eliminate all ticks; this means that endemic stability can be maintained when the RAP is used

- traditional methods for controlling tsetse in Uganda are confined to the use of smoke to deter the flies: there are no herbal treatments for trypanosomiasis
- work has been done on potential tsetse repellents for use on cattle but to date no such products are commercially available

3. Research knowledge into use

Recognizing the urgency of the situation and the need to stop the northern spread of rhodesiense sleeping sickness, a public-private partnership called Stamp Out Sleeping Sickness (SOS) was established. The partners were COCTU (representing the Ugandan Government), the universities of Makerere and Edinburgh, CEVA and IK Investment Partners – IK, a European private equity firm, were previously the owners of CEVA and wished to apply the same rigour to their corporate social responsibility work as they routinely applied to their core business. The partners all signed a joint memorandum of understanding in June 2006.

By December 2006, under phase one of SOS, around 235,000 cattle in the new sleeping sickness hot-spots had been treated with trypanocidal drugs and sprayed with deltamethrin by a team of 46 final-year veterinary students from Makerere University supervised by members of the academic staff who worked closely with the district veterinary officers.

Because of the emergency situation, standard government procurement arrangements could be avoided and a military-style approach was adopted, which prevented lengthy delays from occurring. The students were paid modest (US\$3 per day) field allowances and provided with simple local accommodation, with the cost being borne by IK. The villages were very appreciative of the student work force and took pride in 'their students'.

4. Unintended or unexpected outcomes (positive or negative)

Some of the veterinary students who took part in the SOS campaign were later supported to establish small animal health businesses in the districts targeted by the campaign. This aspect was explored in more detail later in the workshop programme.

The innovation of using final-year veterinary students to implement the SOS interventions has led to a number of outcomes: the veterinary curriculum has been altered to include business and entrepreneurial training; the concept of deploying final year veterinary students in community-based activities has become mainstreamed and similar approaches are being considered for other academic disciplines; and the SOS model is influencing the way other problems are tackled in Uganda.

Interview: the 3-V model in Uganda

Charles Waiswa, of Makerere University and the 3V vets network, explained the 3V veterinary business model currently being used in Uganda.

Initially the objective of the SOS campaign in Uganda was simply to stop sleeping sickness: there was no intention to create employment opportunities. But phase one of the SOS campaign, which involved final-year veterinary students treating cattle with trypanocidal drugs and spraying them

with insecticide under supervision of academic staff and district veterinary officers, created demand from cattle owners for animal health services, especially for regular spraying to control ticks. Following the first round of block treatments the five best graduates were selected to take part in a follow-up messaging campaign to encourage the communities to continue spraying their animals. CEVA supported this operation through provision of transport and subsistence payments. At the same time the intention was for CEVA to supply the necessary animal health products (their isometamidium product Veridium[®], their dimanazene product Veriben[®] and their deltamethrin spray Vectocid[®]) to existing agro-vet shops in the area. However, these existing traders were hesitant about stocking the new products and livestock owners were unable to obtain the inputs they needed. This was solved by the five graduate vets starting to supply the Veridium, Veriben and Vectocid (the three V's) to the cattle owners. In the process an opportunity became apparent to provide a broader range of animal health services. This was of interest to DFID and also to CEVA and their parent company's philanthropic wing, IKARE. CEVA provided business and marketing training. Locations were selected within the project area by mapping existing agro-vet shops and identifying gaps, and five young 3V vets were supported to be established. Initially the vets were given a monthly salary of US\$350 a month which was gradually scaled back as they became more established: the most successful vet now earns US\$500 a month and requires no subsidy. An early lesson learnt was that the vets could not effectively provide their services alone so each vet recruited 15 local assistants who provide spray services to cattle owners and refer more difficult cases back to the vet. The 3V network now consists of 5 vets and 75 assistants. Most of the local district veterinary officers are supportive of this approach: for example, the assistants have been authorised to hold prescription drugs under the supervision of the vet. Of the five vets, three are doing well; one who is struggling spends insufficient time in the area.

The main issues to arise during the following discussion were:

Under phase two of SOS, it is planned to recruit another three or more young vets to extend the programmes coverage. It is also planned to recruit some local diploma holders who will be mentored by the vets. In the longer term one option would be to develop a more extensive franchise operation.

The 3V vets are not exclusively tied to CEVA's products. Although CEVA's products are acknowledged to be high quality, this is a very price-sensitive market and some of CEVA's products are not price competitive.

Three papers about SOS have been published in the highly prestigious Lancet. The Ugandan Minister of Health saw these papers, which helped to raise awareness.

In terms of monitoring and evaluation, the University of Edinburgh have been responsible for biophysical monitoring (disease, vectors etc) and a commercial market research company has monitored other aspects of the programme.

The total amount of insecticide that is being used in the SOS area is know but who is using it is not known. This may not matter; so long as sufficient insecticide is being used in the area, tsetse numbers will be controlled to acceptable levels.

The real measure of success of SOS is that no cases of sleeping sickness are occurring in the villages, which is very easy for the communities to monitor themselves.

The total amount of insecticide being used is very low relative to the area covered: there are no significant residue or pollution issues. Far more agrochemicals are applied to crops.

A joint MoU was signed by all the SOS partners: CEVA, IKARE, Edinburgh and Makerere universities and COCTU. COCTU is an umbrella organization which represents all the relevant government agencies, such as ministries of finance, health, agriculture, office of the prime minister, local government and the national environmental management agency (NEMA).

Tsetse are extremely unlikely to develop resistance to deltamethrin as a result of RAP. This is due to the way tsetse breed: they do not lay lots of eggs but give birth to single pupae.

Under RAP, some ticks are still present on animals for part of the month. This is important in Uganda to ensure endemic stability against tick-borne diseases persists. RAP now needs to be tested under the prevailing conditions in Nigeria.

In Uganda the sleeping sickness situation was considered an emergency due to the northern spread of the rhodesiense form of the disease and the risk that the two forms would soon co-exist. This gave impetus to the SOS campaign. In Nigeria, although it is not an emergency situation, there is a still a sense of urgency: many cattle are dying in the Jos Plateau each year unnecessarily. Also,

Draught oxen are used on the plateau and sick animal cannot work.

Further information

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This document is an output from the Research Into Use programme funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

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Total Editing Time: 18 Minutes
Last Printed On: 10/08/2010 22:12:00
As of Last Complete Printing
Number of Pages: 5
Number of Words: 2,077 (approx.)
Number of Characters: 11,842 (approx.)