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Reinvesting in dipping facilities is key to controlling African Animal Trypanosomiasis in local communities near Serengeti National Park in Tanzania



Key messages

- African animal trypanosomiasis impacts on livestock-based rural livelihoods.
- Dipping and hand spraying as the major methods which are commonly used by farmers in tsetse control, albeit, the use of dips is limited.
- The quality of privately run dipping services especially in the absence of adequate government supervision is poor.
- Government investment in dipping services is crucial in the fight against trypanosomiasis

Introduction

African trypanosomiasis is a debilitating and often fatal disease for both humans (Human African Trypanosomiasis-HAT) and Livestock (African Animal Trypanosomiasis-AAT), which is unique to Sub-Saharan Africa (Vale et al., 2013; Vale et al., 2015; Wamwiri and Changasi, 2016). This multiple diseases involve various trypanosomes and protozoan parasites carried by multiple variants of the tsetse fly (*Glossina* spp.). Daffa et al (2012) estimated that about 4 million people and 7 million livestock are at risk of contracting trypanosomiasis in Tanzania.

Besides causing mortality and morbidity to both animals and humans, tsetse and trypanosomiasis constrain development of livestock-based rural livelihoods (Matemba et al., 2010; Malele, 2011). Currently in Tanzania, demographic dynamics and the impacts of climate change are continuously causing an increase in land pressure thus pushing more people in and around wildlife conservation areas. The areas provide suitable conditions for tsetse survival and thus function as breeding sites for the insect, hence increasing the risk for the HAT and AAT diseases.

The associated health risks and economic losses resulting from the diseases underscore the importance of tsetse control. This policy paper highlights on the prospects and challenges of using dipping as tsetse control method in the local communities in Serengeti District near the Serengeti National Park (SENAPA).

Methodology

This policy brief is based on data collected from the respondents in four villages around Serengeti National Park in Serengeti District between 2014 and 2015. The data were collected by interviewing randomly selected 70 head of households, conducting 12 Focus Group Discussions with an average of 10 participants each and four in-depth interviews with resident technical staffs.

The results sharing workshops, which were attended by representatives of farmers, village government officials, and extension staff in the respective villages were organized to validate the study results.

Findings

Respondents Knowledge on tsetse control methods

Only 31% of the respondents reported to be knowledgeable about tsetse control methods. During FGDs, it was evident that, although they were advised to use various control methods by their extension workers, farmers considered dipping as the major and efficient tsetse control method.

Respondent's attitude to tsetse control methods

To gauge respondents' attitude towards recommended tsetse control methods, five domains each with negative and positive items on the scale were used. Overall, majority (71.4%) of the respondents consistently indicated a positive attitude towards tsetse control methods.

However, chi square tests showed no association between attitude and the selected respondents' individual characteristics.

Respondents' actual practices in controlling tsetse

Despite that majority of the respondents indicated positive attitude towards control measures 70% of them had not used any control methods against tsetse. Among the 30% who reported to have been using, over half reported using either spraying or dipping and the rest (42%) were using treatment method. FGDs and dialogues confirmed that dipping and hand spraying were the major methods used in the tsetse control. However, the use of dips was limited. Furthermore, information on limited access to dipping was corroborated by district officials during key informant interviews. District officials explained that the Serengeti District Council with 91 villages had only 36 dip tanks. Of these, 21 were operational, 10 were functional but not in use due to lack of water

for the dip tanks and five required rehabilitation. Therefore, the limited use of dipping services was partly because there are few dips in the whole district. On average, there was one dip per three villages. Even in cases where farmers had access to the dips, poor quality of the services due to inefficacy of the acaricides used, limited the use of such dips by farmers. As a result, farmers have resorted to using hand pump spraying for tsetse control. However, one of the Community Animal Health Workers (CAHW) doubted the effectiveness of hand pump spraying tsetse control method when she said:

Although farmers owned hand pumps ... many of them did not dip well their animals because of saving money (Interview with CAHW-Rwamchanga village).

This indicates that in the study area, tsetse control is increasingly becoming an individual concern and not a community issue. A participant in one of the FGDs meeting alluded to this in the following remarks:

It is true that we are facing it (tsetse control). Each individual has livestock at home thus each individual struggles with his own livestock (Natta/Mbisso FGD-male farmer)

Experience shows that effective tsetse control requires, among others, community level intervention with adequate regulation by some government institutions without which it might be very difficult to break the cycle of transmission.



Opportunities and challenges of dipping as a reliable tsetse control method

Opportunities

Discussions and opinions from respondents indicate that they attach a strong value to dipping as a tsetse control method. During one of the FGDs for example, participants expressed satisfaction with the effectiveness of dipping by saying that "if livestock are dipped they are secure as it takes about six days before they get attacked by tsetse". This implies that community members perceived dipping as effective control method and the one that is easy to use. In fact, a study on dipping against ticks in South Africa found that satisfaction with the dipping program influenced willingness to pay for the services (Randela, 2000). Thus given a choice, community members would still prefer dipping facilities managed by the Government to spray pumps for effective tsetse control.

Another advantage of using dips for tsetse control is that it enhances community involvement which has a much wider impact on using the method. As indicated above, there was a limited level of community efforts towards control of tsetse, which was becoming more of the responsibility of individual livestock keepers. The use of dips under proper government supervision would encourage community involvement in the control of tsetse. This trend largely draws from the experience, which shows that government support has been instrumental for the success of previous control programs over a wide area (Bourn et al., 2005) even if such programmes have been expensive and not sustainable (Sindato et al., 2008).

Challenges

According to the district officials, dipping services in the study area have been privatized. This largely involved a transfer of ownership and operations of

dip tanks from the government/public to individuals and/or groups. However, they indicated that the dipping services provided by the groups were of poor quality largely due to poor management of the facilities and inadequate supervision by district veterinary staff. Similarly, most participants in the FGDs were not satisfied with the quality of services provided. In this regard, one of the male participants in a feedback workshop held at Nata made the following comment on dipping:

What is “killing” the dips is the use of poor quality drugs. I have experienced that pesticide used in private dips in our village do not take long to get dirty. If you dip the following day if the drug was used today you will find a lot of mud and the insects do not drop off even the ticks are not killed. Thus, you find it is better to have your own pump. The government supervised these dips. Now private individuals and groups own them. I once dipped my livestock but they later started getting lesions on the skin; the experts told me later that the water used in the dip had stayed for too long (feedback workshop-male participant).

The observation above point to the fact that handing over of dipping services by the government to individuals and groups at community level has resulted in limited access to and poor quality of the dipping services; this has partly compelled livestock keepers to rely on the hand spray pumps in controlling tsetse and hence nagana. However, given a choice, community members would still prefer to have dipping facilities managed by the government to spray pumps for effective tsetse control.

Plate 2: hand spraying



Policy recommendations

The following policy recommendations are given:

- Serengeti District authorities in collaboration with Serengeti National Park management should:

- ☒- take initiatives to create awareness on tsetse and trypanosomiasis and control methods among local community members.

- rehabilitate the existing dipping facilities and construct new ones in areas where they are not available and rigorously promote their appropriate use.

- take an active role in monitoring the performance of dipping facilities in the district for the control of the quality of the services offered.

- Policy makers need to reexamine the policy of privatization of veterinary services and come up with a “win-win” service delivery arrangement that would motivate community participation for effective tsetse control methods

For more information

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