Abstract ID 183

Food and Agriculture Organization of the United Nations

IAEA International Atomic Energy Agency

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A staged, progressive control pathway for tsetse-transmitted African animal trypanosomosis

3rd FAO/IAEA International Conference on Area-wide Management of Insect Pests: Integrating the Sterile Insect and Related Nuclear and Other Techniques, Vienna, Austria, 22 - 26 May 2017.

Giuliano Cecchi [1], Oumar Diall [1], Gift Wanda [2], Rafael Argilés-Herrero [3], Marc J. B. Vreysen [3], Giovanni Cattoli [4], Gerrit J. Viljoen [4], Raffaele Mattioli [5], Jérémy Bouyer [3-6-7]

[1] Food and Agriculture Organization of the United Nations (FAO), Sub-regional Office for Eastern Africa, Addis Ababa, Ethiopia

[2] African Union – Pan African Tsetse and Trypanosomosis Eradication Campaign (AU-PATTEC), Addis Ababa, Ethiopia

[3] Joint FAO/International Atomic Energy Agency (IAEA) Programme, Insect Pest Control, Vienna, Austria

[4] Joint FAO/IAEA Programme, Animal Production and Health, Vienna, Austria

[5] FAO, Animal Production and Health Division, Rome, Italy

[6] Unité Mixte de Recherche INTERTRYP, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), Montpellier, France.

Introduction

Progressive Control Pathways (PCPs) and the related implementation roadmaps are used in the control of a number of human and animal diseases, including foot-and-mouth disease, peste des petits ruminants, brucellosis and rabies. International organizations such as FAO, the World Health Organization (WHO) and the World Organisation for Animal Health (OIE) and, rely on PCP frameworks for planning, implementing and evaluating interventions against diseases. Flexible, stepwise PCPs enable to structure the road to disease freedom through a series of achievable, discrete stages. Here we outline a novel PCP for the control of tsetse-transmitted African animal trypanosomosis (AAT), the bane of poor livestock keepers in sub-Saharan Africa.

Methodology/Results

The PCP for AAT is structured along five stages and a pre-entry level, i.e. 'below Stage 1' (Figure 1). A regular step-wise progression is the rule (i.e. from Stage N to Stage N + 1) but fast-tracking is possible in specific circumstances.

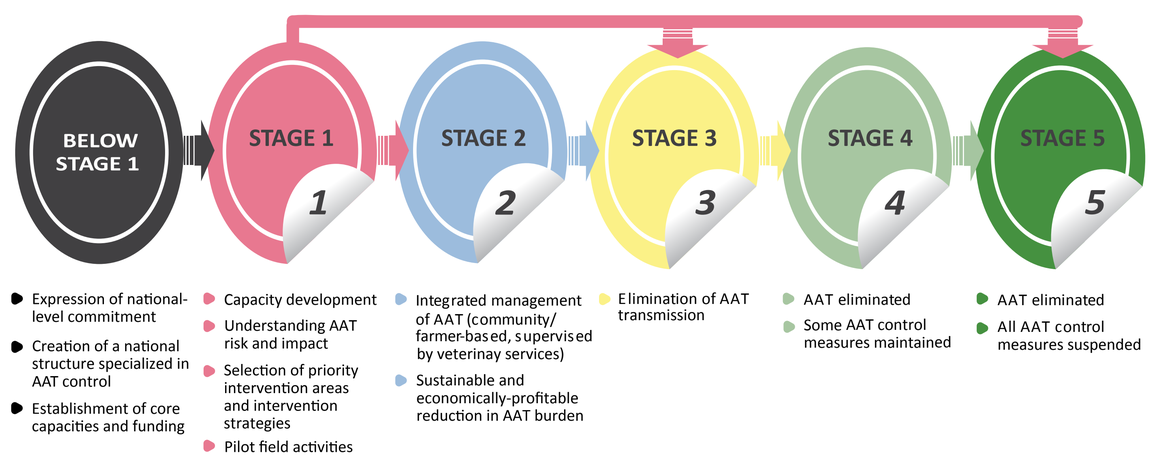


Figure 1 Progressive control pathway for African animal trypanosomosis (AAT)

In order to move from one stage to the next, the set goals for the ongoing stage must have been achieved, and a plan for the following stage must be prepared. Independent validation is required.

Key requirements for a country to enter the PCP (i.e. to move to 'Stage 1') include political and financial commitment for the progressive control of AAT, and the existence of a functioning Specialized National Structure having core capacities and mandate to deal with tsetse and AAT. When in Stage 1, affected countries have to develop technical capacities, and gain a sufficient understanding of AAT distribution, risk and impact for an evidence-based planning of subsequent activities; pilot field interventions are also conducted. Larger scale field activities are implemented in Stage 2 and beyond, within the priority areas identified in Stage 1.

Stage 2 aims at a sustainable, economically-profitable reduction of the AAT burden, and the intervention strategy hinges on the integrated management of AAT (a community/farmer based approach).

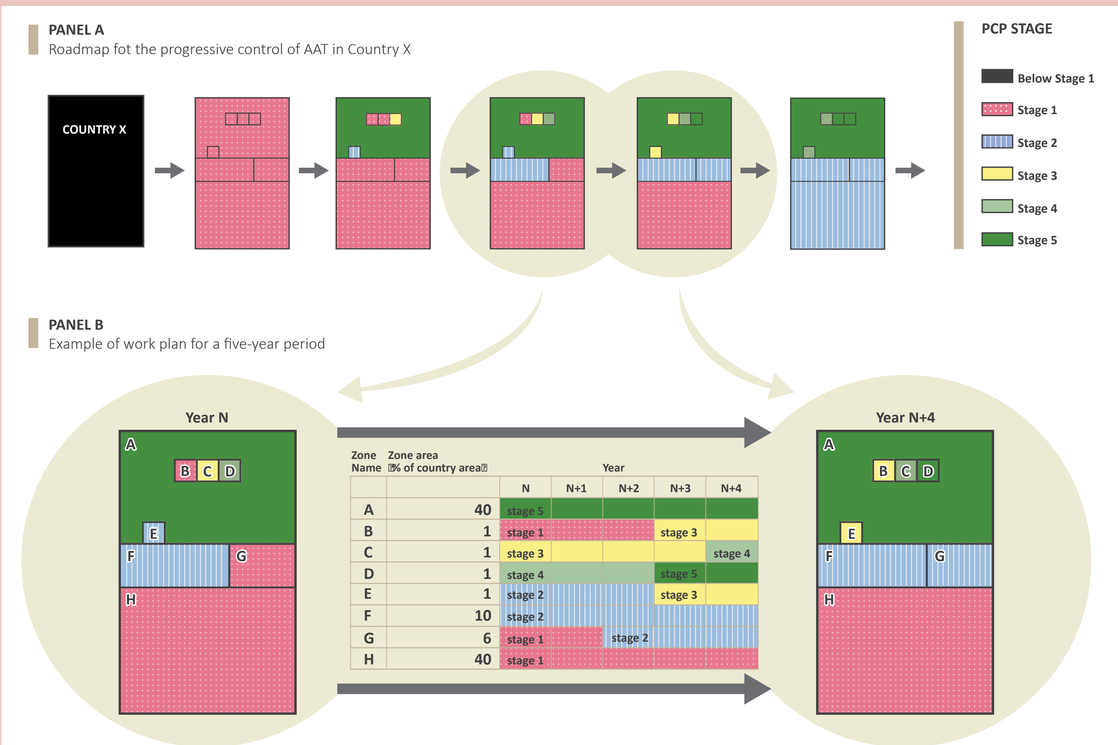
The focus of the PCP's final stages (3 to 5) is to create sustainable AAT-free areas. Stage 3 is completed when AAT transmission is interrupted.

In Stage 4, some control measures are maintained, while in Stage 5 the elimination of AAT must be sustainable in the absence of interventions.

BOX 1
PCP for AAT: roadmaps and work plans

Examples of geographically-explicit roadmap (panel A) and work plan (panel B) for the progressive control of African animal trypanosomosis (AAT) in one hypothetical country (Country X).

In panel A, Country X initial situation is shown to be "below Stage 1"; it then moves to "Stage 1" at the national level, and subsequently control activities are carried out in selected zones, thus enabling these selected zones to advance to h igher progressive control pathways (PCP) stages.

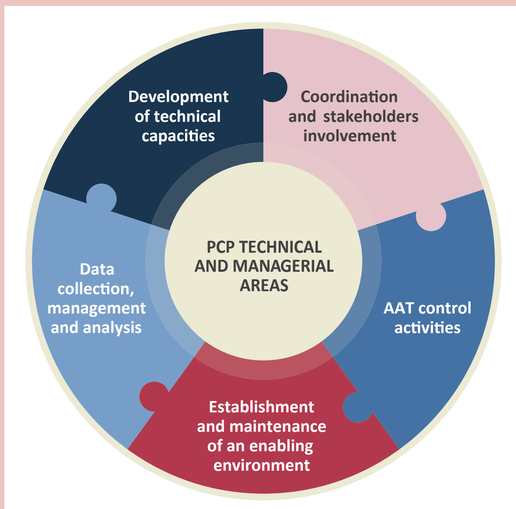


In panel B, one specific work plan by zone is illustrated (in this example, it is a five-year work plan). Zone A is an AAT-free area, in which the absence of AAT was confirmed through surveys carried out in previous steps of the roadmap. Zone B is an area where AAT occurs and which has been prioritized for AAT elimination; elimination activities are planned to start in year N + 3. Zone C is an area where AAT is in the process of being eliminated, and where AAT transmission is planned to be interrupted by the year N + 4; some control measures are planned to be maintained after year N + 4. Zone D is an area where AAT transmission has been interrupted, but some control measures are still in place; all control measures are planned to be suspended as of year N + 3. Zone E is an area where AAT has been reduced, and which has been prioritized for AAT elimination as of N + 3. Zone F is an area where AAT has been reduced, and where the reduction is planned to be sustained during the five-year period. Zone G is an area where AAT occurs, and which has been prioritized for AAT reduction/integrated management as of year N + 2. Zone H is an area where AAT occurs, but which has not been prioritized for either reduction/integrated management or elimination activities during the present five-year work plan.

BOX 2
Technical and managerial areas in the progressive control pathway (PCP) for AAT

Whilst each PCP stage is characterized by specific goals and activities, five components cut across all stages, albeit with different emphasis. Coordination and stakeholders involvement points to the notion that AAT control must be a collective endeavour, which should mobilize and harness the commitment of donors, decision-makers, farmers and extension services alike.

Capacity development plays a major role in the early stages of the PCP, but it must be sustained throughout, so as to address the specific technical requirements of the various stages. Epidemiological and socio-economic data are crucial for an evidence-based decision making, starting from the feasibility assessment and prioritization, and culminating in the demonstration of the impact of interventions. The creation of an enabling environment must ensure that the normative, legal and technical frameworks are conducive to a successful and sustainable roll-out of AAT control intervention. Finally, AAT control in the field begins with pilot activities in Stage 1, continues in different ways through the following stages, until it is interrupted in Stage 5.



Conclusions

The PCP for AAT provides affected countries and stakeholders with a rational tool to plan and implement stepwise AAT control campaigns. The main goal of this PCP is to help lift the burden of AAT, and to achieve this goal, the support of all stakeholders, including resource partners, will be crucial. In particular, funding AAT-endemic countries through the early stages of the PCP will be critical before the benefits of more advanced PCP stages can be fully reaped.

Importantly, the PCP enables to better position interventions against tsetse and AAT in the broader context of poverty reduction, hunger eradication and increased resilience of vulnerable and marginalized rural communities. These are some of the major strategic objectives of FAO and included in the Sustainable Development Goals.

Contact: Giuliano.Cecchi@fao.org

Acknowledgments

The PCP for AAT is an initiative of FAO, implemented in the framework of the Programme against African Trypanosomosis (PAAT). The initiative was supported by the FAO sub-regional Office for Eastern Africa and by the Government of Italy (FAO Project 'Improving food security in sub-Saharan Africa by supporting the progressive reduction of tsetse-transmitted trypanosomosis in the framework of the NEPAD', codes GTFS/RAF/474/ITA and GCP/RAF/502/ITA).

ITALIAN AGENCY FOR DEVELOPMENT COOPERATION

Reference

Developing a Progressive Control Pathway for African Animal Trypanosomosis. Diall O., Cecchi G., Wanda G., Argilés-Herrero R., Vreysen M.J.B., Cattoli G., Viljoen G.J., Mattioli R., Bouyer J. Trends in parasitology 2017. http://dx.doi.org/10.1016/j.pt.2017.02.005