

TECHNICAL ADVISORY NOTE (TAN)
**PROGRAMME AGAINST AFRICAN TRYPANOSOMIASIS - STRENGTHENING ITS
INFORMATION SYSTEM (PAAT-IS)**

Abstract

*The abstract should provide the following information:
the project title, the main research outcomes/impacts, the replicability perspectives (scaling-up/out) and
the overall context in which the research has been conducted
(geographical, political, socio-cultural and economic dimensions).*

The research programme No. 686 “*Programme Against African Trypanosomiasis - Strengthening its Information System (PAAT-IS)*” was established to provide and guide strategic decisions on tsetse and trypanosomiasis intervention in sub-Saharan Africa. The activities targeted all sub-Saharan countries affected by the tsetse and trypanosomiasis (T&T) problem, with particular emphasis on the six countries (Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Uganda) currently active in the implementation of a T&T elimination campaign within the framework of the Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC) initiative.

The programme registered the following impacts on:

- **Human Capital:** improved use of computerized information for increased accessibility
- **Social Capital:** reinforced links among PAAT partners and stakeholders for greater regional and international cooperation; enhanced, organized and coordinated cross-sector information (scientific, technical, and also policy strategy, development and research); information collated, analysed, exchanged and disseminated on equal basis.

The research programme focused on creation, harmonization and sharing of the information, capacity building and networking, technical innovation to support project formulation, implementation and evaluation. Technical visits were made to PAAT stakeholders at all levels [institutional, technical and scientific partners in trypanosomiasis affected countries, international organization, research institutes and NARES (National Agriculture Research and Extension Services)]. Innovative tools and methodologies were developed and disseminated through publications, meetings, technical and policy workshops, conferences and training activities tailored for PAAT partners in Africa.

Concerning the replicability perspectives, tools, datasets and methodologies developed within the project have a wide range of possible applications within and beyond the management of the trypanosomiasis and related problems that the disease poses to livestock-agriculture development. These applications include many other vector-borne, parasitic and zoonotic diseases of economic importance (e.g. Rift Valley fever, highly pathogenic avian influenza, etc.), landscape dynamics, natural resource management and impact assessment of disease intervention schemes.

**Main successful technical
components of the
research programme:**

- Substantial revision and upgrade of PAAT Website: gaps in data dissemination filled (datasets, metadata, manuals and publications); website better integrated with other web-based resources (e.g. FAO GeoNetwork); website now also available on CD-ROM.
- Development of innovative methodologies, novel tools and new, updated datasets relevant for all phases of the project life cycle for T&T intervention.
- Improved cooperation with and technical support to PAAT partners.
- Organized 2-week Interactive Training Workshop to support decision making and information management in T&T intervention projects (Rome, 27/11 - 8/12/2006): 20 participants, including representatives from affected countries, FAO staff and international experts.
- Technical activities of the project were developed and carried out in the context of IFAD and FAO policy and strategies for poverty reduction, sustainable agriculture and rural development.

SECTION ONE: THE INSTITUTIONAL CONTEXT

The project within the IFAD context, relevance to/linkages with other IFAD programmes/initiatives, implementing partners and main activities carried out.

• Existing linkages with other IFAD initiatives:

- Grants:

- Loans:

Existing linkages with other IFAD initiatives:

In West Africa:

- *Sustainable Rural Development Programme; Community Investment Programme for Agricultural Fertility, Burkina Faso.*
- *Upper East Region Land Conservation and Smallholder Rehabilitation Project-Phase II; Northern Region Poverty-Reduction Programme Ghana.*

In East Africa:

- *Pastoral Community Development Project, Ethiopia.*
- *Smallholder Dairy Commercialization Programme, Kenya.*
- *Support to the Livestock Sub-Sector Reconstruction – Projet d'appui au sous-secteur élevage (PARSE), Burundi.*

• Target regions and implementing partners:

Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Uganda -currently active in the implementation of a T&T elimination campaign. the Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC) initiative.

Activities were implemented by FAO, in close collaboration with PAAT partners and stakeholders: PAAT partners the involved countries, IFAD, WHO, IAEA, AU-IBAR, CIRAD, University of Edinburgh, University of Glasgow, ITM, ICIPE, ILRI, CIRDES, KARI-TRC and PATTEC .

SECTION TWO : THE PROGRAMME IMPLEMENTATION

The research programme:

Description of the technology/participatory methodology/approach developed, costs of the inputs used to implement the research programme, rural areas and context where the research has been implemented (specifying environmental conditions)

- Project implementation was based on three main pillars: (i) creation, harmonization and sharing of the information; (ii) capacity building and networking; (iii) technical innovation to support project formulation, implementation and evaluation.
- The project made optimal use of low-cost and/or freely accessible tools and datasets. Publicly available spatial datasets were reviewed, customized and disseminated.
- Freeware, open-source software (e.g. GeoNetwork open source) was used, in close cooperation with PAAT partners and specialized FAO staff.
- More information on project implementation, achievements and results is given in ANNEX 1.

Target group and impact:

Description of the target group, the beneficiaries and the benefits and the main research outcomes/impacts (vulnerable groups, project impacts and effects on the human, social and natural capital).

- *Impacts on the human capital:*
- *Impacts on the social capital:*
- *Impacts on the natural capital:*

Project target group:

- Planners, policy advisors and managers responsible for formulation and implementation of interventions targeting rural poor in tsetse affected areas. Additional beneficiaries were research institutes and universities.
- A major component of the project was capacity building. The key event was the Interactive Training Workshop (ITW), held at FAO-HQ, Rome, Italy, 27 November - 8 December 2006. More than 20 participants, including information system specialists from affected countries, selected FAO staff and international experts worked together to harmonize GIS-based Decision Support Systems (DSSs) and Information Systems (ISs) in T&T intervention.
- The standardization, customization and dissemination of tools, datasets and methodologies bring about important cost-savings and improve the effectiveness of interventions.
- Emphasis was been placed on developing tools to support an environmental management of intervention and better integration of land use planning in the project cycle.

The gender dimension:

Women's role in the research programme, impacts on the gender equity and women's empowerment.

Women are among the beneficiaries of developed and applied novel methodologies and tools for improved planning of T&T field intervention.

Accessibility:

Identification of the physical availability of the research outputs in different time and places as well as their affordability by the rural poor.

The developed project tools, methodologies and datasets for planners, policy advisors and managers responsible for formulation and implementation of interventions targeting rural poor.

The project outputs are available from different sources, all of them freely accessible on the internet and /or available upon request from PAAT Secretariat Focal Point in FAO:

- Web-based dissemination channels:

- PAAT website (www.fao.org/ag/paat.html);
- FAO GeoNetwork (<http://www.fao.org/geonetwork>)
- CD-ROM (PAAT – Information System, July 2006).

- Printed publications:

- PAAT Technical and Scientific Series:
 - Standardizing land cover mapping for T&T decision making (in press);
 - Spatial datasets for the management of the trypanosomiasis problem: an environmental approach (draft sent for review to key PAAT partners);
- Paper to 'Medical and Veterinary Entomology' (under peer review).

- Digital publications:

- Paper solicited by 'OSGeo Journal', journal of the Open Source Geospatial Foundation .

Constraints faced during the programme

No major constraint was encountered in the implementation of the project

implementation:

Difficulties faced during the implementation of the research programme, specifying the internal (limited infrastructure, lack of inputs etc) and the external (socio-political and environmental aspects) constraints.

Constraints related to:

- *Internal conditions:*
- *External conditions:*

activities. However, in few occasions requested feedback and follow up from the beneficiaries of provided training and information were rather slow or minimal.

Institutional sustainability and degree of farmers' involvement in the research programme:

Underlying the degree of farmers' meaningful involvement in the definition and implementation of the main research steps/research process - which determines also the level of social and psychological acceptability- and explanation of the measures taken to support the institutional, organizational and professional changes at all levels.

- The vast majority of the project activities were demand-driven and dealt with clearly identified shortcomings in the information management at international, regional and national level. PAAT partners and stakeholders were fully involved and networked from the start of the project implementation, by means of coordination visits and e-mail correspondence.
- The positive outcomes and the usefulness of the project activities were officially acknowledged in several occasions, during PAAT statutory meeting and technical fora (e.g. workshops).
- Further support in the fields of information management and decision support systems was requested by PAAT partners and stakeholders in the affected countries.

Dissemination pathways:

Description of the ways through which the project results are made available at the village level and at the national/international level (workshops, reports, seminars etc).

- *The communication strategies at the village level:*
- *The communication strategies at the national and international level:*

Meeting and Conferences:

- PAAT Statutory Meetings (and relevant reports and proceedings):
 - 10th and 11th Meeting of the PAAT Programme Committee (respectively 26-27/4/2006, Florence, Italy; 24-25/4/2007, WHO-HQ, Geneva, Switzerland);
 - 12th PAAT Advisory Group Co-ordinators meeting (18-19/10/2006, Kasane, Botswana).
- GISVet 2007 Conference (Aug. 07);
- Consultants Meeting on 'Integration of GIS and Population Genetics for Livestock Insect Pests', IAEA-HQ, Vienna, 16-20/4/2007.

Workshops:

- Interactive Training Workshop (ITW), held at FAO-HQ, Rome, Italy, 27 November - 8 December 2006. More than 20 participants, including information system specialists from affected countries, selected FAO staff and international experts worked together to harmonize GIS-based Decision Support Systems (DSSs) and Information Systems (ISs) in T&T intervention;
- Workshop on 'Methodological guidelines for assessing environmental and socio-economic impacts of tsetse and trypanosomiasis interventions', International Livestock Research

Institute (ILRI), Nairobi, 20-21/11/2006;

- Consultants Meeting on 'Integration of GIS and Population Genetics for Livestock Insect Pests', IAEA-HQ, Vienna, 16-20/4/2007;
- A lecture was given during the FAO/IAEA course on Entomological Survey in Nairobi (Kenya) 23/3/2006: Strengthening the information exchange between tsetse affected countries and PAAT.

Coordination visits to partners and stakeholders:

- Technical visits to PAAT Secretariat members (World Health Organization-WHO, International Atomic Energy Agency-IAEA, African Union/Inter-African Bureau for Animal Resources - AU-IBAR), PAAT partners in affected countries (Mali, Ghana, Burkina Faso, Ethiopia, Uganda, Kenya), universities and research institute in Africa and Europe (Burkina Faso, Kenya, UK, France, Belgium) served to assess the needs of national T&T control units in terms of ISs management and human resources development with a view to enhancing regional and international cooperation and harmonization, and targeting training initiatives.

Further research needs:

Identification of the new areas considered to be relevant and needed to be taken into account since they influence the adoption and/or the relevance of the research results (new problems or links not investigated by the research).

- *Dissemination of technical and methodological innovation for:*
 - Developing standardized tools to assess the socio-economic and environmental impact of T&T interventions through the analysis of land cover changes and land use dynamics;
 - Addressing and responding to issues related to potential environmental impacts and balanced use of natural resources in the context of trypanosomiasis intervention;
 - Refining and upgrading the PAAT-IS data bank on vector distribution for improved, strategic decision making.
- *Networking and knowledge sharing:*
 - To expand, reinforce and animate the network of IS specialists responsible for T&T intervention programmes to promote knowledge sharing, harmonization and coordinated regional field actions;
 - To scale up the utilization of innovative, web-based tools to share and disseminate knowledge and information (e.g. Freeware and/or open source software).
- *Technical cooperation with and support to partners in African affected countries:*
 - To enhance capacity of project managers and IS specialists to improve the quality/accuracy of the information, avoid collection of redundant, non-standardized or unnecessary data and thus reducing costs;
 - Customisation and dissemination of datasets to facilitate access and usage in planning and operational scenarios by T&T project staff;
 - To strengthen the collaboration with other International, Regional and National Organizations to export and adapt the outcomes of the IFAD-funded project to other vector-borne, parasitic and zoonotic diseases of economic importance;
 - To broaden PAAT template/experience in T&T to the identification of disease hotspots/risk areas and the preparation of prevention (disease incursion, establishment and spread) plans in priority areas.

SECTION THREE: USEFUL INFORMATION

Keywords:

Trypanosomiasis, tsetse habitat, poverty reduction, rural development land use planning, OpenSource software, GIS, networking, knowledge sharing.

Useful links:

- PAAT website (www.fao.org/ag/paat.html)
- PAAT datasets in FAO GeoNetwork (<http://www.fao.org/geonetwork>)
- IFAD Grants (<http://www.ifad.org/grants/about.htm>)
- Pan African Tsetse and Trypanosomiasis Eradication Campaign - PATTEC (http://www.africa-union.org/Structure_of_the_Commission/depPattec.htm)

References:

Printed publications

- PAAT Technical and Scientific Series
 - Standardizing land cover mapping for T&T decision making (in press);
 - Spatial datasets for the management of the trypanosomiasis problem: an environmental approach (draft sent for review to key PAAT partners);
- Paper to 'Medical and Veterinary Entomology' (under peer review)

Digital publications

- 'The role of FAO GeoNetwork in a multinational development programme: the case of the Programme Against African Trypanosomiasis', paper solicited by 'OSGeo Journal', journal of the Open Source Geospatial Foundation. (<https://www.osgeo.org/>);
- PAAT-CD ROM.

Posters

- 'Matching land cover and tsetse habitat', will be presented to 'GISVet 2007 Conference' (Aug. 07) (<http://www.gisvet.org/>).

Conference

- 'Creating, harmonizing and sharing the information: the role of the Programme Against African Trypanosomiasis (PAAT) and its Information System'. Abstract submitted to the 29th meeting of the ISCTRC (International Scientific Council for Trypanosomiasis Research and Control) (<http://www.au-ibar.org/isctrc.htm>).

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Contacts:

IFAD: Mr. Antonio Rota
Senior Technical Adviser on Livestock – IFAD, Rome
E-mail: a.rota@ifad.org

FAO/PAAT: Mr. Raffaele Mattioli
Animal Health Officer – FAO, Rome.
E-mail: raffaele.mattioli@fao.org

Acronyms:

- Research Institutes

CIRAD: Centre de Coopération Internationale en Recherche Agronomique pour le développement
CIRDES: Centre International de Recherche et de Développement de l'Élevage en zone Subhumide
ICIPE: International centre for insect physiology and ecology
ILRI: International Livestock Research Institute
ITM: Institute of Tropical Medicine

- International Institutions

AU-IBAR: African Union - Inter African Bureau of Animal Resources
IAEA: International Atomic Energy Agency
WHO: World Health Organization

ANNEX 1: Achievements - Results

Activities	Outputs	Performance indicators	Achievements - Results
1. Strengthening capacity of information dissemination	1a. All PAAT partners and stakeholders linked up. 1b. Production of CDs. 1c. Preparation of rural radio communications	1a. Increased number of web-links. 1b. Increased number of visitors/visits.	<ul style="list-style-type: none"> • Increased accessibility to on-line PAAT information • CD-ROM of the updated PAAT - Information System created • PAAT web site revisited and refined • New web pages created (23) • Improved layout of available maps • Increased number of maps available (29) • New PDFs of maps available (51) • GIS datasets available on the PAAT-web site (51) • Metadata of GIS datasets available on the PAAT-web site (51) • Datasets and metadata available and downloadable from FAO- GeoNetwork (53) • New GIS datasets collected • New TTI Bulletins on the web (10)
2. Advancing national and international consultation (e-conferences) and harmonization among different stakeholders on policy and strategy for tsetse and trypanosomiasis (T&T) intervention	2. Greater regional and international cooperation achieved	2. Regional and international T&T intervention discussion fora established	<ul style="list-style-type: none"> • Coordination missions to the six African countries supported by AfDB in the framework of the PATTEC initiative: strengths and weaknesses identified, harmonization promoted with respect to IS management and Land Cover mapping in T&T intervention • Coordination missions to research institutions in Africa and Europe: better international cooperation achieved, subjects for further future collaboration identified. • IFAD, WHO, IAEA, AU-IBAR consulted and visited, subjects for further future collaboration identified • New web pages on T&T control created and agreed upon by PAAT Secretariat Members • Harmonization of PAAT-IS web site with the section of WHO web site on HAT
3. Promoting a conducive environment for the refinement and application of developed and agreed policies strategies through thematic group discussions	3a. As per Output 2. 3b. Publication of case studies.	3a. Regional and international T&T intervention discussion. 3b. T&T intervention policies and strategies developed and agreed.	<ul style="list-style-type: none"> • New web pages on T&T control created and agreed upon by PAAT Secretariat members • Two PAAT Training manuals for tsetse control personnel scanned and published on the web • Case studies on the application of agreed policies identified and published on the web • Discussion on the refinement of available methodologies for T&T GIS-based Decision Support Systems initiated
4. Creating a conducive environment for donors' support to harmonized intervention policies	4a. Web page on actual and planned financial assistance to T&T and related intervention activities established. 4b. Donors' agreement with developed T&T intervention strategies updated and displayed in a transparent fashion.	4a. Number of donors visiting the webpage. 4b. Number of donors interested in funding T&T and related intervention activities	<ul style="list-style-type: none"> • Collaboration with WHO in the field of Human African Trypanosomiasis mapping initiated <ul style="list-style-type: none"> ○ Mapping of HAT in Uganda at parish level through close collaboration with COCTU (Coordinating Office for Control of Trypanosomiasis in Uganda) ○ Support to WHO for the production of GIS-based web resources • Donors involved in T&T and related intervention activities identified (23) • Specific links to financing opportunities identified (11) • Donors consultation for intervention strategies in progress

5. Improving consultative and communication process and develop new web links with institutes/institutions working on T&T and related aspects	5a. As per Output 1, 2,3 & 4a. 5b. New web links developed and institutions/institutes contributing to information flow and consultation	5. As per Performance indicators 1a, 1b, 2, 3a, 4a.	<ul style="list-style-type: none"> • New web links to stakeholders identified and available on the web (37) • Available links reorganised and updated • Other links exploration on-going
6. Establishing new web pages or other web-based tools for: (i) scientific communication and information, (ii) development of new pest management techniques; and (iii) novel analysis tools, such as satellite imagery for risk mapping	6a. As per Output 5a, 5b. 6b. Assisting in evaluation of models for novel pest management, and RS/GIS T&T risk maps developed and downloadable.	6a. As per Performance indicators 5. 6b. Number of T&T risk maps available and downloadable.	<ul style="list-style-type: none"> • Production of an issue of the PAAT Technical and Scientific Series entitled ‘Standardizing land cover mapping for tsetse and trypanosomiasis intervention’ initiated and presently at an advanced stage of development • Production of customised Land Cover maps for T&T intervention completed for eight African countries (Burundi, Democratic Republic of Congo, Kenya, Rwanda, Somalia, Sudan, Tanzania and Uganda); the datasets are based on the products of the FAO-Africover project. • New web pages on GIS & RS resources and techniques created (5) • New web resources on GIS & RS identified and linked to PAAT-IS <ul style="list-style-type: none"> ○ Land cover/land use datasets ○ Meteo-climatic datasets ○ Satellite data • Discussion on the refinement of available methodologies for T&T GIS-based Decision Support Systems included in the 2 week Interactive Training Workshop held in FAO-HQs, Rome • Submission of an abstract for an oral presentation to the GISVET 2007 conference, to be held in Copenhagen, 20-24 August, 2007
7. Developing specific web-based information relevant to the involvement of different categories of stakeholders, e.g. guidance on identifying potential donors and on procedures for donors’ consultation.	7a. Information on donors’ policies and priorities collected. 7b. Different categories of stakeholders consulted and information on specific needs collected.	7a. Donors’ policies and priorities disseminated through the web. 7b. Needs of various stakeholders available and distributed through the web.	<ul style="list-style-type: none"> • List of relevant donors (23) available on the web • For some of the donors (11), on-line resources on procedures for consultation identified
8. Training opportunities and distance learning and provide access to training facilities	8. Training and distance learning programmes/courses developed.	8. Training and distance learning programmes/courses launched through the website.	<ul style="list-style-type: none"> • Training needs for Information Systems management (GIS, DB, etc.) identified during the missions to the 6 countries supported by AfDB in the framework of the PATTEC initiative • 2-week Interactive Training Workshop held in FAO-HQs, Rome: ‘Harmonization of GIS-based Decision Support Systems (DSSs) and Information Systems (ISs) in tsetse and trypanosomiasis (T&T) intervention’ <ul style="list-style-type: none"> ○ Three key GIS and IS specialists from T&T affected countries (i.e. Burkina Faso, Ghana and Uganda) participated ○ External specialists and selected FAO staff from different divisions and services (AGAH, AGAL, AGLL, GILW, SDRN) gave presentations, lectured and supervised/facilitated interactive sessions with the proactive participation of African colleagues
9. Training for e-conference moderator(s) for each of the African regions (West, East and Central-Southern Africa)	9. Programme for moderator(s) of e-conference developed	9. Three e-conference moderators identified and trained.	<ul style="list-style-type: none"> • FAO available tools for training e-conference moderators identified (module ‘Building Electronic Communities and Networks’) and CD-ROM disseminated to key PAAT partners in Africa (6 national project coordinators in Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Uganda). • Contacts with FAO staff working on the training of e-conference moderators taken • On-line access to the training tool available