The meeting of the Ad hoc Group of the Office International des Epizooties (OIE) on Non-Tsetse Transmitted Animal Trypanosomoses (NTTAT) was held at the OIE headquarters on 24 May 2000. The Agenda and List of Participants are given in Appendix I and Appendix II, respectively.

The meeting was chaired by Dr W.N. Masiga, Director of OAU/IBAR. The Secretary General of the Group, Dr L. Touratier, was appointed rapporteur. Twenty-one participants from ten countries were present.

After the Secretary General of the Group had presented the interim report, several presentations were made concerning the various items on the agenda.

1. **Interim report of the Secretary General**

1.1. **Scientific meetings on trypanosomoses and the means for combating them**

Many meetings took place during the previous period on the different aspects of trypanosomoses: epidemiology, pathogenesis and fundamental research (phylogenetics, genomes, therapies).

**Symposium on antiparasite medicinal products**

This symposium, held in Montpellier, France, from 24-26 May 1999, was sponsored by the European Union (DGXII), Cooperation with INCO-DC Programme for third countries and its COST programme (European Cooperation in the field of scientific and technical research), associated with the tropical disease research programme of the World Health Organization (WHO/TDR).

The agenda included the following points:

- how to identify new targets for therapeutic agents
- screening methods for potential medicinal products and evaluation of their pharmacological actions;
- development of medicinal products: sequences and economic considerations.

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1 OAU/IBAR: Organisation for African Unity/InterAfrican Bureau for Animal Resources

2 WHO/TDR: World Health Organization, Tropical Disease Research
5th Biennial conference of the Tropical Medicine Society

This conference took place in Key West, Florida, in the United States of America, from 12 to 16 June 1999. Of the themes covered, several broached the problems posed by NTTATs: the creation and activities of the OIE Ad Hoc Group on NTTATs; the studies conducted by Venezuela on *Trypanosoma vivax* infections of sheep and cattle, as well as on other haemoparasites; the study of trypanosomoses in cattle in South America, in particular the current situation in Brazil; infections with *T. evansi* and other trypanosomes amongst dromedaries, cattle and small ruminants in Mauritania; and trypanosomosis of camels in Kenya.

17th Conference of the World Association for the advancement of veterinary parasitology

This major conference held in Copenhagen, Denmark, from 15 to 19 August 1999, covered most of the topical subjects in veterinary parasitology, including certain themes associated with NTTATs, notably the following papers or posters: targets for medicines against protozoans in the kinetoplast group, current situation and prospects; inhibition of the multiplication of trypanosomes using classic protein-famesyl-transferases; pathology of infection by *T. evansi* of two species of wallabies; a practical method for the detection of *T. evansi* using mini-exchange of anions; detection of *T. evansi* in Thailand in deer brains by immunochemistry using streptovidin-biotin; proposed strategy for identifying and treating trypanosomoses in wild animals in India during the 21st century.

25th Meeting of the International Scientific Committee for Research on Trypanosomoses and their Control (ISCTRC)

For the Jubilee of the ISCTRC (OAU/STRC/ISCTRC) founded in 1949, held in Mombasa, Kenya from 27 September to 1 October 1999, all of the African countries south of the Sahara were represented by their official delegates, as were several International Organisations (WHO and TDR, FAO4 and PCTA5, ICIPE6, ILCA7, ILRI8, European Union). In addition, many experts and scientists took part in the meeting.

The subjects covered included:

- the impact on public health of controlling *Trypanosoma brucei rhodesiense* in cattle; the concomitant presence of infection by *T. brucei* of cattle and the climax of an outbreak of sleeping sickness in a district of Uganda;
- various papers on the bases of trypanotolerance and the choice of trypanotolerant breeds in zones infested with tsetse flies; the isolation of a protein 70 as a diagnostic antigen for the genus *Trypanosoma*; a study of the role of the antigen 33kD in trypanotolerance in N'Dama bulls; immuno-supression in bovine trypanosomosis and the prospects for immunophylaxis of trypanosomoses (bovine immunisation model using cysteine proteases of *T. congolense* that can extend to other species of pathogenic trypanosomoses);
- various studies on chemoresistance to trypanocides (isometamidium [IMM], diminazene [DMZ]) molecular markers for the diagnosis of resistance to arsenic, on their activity and on their detection in the serum of treated animals (evaluation and surveillance of quinopyramin in the serum of dromedaries and IMM in cattle using an ELISA9 method);
- information on two new trypanocides: megazol, currently under development on monkeys with favourable results; and di-amidine (CGP 40215) active in monkeys at the early stage of infection by *T. rhodesiense*;

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3 STRC: Commission scientifique, technique et de la recherche (Scientific, Technical and Research Commission)
4 FAO: Food and Agriculture Organisation of the United Nations
5 PCTA: Programme contre les trypanosomoses africaines (Programme Against African Trypanosomosis, PAAT)
6 ICIPE: International Center of Insect Physiology and Ecology
7 ILCA: International Livestock Centre for Africa
8 ILRI: International Livestock Research Institute
9 ELISA: enzyme linked immunosorbert assay
– the prevalence and incidence of trypanosomoses in equides in Gambia; the epidemiology of camel
trypanosomosis in Kenya and Mauritania and its diagnosis using various serological methods (CATT10,
IFAT11, Ag ELISA).

In its general recommendations the Scientific Committee:

– noting the worrying increase in cases of human and animal trypanosomoses in the one-third of
Sub-Saharan Africa, still infested with tsetse flies;
– given the limited number of trypanocides for both sleeping sickness and animal trypanosomoses and
the halt in production of some of them;
– given the increase in chemoresistance and the urgency of the situation;

Recommended that:

– Member countries should give priority to combating African trypanosomoses in their development
programmes;

– urgent attention be given to:
  • surveillance,
  • intervention in epidemic zones,
  • users should be provided with trypanocides (which should be registered) and methods aimed at
    preventing the emergence of chemoresistance;
  • a regional development programme for central and west Africa, similar to the FITCA12 programme
    in east Africa;
  • extending the PACT information network in response to the needs of the combat programmes;
– an interim report should be drawn up on monitoring the implementation of these recommendations by
the secretariat of the ISCTRC in Burkina Faso in 2001.

Information meeting on NTTATs

An informal meeting took place in Mombasa, Kenya, on 28 September 1999, on the main aspects of these
trypanosomoses in Africa by courtesy of the presidency and secretariat of the ISCTRC. Twenty-one
participants from ten African countries and four international organisations compiled the information
provided by the secretariat of the OIE Ad Hoc Group on NTTATs: the aims of the Ad Hoc Group, a résumé
of the annual meeting held in May 1999 in Paris and a rapid overview of conferences that had taken place
between May and September 1999.

The persistence of infection by *T. vivax* in zones free from tsetse flies in Chad and Sudan was reported. A
parallel was drawn between these zones and South American countries where infection by *T. vivax* had
been reported in cattle and sheep. However, the question of the virulence of the American and African
strains of this trypanosomes required comparative studies.

Moreover, the International Trypanotolerance Centre drew attention to mixed infections (trypanosomes
and other haemoparasites) found in both Africa and South America.

The diagnostic methods mentioned and recommended were: CATT/*T. evansi* offered by the Institute of
Tropical Medicine in Antwerp, for surra in camels and an Ab ELISA test, developed by the IAEA13, for
infections of *T. vivax* in cattle.

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10 CATT: Card agglutination trypanosome test
11 IFAT: Indirect fluorescent antibody technique
12 FITCA: Farming In Tsetse Control Area
13 IAEA: International Atomic Energy Agency
**Second Symposium on Trypanosomes and other Haemoparasites in the New World (SSNWTH "99")**

This symposium took place at the Universidad Romulo Gallegos de San Juan de los Morros, Guarico, Venezuela from 13 to 15 October 1999 with the participation of the following countries: Argentina, Bolivia, Brazil, United States of America, France, India, Kazakhstan, Nigeria, United Kingdom, Trinidad and Tobago and Venezuela, as well as four international organisations: CIRDES, IICA, ILRI and the OIE.

In the light of the reports presented and the associated discussions the SSNWTH recommended that:

- the diagnostic methods and tools (i.e. new parasitological, serological and molecular techniques) should be developed and validated to be used for epidemiological surveys in order to identify latent infections with haemoparasites before conducting vaccination campaigns and screening for any outbreak of a haemoparasite in a previously free country, keeping in mind the infection of the South American subcontinent by *T. vivax* in the 19th century and the recent contamination of Papua New Guinea by *T. evansi*;

- the use of standard antigens should be improved in specially designated and recognised laboratories;

- research work should be encouraged both in fundamental research, in the light of the results published during the SSNWTH, and in the practical field;

- the fight against infections should be stepped up with a view to:
  - improving the methods for using products against vector arthropods (spraying or local application of insecticides and repellents and dipping against ticks);
  - avoiding or preventing the emergence of chemoresistance to antiparasite medicinal products through the more rational use of chemotherapy, especially for trypanosomoses for which there are currently only a few trypanocides;
  - encouraging the creation and development of new wide-spectrum molecules against several haemoparasitoses;
  - developing immunological strategies against diseases transmitted by ticks;
  - studying the innate resistance to haemoparasitoses of groups of animals in isolated herds of cattle;

- the publication of TRYPNEWS, a scientific and technical information bulletin, should be strongly supported;

- modern rapid information systems should be actively supported such as the Animal Trypanosomosis Network in South America (ATNSA), in liaison with the Mechanically Transmitted Animal Trypanosomosis Network (MTATN) in Africa and the Geographical Information System (GIS).

- a request should be made to the governmental and intergovernmental animal health authorities with a view to approving and implementing the above proposals.

**International Workshop on Chamelon**

This specialised workshop held in Ouarzazate, Morocco from 24 to 26 October 1999, brought together the representatives of 24 North African and European countries with an interest in camels. Interesting documents were presented and discussed concerning infections by *T. evansi*: a bibliometric study on CD-ROM of all the data available on camelides from 1752 to 1997 (more than 7,000 references organised by theme, including 323 on surra between 1752 and 1984 and 344 between 1984 and 1997, 1984 being the creation date of the OIE Ad Hoc Group of NTTATs); various papers on dromedary trypanosomoses in Tunisia, Ethiopia, Nigeria, Kenya and Mauritania and the detection of carriers of *T. evansi* using PCR in India.

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14 CIRDES: International Research Centre for the Development of Animal Husbandry in Humid and Sub-Humid Regions
15 IICA: Interamerican Institute for Cooperation on Agriculture
16 PCR: Polymerase chain reaction
The recommendations of the workshop emphasised:

- the interest and reliability of CATT/T. evansi for the diagnosis of surra in camels;
- the rational use of specific trypanocides to prevent the emergence of chemoresistance;
- the need to have new preventive trypanocides against T. evansi and effective insecticides for administration by spray or “pour on”.

"Trypanosomoses" meeting for a proposal at the Global Forum on Agricultural Research (GFAR)

At the initiative of the CIRAD-EMVT17, this limited meeting took place in Montpellier, France, on 25 January 2000 with the participation of representatives from the host organisation and the IRD18, the University of Montpellier III, the concerted action of the European Union on the ICPTV19, the INCO/EU20 on trypanosomosis, the representative of the GFAR at the FAO, the ILRI and the OIE Ad Hoc Group on NTTATs.

Following an extensive overview, it was proposed to submit for the consideration of the general assembly of the GFAR due to meet in Dresden, Germany on 23 and 24 May 2000, in the context of its general programme on developing genetic resources and the use of biotechnologies, a plan concerning the fight against animal trypanosomoses throughout the world. This plan is based on the “INCO-DEV21 Project n° ICA4-1999-40018”, financed by the European Union, which proposes an “anti-disease approach for immunological combat against trypanosomoses in cattle”.

It calls for wide-ranging international cooperation between the following organisations: CIRDES (Burkina Faso), Centre international de recherche sur la trypanotolérance (Gambia), Institute of Tropical Medicine (Belgium), the PACT network of the FAO, CIRAD, IRD, IARC22, ILRI, OIE, Universities of Bordeaux, Tours and Montpellier (France), and Natal (South Africa).

This overall plan was approved by the GFAR general assembly on 23 May 2000.

Congress of the French Parasitology Society (Société française de parasitologie)

This congress, which took place in Montpellier, France from 1 to 3 March 2000, was largely devoted to the study of parasitic systems, in particular the distribution of herds of cattle in Burkina Faso in relation to the risk of trypanosomoses and risk forecasting.

Two papers on very different subjects attracted attention: firstly, the failure to isolate strains of T. equiperdum for more than 20 years, even from subjects with clinical signs of dourine at various stages of development; secondly, biochemistry and the activity of cysteine proteases which play a major role in the immunology of trypanosomoses.

1.2. Comparison of complement fixation tests (CFT) used in seven countries to diagnose dourine (Experimental Veterinary Laboratory of the Russian Federation, Viev, Moscow)

Following a request from Professor V.T. Zablotsky, the OIE expert on dourine, submitted in May 1999, followed by the letter of 8 December 1999 from Dr V. Avilov, Head of the Veterinary Service at the Ministry of Agriculture in Russia, requesting a comparison of the complement fixation tests used in seven countries (South Africa, Germany, Popular Republic of China, United States of America, France, Italy and Russia), tests were carried out thanks to the spirit of cooperation between the directors of the diagnostic laboratories in the above-mentioned countries.

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17 CIRAD-EMVT: Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Department of Animal Husbandry and Veterinary Medicine
18 IRD: Institut de recherches pour le développement
19 ICPTV: Integrated Control of Pathogenic Trypanosomoses and their Vectors
20 INCO/EU: International Cooperation of the European Union
21 INCO-DEV: International Cooperation and Development of the European Union
22 IARC: International Agricultural Research Council
The results obtained are set out in the table below.

Table 1

Results of comparative tests on the complement fixation tests used in seven countries to diagnose dourine

<table>
<thead>
<tr>
<th>Origin of the serum</th>
<th>Antigen of <em>T. equiperdum</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>China titre 1:16</td>
</tr>
<tr>
<td>USA positive titre 1:20</td>
<td>1:10 2+</td>
</tr>
<tr>
<td>USA positive titre 1:20-1:40</td>
<td>1:40 3+</td>
</tr>
<tr>
<td>USA positive high titre</td>
<td>1:320 3+</td>
</tr>
<tr>
<td>Russia positive titre 1:10</td>
<td>1:10 2+</td>
</tr>
<tr>
<td>Russia positive titre 1:40</td>
<td>1:40 2+</td>
</tr>
<tr>
<td>France positive titre 1:10</td>
<td>1:40 2+</td>
</tr>
<tr>
<td>Germany positive titre 1:10</td>
<td>1:40 2+</td>
</tr>
<tr>
<td>Germany positive titre 1:10</td>
<td>1:80 3+</td>
</tr>
<tr>
<td>Italy positive titre 1:10</td>
<td>1:40 3+</td>
</tr>
<tr>
<td>South Africa positive titre 1:10</td>
<td>1:40 2+</td>
</tr>
<tr>
<td>USA negative</td>
<td>negative</td>
</tr>
<tr>
<td>Germany negative</td>
<td>negative</td>
</tr>
<tr>
<td>Russia negative</td>
<td>negative</td>
</tr>
<tr>
<td>Italy negative</td>
<td>negative</td>
</tr>
<tr>
<td>South Africa negative</td>
<td>negative</td>
</tr>
</tbody>
</table>

(Source: V.T. Zablotsky, Ch. Georgiu, The All-Russian Research Institute of Experimental Veterinary Medicine, Laboratory of Protozoology, 109472, Moscow, Kuzminki, Viev)

There was good concordance in general between the tests carried out with the antigens and sera from the participating countries. These tests form the first stage of a programme established by the Ad Hoc Group in May 1999 to obtain a proper assessment of the complement fixation test as a diagnostic tool and to serve as a point of departure for the differentiation of the two species, *T. equiperdum* and *T. evansi*, using an appropriate laboratory test. For the moment, it is necessary to have freshly isolated strains of *T. equiperdum* before proceeding with any study of this nature, given that the strains of *T. equiperdum* conserved in all of the laboratories date back more than 20 years and there could be some question of their suffering immunological variations.

In addition, these tests highlighted the difficulty of international exchanges of parasite antigens concerning the conservation of their antigenic properties during their transfer and their storage on customs premises. It would be necessary to define recommendations to be submitted to the IATA23 or the OACI24 to prevent disagreements that generally resulted in very costly redispachting.

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23 IATA: International Air Transport Association
24 ICAO: International Civil Aviation Organisation
2. Information communicated to the Office international des épidémiologies by Member Countries

The documents provided by Member Countries on their animal health situation to the 68th General Session included the following references to NTTATs:

**Dourine (T. equiperdum)**
- **South Africa** (4 outbreaks, 11 cases).
- **Botswana** (19 outbreaks, 19 cases).
- **Namibia** (8 outbreaks, 16 cases).
- **Pakistan** (presence).
- **Russia** (81 outbreaks, 1665 cases, 21 deaths, 1,543 slaughtered).

**Surra (T. evansi)**
- **Argentina** (presence).
- **Egypt** (1,415 cases in camels, all treated).
- **Iran** (20 outbreaks, 75 cases in camels, treated).
- **Pakistan** (present in camels and horses).
- **Tunisia** (11 outbreaks amongst camels).

**Infection by T. vivax (in the absence of tsetse flies)**
- **Bolivia** (3 outbreaks, 56 cases amongst cattle).
- **Sudan**: epidemiological surveys on trypanosomosis in zones free from tsetse flies, covering Khartoum and Central Sudan, revealed an infection rate of 2% by *T. vivax* in dairy cows. Tabanidae and Stomoxes were captured during this survey. The disease was officially declared in these two zones.

3. Development of research on *T. equiperdum* and *T. evansi*

At the invitation of Dr Masiga, Dr F. Claes resumed the programme in which he is engaged in support of a scientific thesis (Ph D):

**Differential diagnosis of *T. equiperdum* and *T. evansi* and the development of a new diagnostic technique for dourine**

The main objectives are to identify the strains of *T. equiperdum* available, in very limited numbers, in the main laboratories throughout the world; to identify variable antigen types (VATs) for these same strains to compare them with *T. evansi*; to characterise the two species of trypanosomes using molecular markers; to develop one or more sensitive and reliable diagnostic method(s) based on an antigen-body response or specific DNA\(^{25}\) sequences. AFLP\(^{26}\) analysis techniques and hybridisation will be used.

Professor Büscher and Dr Savini stressed the usefulness of such work, requested by the Ad Hoc group in 1998, concerning six samples of suspected dourine that were reported in Italy with the TFC in 1999. Professor Büscher would be interested in receiving samples of serum from suspected cases in horses and Dr Savini will attempt to find such animals. Moreover, Professor Büscher would like to obtain samples of serum from buffaloes living in Italy to be used as trypano-negative controls. In order to avoid financing problems, Dr Savini proposed to submit to the European Union a COST project on *Trypanosoma*.

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\(^{25}\) DNA: Deoxyribonucleic Acid

\(^{26}\) AFLP: amplified fragment length polymorphism
Dr Masiga then handed the floor to Dr Toyo Urakawa who presented the following paper:

**URAKAWA T. & MAJWA P. – Current situation of Trypanosoma evansi project at ILRI.**

Given that in principle *T. evansi* and *T. equiperdum* have a genome identical to that of *T. brucei*, the major differences between them are the fact that *T. evansi* is monomorph, non-transmissible by tsetse flies, lacks maxicircles in its kinetoplast DNA and certain strains are even akinetoplast.

This proposal was supported by the identification of 10 microsatellite markers. The development of diagnostic tests is followed by a study of the predominant antigens that make up VSGs\(^{27}\). It appears to be possible to improve the current serological tests by identifying common VSGs or VSG determinants, then expressing them as recombinant peptides. The research is being conducted in collaboration with the Institute of Tropical Medicine in Antwerp, Belgium, and KETRI\(^{28}\) at Kikuyu, Kenya.

4. Epidemiological surveys on non-tsetse transmitted animal trypanosomoses in various countries

Interesting data had been gathered from rice-paddy buffaloes in North Vietnam. Dr Verloo presented his work:

**VERLOO D., HOLLAND W., MY L.N., THANH N.G., TAM P.T., GODDERIS B., VERCRUYSSE J. & BÜSCHER P. – Comparison of serological tests for the diagnosis of natural infections of *T. evansi* in rice-paddy buffaloes in North Vietnam.**

Comparison of three tests: CATT/*T. evansi*, Ab ELISA/*T. evansi* and an indirect card agglutination test: LATEX/*T. evansi*, showed that the CATT and ELISA tests seemed the most appropriate for detecting infected buffaloes.

Dr Duvallet asked whether the comparisons between CATT and SURATEX (LAT) had been carried out in order to assess any differences in the results given by Ab and Ag tests. Dr Verloo replied in the negative because there had only been a very small number of SURATEX kits on site. There followed a discussion between Doctors Diall, Büscher, Magnus and Reid on the comparison between parasitological and serological tests.

Professor Dakkak then presented the results obtained in Morocco:

**ATARORHOUCH T., DAKKAK A., RAMI M. & AZLAF R. – Survey of trypanosomosis in camels in six regions of southern Morocco.**

The tests used to conduct the survey in Morocco – which revealed prevalences of between 1 and 11 % on 1,550 dromedaries in six different regions – were either parasitological or serological (ELISA and CATT). PCR tests were also used.

In response to a question from Professor Duvallet on the vectors detected during the survey, Professor Dakkak stated that Tabanidae were involved. In his turn, Dr Urakawa asked which ELISA test had been employed and on what samples the PCR test was used to type *T. evansi*. Professor Dakkak replied (i) that an Ab ELISA test was used; (ii) that the PCR was used on samples of blood and RAPD\(^{29}\) was carried out on the DNA obtained from trypanosomes gathered after inoculation of mice and the blood was removed by passing it through a DEAE\(^{30}\) column.

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\(^{27}\) VSG: variable surface glycoproteins

\(^{28}\) KETRI: Kenya Trypanosomiasis Research Institute

\(^{29}\) RAPD: random amplified polymorphic DNA

\(^{30}\) DEAE: diethylaminoethyl-dextrane
Dr Masiga then asked Dr Camus to present the paper sent by Chad.


In this major camel breeding region, a vast survey was conducted at seven representative sites using biconical Challier-Laveissière and NZI traps with 20 traps per site. In total 1,272 stomoxes, 945 Tabanidae and 226 tick-flies were captured during the course of the various seasons. The dominant species were: *Atylotus agrestis* amongst Tabanidae; *Stomoxys calcitrans* amongst Stomoxes and *Hippobosca camelina* amongst tick-flies. The NZI trap proved to be the more effective. All of the results were compiled, catalogued and discussed according to the season, the type of livestock production and types of transhumance. These data can be used to explain the timing of the appearance of the disease and variations in its intensity.

A wide-ranging discussion between Doctors Reid, Magnus, Savini, Verloo and Claes, as well as Professors Duvallet and Mahmoud followed this presentation. Professor Duvallet displayed interest in this detailed survey giving details on the Stomoxyinae that he was studying at the University of Montpellier.

Dr Masiga then asked Dr Camus to describe the main features of the proposal submitted to the GFAR:

Combating animal trypanosomoses using all biotechnological means and genetic resources to improve cattle productivity.

This initiative should not be limited to Sub-Saharan Africa, where the Programme Against African Trypanosomoses (PAAT) has already been set up by the FAO in coordination with the WHO, but should be extended to certain Asian and Latin American countries where animal trypanosomoses pose growing problems.

The entire proposal should therefore be extended to Asia, Latin America and the whole of Africa.

The duration of this proposed programme is estimated at five years. The resources needed to successfully implement it have been drawn from the many works already carried out on trypanosomoses. In addition, reasonable hopes are based on the in-depth study of cystein proteases, the application of which could lead not only to the development of sensitive and precise diagnostic tests, but also to the creation of trypanotolerance in susceptible animals.

Dr Solomon showed interest in GFAR, which could play an important role in better comprehension between livestock producers and ministries of agriculture by increasing the chances of sustainable development.

For his part, Dr Masiga believed that priority should be given to the PAAT in Africa, without neglecting the needs of the other continents, because Africa alone was infected by sleeping sickness that affected several hundred thousand people and there were many links between human and animal trypanosomoses, in particular with regard to animal reservoirs of human trypanosomes. On this subject, he referred to the programme currently being implemented in Uganda. Professor Mahmoud was of the same opinion and added that dromedary breeding, which played a very important role in African countries, was paying a heavy price due to infections of *T. evansi*.

In Asia, Dr Reid referred to the special case of Malaysia where infections of *T. evansi* were sometimes reported in young bovines imported from Australia. This was due to the fact that Australia was totally free from *T. evansi* and young cattle were immunologically “naïve” to this infection, widespread throughout the Asian continent. At the request of Dr Masiga, he presented the following paper:


This test uses the buffy coat instead of whole blood and can identify up to 1.25 trypanosomes per 2 ml of whole blood.
The test had not been compared with the CATT. Professor Mahmoud would be interested in trials on camels. Dr Touratier thought that it should be tried for the isolation of *T. equiperdum* in horses clinically infected with Dourine and he would ask Professor Zablotsky if he was interested. Dr Urakawa noted its practical usefulness for detecting surra in cattle.

Dr Reid added that the Australian quarantine services were extremely anxious to prevent the introduction of *T. evansi* into their country and that, for this reason, a diagnostic test or a set of diagnostic tests would be vital to guarantee that all cattle imported from countries where infection by *T. evansi* was enzootic were not carrying this trypanosome.

Dr Masiga then gave the floor to Dr Touratier for a presentation of the following paper sent by the Institute of Veterinary Parasitology in Shanghai:

**WAN QUAND, SHEN JIE, ZHOU JONGZHI & ZHOU JINLIN** – *Antigenic variation of different VATs of *T. evansi* deriving from a clone stock in rabbits.*

According to this paper, variation in *T. evansi* antigens at the first stage of the infection was greater than in the last stage.

5. **Development of research to combat non-tsetse transmissible animal trypanosomoses**

5.1. Chemotherapy and chemoresistance

Mr A. Bourdichon presented a brief paper from A.G. Luckins on limited trials carried out in Indonesia on buffaloes infected with surra, with TRYPAN (a combination of diminazene aceturate, phenazone and procaine).

TRYPAN, used at a dosage of 5 mg of diminazene per kg of live weight protects two out of three animals during at least three months in an infected environment. This protection lasts only 28 days for diminazene alone at the same dosage rate.

He also referred to the following article:

**CHEN JIANBAO, ZHANG XICHEN, LI JANHUA, YING JIGANG & YANG JU** – *The observation of therapeutic and prophylactic effect to trypanosomosis due to *T. evansi* in mice with liposomal diminazene and TRYPAN.*

The authors obtain a better chemopreventive and curative effect in mice with the two products compared with the usual form of diminazene.

Two other papers submitted by researchers at the Shanghai Institute were presented:

**ZHOU JINLIN, LIAO DANG JIN, SHEN HIE & ZHOU YONGZHI** – *Drug sensitivity of 12 *T. evansi* isolates from China.*

The twelve Chinese strains of *T. evansi*, tested *in vitro* and *in vivo* on mice using the two trypanocides suramine and quinapyramine (Antrycide), demonstrated reliable sensitivity for both medicinal products. Some of them had a degree of chemoresistance.

**LIAO DANGJIN & SHEN JIE** – *Biological characteristic of cloned *T. evansi* with resistance to Antrycide.*

Chemoresistance to quinapyramine was induced experimentally. The speed of reproduction of the trypanosomes diminished with the increase in chemoresistance.

5.2. Trypanotolerance

An approach to combating a disease may involve the development of research on cysteine proteases to achieve a state of trypanotolerance in sensitive bovines (research on Congopain with *T. congolense* in Kenya and in the above-mentioned network of laboratories and research on Evansine with *T. evansi* in Venezuela).

6. **International meetings concerning non-tsetse transmitted animal trypanosomoses planned for the near future**
7. Suggestions for the operation of the OIE Ad Hoc Group on non-tsetse transmitted animal trypanosomoses

Dr Solomon regretted that the meeting of the Group had been set for Wednesday morning during the General Session of the OIE International Committee. At the same time, the session for the presentation of reports on the animal health situation in the various countries would take place. The Delegates or their representatives, in particular from African, Asian and Latin American countries, would not be able to take part in the meeting of the Group. The representatives of international organisations: OUA/BIRA, OIRSA 31, PAHO 32 etc. found themselves in the same situation. Moreover, there was a request to include in the agenda of each of our meetings a point to describe the activities of CIRDES, the OUA/BIRA and the PAAT/FAO. Dr Touratier replied that these activities were briefly described in an annual interim report, but he thought that the suggestion was good and that the representatives of the organisations mentioned could describe their own activities better than he could, the timetable of the OIE General Session permitting.

For their part, Dr Urakawa and Professors Duvallet and Mahmoud suggested creating a special page attached to the OIE web site, for example www.oie.nttat, to have a constant exchange of information between the various members of the Group throughout the world. This suggestion was unanimously approved by the participants and would be submitted to the Director General of the OIE.

Before closing the reunion, Dr Masiga announced his retirement as Director of the OUA/BIRA with effect from 1 June 2000. The Secretary General, in the name of all of the members of the group and on his own behalf, expressed his gratitude and warmly thanked him for having chaired and directed the discussions in the Ad Hoc Group over many years with great distinction and extensive competence on the problems of African and all other types of animal trypanosomoses that were still affecting the world.

Having come to the end of the agenda, Dr Masiga closed the session at 12:30.

31 OIRSA: Regional International Organization for Plant Protection and Animal Health
32 PAHO: Pan American Health Organisation
MEETING OF THE OIE AD HOC GROUP ON
NON-TSETSE TRANSMITTED ANIMAL TRYPANOSOMOSES
Paris (Salon Hoche), 24 May 2000

Agenda

1. Interim report of the Secretary General
2. Information communicated to the Office international des épizooties by Member Countries
3. Developments in research on T. equiperdum and T. evansi
4. Epidemiological surveys on non-tsetse transmitted trypanosomoses in various countries
5. Developments in research on combating non-tsetse transmitted trypanosomoses
6. International meetings concerning non-tsetse transmitted trypanosomoses in the near future
7. Suggestions for the operation of the OIE Ad Hoc Group on non-tsetse transmitted trypanosomoses
Annexe II

MEETING OF THE OIE AD HOC GROUP ON NON-TSETSE TRANSMITTED ANIMAL TRYPANOSOMOSES

Paris, 24 May 2000

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