

**INTERAFRICAN BUREAU FOR ANIMAL RESOURCES**

**AFRICAN UNION**

**PAN AFRICAN PROGRAMME FOR THE CONTROL OF EPIZOOTICS (PACE)**

**FINAL REPORT**

**June 2001 – April 2006**

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## **1. BACKGROUND**

PACE aims at the eradication of rinderpest from African continent as part of the Global Rinderpest Eradication Programme (GREP). The regulatory framework for the certification of individual countries is provided through a stepwise approach which is based on the International Animal Health Code of the OIE and which has been termed “OIE pathway”. 3 steps have been defined: Provisionally free from rinderpest by the country; OIE Recognition of Freedom from Rinderpest and OIE recognition of freedom from Rinderpest infection.

The vast majority of countries participating in the PACE programme established their epidemiosurveillance system, supported by national or regional diagnosis laboratory and progressed along OIE pathway.

In order to coordinate all the activities regarding laboratory diagnosis of animal diseases within the PACE and provide technical assistance to the PACE Epidemiology Unit a position for a laboratory Expert was made available. This position was fulfilled by IAEA from June 2001 to March 2005 and by the programme PACE itself from April 2005 to April 2006.

The International Atomic Energy Agency (IAEA) and the Interafrican Bureau of Animal Resources (IBAR) of the African Union (AU) signed a collaborative agreement in 1999 on a strategy for an active partnership in the field of animal health and production in the following key areas: technology transfer, capacity building, PACE, Farming in Tsetse Control Areas (FITCA), Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC), AU/IBAR/IGAD Initiative and Animal Production.

In recognition of IAEA’s expertise in the diagnosis and monitoring of major epizootics, it was proposed to extend the partnership in animal disease diagnosis and to provide the necessary technical assistance to the PACE programme with particular reference to: establishing and consolidating the diagnostic capacity for the major epizootics (Rinderpest, Peste des Petits Ruminants, Contagious Bovine Pleuropneumonia and Foot and Mouth Disease) based on nuclear and related techniques, assisting with the monitoring of the national and regional control programmes for these epizootics, establishing a diagnostic capability for the differential diagnosis of rinderpest, providing assistance to regional reference laboratories for the confirmatory and differential

diagnosis of rinderpest, strengthening the cooperation between national and regional reference/service laboratories, establishing a regional capability for the supply of reagents and disease diagnostic kits, strengthening the cooperation and information exchange between AU/IBAR, IAEA and the national veterinary laboratories. In this respect the International Atomic Energy Agency launched the Regional Project RAF/5/053 – Assistance to OAU/IBAR/PACE Programme for the Control and Eradication of Major Diseases affecting Livestock.

The overall objective of the project was to support national and regional animal disease diagnostic and surveillance needs within the framework of the African Union/Inter-African Bureau for Animal Resources (AU/IBAR) for establishing sustainable food security and the development of rural agriculture-based economies.

The specific objectives are to:

1. Provide support to the AU/IBAR/Pan-African Programme for Control of Epizootics (PACE) Co-ordination Unit to improve national capabilities for detecting and controlling the economically devastating livestock diseases and verify the eradication of rinderpest from Africa,
2. Provide support to AU/IBAR to assist Southern African Development Community (SADC) countries to implement a programme of quality assurance in national veterinary laboratories
3. Assist AU/IBAR to create a sustainable regional supply of critical diagnostic reagents and kits.

For the implementation of the project and the day-to-day technical assistance to PACE, IAEA seconded to AU-IBAR from June 2001 to March 2005 a Regional Expert (R.E) with the following terms of reference:

- To assist in the implementation of the IAEA Regional Technical Co-operation programme on animal health, which supports the activities of the Pan African Programme for the Control of Epizootics (PACE) of the OAU's Interafrican Bureau of Animal Resources (OAU/IBAR) and those of the Southern African Development Community (SADC);

- To assist in the management and monitoring of the IAEA-supported relevant activities in the Member States concerned (national and regional components) to provide technical backstopping and services to the PCU of the PACE and to SADC in the area of veterinary laboratory diagnosis and surveillance: in consultation with the Agency provides project planning and programming support in collaboration with Member States and stakeholders preparing summary reports and ensuring production and distribution of reports and documents, and promoting exchange of information within the region;
- To take action as appropriate in consultation with the PACE PCU and Agency programming and technical officers, to ensure timely implementation of agreed upon work plans, including scheduling and recruitment of experts, provision of equipment, organization of group training, fellowship training and sub-contract activities with the framework of IAEA TC Programme;
- To initiate and participate in the preparation of documents providing management guidance on aspects pertaining to IAEA-supported project activities, including safety guides, technical reports, technical documents, training material, standardization of equipment, etc;
- To provide technical guidance; advise and take an active part in the appraisal of requests for assistance submitted by Member States for IAEA assistance in the area of animal health;
- To assist in the management of the resources allocated to IEA-supported project activities, authorizing expenditures and re-programming resources and obligations.

***PACE countries participating in the project are:*** Cameroon, Egypt, Benin, Burkina Faso, Ethiopia, Ghana, Côte d'Ivoire, Kenya, Mali, Niger, Nigeria, Senegal, Sudan, Uganda and United Republic of Tanzania.

***In addition to PACE countries the project was extended to SADC countries:*** Mauritius, Namibia, South Africa, Zimbabwe, Zambia.

At the end of the Regional Project RAF/5/053 the PACE programme made a budgetary allocation for the continuation of the coordination of laboratories activities and recruited the former IAEA Regional Expert with the following Terms of Reference.

- 1 Provide technical backstopping and services to the PEU in the area of veterinary laboratory diagnosis and surveillance:
- 2 Take action as appropriate in consultation with the PEU to ensure timely implementation of agreed upon work plans
- 3 Initiate and participate in the preparation of documents providing technical guidance on aspects pertaining to laboratory diagnosis of animal diseases, serological surveillance and quality assurance,
- 4 Assist countries in the preparation of OIE dossiers for recognition of freedom from disease and infection
- 5 Initiate and prepare the annual national and regional laboratories network meeting
- 6 Coordinate the implementation of annual External Quality assurance (Proficiency test)
- 7 Initiate and prepare training courses in the field of laboratory diagnosis of animal diseases and quality assurance
- 8 Assist countries in sending pathological material to reference laboratories
- 9 Organize the shipment of material to reference laboratories from PACE coordination unit Nairobi
- 10 Prepare proceedings of meetings and other technical document related to laboratory network

The present report is covering the activities done by the IAEA Regional Expert in Animal Disease Control from June 2001 to March 2005 and the PACE Laboratory Expert from April 2005 to April 2006.

### **Acknowledgements**

Great acknowledgement goes to the Director of AU/IBAR, the PACE Coordinator and the Head of PACE Epidemiology Unit and their staff for the hospitality and kind collaboration.

## **2. Activities carried out from June 2001 to March 2005.**

### **2.1. ACHIEVEMENTS**

The main areas where tangible achievements have been made are: Technical assistance for the eradication of rinderpest from PACE countries, capacity building, technology transfer, technical support to PACE Epidemiology Unit.

#### **2.1.1. Technical assistance for the eradication of rinderpest from PACE countries:**

A mission was undertaken to PACE countries, which were eligible to apply for freedom from disease or infection, to assist them in the preparation of their dossier to be submitted to OIE for consideration.

By March 2005 the following countries have been declared by OIE free from rinderpest: Benin, Burkina Faso, Ghana, Mali, Niger, Senegal, Togo, Guinea, Mauritania, Cote D' Ivoire, Eritrea, Nigeria, Tanzania on country-wide basis and Chad and Ethiopia on zonal basis. Out of these countries Eritrea, Senegal, Togo and Benin will be declared in May 2005 free from rinderpest infection. Ghana, Guinea, Burkina Faso will submit to OIE by June 2005 their dossier for recognition of freedom from rinderpest infection. The other countries i.e. Mali, Niger and Mauritania will submit their application to OIE by October 2005.

#### **2.1.2. Capacity building.**

##### **- PACE countries**

The key to any support programme leading to sustainability is capacity building. The expertise in disease diagnosis which was built up over the past 16 years in Africa resulted in the establishment of a sustainable network of laboratories for the diagnosis and surveillance of rinderpest using the nuclear and related techniques such as ELISA and PCR. The support given through IAEA Technical Co-operation for fellowships, workshops and training courses was critical to achieve this sustainability.

Several missions were undertaken to member states to train national veterinary laboratory personnel in laboratory diagnosis of animal disease, use of relevant software producing results, quality assurance and interpretation of surveillance data.

Several staff from PACE National laboratories have been trained in various techniques of diagnosis of animal disease from IAEA fellowships.

Several Scientists trained by IAEA are being now used by the agency as experts in the field of immuno-assay and molecular biology within and outside the continent.

The Agency organized jointly with PACE two regional training courses on rinderpest indirect ELISA in Dakar (Senegal) in 2001 and on the Use of Molecular Techniques in the diagnosis of animal diseases in 2004 in Bamako (Mali) for national veterinary laboratories personnel in support to PACE national annual epidemiological surveillance.

Missions were undertaken to Ethiopia, Mali, Senegal, Cameroun and Kenya to identify national laboratories which could be used as reference laboratory. As a result the modern laboratory diagnosis capacity built at 3 veterinary laboratories: The National Veterinary Research Centre of Muguga (Kenya); Laboratoire Central de Pathologie Animale of Bingerville (Côte d'Ivoire) and Laboratoire National d'Élevage et de Recherches Vétérinaires de Dakar (Senegal) are used by PACE as PACE regional reference laboratories for rinderpest and PPR. These laboratories as well as other national veterinary laboratories (i.e. CVL Mali) are used by IAEA as host institute for its training courses.

A link has been established between PACE national veterinary laboratories and the PACE regional reference laboratories for rinderpest and PPR.

#### **- SADC countries**

A Training course on implementation of quality assurance in national veterinary laboratories was organized to support the effort of SADC national veterinary laboratories towards international accreditation.

The agency provided support for a CBPP diagnostic laboratory in the Western Province of Zambia through provision of laboratory equipment and reagents and expert visit.

### **2.1.3. Technology transfer**

This was achieved through the establishment of a regional capability for the supply of reagents for animal disease diagnosis.

In the era of biotechnology, the International Laboratory for Molecular Biology (ILBM) of the University of California developed a cheap, easy to be transferred method of production of antigens for rinderpest and PPR indirect ELISA using recombinant DNA technology. The technology has been transferred to Laboratoire National D'Élevage et de Recherches Vétérinaires (LNERV) of the Institut Sénégalais de Recherches Agricoles (ISRA) through the sustained technical backstopping of the ILBM funded by the USA Government extra budgetary support through a Footnote A component of the Regional Co-operation Projects RAF/5/043 and RAF/5/053. The transfer of technology comprised of provision of training in relevant biotechnology techniques for African Scientists at ILBM/UCA (1 from Mali, 2 from Senegal, 1 from Nigeria, 1 from Cote d'Ivoire), provision of experts to assist the technology transfer and through the provision of funds for the procurement of appropriate equipment.

The reagents for rinderpest indirect and PPR indirect ELISA have been put in a kit format. The rinderpest indirect ELISA kit has been distributed to more than 30 African laboratories to participate into its validation process. The data were analyzed and a dossier made and sent by AU/IBAR to OIE to be recognized as a screening test for the serological surveillance of rinderpest. The assay has been accepted by OIE in February 2004.

The Laboratoire National d'Élevage et de Recherches Vétérinaires of the Institut Sénégalais de Recherches Agricoles Senegal is assembling reagents, received from World Reference Laboratory for African Swine fever Madrid (Spain), for the serological diagnosis of African Swine Fever in a kit format and send throughout the continent on request from national veterinary laboratories: Ghana, Zambia, Nigeria, Burkina Faso, Tanzania, Nigeria and Benin



### **2.1.4. Technical support to PACE Epidemiology Unit**

The RE provided to PEU and PCU a day-to-day technical assistance in the field of laboratory diagnosis of animal diseases. In line with this several missions were undertaken to PACE countries to provide assistance in site; guidance were given through exchange of messages with PACE national laboratories counterparts and PACE regional reference laboratories for rinderpest and PPR; several technical documents were produced; several technical documents were received from PACE countries, reviewed and commented.

#### *2.1.4.1. Activities carried out from June to December 2001.*

The activities scheduled for the period June to December 2001 in support of AU/IBAR/PACE included:

- Organization of a regional workshop in Dakar, Senegal for laboratory personnel;
- Technical backstopping (primarily through provision of expert services) for the use of Performance Indicators and for the introduction and use of laboratory quality assurance in PACE national laboratories;
- Logistical and technical support to the PACE Programme Co-ordination Unit (PCU), Nairobi, Kenya; and,
- Support to the development of a regional epidemio-surveillance exercise to demonstrate regional freedom from rinderpest.

Regarding SADC countries it was planned to:

- Organize a workshops on diagnostic kits production and related quality assurance issues in Zimbabwe along with
- Support for a CBPP diagnostic laboratory in the Western Province of Zambia (laboratory equipment and reagents).
- Conduct a 3-day Workshop for Heads of National Veterinary Laboratories as well as provision of expert services and procurement of equipment.

#### **2.1.4.1.1. Implementation of the project**

- The Regional Expert drew the Project Logical Framework (annex 1) and the work plan (annex 2).

- A circular letter signed by the Director of OUA/IBAR and requesting essential information has been sent to all the project counterparts (from a list given by Africa Section) in countries participating in the project.

The consultant received information from the following countries: Cameroon, Egypt, Ethiopia, Ghana, Côte d'Ivoire, Kenya, Mali, Mauritius, Namibia, Nigeria, South Africa, Sudan, Zambia and Zimbabwe, Uganda and United Republic of Tanzania.

A reminder letter has been sent to the following countries: Burkina Faso, Niger.

The information received has been used to prepare a document called “ UPDATE ON PACE NATIONAL LABORATORIES ». The document is available.

- The consultant revised all the National PACE documents available at the PACE Co-ordination Unit: Burkina Faso, Djibouti, Guinea Bissau, Nigeria, Gambia, Uganda, Benin, Côte d'Ivoire, Eritrea, Gabon, Ghana, Mali, Mauritania, Niger, Central Africa Republic, Togo, Ethiopia, Senegal, Guinea and Rwanda. The information about the proposed budget for each national laboratory has been gathered.

From the obtained information the consultant made a table with all the components of the budget allocated to the national laboratories. The information gathered are included in the document « UPDATE ON NATIONAL PACE LABORATORIES » .

The RE participated in the Third Research Co-ordination Meeting of the FAO/IAEA Co-ordination Research Programme (CRP) on the Diagnosis and Control of CBPP in Africa held under the auspices of the AU/IBAR/PACE Programme in Nairobi from 18-22 June 2001.

#### **2.1.4.1.2. Technical Support to OAU/IBAR/PACE**

- The PACE Co-ordination Unit gave to the RE an assignment to assess the diagnostic capacities of PACE national veterinary laboratories and make recommendations for the implementation of the OAU/IBAR Regional Laboratories in some of them. The assignment has been completed with Dr. Kebkiba Bidjeh Counterpart to the Main

Epidemiologist of PACE and a document produced on the findings and recommendations. The document is available.

- The RE attended all the meetings held at OAU/IBAR/PACE in relation with the PACE programme.
- The RE participated in the Third Research Co-ordination Meeting of the FAO/IAEA Co-ordination Research Programme on the Diagnosis and Control of CBPP in Africa held under the auspices of the OAU/IBAR/PACE Programme in Nairobi from 18-22 June 2001. As a recommendation, Problems of IQC as well as the results of the new batch of kits were sent to the RE for immediate attention. This work is a permanent assignment.
- As part of the activities of the project for year 2001, the RE participated in the Regional Workshop on CBPP for SADC in Windhoek (Namibia) from 3 to 3 September 2001.
- The RE attended the FAO/IAEA Regional Workshop on “Update on Technologies for Surveillance of Rinderpest Freedom” and made presentations on Quality assurance.
- The RE visited also the Central Veterinary Laboratories Kabete Kenya and the National Veterinary Research Centre of Muguga Kenya.

#### **2.1.4.1.3. Missions carried out:**

- |                                |                   |
|--------------------------------|-------------------|
| - Sebeta (Ethiopia):           | 13 – 14 August    |
| - Bingerville (Cote d’Ivoire): | 16 – 17 August    |
| - Dakar (Senegal):             | 20 – 21 August    |
| - Windhoek (Namibia):          | 3 – 7 September   |
| - Garoua (Cameroon):           | 19 – 20 September |
| - Mungu (Zambia):              | 8 – 12 October    |

*2.1.4.2. Activities carried out from January 2002 to December 2002.*

#### **2.1.4.2.1. Assistance to PACE**

- *Eradication of rinderpest*

9 countries participating in PACE from West Africa were visited: Benin, Burkina Faso, Ghana, Mali, Niger, Senegal (IAEA member States) and Togo, Guinea and Mauritania (none IAEA member States). They were assisted in the preparation of their dossier to be submitted to OIE for recognition of freedom from rinderpest. All the 9 countries sent their dossier to OIE in time.

These countries have been assisted also in their preparation for conducting annually serological surveillance of rinderpest, which became compulsory after submission of the dossier for recognition of freedom from rinderpest.

*- PACE Regional Laboratories:*

Three (3) laboratories have been chosen as PACE regional laboratories: National Veterinary Research Center Muguga (Kenya); Laboratoire National D'Élevage et de Recherches Veterinaires (LNERV Dakar Senegal) et Laboratoire Central de Pathologies animales de Bingerville (Cote d'Ivoire) after assessment of PACE national laboratories. It was foreseen to support these laboratories from the Regional Project for year 2003 and 2004 to allow them to run on their own starting in year 2005.

A Memorandum of Understanding between AU-IBAR and Directors of Regional laboratories has been agreed and signed.

*- Production of Critical Reagents in the Africa Region.*

The Rinderpest Indirect ELISA kit produced by the Laboratoire National D'Élevage et de Recherches Veterinaires underwent a validation by OIE. In this respect a dossier has been prepared and sent to OIE for validation. The assay was accepted by OIE in February 2004.

The African Swine Fever Indirect ELISA kits assembled by the Laboratoire National d'Élevage de Dakar have been distributed to Members States: Nigeria, Benin, Tanzania, Uganda, Kenya, Zambia, Cote d'Ivoire, Burkina Faso and Ghana.

*- Project Coordination Meeting*

The First Coordination meeting of the IAEA Regional Project RAF/5/053 took place in Nairobi to review the achievement of the project and make recommendations for the way forward.

*- Assistance to PACE National Laboratories:*

The following laboratories have been visited and assisted in the laboratory diagnosis of animal diseases:

- \* Tanzania: Animal Disease Research Institute Dar Es Salaam
- \* National Veterinary Laboratories Kabete Kenya
- \* National Veterinary Research Center Muguga (Kenya)

*- Implementation of IAEA Technical Cooperation Programme to Member States:*

The Central Veterinary Laboratory Soba (Sudan) has been visited to intensify Agency's support in the area of animal disease control under regional project RAF/5/053, particularly with respect to rinderpest to help Sudan in conjunction with others partners to achieve recognition by international veterinary and trade organizations; to consider upgrading from the Footnote a/ status to core programme the national TC project Sudan/5/027 on the Control of Ticks and tick-Borne Diseases and to involve Sudan in the ongoing effort led by the Agency in Africa towards establishing a regional capacity for the production and distribution of low-cost reagents and kits for rinderpest diagnosis based on the indirect ELISA technology being transferred through the IAEA to Africa by the International Laboratory for Molecular Biology for Tropical Disease Agents (ILBM), University of California.

The PACE Tanzania and the Animal Disease Research Institute in Dar Es Salaam have been visited to assist in Serological Surveillance of Rinderpest and to assess the diagnosis capacity of the national laboratory in Dar Es Salaam and put in place a mechanism of testing in-coming samples in site or sending the samples to the regional laboratory.

The Laboratory for Serological Surveillance of Rinderpest Parakou (Benin) was visited to assess the status of the National Veterinary Laboratory and to identify areas of Agency's

assistance to respond to the country needs in terms of support to animal disease diagnosis and control.

The Veterinary Laboratory Kinshasa (Democratic Republic of Congo) also was visited to assess the needs of the national TC project for the cycle 2003-2004.

#### *- Recommendations to National PACE Programmes*

Based on the recommendations of the First Coordination Meeting of the Project RAF/5/053 the PACE Second Coordination Meeting held in Cotonou (Benin) made recommendations to national PACE programmes to support the needs of their national veterinary laboratories. These recommendations were implemented. All the national PACE programmes took the necessary steps to provide their national veterinary laboratories with the reagents, kits and other consumables for the serological surveillance and the laboratory diagnosis of rinderpest.

#### **2.1.4.2.2. Assistance to SADC countries**

Jointly with an external Consultant missions were undertaken to SADC countries (Tanzania, Zambia, Namibia, South Africa, Zimbabwe, Mauritius) to assess the laboratory equipment needs in part to meet the needs for international accreditation, To compare the current workloads, areas of specialization and determine additional human resource needs of each of the SADC laboratories, to identify individual capacities for conducting tests of importance for trade and to make recommendations on these in the overall context of SADC internal testing needs, to consider the ability of each laboratory to prepare and distribute diagnostic kits to other SADC laboratories.

A detailed report on the above “BASE-LINE ASSESSEMENT OF SADC CENTRAL VETERINARY LABORATORIES” has been submitted to IAEA and presented to the Regional SADC meeting held in Pretoria (South Africa) in May 2002. The document is available.

The 3-days Workshop organized by IAEA for the Heads of National Veterinary Laboratories of SADC countries was attended in May 2002 in Onderstepoort (South Africa) to make presentations on the assessment of the SADC laboratories capacities and

on Quality Assurance and make recommendations to IAEA for the way forward. Recommendations were made to the countries to introduce quality assurance in their laboratories. Recommendations were made to IAEA to provide Tanzania, Zambia and Zimbabwe with key equipment.

*- Other activities related to the project*

- Participation in Meetings of Directors of Veterinary Services and Ministers Responsible for Animal Resources which was held in Addis Ababa (Ethiopia)
- Participation in PACE Coordination Meeting in Cotonou in June 2002
- Participation in PACE Advisory Committee Meeting held in October in Nairobi
- Participation in workshop organized by PACE: Abidjan (Cote d'Ivoire) on OIE pathway and emergency preparedness.
- Participation in workshop on wildlife in Arusha (Tanzania).
- Participation in PACE Epidemiology Unit meeting held in Douala (Cameroon).
- Assistance to none IAEA PACE countries: Djibouti. Assessment of the national veterinary laboratory and recommendations for improvement

**2.1.4.2.3. Missions carried out**

Dar Es Salaam (Tanzania):	30 January - 3 February
Abidjan (Cote D'Ivoire)	11 – 17 February
Addis Ababa (Ethiopia)	18 – 22 March
Khartoum (Sudan)	23 – 28 March
Dar Es Salaam (Tanzania)	10 – 13 April
Lusaka (Zambia)	13 – 17 April
Harare (Zimbabwe)	28 April – 1 May
Onderstepoort (South Africa)	1 – 4 May

Windhoek (Namibia)	4 – 7 May
Reduit (Mauritius)	7 – 10 May
Onderstepoort (South Africa)	27 – 29 May
Parakou – Cotonou (Benin)	19 – 29 June
Vienna (IAEA)	2 – 9 July
Kinshasa (DRC)	28 July – 3 August
Accra (Ghana)	17 – 21 August
Bamako (Mali)	21 – 23 October
Dakar (Senegal)	23 – 26 October
Ouagadougou (Burkina Faso)	26 – 29 October
Niamey (Niger)	29 October – 01 November

#### 2.1.4.3. *Activities carried out from January 2003 to December 2003*

##### *- Assist Member States in submission of data for OIE Certification*

One (1) IAEA Member State (Cote d'Ivoire) has been assisted in the preparation of its dossier to be submitted to OIE for recognition of freedom from rinderpest.

A mission has been undertaken to Gabon to provide technical assistance to PACE in the laboratory diagnosis of animal disease, serological surveillance for rinderpest and the preparation of the OIE dossier for recognition of freedom from rinderpest disease.

Three (3) IAEA Member States (Central African Republic, Cote D'Ivoire, DRC) have been assisted in the preparation of their Emergency Preparedness plan, which is part of the OIE dossier.

One (1) none IAEA Member States: Chad was assisted in the preparation of its dossier to be submitted to OIE for recognition of freedom from rinderpest.

3 none IAEA Member States: Guinea Bissau, Congo and Chad were assisted in preparation of their emergency preparedness plan for rinderpest.



*- Technical assistance to PACE Epidemiology Unit*

The PACE Coordination Meeting held in Arusha (Tanzania) was attended and a presentation on Rinderpest situation in West Africa and the way forward. During the event a meeting with laboratory personnel present in Arusha was held. 2 recommendations concerning national and regional laboratories were suggested and adopted.

The RE jointly with the Head of PACE Epidemiology Unit represented AU/IBAR in the FAO/IAEA consultants meeting to define technical guidelines and standing operating procedures for the surveillance and testing of rinderpest as part of the Global Rinderpest Eradication Programme (GREP) held in Vienna in November 2003.

The RE prepared and attended the meeting between AU/IBAR and IAEA held in Vienna in December 2003 was attended.

The RE jointly with the AU/IBAR team visited Egypt to discuss the participation of Egypt to PACE.

*- Technical support to IAEA Member States in the field of laboratory diagnosis of animal diseases and quality assurance:*

A mission was undertaken to NVRI Vom (Nigeria) to train laboratory personnel in Quality Assurance and ELISA; to Maiduguri and Ibadan to assess the needs of laboratories of Veterinary Teaching Hospitals, and to Abuja to brief the PACE Coordination Unit on the outcome of the mission

The National Veterinary Laboratory of Uganda at Entebbe was assisted in Serological Surveillance of Rinderpest, assessing the diagnostic capacity of the national veterinary laboratory and solving technical problems identified by the counterpart

The National Veterinary Laboratory in Asmara (Eritrea) has been assisted in preparation of a project proposal for consideration by IAEA for the cycle 2005-2006. The project

proposal has been sent to IAEA and was accepted. Currently the project is being implemented.

Technical support has been given through mission to Guinea Bissau, Congo and Angola in the field of laboratory diagnosis of animal diseases.

The border harmonization meeting between Mali, Mauritania and Senegal held in Saint – Louis (Senegal) was attended and a presentation on the interpretation of serological results made.

The 3<sup>rd</sup> national workshop on Ticks and Tick Borne Diseases was attended and a presentation made on The Role of PACE in strengthening national veterinary laboratories for diagnosis of infectious diseases.

*- Assistance to SADC countries*

Contribution to CPF for Zambia has been made.

*- Missions carried out in 2003*

Vom - Ibadan – Maiduguri – Abuja	14 January – 8 February 2003
Bissau – Guinea Bissau:	25 – 28 February 2003
Entebbe Uganda:	24 – 28 March 2003
Vienna Austria:	23 – 25 April 2003
Luanda Angola:	19 – 23 May 2003
Arusha – Tanzania:	23 – 27 June 2003
Libreville Gabon:	7 – 11 July 2003
Khartoum Sudan:	17 – 20 August 2003
Saint – Louis Senegal:	21 – 22 October 2003
Bamako Mali:	4 – 9 November 2003
Brazzaville Congo:	19 – 22 November 2003
Vienna Austria:	26 – 28 November and 3- 5 December 2003
Asmara – Eritrea:	9 – 12 December 2003

*2.1.4.4. Activities carried out during the period January 2004 – March 2005.*

***Technical support to IAEA Member States***

- National Veterinary Laboratories of Ghana, Benin, Niger, Mali, Senegal, Burkina Faso and Tanzania were visited and assisted in the serological surveillance for rinderpest, and implementation of quality assurance and preparation of dossier to be submitted to OIE for recognition of freedom from rinderpest infection.
- PACE Benin, Senegal, Burkina Faso, Eritrea were assisted in the preparation of dossier to be submitted to OIE for recognition of freedom from rinderpest infection.
- PACE Uganda was assisted in the preparation of dossier to be submitted to OIE for recognition of freedom from rinderpest.
- Technical support has been given to Ethiopia in the field of laboratory diagnosis of rinderpest.
- Technical support has been given to Kenya in the field of serology of African Swine Fever.
- Preparation of the IAEA Regional training Course on “The Use of Molecular Techniques in the diagnosis of animal diseases” to be held in Bamako in November 2004.

**Technical Support provided to PACE Coordination Unit:**

The following activities were undertaken:

- National Veterinary Laboratories of Guinea, Togo were visited and assisted in the serological surveillance for rinderpest, and implementation of quality assurance.
- PACE Togo and Guinea were assisted in the preparation of dossier to be submitted to OIE for recognition of freedom from rinderpest infection.

- The PACE national and regional reference laboratories network held in Accra (Ghana) in September 2004 was prepared and attended. The proceeding of the meeting was written and is due to be printed for wide distribution.

- The implementation of the study on “Evaluation of Peste des Petits Ruminants (PPR) vaccine as a heterologous vaccine against rinderpest was followed up.

- The AU/IBAR “ Pan African Livestock Development Programme” proposal was finalized.

- The 4<sup>th</sup> PACE Annual Coordination Meeting held in Yaounde (Cameroon) in June 2004 was attended.

- The IAEA Regional basic training course on the use of molecular techniques in diagnosis of animal diseases held in Bamako from 29 November to 03 December 2004 was attended

**- Missions carried from January 2004 to March 2005**

Dakar (Senegal)	20 – 22 January
Accra (Ghana)	18 – 22 April
Parakou (Benin)	22 – 27 April
Niamey (Niger)	27/04 – 01/05
Bamako (Mali)	08 – 12 May
Dakar (Senegal)	12 – 16 May
Ouagadougou (Burkina Faso)	16 – 21 May
Yaounde (Cameroon)	21 – 25 May
Sebeta (Ethiopia)	01 – 04 July
Dar – Es – Salaam	29/08 – 04/09
Conakry (Guinea)	08 – 11 September
Lome (Togo)	11 – 15 September
Accra (Ghana)	27/09 – 01/10

Bamako (Mali)

29/11 – 03/12/04

Vienna (Austria)

21 – 23/02/05

## **2.2. Problems encountered**

The main problem encountered was due to the fact that the IAEA project was not covering all PACE countries. As a result to undertake missions to none IAEA member states was a problem in term of funding the missions and authorization to travel to these countries.

## **2.3. Proposed solutions**

The travels were funded from the budget line allocated by the programme to cover the Director of AU-/IBAR missions. This budget was not enough for all the missions foreseen by the Regional Expert and as a result few missions foreseen were not undertaken.

## **3. Activities carried out during the period April 2005 – April 2006**

### **3.1. Achievements**

#### ***Rinderpest eradication***

The situation with regard to OIE certification of freedom from rinderpest disease and rinderpest infection is as follows:

- PACE countries free from rinderpest disease by May 2006 will be: Benin, Burkina Faso, Chad, Cote D'Ivoire, Ghana, Guinea, Mali, Mauritania, Niger, Nigeria, Senegal, Togo, Ethiopia (zonal basis), Eritrea, Kenya (zonal basis), Tanzania, Sudan and Uganda.
- PACE countries free from rinderpest infection by May 2006 will be: Benin, Burkina Faso, Congo (historical basis), D.R. Congo (historical basis) Guinea, Guinea Bissau (historical basis) Mali, Senegal, Togo, Burundi (historical basis), Eritrea and Rwanda.

## **Technical Support provided to PACE Coordination Unit:**

The following activities were undertaken:

- An internal evaluation of PACE Burundi and Tanzania was undertaken jointly with the Main Technical Advisor.
- A Symposium on Highly Pathogenic Avian Influenza was organized and presentation made.
- National Veterinary Laboratory of Chad was visited and assisted in the serological surveillance for rinderpest, and implementation of quality assurance.
- Accra (Ghana) Regional Veterinary Laboratory was visited and assisted in the interpretation of serological surveillance data for rinderpest.
- The PACE national and regional reference laboratories network held in Entebbe (Uganda) in September 2005 was prepared and attended.
- The implementation of the study on “Evaluation of Peste des Petits Ruminants (PPR) vaccine as a heterologous vaccine against rinderpest was followed up.
- The 5<sup>th</sup> PACE Annual Coordination Meeting held in Dakar (Senegal) in June 2005 was attended.
- The Joint AU/IBAR/PACE-IAEA Training course on the implementation of Quality Assurance in veterinary diagnostic laboratories was organized and attended in Arusha (Tanzania) from 20<sup>th</sup> February to 03 March 2006

### **- Missions carried from April 2005 to April 2006**

Bamako (Mali)	01 April 05
Accra (Ghana)	04 – 05 April 05
Bujumbura (Burundi)	15 – 19 May 05
Kigali (Rwanda)	01 – 05 May 05
Bujumbura (Burundi)	16 – 19 August 05
Dar Es Salaam (Tanzania)	23 – 26 August 05
Ndjamena (Chad)	05 – 10 August 05
Geneva (Switzerland)	07 – 09 August 05
Dakar (Senegal)	29 January – 07 February 06
Khartoum (Sudan)	26 November – 01 December 05

Dar Es Salaam (Tanzania)	04 – 08 October 05
Djibouti (Djibouti)	21 – 22 December 05
Entebbe (Uganda)	01 – 10 September 05
Entebbe (Uganda)	01 – 03 August 05
Dakar (Senegal )	21 – 24 February 06
Pretoria (South Africa)	06 – 11 March 06
Arusha (Tanzania)	18 February – 04 March 06
Bamako (Mali)	14 – 21 March 06
Bamako (Mali)	25 – 28 April 06

### **3.2. Problems encountered**

The main problem encountered was the organization of laboratories network event. Indeed the attendance of the events (annual coordination meetings and the training courses) was not as expected due to financial difficulties at national PACE level mainly for West and Central Africa.

### **3.3. Proposed solutions**

The PACE Coordination Unit sent always a letter to facilitate the attendance of the participants. Sometimes the attendance of some participants was funded from the budget of the PCU.

## **4. CONCLUSION**

The Inter-African Bureau of Animal Resources of the African Union (AU-IBAR) in general and the PACE Coordination Unit particularly have welcomed the IAEA Regional Project RAF/5/053. The PACE Coordination Unit provided all the necessary equipment (i.e. office equipment, fax, telephone) to help the regional expert implement the project.

The Regional expert was integrated into the PACE Epidemiology Unit and received support from the entire PACE staff.

AU/IBAR highly appreciated the IAEA financial support for the project and the technical assistance provided by the Regional Expert seconded by the Agency and this was assessed as outstanding.

The PACE Laboratory Expert received all the necessary attention to discharge his duties without any major problem.

## **5. Pending issues**

5.1. Organization of the 3rd PACE Annual Coordination Meeting of Laboratory Network in Bamako from 5 to 9 June 2006. Invitation message has been sent to all PACE countries.

5.2. Follow-up the implementation of Quality assurance in PACE laboratories according to the Gantt chart sent by quality managers of PACE laboratories

5.3. Follow up the issue of choosing a transport company to ensure timely shipment of samples to Reference Laboratories: OVI and Dakar: TNT, DHL World Courier.

5.4. Follow-up the issue of setting up a price for laboratory diagnosis of HPAI at OVI.

5.5. Contact Bingerville and Dakar for proficiency tests using respectively C-H ELISA and Indirect ELISA

5.6. Follow-up the implementation of IAEA Regional Project RAF/5/055

5.7. Follow-up the organisation of PCR training course for anglophone countries in August 2006 in Pretoria (with Dr. Gerrit Viljoen Head Animal Production and Health Section IAEA) and for francophone countries in Bamako in October 2006 (with Dr. Adama Diallo Head Animal Production and Health Seibersdorf).



The countries have been informed. IAEA will sponsored few countries upon reception of fellowship application. Francophone countries are sending back a filled in questionnaire on their activities with regard to PCR.

## **6. List of documents:** (to be found in Sub Directory Karim's Documents)

- Mission reports: Classified per year under files: KTMISMISSIONREPORTS2001 to KTMISMISSIONREPORTS2005.
- Avian Influenza documents: see special file called "AVIANINFLUENZAMEETING".
- Presentation during laboratory network meetings: Two subdirectories: LABNETWORKMEETINGACCRA2004 and LABNETWORKMEETINGENTEBBE 2005.
- AU/IBAR - IAEA project document: Pan African Livestock development programme". See FINAL PALDEP AU-IAEA
- Invitation letters for the forthcoming laboratory network annual coordination meeting to be held in Bamako including letter to the Minister of Livestock and Fisheries. See word document in the sub directory Karim's documents: INVITATIONLABOMEETINGBAMAKO2006.

## **7. Recommendations**

### **7.1. To IAEA**

- Consider the possibility to continue the cooperation with AU/IBAR in the field of animal diseases.
- In the near future the collaboration should be focused on the 3 projects identified in the AU/IBAR proposal "Pan African Livestock Development Programme": Control of transboundary animal diseases, PANVAC and Quality Assurance in general and in particular:
  - PACE in general and particularly eradication of rinderpest from Somalia ecosystem through trainings in laboratory techniques and quality assurance,
  - PANVAC in the field of production of reagents for laboratory diagnosis of animal diseases,

- Accreditation of national laboratories of PACE and SADC countries.

- In the long term, a strategic plan for further cooperation between AU/IBAR and IAEA could be agreed upon for a period 2006-2010 through official consultation.

## **7.2. TO PACE**

Appoint an expert to follow up all the pending issues.

## **7.3. To AU/IBAR**

In long term consider the possibility to recruit a laboratory expert as a core staff of AU/IBAR.

<b>Intervention Logic</b>	<b>Objectively Verifiable Indicators</b>	<b>Means of Verification</b>	<b>Important Assumptions</b>
<p><b>1. Overall objective</b> Support national and regional animal disease diagnostic and surveillance needs within the framework of the OAU/IBAR for establishing sustainable food security and the development of rural agriculture-based economies.</p>	<p>Revenue of livestock owners secured, increased incomes at household levels, reduced stock-outs of food reserves at community or household levels</p>	<p>- Global declaration of eradication of rinderpest - National statistical abstracts</p>	
<p><b>2. Specific objectives</b> 2.1. Provide support to the OAU/IBAR/PCU to improve national capabilities for detecting and controlling the economically devastating livestock diseases and verify the eradication of rinderpest from Africa,  2.2. Provide support to OAU/IBAR to assist Southern African Development Community (SADC) countries implement a programme of quality assurance in national veterinary laboratories  2.3. Assist OAU/IBAR to create a sustainable regional supply of critical diagnostic reagents and kits.</p>	<p>1. National laboratory counterparts sent their needs to update their capacity in animal diseases diagnosis.  2. Participation in FAO/IAEA and other external quality control exercises  3. Laboratories identified</p>	<p>1. Procurement requests for equipment and reagents for at least 15 PACE countries  2. Quality manual, SOPs, Work instructions, Coded samples and records, Use of reference materials, Equipment inventory, Equipment maintenance, Documentation of all practices established in 3 SADC countries. 3. Three missions reports</p>	<p>1. Funds available  2. FAO/IAEA Joint Division has a regular programme of external quality assurance</p>

Logical framework (continued)

<p><b>3. Outputs</b></p> <p>3.1. Laboratory component of the epidemio-surveillance is well linked with the PACE Programme. National laboratories within PACE programme are well equipped and have a well trained staff for contacting serological surveillance and diagnosis of animal diseases.</p> <p>3.2. Southern African Development Community laboratories established a well functioning quality assurance programme</p> <p>3.3. Sustainable Regional reagents and kits production are established in few national veterinary research institutes (PACE and SADC)</p>	<p>1. Effective involvement of laboratory personnel in the epidemio-surveillance of animal diseases. Annual meetings of laboratory personnel on sero-surveillance.</p> <p>2. Most of the participating in the programme laboratory received international recognition or accreditation</p> <p>3. Identified laboratories well equipped and have the necessary support</p>	<p>1. National reports on epidemio-surveillance, Meetings proceedings and laboratory annual reports from at least 15 PACE countries.</p> <p>2. FAO/IAEA Quality assurance reports and 3 laboratories accredited</p> <p>3. Shipments documents of reagents and kits and annual reports from 3 laboratories.</p>	<p>1. Funds available</p> <p>2. FAO/IAEA Joint Division has a regular programme of external quality assurance</p> <p>3. Funds available</p>
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Logical framework (continued)

<p><b>4. Activities</b></p>			
<p>4.1. Logical and technical support to the PACE Programme Co-ordination Unit.</p>	<p>1. Full time expert appointed to the PCU</p>	<p>1. Recruitment procedure in progress</p>	<p>1. Funds available</p>
<p>4.2. Development of a regional epidemio-surveillance exercise to demonstrate freedom from rinderpest</p>	<p>2. Rinderpest serological surveillance network established</p>	<p>2. Annual meeting reports and proceedings of meetings.</p>	<p>2. Funds available</p>
<p>4.3. Technical backstopping (through provision of expert services) for the use of performance indicators</p>	<p>3. Job description for experts missions available</p>	<p>3. Three mission reports every year</p>	<p>3. Funds available</p>
<p>4.4. Technical backstopping (through provision of expert services) for the introduction and use of laboratory quality assurance in PACE national laboratories.</p>	<p>4. Job description for experts missions available</p>	<p>4. Three missions reports every year</p>	<p>4. Funds available</p>
<p>4.5. Support to create a sustainable regional supply of critical diagnostic reagents and kits.</p>	<p>5. Laboratories identified and well equipped.</p>	<p>5. Procurements requests for equipment and reagents from 3 laboratories.</p>	<p>5. Funds available</p>
<p>4.6. Support to SADC laboratories (organisation of workshop) in the establishment of quality assurance programme.</p>	<p>6. Date and Venue of the workshop proposed</p>	<p>6. Workshop report</p>	<p>6. Funds available</p>
<p>4.7. Support to SADC laboratories in the regional production of brucella kits</p>	<p>7. Laboratory identified, well equipped and supported</p>	<p>7. Two procurements requests for equipment and reagents every year.</p>	<p>7. Funds available</p>

**Annex 2: Work Plan June – November 2001**

<b>ACTIVITIES</b>	<b>Input</b>	<b>Output</b>	<b>Assumptions</b>	<b>PERIOD</b>
1. Establish link with units within the PCU and the Regional Units in Mali and Chad	Exchange correspondences	Project RAF/5/053 implemented	Overall objective of the project RAF/5/053	June to November
2. Set up a regional laboratory network within the PACE epidemio-surveillance network	Exchange correspondences	Link with all laboratory counterparts established Needs in equipment, training and experts services identified	National laboratory counterparts nominated	11 – 15 June
3. Participate in the CBPP RCM Nairobi Kenya	Participation	Needs of CBPP counterparts in equipment, training and experts services identified	IAEA Research Coordination Meeting Nairobi 18 – 22 June	18 – 22 June
4. Participate in the PACE Epidemiology Unit Meeting Ouagadougou Burkina Faso	Duty travel	Ways of collaboration within the PACE Epidemiology Unit identified	Meeting organised by the PACE Epidemiology Unit	24 – 25 June
5. Participate in the Regional PACE Meeting Ouagadougou Burkina Faso	Duty travel	Ways of collaboration within the PACE Programme identified.	Meeting organised by the PACE Co-ordination Unit	26 – 29 June
6. Provision of equipment and reagents	List of equipment and reagents Procurement requests	Procurement requests sent to IAEA	List of equipment and reagents completed and appropriate	July
7. Training of national laboratory staff	Fellowship applications Expert missions	Fellowship applications evaluated Jobs descriptions written for experts missions	Fellowship training and expert missions appropriate	July

*Work plan (continued)*

8. Prepare the visit to Central Veterinary Laboratory Ethiopia for RVF Regional laboratory	Exchange correspondances	Dates identified	Support to PACE	July
9. Organization of Regional workshop on CBPP Namibia	Exchange of correspondences	Date and Venue identified	Activity scheduled within RAF/5/053 (Support to SADC)	July
10. Visit to National Labs. Ethiopia, Cote d'Ivoire and Senegal	Duty travel	RVF and ASF Laboratory diagnosis capacity assessed	Need to establish IBAR/PACE regional laboratories	17 – 24 August
11. Visit to Laboratoire National Vétérinaire Cameroon	Duty Travel	Laboratory diagnosis capacity assessed	Need to establish PACE/IBAR regional laboratories	7-14 September
12. Follow up organisation of Regional Workshop on CBPP Namibia	Exchange correspondences	Administrative procedures completed	None	17– 21 September
13. Participation to Regional Workshop on CBPP Namibia	Duty travel	Counterparts trained and needs identified	Activity scheduled within RAF/5/053	24-28 September
14. Provision of equipment and reagents for SADC	List of equipment and reagents Procurement requests	Procurement requests sent to IAEA	List of equipment and reagents completed and appropriate	October

*Work plan (continued)*

15. Follow up organisation of Regional Workshop on Diagnostic assays Senegal	Exchange of correspondences	Administrative procedures completed	None	November
16. Participation to Regional Workshop Dakar Senegal	Duty travel	Counterparts trained and their needs identified	Activity scheduled within RAF/5/053	19– 30 November
17. Provision of equipment and reagents	List of equipment and reagents Procurement requests	Procurement requests sent to IAEA	List of equipment and reagents completed and appropriate	December