

**ANIMAL RESOURCES DEPARTMENT  
MINISTRY OF AGRICULTURE, STATE OF ERITREA**

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

**EUROPEAN DEVELOPMENT FUND PROJECT NUMBER REG/5007/005  
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**GLOBAL PLAN FOR PACE ERITREA**

**1 November 2000 to 31 October 2004**

<b>TOTAL EDF FUNDS TO BE COMMITTED</b>	<b>= <i>Euro</i> 1 329 310 = Equivalent to Nakfa 12 337 326</b>
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(PACE)**

<b>NATIONAL PACE PROJECT FOR ERITREA</b>
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## **1. INTRODUCTION AND BACKGROUND**

### **1.1 General**

Eritrea is part of the Horn of Africa and is located on the southern tip of the Red Sea coast of the continent covering an area of 124 432 sq. km. The country consists of arid and semi-arid lands made up of rugged mountains, plateau and hot and dry lowlands. The altitude ranges from sea level to over 3000 metres. Nearly 85 percent of the area is below 1 500 metres; of this about 33 percent is arid or semi-arid with an elevation of less than 600 m. The relief is largely rugged with deep valleys and steep slopes.

Eritrea relies primarily on smallholder agriculture for most of its livestock and crop production. Decades of war, inappropriate agricultural policies, and drought have caused the country serious net loss in the farm assets.

The climate ranges from hot arid (adjacent to the Red Sea), to temperate sub-humid in isolated micro-catchments within the eastern escarpment of the highlands. Altitude is the major factor determining temperature. As such, about 72% of the country is classified as very hot (with mean annual temperatures exceeding 24 degrees Centigrade) while not more than 14% is classified as mild or cool with annual temperatures below 21.5 degrees Centigrade.

Total annual rainfall tends to increase from north to south from less than 200 mm at the northern border with the Sudan to more than 700 mm in a restricted area on the southern border with Ethiopia. A small area on the eastern escarpment known as the "Green Belt" receives over 900 mm annually on the average.

The main rainy season is from June to September with the heaviest precipitation occurring in July and August. The short rains that fall in April/ May enable planting of the long duration crops such as maize, sorghum and finger millet and provide grass for livestock, and drinking water. In the coastal plains, total annual rainfall is very low and of very little practical value for crop production. There is a high variability in both the amount and distribution of the rainfall over much of the country.

Eritrea has suffered from recurrent droughts for many years and most of the existing and potentially important crop production areas are drought prone. Inadequate rainfall amount is a serious climatic constraint. However, rainfall distribution is more limiting than quantity especially in the North Western zone. Extreme rainfall deficits do not occur in the South-Western Lowland where precipitation is relatively good (about 600-700 mm).

### **1.2 The Government Policy**

Agriculture is the mainstay of Eritrea's economy. Government of Eritrea places high priority on the development of the livestock sub-sector. Apart from contributing to the national economy and household incomes, livestock are expected to play a key role in achievement of the main agricultural goal, *i.e.* food security. For instance, sustainable exports of small ruminants could enable the country to purchase the basic food required by the population.

The present policy orientation in the livestock sub-sector, at least for the short- to medium-term, is to rapidly increase animal productivity and to protect livestock from the major epidemic diseases. The main thrust of Government policy for livestock is making the best use of land according to its ecological potential, keeping livestock numbers proportional to carrying capacity, examining the possibilities of cut-and-carry systems, improving the efficiency of livestock, establishing controlled markets in major towns and cities, establishing quarantine stations, movement control and related facilities and, disseminating marketing information. Government recognises that a rapid increase in livestock production can only be achieved if the present feed constraints are resolved.

The Government is well aware of the multiple constraints facing the development of the livestock sub-sector. Animal health, characterised by a large spectrum of diseases, remains one of the main causes of large economic losses, estimated at 30% of the total value of national animal production, due to the combined mortality, low fertility and morbidity factors. Apart from the Pan-African Rinderpest Campaign (PARC) programme, which has achieved commendable results in the eradication of rinderpest, no specific disease control programme has addressed the problem of epidemic disease in a rational and systemic manner. The Government veterinary field services are based upon a system of veterinary clinics supported in some areas by satellite animal health posts.

The main thrust of Government policy regarding animal health is to strengthen disease surveillance and control activities to be backed up by an emergency preparedness programme and upgraded disease diagnostic capacities throughout the country. Eritrea would embark on the OIE pathway for declaration of freedom from rinderpest infection. This would require surveillance throughout the whole country so that a national declaration of freedom from rinderpest could be made. Government considers that once the threat of rinderpest has decreased, control of foot-and-mouth disease (FMD), peste de petits ruminants (PPR), contagious caprine pleuro-pneumonia (CCPP), pox disease *etc.* should become national priorities. In addition, surveillance of contagious bovine pleuro-pneumonia (CBPP) will be intensified; although this disease has not been recognised in Eritrea, it occurs in neighbouring Sudan and Ethiopia. Improved control of livestock movement and trade would also contribute significantly to disease control, particularly for those diseases, which are not yet effectively controlled by presently available measures and diagnostic tools. Government has introduced a cost recovery system for veterinary drugs, vaccines, laboratory charges, artificial insemination and animal health inspection services, which is being fully implemented. The policy framework permits private pharmacies to distribute veterinary medicines and allows the establishment of private veterinary practices.

### **1.3 The livestock sub-sector in Eritrea**

Eritrea has a livestock population estimated at 1.9 million cattle, 6.7 million sheep/goats; 0.3 million camels and 200 000 million equines. Livestock is one of the major resources of the country, contributing 15 % of the Gross Domestic Product, and 30% of the whole agriculture sector. Livestock are kept in the various grazing systems in the arid and semi-arid lands, which represent two-thirds of the country's surface area. In the highlands, commercial systems consist of small-scale dairying, poultry and feedlots, particularly in peri-urban areas.

The main constraint to increasing animal production remains the occurrence of the diseases, particularly the major diseases such as foot-and-mouth disease, PPR, Sheep and Goat pox. Bacterial infections (contagious caprine pleuro-pneumonia, anthrax, blackquarter, brucellosis, tuberculosis) are common, as well as protozoal infections. Internal and external parasites

cause heavy economic losses. Improvement in this situation to increase livestock production and thereby alleviate poverty and improve human health is very much dependent on the sustainable availability of efficient and effective delivery of veterinary and extension services.

#### **1.4 Beneficiaries and main actors**

The beneficiaries of PACE Eritrea are the livestock owners throughout the whole country who will benefit from better and more readily available veterinary services. The low-income livestock owners, who use traditional practices, are usually essentially dependent on livestock raising. They should be the main beneficiaries of improved accessibility to veterinary services and lower disease pressure.

Among the main actors are Government animal health services agents at national and field levels whose role should be increasingly concentrated on government core functions, such as the definition of priorities and the formulation of disease control policies, disease surveillance and monitoring. Appropriate regulation, licensing and control of importers, wholesalers, retailers and private veterinary practitioners will be introduced in the near future.

#### **1.5 Achievements and challenges**

##### **1.5.1 PARC achievements**

PARC aimed to:

- control and ultimately eradicate rinderpest from the continent through vaccination campaigns, systemic sero-surveillance, active investigation of outbreaks and control of animal movement wherever possible, and
- restructure livestock services in order to make them more economically self-sustaining and help revitalise sector as a whole through the appropriate improvements of husbandry methods.

The PARC project in Eritrea has been highly successful in eradicating rinderpest throughout the country. This has been achieved through massive vaccination campaigns followed by a more economical strategy based on an epidemiologically rational approach, which categorises the country by risk factors and targets activities so that surveillance plays a more prominent role than vaccination.

##### **1.5.1.1 Rinderpest control/eradication.**

Eritrea was the last country to join the PARC programme, in June 1993. The programme started with an emergency fund released to carry out blanket vaccination in 1994, which followed earlier vaccination conducted with Government funding. These phases of vaccination were very effective in controlling rinderpest in the country. This achievement was partly due to the effective vaccination programme, which was conducted during the years of the struggle for liberation.

Eritrea declared the whole country to be provisionally free of rinderpest on 14 June 1999. All vaccination was stopped in December 1998, although in the northern, eastern and central parts, vaccination had ceased as early as 1996. The Division of Veterinary Services is now conducting intensive disease surveillance supported by sero-surveillance.

The status in 1999 was as follows:

- Endemic rinderpest had been eliminated from 100% of the country.
- A functional system of active rinderpest surveillance, active search for the disease and disease reporting was in place; a system of passive general disease surveillance has been established to facilitate epidemiological analysis.
- A dynamic structure of six Regional Offices has been put in place with the capability of responding to rapidly evolving disease situations.
- A rinderpest diagnostic laboratory and serum collection network is in place which processes 10 000 sera/year.

The epidemiological situation of the disease is now well understood and forms the basis of the rinderpest eradication strategy. It is now possible for Eritrea to implement the steps, which are needed to obtain recognition by OIE that is free of rinderpest infection.

#### 1.5.1.2 Privatisation

The policy is to promote the private sector to assume a principal role in its development of the sub-sector. The recovery of costs, such as those for veterinary drugs, vaccines, laboratory activities, artificial insemination and animal health inspection service, is already fully implemented. Liberalisation of the distribution of veterinary drugs by private pharmacies has been implemented since 1991. New veterinary legislation, which is currently being revised (a draft copy of which is ready), will be implemented very soon. It will require drug registration, and the control of the importation and distribution of veterinary drugs.

#### 1.5.1.3 Communication

Communication is an important factor of successful vaccination programmes, which promotes the desired levels of support and co-operation from the livestock-owning communities; it also improves the understanding of veterinary staff that work with these communities. It has proved to be an efficient and active tool for animal health professionals to eradicate rinderpest and control other diseases. Under PARC, posters and teaching materials were designed, prepared and distributed to pastoralists and community representatives.

#### 1.5.1.5 Training

The training component has been instrumental in upgrading the understanding and knowledge of animal health staff of epidemiology, particularly through local training on disease surveillance, reporting and sero-surveillance/monitoring. Twenty-one veterinarians and a number of animal health assistants (AHAs) received training during PARC. In addition, other veterinarians were sent abroad for specific training or undertook study tours

related to epidemiology, diseases investigation, development and planning disease control programmes.

#### 1.5.2 Problems to be solved

The problems to be solved through the proposed project are represented in the diagram of problems presented in Figure 1. They are mainly related to insufficiently efficient delivery and accessibility of veterinary services and drugs to the livestock owners, the insufficient awareness of most animal diseases situation and the limited capacity of Government services to control diseases. These lead to limited delivery of animal health services, and insufficient disease control and emergency preparedness, which contribute significantly to the low level of livestock productivity. This in turn is one of the main reasons for the low income and food insecurity of the livestock owners.

### 1.6 Other interventions in the livestock sub-sector

In recent years, the main donors, particularly the World Bank, have waited for the completion of a structural adjustment programme. Only the PARC programme and a few projects of lesser importance operated during that period.

#### 1.6.1 The National Livestock Development Project

In March 1996, the Ministry of Agriculture in collaboration with the Investment Centre of FAO prepared a National Livestock Development project that was later (March 1997) submitted to the African Development Bank for funding. Besides important animal production components, the project aimed, as far as animal health is concerned, to assist the Government to pursue its development strategy through:

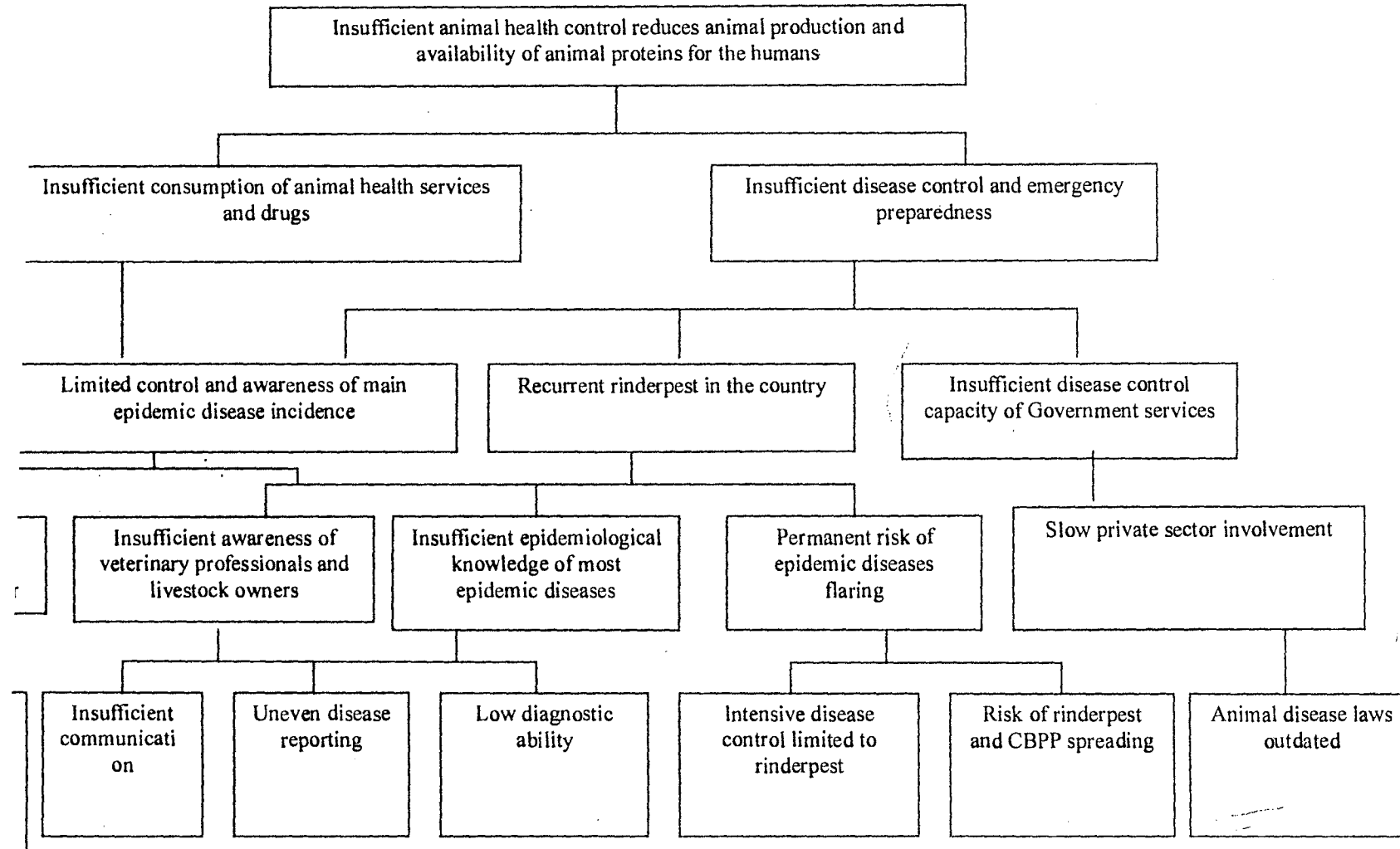
- The establishment of an animal health information system and emergency preparedness unit,
- The establishment of a virology unit within the Central Veterinary Laboratory
- The establishment of a veterinary products quality control unit within the Central Laboratory.
- Rehabilitation of the biologics production unit.
- The strengthening of Regional Veterinary Centres (buildings, crushes and kennels).
- The development of a livestock certification and export promotion programme.
- The establishment of a revolving fund for drugs and biologics to sustain the supply of drugs and biologics.
- The strengthening of two regional laboratories, disease surveillance and diagnostic capacities, and
- Strengthening of the human resources through long and short training programmes.

This programme was presented for financing to the African Development Bank, which sent an appraisal mission in February 1997. The project agreement was signed in October 1997 and implementation started in May 1998.

1.6.2 Dairy Development Project

The DANIDA-assisted Dairy Development Project, which started implementation in 1996, has an animal health component to improve dairy health. Control and eradication of brucellosis, tuberculosis and FMD from the dairy herd are among its priorities. Under this project, provision has been made to strengthen the diagnostic capacity of the CVL.

## Diagram of Problems





## **2. PREPARATION AND DESIGN OF THE PROJECT**

### **2.1 Rationale**

#### **2.1.1. The concept**

The conceptual basis for the project design is in line with the overall strategy of the Pan-African Programme for the Control of Epizootics (PACE) which aims to:

- Improve services to livestock farmers;
- Improve Pan-African co-ordination in the control of animal disease (control of trans-boundary diseases, evolution and harmonisation of animal health policies, privatisation of the veterinary services and reinforcement of the state services to better assume their regulatory and +monitoring functions); and
- Eradicate rinderpest from Africa.

The project concept takes into account the discussions and resolutions of the 5th Conference of Directors of Veterinary Services and the 5th Conference of Ministers both held in Mbabane, Swaziland on 4-8th August 1997, which clearly stressed the need to:

- "Consider the comparative advantage of harmonising and co-ordinating the national policies under a regional policy framework";
- ensure "continued supply of services to the sector taking into account the comparative advantages of the private sector to complement government services", progressively put in place cost recovery "to guarantee the sustainability of the provision of services to the livestock producer", "promote the role of livestock owners' organisations and community-based animal health workers in the delivery of animal health services", to explore "ways and means of intensifying and co-ordinating vaccination campaigns against trans-boundary diseases including the contracting of private veterinarians and where appropriate, community based animal health workers", and to enhance "the epidemio-surveillance of the relevant diseases in wildlife";
- establish partnerships "between public and private sectors in information and data collection, dissemination and utilisation";
- encourage donors to "better co-ordinate their support and standardise their approaches to livestock development policies"; and

- calls upon member states, the OAU, and the donors to take 'all measures to eradicate rinderpest' and 'to take action and organise a Pan African Programme to control/eradicate CBPP from Africa along the lines of the PARC Programme'.

### 2.1.2 The Project

The project has been prepared along the lines of the proposed objectives set up for the Pan-African programme for the Control of Epizootics (PACE). The global objective is to contribute towards poverty alleviation and rural development by strengthening animal production to increase the availability of animal proteins in Sub-Saharan Africa, through the specific objectives of

- improving the delivery of animal health services and drugs to farmers,
- the control and/or eradication of the major diseases, of which rinderpest is a priority,
- putting in place a regional and national surveillance system for the major epizootic diseases, and
- the promotion of the private sector to contribute towards disease control and strengthening veterinary services in general.

The project involves the necessary activities proposed to develop a surveillance network and disease control and establish a pool of reference for veterinary epidemiology throughout Africa. The activities of PACE are divided into four major types of operations in relation to the actual situation of rinderpest:

- The declaration of provisional freedom from rinderpest of West Africa and the subsequent entry into the OIE pathway.
- The establishment of an effective cordon sanitaire in Central Africa to prevent the re-infection of the West and Central African countries which are free from infection.
- Follow-up vaccination and active research of the disease in East Africa or the areas at risk as deemed necessary and the rest of the regions which are free of the disease to join the OIE pathway;
- Strengthen the capacity of IBAR to co-ordinate animal health matters.

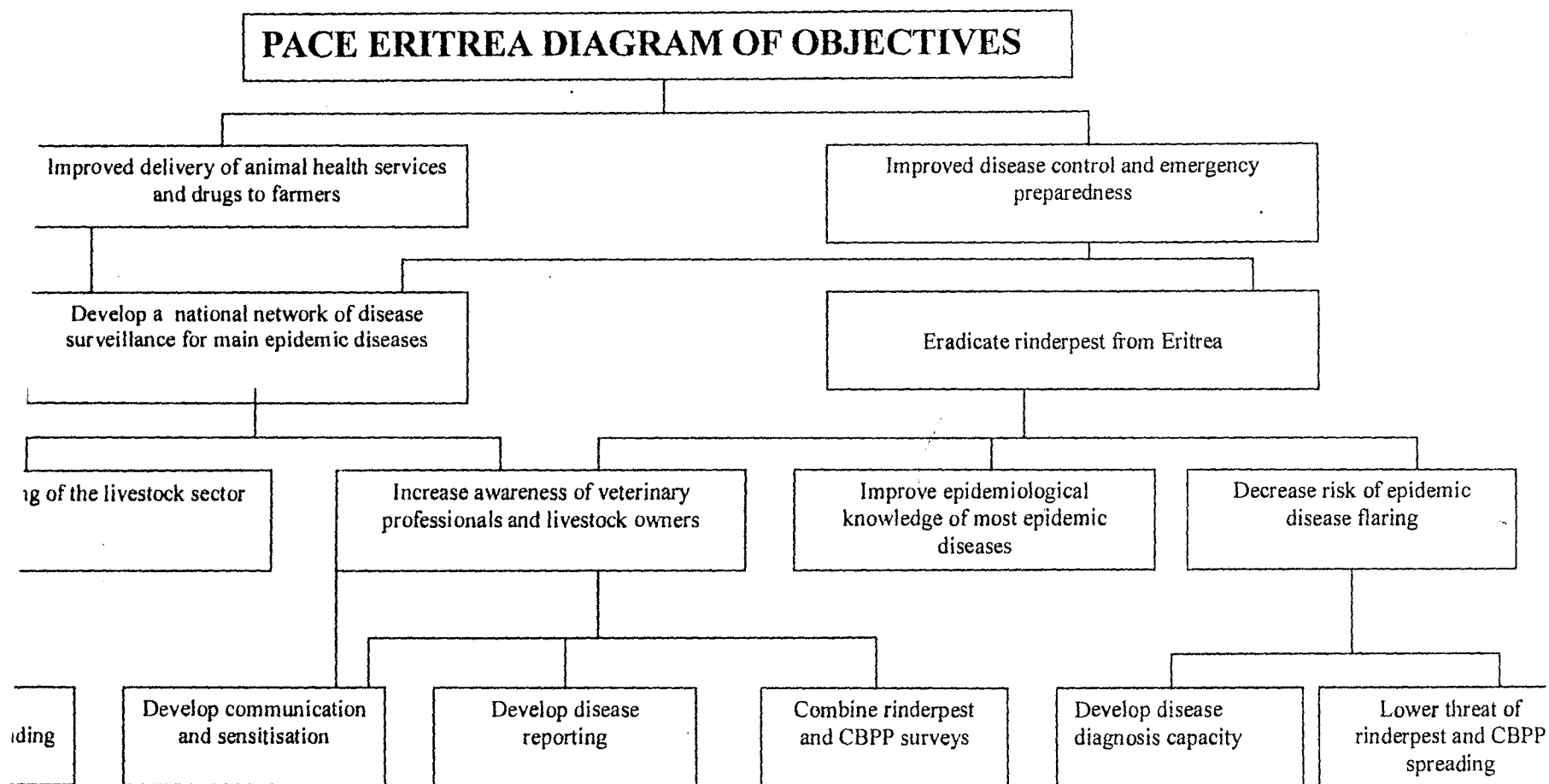
From the major regions defined on the basis of the above categorisation, the activities of the national components will have four major thrusts:

**Enhancing the capacities of national public services** in animal disease surveillance by establishing and strengthening the capacity in epidemiology. This will include the establishment and strengthening of a national epidemiological surveillance system, training of personnel in the field to investigate and report diseases and laboratory personnel in specific diagnostic techniques.

**Improvement of the delivery of veterinary and livestock services** to ensure that the participating countries follow a common approach towards privatisation, based on a professional and entrepreneurial approach in relation with the banking sector, harmonisation of legislation, and the development of community participation in the delivery of clinical services and disease reporting, inspection and veterinary public health.

**Regarding the fight against rinderpest**, the activities will depend on the epidemiological situation of the country/region concerned. PACE will assist each country to join the OIE pathway, to conduct epidemio-surveillance and to carry out active investigation of rinderpest-like diseases and emergency preparedness. The project will co-ordinate the control strategy of the disease and assist the establishment of the institutional set-up necessary for epidemiology (diagnostic laboratory, training, epidemio-surveillance) and the establishment of national and regional reporting system and information.

**In the control of other major epidemic diseases including CBPP**, due to the complexity of the aetiology of the disease (CBPP) and its poorly understood distribution and incidence, the available diagnostic and control measures have not so far been effective. For this reason, it will be premature to consider a campaign to control CBPP given its recent expansion to certain regions of Africa including countries in eastern Africa. The activities to be undertaken will be based on the results of investigations and the epidemiological and economic assessment of CBPP, in relation to the occurrence of other epizootics, to enable a common and justifiable control strategy. For the regions that require urgent intervention, the project will assure the supply of vaccines to be administered by private veterinarians or community-based animal health workers (CBAHWs) who are duly licensed (sanitary mandate). The cost of the vaccination will be fully recovered to ensure the sustainability of the system. This will also be true for other epizootic diseases such as FMD, PPR, CCPP, sheep and goat pox. These epidemic diseases will be integrated into the surveillance system in terms of their incidence and economic importance, in relation to the regions concerned.



## **2.2 Main Objective**

The logical framework for the Eritrean PACE project is annexed. The overall objective of the intervention will be to contribute to rural development and the fight against poverty through improved animal production, which will ensure a more secure basis for supply of animal proteins and a better income for livestock producers.

The intervention will be based on the PARC project, whose overall objective it shares, *i.e.* to improve the revenues that the State and stockowners obtain from livestock production. It therefore carries on PARC's specific objectives: the eradication of rinderpest, prevention of the reintroduction of contagious bovine pleuropneumonia (CBPP), improved services to livestock producers and the Pan-African co-ordination of animal health, which should be viewed more in terms of results.

## **2.3 Specific objectives**

Specific objectives are articulated around the improvement of animal disease control and emergency preparedness and the improvement of delivery to farmers of animal health services and drugs.

This would imply that:

- Disease control capacity and emergency preparedness of Government services are improved;
- Availability of veterinary services and drugs to livestock farmers are developed and promoted;
- Rinderpest reintroduction into Eritrea is prevented and the OIE requirements are met after the country has been declared free from infection; and
- A National network of surveillance of CBPP and major epidemic diseases, with reporting and functional information feedback is established.

## **2.4 Results and outputs**

Results and expected outputs refer to each of the project's components, which derive directly from the specific project's objectives.

### **2.4.1 Enhanced national capacities for animal disease surveillance**

- A reliable emergency preparedness programme is developed and maintained;
- National capacities for animal disease surveillance are developed;
- A National System for Epidemiological-surveillance is put in place; it will be monitored by using performance indicators that will be devised and applied during the project;

- Communication and sensitisation procedures are developed;
- Reliable reporting and feedback system for animal health is developed and implemented (on the basis of performance indicators that will be refined and transferred to the staff at all levels during the project);

#### 2.5.2 Improved delivery and availability of veterinary services to livestock owners

- The number of community-based animal health workers (CBAHs) working under the supervision of veterinarians is increased;
- The number of private drug dispensaries serving livestock owners and CBAHs are increased
- Sensitisation to private practice enhanced

#### 2.5.3 Rinderpest is eradicated from Eritrea

- Rinderpest is verifiably eradicated from Eritrea and the OIE pathway is implemented;
- A reliable network for animal disease monitoring and surveillance is established and Eritrea is moving through the OIE pathway for rinderpest;
- Effective barriers are maintained along strategic border areas and have avoided any possible reintroduction of rinderpest from neighbouring countries;
- Co-ordination in the control of trans-boundary diseases is improved.

#### 2.5.4 Control of other major epizootics

- Dissemination and incidence of the major epidemic diseases (CBPP, FMD, PPR, CCPP and pox diseases) throughout the country assessed through reliable monitoring and surveillance systems;
- Practical strategies are devised for appropriate control of priority diseases; and
- Efficiency of public veterinary services in the prevention, control and monitoring of diseases is improved.

### 2.5 Activities

#### 2.5.1 Enhanced national capacities for animal disease surveillance

In line with the new institutional strengthening, the main activity will be the establishment and equipping of a National Systems for Epidemio-surveillance (NSES composed of a central unit, a national diagnostic laboratory and regional units) will take place. This will incorporate rinderpest and CBPP but

other major epizootic diseases in the country such as FMD, PPR, CCPP, African horse sickness, poultry diseases and pox diseases. The sanitary mandate of the epidemio-surveillance is to assist the unit function. The Department of Animal Resources, and in particular its Animal Health Division, are charged with the responsibility to establish and run the NSES. In collaboration with international institutions of epidemiology, it will acquire the necessary logistics (TADINFO,...) and trained personnel for the project (epidemiology, statistics, GIS). The NSES will produce a bulletin published regularly which will be circulated for use by the regional animal health staff. The project will give assistance to the legislative control of livestock movement, particularly across borders.

By the year 2003, the government will fund the recurrent purchase of all laboratory reagents and consumables. By 2001, through the National Livestock Development Project (NLDP) funded by the ADF, the Central Veterinary Laboratory will be fully functional including its virology, quality control and experimental animal house. In addition, through the NLDP, two Regional laboratories will be established by the end of 2001. Eritrea will hold regular meetings with technical counterparts in all neighbouring countries, when the political situation permits, and will collaborate fully with the regional diagnostics network.

A central epidemio-surveillance unit will be established at the disease control and prevention section, which will consist of a veterinary epidemiologist, a senior animal health assistant and a data processor. The main task of the unit will be to design surveillance activities and process and analyse the results. At national level the surveillance teams, which have been already established, will be further strengthened to carry out the required activities in collecting samples. The Central Veterinary Laboratory will be strengthened to process the samples to be collected by the surveillance teams.

With regard to wildlife health, to be able to prove that no wildlife reservoirs are left, especially in relation with the OIE pathway concerning rinderpest eradication, the project will provide training in diagnostic techniques and epidemiology. Support in the form of training will be also provided to the wildlife section of the Ministry of Agriculture.

#### 2.5.2 Improved delivery of veterinary services

Regarding the improvement of animal health services to livestock producers, greater emphasis will be laid on strengthening the public services. Delivery of clinical services will be strengthened by improving access to drugs and vaccinations. This will be achieved through further training of Animal Health auxiliaries and Community-based Animal Health Workers (CBAH). The project will give assistance to enable the regular supervision of the activities of the CBAHs. Privatisation of the veterinary services and the widespread establishment of private veterinary practices are not feasible in the near future in Eritrea, as the number of professionals in the country is still very small. However, the project will assist in laying the groundwork for privatisation by preparing the required supportive legislative and regulatory framework.

To enhance the communication skills of the staff of the veterinary services the project will assist in setting up a core communication unit which will in turn provide training at all levels.

#### 2.5.3 The eradication of rinderpest from Eritrea

PACE will continue to build upon the achievements of PARC and support the activities that will be required to proceed with the OIE pathway to achieve the final eradication of the disease from Eritrea. Eritrea declared the whole country to be provisionally free of rinderpest in 14 of June 1999 and the Division of Veterinary Services is now conducting intensive disease surveillance supported by sero-surveillance.

Eritrea has adopted the OIE pathway and its indicators, and will apply to the OIE to be declared free of rinderpest disease in 2001. An application for the status of freedom from rinderpest infection will be made in 2003.

Eritrea has adopted standard technical procedures and reporting formats in common with Ethiopia and Sudan. Through the PACE Programme and through its routine reporting to OAU/IBAR, FAO and the OIE, Eritrea will continue to maintain and develop its links with the relevant networks for the surveillance of epizootics.

In this respect, PACE Eritrea will support the NSES (continue passive surveillance), organise three annual campaigns of clinical examination and sero-surveillance and the analysis of results.

#### 2.5.4 Control of other major epizootics

The project will facilitate, through its NSES, the preventive campaigns against the major infectious diseases by developing the diagnostic capability. Priority will be given to developing strategies for the control of transboundary diseases and the monitoring of livestock movement. The project will ensure the provision of the necessary training to achieve this. In addition, to increase the awareness of cost recovery for the vaccinations to be conducted against the major epizootics, the project will provide support to the communication unit of the Department.



### 3. ASSUMPTIONS, RISKS AND FLEXIBILITY

#### 3.1 Assumptions

The basic preconditions for the implementation of the PACE Eritrea are that: (a) the government services needed to implement the National Component, are already in place, and (b) Eritrea's political climate remains sufficiently stable to allow the development of the economy in general and the livestock sector in particular.

Three major assumptions are made related to the purpose level. They are:

- The growth in the supply of animal products continues; although prices for producers are moderately increasing, supply has not yet matched demand but investment in this area is encouraging.
- Climatic conditions remain favourable to livestock and crop production.
- National and regional political stability exists throughout the period of the PACE Programme.

At the results level, the assumptions are that:

- Government remains committed to providing sufficient financial resources to meet the full recurrent costs of epidemio-surveillance by 2003/2004.
- Funds for approved budgets are released promptly.
- The general development of the livestock sector supports the sustainable delivery of animal health services.
- Farmers are prepared to pay increasingly for services and medicines/vaccines.
- Government policy remains supportive of increased role of the private sector in the delivery of veterinary services.
- The actions of other national PACE programmes will enable the eradication of rinderpest
- Any major outbreak of rinderpest in East Africa will be efficiently contained and eliminated. [OAU/IBAR reports]
- Reliable diagnostic methods are effectively transferred to CVL Eritrea.

These assumptions are included in the logical framework of the project.

### **3.2 Risks and flexibility**

The major risk to the livestock sector is a massive epidemic disease outbreak. Apart from rinderpest, other diseases like FMD, PPR and CCPP may pose a risk to the sub-sector.

For sectoral investment, it is important to appreciate the importance of livestock to the national economy; thus the necessity for the country to undertake a progressive responsibility in this field. The Government of Eritrea has clearly shown its commitment to livestock development by initiating three major projects in the field of livestock development. For this reason, the risks present are low and the flexibility is very high.

The assumption of a re-infection by rinderpest poses a problem of the credibility of the designed programme of the Eritrean component. However, the epidemio-surveillance system put in place and the expertise developed from the institutional strengthening represent the positive elements, which are indispensable from the case of the stated disastrous assumption.

## **4. PROJECT IMPLEMENTATION**

### **4.1 Detailed features of the project**

#### **4.1.1 Support to Government Animal Health Services**

As described above, the project will mainly support Government animal health services through the implementation of its NSES and Emergency preparedness programme, the development of its epidemiological capacities and informal and formal training to build capacity.

The Government of Eritrea will also assist in the management and operation of the project programme to allow it to be fully operational in its role to ensure proper project implementation. Provisions will be made for technical assistance, administrative and financial support staff, support to the database and the communication unit, replacement of four vehicles and office machinery.

The surveillance system will be conducted together with the regions and will require additional or refresher training to enhance the capacity of regional co-ordination offices to carry out disease surveillance programmes, disease investigation missions and to collect the required samples. Local training will be provided each year to 20 animal health staff on emergency preparedness (7 days), to 30 on disease reporting (3 days) and to 10 on disease surveillance techniques (5 days). Study tours will be organised for 4 veterinarians (2 per year for a duration of one month) in countries that are going down the OIE pathway for rinderpest eradication. Training abroad in laboratory techniques has already been separately funded for one veterinarian (MSc); PACE Eritrea will support the training of two laboratory technicians (6 months). One veterinarian will undertake training in information processing and data base management. A second veterinarian will be trained for one month on geographic information systems (GIS) techniques, and a third veterinarian will undertake training on wildlife epidemiology for three months. They will participate in annual regional meetings to be held at the initiative of the PACE Co-ordination Unit. Provision will be made for participation of two epidemiologists in regional meetings organised by OAU/IBAR each year. One professional will be trained in livestock economics and another one will participate in annual communications meetings organised by the PACE Co-ordination Unit.

With respect to institutional strengthening, in setting up the NSES, the central Veterinary Laboratory at Asmara (diagnostic section) will be provided with consumables for the diagnosis of rinderpest, CBPP, FMD, PPR, CCPP and other diseases of importance. The participation of three veterinarians in regional seminars will be provided annually. The National Livestock Development Project (NLDP) is supplying most of the basic equipment required by the section. The NLDP, which is in its 2<sup>nd</sup> year of implementation, will establish the virology and quality control units of the Central Veterinary Laboratory.

At the level of the Sub-regional veterinary centres, 10 will each be equipped with a motorcycle, a set of clinical equipment, a refrigerator and a budget to meet operational costs. The epidemio-surveillance teams which will be established in each of the regions (11 teams in total) will be assisted to conduct visits, carry outbreak investigation, clinical examinations and to collect and submit samples to the Central Veterinary Laboratory.

To avoid the misuse of funds and all other expenses, and to ensure the smooth and rapid implementation of the NSES, an initial amount will be released and this will only be replenished when the regional centres send the reports and all related documents. The necessary funds needed for the regional centres and the epidemio-surveillance units will be provided to equip them accordingly.

The six regional centres will be strengthened to enable them to provide the necessary support to their units. These centres will be provided with a vehicle, equipment and running cost.

#### 4.1.2 Development of veterinary services and drugs delivery to the livestock owners

The development of veterinary services at the livestock owners level is very much dependant on the accessibility of these services which, although provided by the public services in some areas, cannot be expanded to a significant part of the country without the existence and participation of the private sector at grass roots. In Eritrea, the number of qualified veterinarians is very little (22 in number) and the Government employs practically all of them. It is very difficult to envisage a meaningful private veterinary practice developing with such a small number of qualified professionals. Another reason, which does not encourage privatisation at the highest level, is the livestock production in the country is "dominated by traditional extensive low input low output system." It was thus imperative to design a system that would suit this type of production system. With the Livestock Promotion Project (PARC Eritrea) and the National Livestock Development Project, a scheme to train and incorporate Community-based Animal Health Workers was initiated and it progressed well. Similarly, private drug dispensaries have been opened throughout the country. These systems have been very useful in delivering basic animal health services to the smallholder and pastoralists in remote areas. This project will further strengthen these activities by providing refresher courses to 60 CBAHWs (20 each year) and facilitate supervision of their activities by the respective veterinary staff by providing 10 motorcycles and running cost. The project will also provide training for 10 private drug dispensers in the first year.

A customer satisfaction survey will be an important means of determining objectively the improved availability of services and veterinary medicines to farmers. Intermittent studies will be commissioned; suitably qualified consultants will conduct them with experience in such areas as market surveys, opinion polls and participatory techniques.

#### 4.1.3 Rinderpest eradication

The rinderpest eradication component will build on and continue the activities implemented under the emergency and the ongoing PARC Eritrea project and in order to assist Eritrea to follow the "OIE pathway" process and comply with its disease monitoring and surveillance requirements. Eritrea has just declared provisional freedom from rinderpest in June of 1999.

An emergency preparedness programme has been put in place and will be maintained to prevent any new incursion of the disease accompanied by intensive search for the virus and sero-surveillance according to the OIE recommendations. In order to increase cost efficiency of sampling and laboratory testing, these activities will be combined with other major disease surveillance operations, in particular CBPP.

##### 4.1.3.1 Emergency preparedness

The essence of the strategy adopted is to enhance the national capacity for early warning and early reaction in case of renewed incursion of the rinderpest virus into Eritrea. A national emergency preparedness programme has been established during the PARC Eritrea (Livestock Promotion Project) to prevent the reintroduction of the disease in susceptible cattle populations now that vaccination has been discontinued throughout the country. Its maintenance and enforcement involves:

- Maintenance of cordons of intensive surveillance by carrying out questionnaire surveys in 12 sub-regions, investigate disease reports as received and ensure epidemiological data analysis and project co-ordination at the national level.
- Immediate access to the available IBAR based emergency fund and vaccine bank:
- Organisation of workshops and training at national and regional levels. These will, as far as possible, given the prevailing disease situation, combine major disease topics (FMD, PPR, CBPP...) with those regarding rinderpest.

The programme involves not only the PACE project and the Ministry of Agriculture but also the Regional Authorities.

One new vehicle will be procured to ensure the smooth implementation of the emergency preparedness programme.

##### 4.1.3.2 Rinderpest monitoring and surveillance

These activities will be continued and expanded under the PACE project to meet the requirements of the OIE pathway until the presence of rinderpest in Eritrea can solidly be ruled out. As the whole process is scheduled to last six years, rinderpest monitoring and surveillance activities will have to be thoroughly sustained during four years after the beginning of the proposed project. They will mainly consist of:

- **sero-surveillance** to be carried out throughout the country to statistically ascertain or refute the absence of rinderpest according to OIE guidelines. The recommended sample methodology will require a significant increase of random sampling in the active search for clinical disease (questionnaire surveys in 56 sub-regions each year and sera collection (4500 in year 1, 6000 in year 2 and 9000 in year 3). This increased sero-surveillance effort will require increased sample testing capacity, enhancement of laboratory equipment, additional laboratory technicians, training (one veterinarian to MSc level and two technicians for 4 months each) and replacements of half of the vehicles (6) of the surveillance teams at the Regional co-ordination Offices. One additional vehicle will be provided for the central diagnostic laboratory.
- **Disease surveillance** consisting of active disease search through systematic investigation and differential diagnosis, disease history, surveys in areas where the disease has recently been present but is thought to have been eradicated. The vehicles to be provided for sero-surveillance will also be used for disease surveillance; and meet the more specific needs of FMD and CBPP surveillance in selected areas (markets, stock routes) by providing 2 more vehicles.

#### 4.1.4 Control of other major epizootics

The project will aim at increasing diagnosis and epidemiology capacities in the country as a preparation to future disease control and eradication programmes. It will therefore essentially provide assistance in surveillance through carefully planned cost effective combined activities for the major epizootics (FMD, PPR, CCPP, sheep and goat pox) in the fields of disease surveillance, laboratory diagnostic equipment and operation, staff training, communication and sensitisation. With regard to CBPP, the disease has not been reported from Eritrea; however, according to the reports from neighbouring countries (Ethiopia and Sudan) the disease is spreading northwards with the potential to infect Eritrea. There is a real risk of the disease spreading to Eritrea with the pastoral livestock movements. Thus, specific CBPP surveillance work will also be supported at strategic sites chosen for cattle movement control and in abattoirs. Training abroad will be provided on laboratory techniques to 2 veterinarians from regional laboratories and study tours will be organised for 6 veterinarians in countries that have set effective FMD control. Local training will be directed towards disease reporting for animal health staff (Animal Health Assistants) and market and stock route inspectors (20 per year for 7 days).

Clinical and serological CBPP search is to cover the parts of the country bordering Ethiopia and the Sudan (12 sub-regions) considered the areas at risk. It will be carefully combined whenever possible with the statistically based surveillance activities required for rinderpest. The surveillance teams will conduct clinical and questionnaire-based inquiries and sample collection and submission to Central Veterinary Laboratory for confirmation will be enhanced. Each surveillance team in the regions will be responsible to thoroughly investigate each and every outbreak of the diseases included in this

programme and collecting the required samples for each of these diseases. The laboratory will test the samples collected by the surveillance teams and the results included in an epidemiological database. The teams in collaboration with local staff will immediately carry out preventive and control measures against the disease in question. Specific investigations and sera collection will be conducted in slaughterhouses and at a few selected cattle markets and stock routes. The regional laboratories will be equipped and training will be carried out to the extent necessary to perform diagnosis of some of these diseases in a reliable manner. The Central Veterinary Laboratory will be provided with CBPP, FMD and PPR Elisa kits (competitive and immunocapture) for testing sera and other samples collected for the diagnosis of these diseases.

## **4.2 Organisation and implementation procedures**

The project will be implemented through the existing PARC structure at a National level (National Co-ordination Office), which will remain unchanged. Its administrative and financial capacity will be enhanced as well as its epidemiology, data processing, communication and economic analysis capacities. Six regional Co-ordination Offices together with the associated surveillance teams are delegated to conduct the operational activities.

### **4.2.1 Programming, work plans and budgets procedures**

The basic project management structure will consist of the existing National Co-ordination Office (NCO) and six Regional Co-ordination Offices (RCO). The NCO will be supported as needed by the PACE Programme Co-ordination Unit, based at OAU/IBAR in Nairobi. The Director of OAU/IBAR (formerly the RAO for the PARC programme) will be the Regional Authorising Officer of the EDF for PACE. The Delegation of the European Commission in Kenya will be the lead delegation for the PACE Programme.

Programming will be done at two levels: a global plan for the five years of the project will be submitted for approval to the PACE Advisory Committee before the beginning of operations. Through the PACE Programme, the OAU/IBAR will offer a range of common technical services to the national PACE programmes. A team of regionally based technical assistants will deliver these Common Services. The team's areas of expertise include:

- Communications
- Economics
- Epidemiology
- Wildlife epidemiology
- Legislation and privatization
- Veterinary vaccines and laboratory diagnostics
- Community-based animal health workers

Other Common Services will include financial control, research and environmental monitoring.

The PACE Programme Co-ordination Unit in Nairobi will co-ordinate the delivery of the Common Services to countries in eastern Africa, including Eritrea. A national workshop will be organised to help for the overall work plan preparation. Then annual programmes will be submitted to the PACE PCU for discussion with the Common Services staff. Following approval of the programme and budget, the PACE PCU will include it in a consolidated work programme and cost estimate. The RAO will authorise the expenditure against the consolidated proposal; the Lead Delegation of the EC will endorse it. The EC, Brussels, will then release an advance of funds to the bank account of the PACE Eritrea imprest account.

The National PACE Co-ordinator will submit monthly statements of account to the Financial Controller in Nairobi. When replenishments are needed, financial justifications regarding the previous fund allocations will be transmitted to the PACE financial unit, which will review them.

#### 4.2.2 Reporting

Regional Co-ordination Offices will submit monthly reports on the routine project activities to the NCO in the agreed format for the PACE Programme. Specific information concerning rumours or confirmed rinderpest outbreaks have to be received within 24 hours; this will form the basis for a set of performance indicators. The National Co-ordination Office will submit monthly reports to the Planning and Statistics Unit of the Ministry of Agriculture and quarterly reports to the OAU/IBAR-based PACE PCU in Nairobi. The NCO will assist the Animal Health Division to produce annual reports on animal health status and main activities in the country. It is important that a standardised regular system of information be implemented in such a way that it is compatible with the needs of the GIS and the PACE PCU systems. The PCU will therefore propose and discuss a report format to be used by the national co-ordination unit. The data collected will be analysed and discussed whenever needed. Epidemiological and economic findings of the PACE project will be regularly reported to OAU/IBAR in Nairobi in the quarterly reports, and to the OIE.

#### 4.2.3. Monitoring and evaluation

The National Co-ordination Office will monitor the programme with the assistance of the OAU/IBAR co-ordination Unit. A mid-term evaluation will be conducted independently during the second year of implementation.

#### 4.2.4 Technical Assistance

The project will provide 2 man-months of technical assistance in animal disease control; this input will be critical to the consolidation of the disease surveillance and emergency preparedness capabilities. Provision will also be made for a second technical assistance (2 man months) to establish the laboratory diagnosis of FMD, PPR and CBPP (including the Elisa technique).

### 4.3 Implementation time schedule

The project will be implemented over a period of four years from 1 November 2000 to 31 October 2004. This period will not permit the full completion of the OIE



pathway process. Project approval should therefore take place by July-August 1999. Successful implementation should provide ample justification for allocation of additional resources under the National Indicative Programme (NIP), should the need arise, to carry out well-justified strategies for the control of other epidemic diseases.

#### 4.4 Cost estimates and financing plan

The cost estimates for the project cover a 4-year period. They have been calculated including 10% contingencies. Government contributions to the project, particularly to the running costs of animal disease surveillance are estimated to increase each year from its present level of Nakfa .5 million to meet the higher costs of intensified disease surveillance during and after the project period.

#### Summary costs of the project

Source	Nakfa ('000)	Euro ('000)
Government contribution	15,997,372	1,723,669
EDF contribution	12,337,326	1 329 310
<b>Total</b>	<b>28,334,744</b>	<b>3,049,979</b>

N.B 1,443,439 Euro from the GoE contribution is personnel salary for five years.

Furthermore, a fully functional cost recovery system is already in place in Eritrea through which farmers pay for most of the inputs and clinical services that they receive. The national cost recovery system, which the Director of Veterinary Services administers, has generated Nakfa 12 million up to the year 2000 from the sales of biologicals (vaccines) and drugs. In addition, the livestock sector pays for services such as quarantine and inspection services. Revenue from these sources is increasing (see table). This means that the DVS is not solely reliant on subventions from Treasury to meet its operating costs. The cost recovery scheme that has been introduced throughout the country will be monitored and further developed and applied to increase the revenue available to support the activities of the department of Veterinary Services.

#### Revenue earned (Nakfa) from service charges in Central Zone of Eritrea

Service	Year			
	1999		2000 (to June)	
	Service charges	Associated materials	Service charges	Associated materials
Quarantine	168 855	224 931	138 521	102 635
Inspection fees	223 520	0	137 035	0
<b>Totals</b>	<b>392 375</b>	<b>224 931</b>	<b>275 556</b>	<b>102 635</b>

#### **4.5 Special conditions and Government accompanying measures**

##### **4.5.1 Special conditions**

Necessary conditions for the successful implementation of the project should have been satisfied during the extension period of the PARC project.

- *Privatisation:* steps would have been taken to clearly define state and private sector responsibilities with regard to animal health services and to secure a proper legal environment for private veterinary services.
- *Rinderpest eradication/control:* the Government of Eritrea declared provisional freedom from rinderpest in June 1999, and has committed itself to follow the recommended OIE Pathway procedures until completion.

##### **4.5.2 Accompanying measures**

The main accompanying measures needed to ensure proper project implementation are the following:

- Government commitment to comply with the OIE pathway recommendations until its completion
- Continued commitment to the extension of the privatisation process.

## **5. VIABILITY**

### **5.1 Support policies**

Project's viability is highly dependent on the sustained Government commitment to the specific and the level of co-operation and discipline which may be achieved in the Central and Regional administrations in the implementation of epidemic disease control/eradication and surveillance programmes.

It is also dependent on the Government ability to finalise and enforce the long awaited animal disease and veterinary profession proclamations.

### **5.2 Appropriate technologies**

Existing tools for the diagnosis and control of rinderpest are generally very efficient. The vaccine gives lifelong protection. Although no validated easy field test is available, there is a range of reliable laboratory techniques to measure the level of antibodies, the antigen or isolate the virus in the future.

Existing tools for FMD and other epizootic diagnosis and control are on the other hand poorly efficient. The vaccine for FMD protects the animal for only 6 months. The antigen used for the Complement Fixation Test (CFT) diagnosis has a short validity period, which makes it difficult to use in field or remote areas, and the ELISA test for FMD, which would allow for multiple testing in a short period of time, has been validated but is not in use due to lack of antigen and kits.

### **5.3 Environment**

National Environmental Management Plan for prepared in January 1995. In the meantime, measures to counteract the process of land degradation, and to sensitise the population on the need to stop and reverse the environmental damage are in progress. Eritrea livestock rearing patterns are roughly of two main categories: pastoral agro-pastoral in the lowlands and part of traditional mix-farming system in most of the highlands areas. Intensive livestock farms are limited to the main towns suburbs. Eritrea was active livestock marketing network and remains an exporting country for live animals, mainly to the Middle East and very few to Sudan, but exports to the Middle East have been limited in the past by the existence of rinderpest. Even though again the last four years, live animals exporting is rehabilitating. The country's rapidly growing livestock population may compete in the future with external markets, even though these tend to expand due to a better control of epizootic diseases. It is thus considered that prevention against the main epidemic diseases will not result in accumulation of livestock and overstocking but rather will allow for increased off-take to satisfy both the internal and exports demand.

In the mix-farming areas, livestock is an important factor of agriculture intensification. Animal can provide manure and recycle agriculture waste and through additional cash income. They contribute to the long-term preservation of the productive potential of natural resources more rational use of drugs will also prevent pollution of livestock products and slow down the development of drug-resistant pathological agents. By providing better security to livestock, the PACE programme will constitute an important step in the intensification process and indirectly in the

long-term protection of the environment. In addition, improved control of zoonoses, marketing routes and meat inspection will reduce hazards to human health.

#### **5.4 Socio-cultural aspect: women and development**

Accessible veterinary services are of frequent demand from the livestock owners, particularly in the pastoral areas where competent veterinary professionals are scarcely available. Livestock is a community and family asset which provides security through cash income used for family purpose (food, clothes, health and education) and an increase in productivity due to lesser disease pressure will result in an increase of the family revenue and will contribute to improvement of the living standard and financial security.

Women will therefore, benefit from the project activities because they are more receptive to family risk like health or death and to other family issues such as wedding, children education, day to day food preparation *etc.* In settled areas, where women often handle money matters, particularly with what regards milk production and small stock, they will be even more directly benefiting from the project outputs. Increased income in the rural areas will also give them access to other services (water sanitation, health) and household equipment, which may decrease the load of domestic work.

#### **5.5 Institutional and management capacity**

The veterinary personnel in Eritrea are limited in number less than 25 veterinarians, 47 animal health assistants and 80 technicians; the majority of the veterinarians are employed in the public service. Very few Eritrean veterinarians have benefited from postgraduate fellowships and training in epidemiology, and laboratory techniques. The PARC organisation structure will be the basis for the management of the project.

Private veterinary practices employ three veterinarians, primarily in the private dairy farms and NGO project areas.

Eritrea has a central veterinary laboratory (CVL) in the capital city, Asmara, and two Regional laboratories; one of them is in the process of being established. By the year 2003, the Government will fund the recurrent purchase of all laboratory reagents and consumables. By 2001, through the ADF-funded National Livestock Development Project (NLDP), the Central Veterinary Laboratory will be fully functional including its virology, quality control and experimental animal house.

#### **5.6 Economic and financial analysis**

The PACE programme approach is necessarily regional, particularly with regard to rinderpest and transboundary diseases, the control and eradication of which cannot be envisaged without international or continental strategies that encompass a supra-national scale. The economic and financial justification for the activities, which are needed for the implementation of these strategies, thus can be assessed through a regional approach. The detailed PACE programme economic and financial analysis is presented in Annex 19 for the programme as a whole.

The veterinary services delivery improvement programme finds its justification through a slight improvement of the livestock productivity (general annex No 19)

The economic justification of activities that are not directly productive, unless they are backed up by specific measures, such as the establishment of an epidemiological network and the reinforcement of public services, will essentially depend upon the Government commitment to support the sub-sector. Each of the member states will benefit through the PACE project from the economic evaluation tools, which will permit to optimally define the economic and financial justification of the efforts it will make using its own resources or those procured through external donors assistance.

The basis for economic impact assessment of the PACE project in Eritrea will rely on a good epidemiological database and market information on livestock and livestock products. Epidemiological database will be strengthened through the project itself and adequate information will be generated to enable economic impact assessment. Market information on livestock and livestock products is regularly collected from all the major markets throughout the country and will be available for economic assessment.

## 6. MONITORING AND EVALUATION

### 6.1 Monitoring indicators

Monitoring indicators will depend on the project's components. The objectively verifiable indicators for project evaluation are shown in the logical framework. Management and administrative monitoring indicators will be developed during implementation. Monitoring and regular internal evaluations will be the key tasks of the Regional and Sub-regional Co-ordination Units. The approach adopted will be based on participatory monitoring and evaluation in each country. The overall effectiveness of PACE will be measured in terms of the development of epizootic diseases, documented by the OIE, the number and results of samples and also the improved effectiveness of husbandry services. The active participation of planners and implementing agents is essential for meaningful monitoring.

With regard to each of the four thrusts, the following indicators will be used for monitoring.

- **Enhanced national capacities of public veterinary services**

The existence of an approved, practical emergency preparedness plan for rinderpest, by the end of 2001; similar plans for FMD, PPR and CBPP are approved and in place by the end of 2002.

The establishment of functional database (that complies with performance indicators<sup>1</sup> that will be devised and applied during the project), communication and reporting systems, the number of sera collected and relevant laboratory records and the implementation of the veterinary legislation.

Reporting and feedback system for animal health is in place and fully compliant with performance indicators that will be refined and transferred to the staff at all levels during the project.

- **Development of veterinary services and drugs delivery to the livestock owners**

The main indicators will be the actual numbers of animal health assistants and CBAHWs involved in veterinary service delivery under the responsibility of veterinarians; the existence of appropriate veterinary legislation, which supports the participation of private sector stakeholders in delivery of veterinary services and inputs; the availability of only registered drugs from dispensaries; and, importantly, the results of statistically valid "customer satisfaction surveys" to show that livestock owners are satisfied with the services available to them.

- **Rinderpest eradication**

This will ultimately be assessed through OIE reports. Performance indicators (annexed) will be applied throughout the project.

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<sup>1</sup> Performance indicators – see annexed table

- **Control of other major epizootics**

Strategies for the control of other epizootics will be developed on the basis of the incidence figures and mapping of the endemic areas, the number and results of samples analysed. Strategies will be revised with the participation of public and private veterinarians.

## **6.2 Project evaluation**

Evaluations will be done at four levels:

- The National Co-ordination Office (AHD) will set up a specific mechanism for monitoring and evaluation of activities and outputs which will feed the data from base from data collected specifically from the field related to per-defined significant criteria, and use the data base information to substantiate the conclusions. The technical assistant will be deeply involved in the routine evaluation work.
- Members of the OAU/IBAR PACE PCU will do regular evaluations, together with the National PACE Co-ordinator.
- Consultants recruited by the commission will carry out independent mid-term and final evaluations.
- Independent external finance specialists will be recruited by OAU/IBAR and the European Commission to confirm that project funds are properly allocated and used at the field level. They will undertake annual financial audits.

### THE LOGICAL FRAMEWORK FOR THE ERITREAN PACE PROJECT

Intervention logic	Objectively verifiable indicators	Means of verification	Assumptions
<p>Intervention objective:</p> <p>Government and the fight against animal diseases are assisted by improved animal production, which provides a more secure basis for animal proteins and better livelihoods for livestock producers.</p>	<p>The incomes of the State and livestock owners obtained from the livestock sub-sector and livestock production are raised significantly (by x% a.b.d) over the four year project period.</p>	<p>Ministry of Agriculture bureau of statistics annual reports.</p>	
<p>Specific objective</p> <p>National animal disease surveillance and control are improved and the delivery of animal health services is improved.</p>	<p>Eritrea submits regular up to date country reports in the required formats to OIE and OAU/IBAR from 2003 onwards.</p> <p>Emergency preparedness plans are activated rapidly and effectively in the face of any confirmed outbreak of rinderpest, PPR, FMD or CBPP that may occur between 2002 and 2004.</p> <p>Government funds the full operating costs of national animal disease surveillance by 2004/2005.</p> <p>The cost recovery system is fully operational throughout PACE and revenue collection increases by 10% each year, between 2001 and 2004, both years inclusive.</p> <p>Results of customer satisfaction surveys confirm improvement in availability of services available to farmers by the end of the project (2004), compared with that in the first year (2001).</p>	<p>Reports of the Animal Resources department on file at OIE and OAU/IBAR.</p> <p>Annual reports of the ARD and PACE Programme epidemiological unit.</p> <p>Approved government budget and annual reports of the Ministry of Agriculture.</p> <p>Audited accounts of the cost recovery scheme.</p> <p>Consultant's reports</p>	<p>The growth in the supply of animal products continues [Central statistical bureau]</p> <p>Climatic conditions remain favourable to livestock and crop production. [Meteorological department reports]</p> <p>National and regional political stability exists throughout the period of the PACE Programme. [OAU reports]</p>



Intervention logic	Objectively verifiable indicators	Means of verification	Assumptions
Capacities of Government disease surveillance and emergency response plans are in place	<p>A practical emergency preparedness plan is developed, approved and maintained, for rinderpest, by the end of 2001; similar plans for FMD, PPR and CBPP are approved and in place by the end of 2002.</p> <p>-The National System for Epidemiological-Surveillance complies with performance indicators<sup>2</sup> that will be devised and applied during the project</p> <p>- Reporting and feedback system for animal health is in place and fully compliant with performance indicators that will be refined and transferred to the staff at all levels during the project.</p>	<p>Plans endorsed by the Minister of Agriculture. Report of the PACE final evaluation.</p> <p>ARD reports of NSES monitoring</p> <p>ARD annual reports and monitoring reports</p>	<p>Government remains committed to providing sufficient financial resources to meet the full recurrent costs of epidemic-surveillance by 2003/2004. [Government budget figures]</p> <p>Funds for approved budgets are released promptly. [PACE Eritrea reports]</p>
Availability of veterinary services and stock farmers are	<p>-The number of CBAHWs working under veterinary supervision has increased from 125 in 2000, by at least 100 each year during PACE</p> <p>Appropriate veterinary legislation, which supports the participation of private sector stakeholders in delivery of veterinary services and inputs, has been accepted for enactment by end of 2003.</p> <p>All registered dispensaries stock only registered veterinary medicines by the end of 2003.</p> <p>Results of statistically valid "customer satisfaction surveys" show that at least 75% livestock owners are more satisfied with the services available to them in 2004, compared with levels in 2001.</p>	<p>ARD Departmental registers and annual reports</p> <p>[Draft] legislation endorsed by Government</p> <p>Results of ARD survey</p> <p>Consultant's survey report</p>	<p>The general development of the livestock sector supports the sustainable delivery of animal health services. [Ministry of Agriculture statistics]</p> <p>Farmers are prepared to pay increasingly for services and medicines/vaccines. [Cost recovery revenue]</p> <p>Government policy remains supportive of increased role of the private sector in the delivery of veterinary services. [Policy documents]</p>

Footnote indicators – see annexed table

Intervention logic	Objectively verifiable indicators	Means of verification	Assumptions
Internationally recognised to be free of rinderpest infection	OIE confirmation that Eritrea has complied with the requirements of the OIE pathway for the declaration of freedom from rinderpest disease in 2001, and freedom from rinderpest infection in 2003.	Reports of the OIE FMD and other epizootics Commission	<p>The actions of other national PACE programmes will enable the eradication of rinderpest [PACE PCU reports]</p> <p>Any major outbreak of rinderpest in East Africa will be efficiently contained and eliminated. [OAU/IBAR reports]</p>
For the effective control of epizootics is established	<p>- The NSES produces and provides reports to OAU/IBAR and OIE on the national incidence of priority epizootic diseases (CBPP, FMD, PPR, CCPP and pox diseases) from 2002 onwards.</p> <p>- Practical strategies for appropriate control of priority diseases are devised, based on outputs of NSES (incidence figures and mapping of the endemic areas, the number and results of samples analysed), and are approved by Government for funding, from year 2002 onwards.</p>	<p>Reports on file at OAU/IBAR and OIE.</p> <p>Strategy documents approved by Ministry of Agriculture.</p> <p>Ministry of Agriculture budgets for 2003 &amp; 2004.</p>	Reliable diagnostic methods are effectively transferred to CVL Eritrea. [PACE Epidemiological Unit technical evaluation reports]
			<p><b>Preconditions</b></p> <p>The government services needed to implement the National Component, are already in place</p> <p>Eritrea's political climate remains sufficiently stable to allow the development of the economy in general and the livestock sector in particular.</p>

## RELATED TO THE FOUR RESULTS

1. Adequate capacities of Government services for disease surveillance and control (including emergency preparedness plans) are in place

Main activity	Year			
	2001	2002	2003	2004
1.1 Establish, equip and maintain the National PACE Co-ordination Unit and a National Systems for Epidemio-surveillance (NSES), composed of a central unit, a national diagnostic laboratory and regional units) for the major epizootic diseases	X	X	X	X
1.2 Develop and refine the national disease reporting system and link it to the NSES.	X	X	X	X
1.3 Acquire the necessary logistics for information management (e.g. TADINFO,...) to support appropriate databases	X	X		
1.4 Provide skills-oriented training for personnel in epidemiology, statistics, GIS, disease reporting, clinical and laboratory diagnosis, wildlife diseases, and communications	X	X	X	X
1.5 Provide training to the wildlife section of the Ministry of Agriculture.		X	X	
1.6 Regularly produce an animal health bulletin for circulation to all regional animal health staff.		X	X	X
1.7 Develop and submit for approval an emergency preparedness plan for rinderpest, and other priority epizootic diseases.	X		X	X
1.8 Co-ordinate and ensure the control of livestock movement, particularly across borders.	X	X	X	X
1.9 Sensitise communities and livestock owners about the need to report animal diseases	X	X	X	X
1.10 Purchase laboratory reagents and consumables.	X	X	X	X
1.11 Strengthen and maintain the Central Veterinary Laboratory so that it can process the samples collected by the surveillance teams.	X	X	X	X
1.12 Hold regular meetings with technical counterparts in all neighbouring countries, when the political situation permits.	X	X	X	X
1.13 Collaborate fully with the regional diagnostics network.	X	X	X	X
1.14 Strengthen national surveillance teams to conduct surveys and surveillance.	X	X	X	X
1.15 Collect sera and other specimens, maintain relevant laboratory records of results, analyse and report results.	X	X	X	X

**2. Availability of veterinary services and drugs to livestock farmers are improved**

Main activity	Year			
	2001	2002	2003	2004
2.1 Convene regular meetings with farmers to raise awareness of services delivery and disease surveillance and control.	X	X	X	X
2.2 Organise training of Animal Health Auxiliaries and Community-based Animal Health Workers (CBAHWs)	X	X	X	X
2.3 Ensure the regular supervision of the activities of the CBAHWs	X	X	X	X
2.4 Finalise and promote the enactment of legislation that supports and regulates privatisation of the delivery of veterinary services and medicines.	X	X		
2.5 Enhance the communication skills of the staff of the veterinary services by setting up a core communication unit, which will in turn provide training at all levels.	X	X	X	X
2.6 Commission "customer satisfaction surveys" to determine farmers' satisfaction with the delivery of veterinary services.	X			X

**3. Eritrea is internationally recognised to be free of rinderpest infection**

Main activity	Year			
	2001	2002	2003	2004
3.1 Conduct intensive disease surveillance supported by sero-surveillance as required by the OIE pathway.	X	X	X	X
3.2 Adopt the performance indicators <sup>3</sup> required by the OIE pathway.	X	X	X	X
3.3 Monitor and control livestock movement, particularly along international borders.	X	X	X	X
3.4 Co-ordinate cross-border movement control with neighbouring states.	X	X	X	X
3.5 Apply to the OIE to be declared free of rinderpest disease in 2001.	X			
3.6 Apply for the status of freedom from rinderpest infection in 2003.			X	
3.7 Maintain and improve standard technical procedures and reporting formats.	X	X	X	X
3.8 Maintain the approved emergency plan for rinderpest.		X	X	X
3.9 Report regularly to OAU/IBAR, FAO and the OIE.	X	X	X	X
3.10 Maintain and develop links with the relevant networks for the surveillance of epizootics.	X	X	X	X
3.11 Support the NSES (continue passive surveillance).	X	X	X	
3.12 Organise three annual campaigns (2001, 2002, 2003) of clinical examination and sero-surveillance and the analysis of results.	X	X	X	

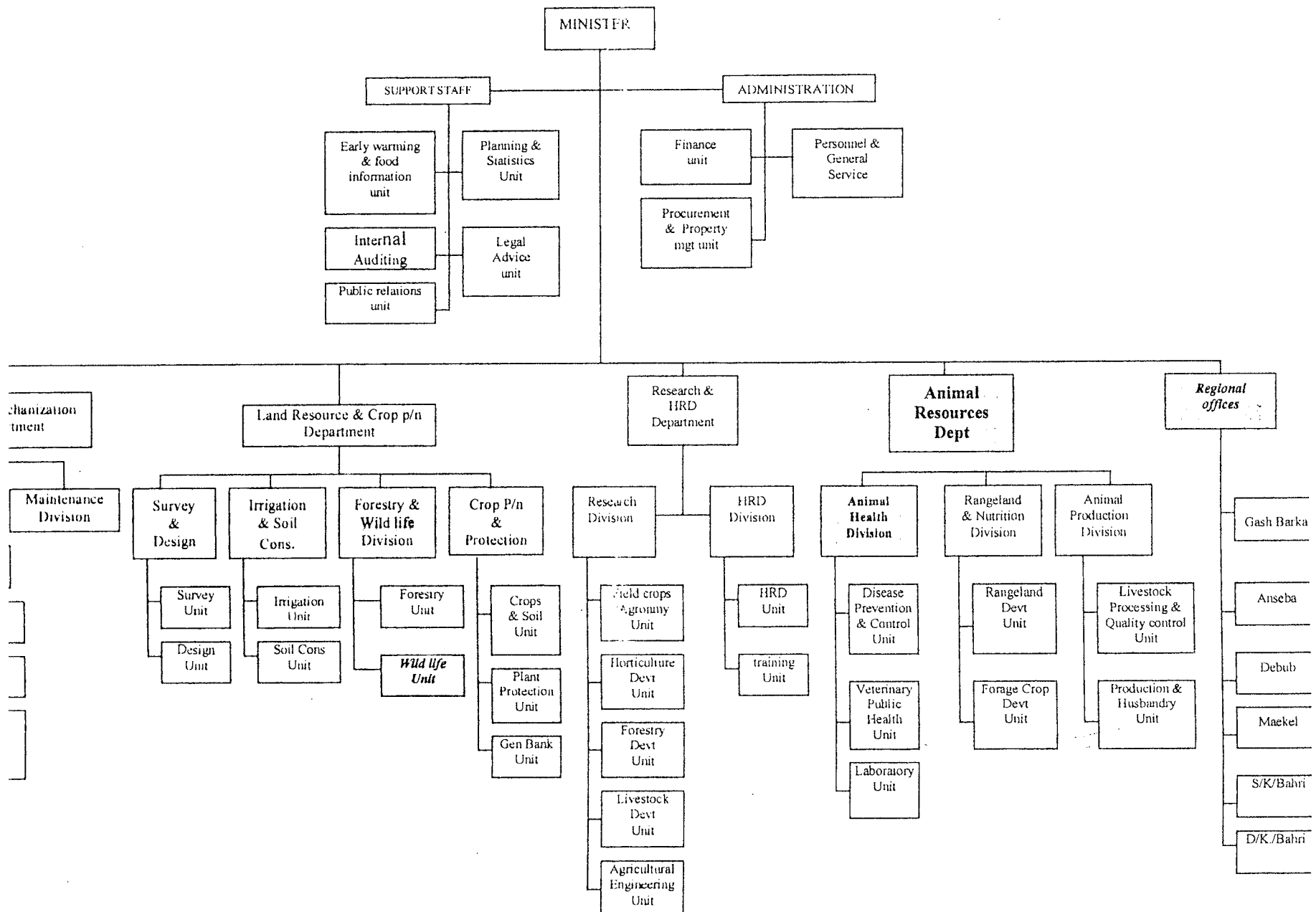
<sup>3</sup> Performance indicators – see annexed table

4. The basis for the effective control of priority epizootics is established

Main activity	Year			
	2001	2002	2003	2004
4.1 Conduct surveys at abattoirs and in selected herds and flocks (questionnaire-based, clinical, post-mortem and serological) for priority diseases (CBPP, PPR, FMD, sheep and goat pox), as appropriate.	X	X	X	X
4.2 Develop the diagnostic capability for the priority epizootics diseases and link with the NSES		X	X	X
4.3 Develop strategies for the control of transboundary diseases			X	X
4.4 Monitor and control livestock movement	X	X	X	X
4.5 Ensure the provision of the necessary appropriate training for field and laboratory-based staff	X	X	X	X
4.6 Increase the awareness of cost recovery for the vaccinations to be conducted against the major epizootics	X	X	X	X
4.7 Support the communication unit of the Department to produce appropriate materials and messages in support of improved disease surveillance and control.	X	X	X	X
4.8 Provide country reports of disease status to OUA/IBAR and OIE.	X	X	X	X

# ANNEX

## MOA ORGANIZATIONAL STRUCTURE





*MAKFA*

**Summary of Global budget for the Work Programme of PACE Eritrea  
for the period 1 November 2000 to 31 October 2004**

Code	Cost Item	Year 1		Year 2		Year 3		Year 4		Total costs	
		EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE
<b>1.00</b>	<b>Enhanced national capacities</b>										
1.10	Personnel	0	30588	0	30588	0	30588	0	30588		122352
1.20	Equipment	174800	0	19159	0	0	0	17500	8750	211459	8750
1.30	Running costs	56599	3060	63659	5095	68559	11795	43659	10143	232686	30093
	<b>Sub-total</b>	<b>231399</b>	<b>33648</b>	<b>83028</b>	<b>35683</b>	<b>68559</b>	<b>42383</b>	<b>61159</b>	<b>49481</b>	<b>444145</b>	<b>161195</b>
<b>2.00</b>	<b>Improved veterinary services</b>										
2.10	Personnel	1250	5000	31250	250	20250	0	11250	5000	64000	10250
2.20	Equipment	25000	1000	0	1310	0	765	0	0	25000	3075
2.30	Running costs	31325	1250	23535	5460	22975	7790	23225	11900	101060	26400
	<b>Sub-total</b>	<b>37575</b>	<b>2250</b>	<b>43475</b>	<b>13520</b>	<b>33225</b>	<b>8555</b>	<b>24475</b>	<b>11900</b>	<b>138750</b>	<b>36225</b>
<b>3.00</b>	<b>Fight against rinderpest</b>										
3.10	Personnel	0	0	0	0	0	0	0	0	0	0
3.20	Equipment	39000	0	0	0	0	0	75000	0	114000	0
3.30	Running costs	41750	0	52750	3326	46000	5895	45000	15375	185500	24596
	<b>Sub-total</b>	<b>80750</b>	<b>0</b>	<b>52750</b>	<b>3326</b>	<b>46000</b>	<b>5895</b>	<b>120000</b>	<b>15375</b>	<b>299500</b>	<b>24596</b>
<b>4.00</b>	<b>Control of other epizootics</b>										
4.10	Personnel	0	0	0	0	0	0	0	0	0	0
4.20	Equipment	25000	4000	0	6500	0	7500	45000	0	70000	18000
4.30	Running costs	59183	0	75083	4375	65083	6175	64183	21662	263532	32212
	<b>Sub-total</b>	<b>84183</b>	<b>4000</b>	<b>75083</b>	<b>10875</b>	<b>65083</b>	<b>13675</b>	<b>109183</b>	<b>21662</b>	<b>333532</b>	<b>50212</b>
	<b>Yearly totals</b>	<b>433907</b>	<b>39898</b>	<b>254336</b>	<b>53824</b>	<b>212867</b>	<b>70508</b>	<b>314817</b>	<b>98418</b>	<b>1215927</b>	<b>272228</b>
	<b>Contingency 10%</b>	<b>41165.7</b>	<b>3989.8</b>	<b>23555.6</b>	<b>5382.4</b>	<b>19711.7</b>	<b>7050.8</b>	<b>28950.2</b>	<b>9841.8</b>	<b>113383</b>	<b>27222.8</b>
	<b>GRAND TOTAL</b>	<b>475073</b>	<b>43888</b>	<b>277892</b>	<b>59206</b>	<b>232579</b>	<b>77559</b>	<b>343767</b>	<b>108260</b>	<b>1329310</b>	<b>299451</b>



Global budget for "Enhanced national capacities" component of PACE Entrea  
for the period 1 November 2000 to 31 October 2004  
(in Euros)

Code	Cost Item	Year 1		Year 2		Year 3		Year 4		Total costs	
		EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE
<b>1</b>	<b>Enhanced national capacities</b>										
<b>1.1</b>	<b>Personnel</b>										
1.1.1.1	National PACE Co-ordinator		3492		3492		3492		3492		
1.1.1.2	Disease prevention & control officer		2844		2844		2844		2844		
1.1.1.3	Veterinary public health officer		3228		3228		3228		3228		
1.1.1.4	Central Laboratory Officer		3012		3012		3012		3012		
1.1.1.5	Veterinary Regional Officer		3012		3012		3012		3012		
1.1.1.6	Assistant Vets sub-regional officers		2328		2328		2328		2328		
1.1.1.7	Field technicians		1944		1944		1944		1944		
1.1.1.8	Laboratory technicians		1944		1944		1944		1944		
1.1.1.9	Meat Inspectors		1548		1548		1548		1548		
1.1.1.10	Secretary		1680		1680		1680		1680		
1.1.1.11	Cashier		1548		1548		1548		1548		
1.1.1.12	Accountant		1680		1680		1680		1680		
1.1.1.13	General workers		1296		1296		1296		1296		
1.1.1.14	Watchmen		1032		1032		1032		1032		
1.1.2	T.A.										
	<b>Sub-total</b>		<b>30588</b>		<b>30588</b>		<b>30588</b>		<b>30588</b>		<b>122352</b>
<b>1.2</b>	<b>Equipment</b>		0								
1.2.1	Computers and accessories	5000	0	0		0		7500	3750		
1.2.2	Office furniture & equipment	6000	0	0		0		10000	5000		
1.2.3	Vehicles	160000	0	0		0		0			
1.2.4	Field equipments		0								
1.2.5	Lab equipments	3800	0	19159							
	<b>Sub-total</b>	<b>174800</b>	<b>0</b>	<b>19159</b>		<b>0</b>		<b>17500</b>	<b>8750</b>	<b>211459</b>	<b>8750</b>
<b>1.3</b>	<b>Running costs</b>										
1.3.1	Travel										
1.3.1.1	International (air fares, DSA, visas)	25750		23060		18750		18750			
1.3.1.2	National (DSA)	925		3000		2000		1600			
1.3.2	National meetings, workshops & train	3000		15000	1000	25000	7500	5000	5018		
1.3.3	Office running costs	1250		1250	250	1250	375	750	750		
1.3.4	Vehicle running costs	19559		15559		15559		11559	750		
1.3.5	Laboratory running costs	2250	560	2250	640	2250	670	2250			
1.3.6	Communications and public utilities	2500	2500	2500	3000	2500	3000	2500	3000		
1.3.7	Maintenance of equipment	0		0		0		0			
1.3.8	Communications materials	1365		1250	125	1250	250	1250	625		
	<b>Sub-total</b>	<b>56599</b>	<b>3060</b>	<b>63869</b>	<b>5015</b>	<b>68559</b>	<b>11795</b>	<b>43659</b>	<b>10143</b>	<b>232686</b>	<b>30013</b>

Table 1

Global budget for "Improved veterinary services" component of PACE Eritrea  
for the period 1 November 2000 to 31 October 2004  
(in Euros)

Code	Cost Item	Year 1		Year 2		Year 3		Year 4		Total costs	
		EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE
<b>2</b>	<b>Improved vet.service</b>										
<b>2.1</b>	<b>Personnel</b>										
2.1.1	Casual labour	0	5000	30000	0	10000	0	10000	5000		
2.1.2	Technical assistance	1250	0	1250	250	10250	0	1250	0		
							0				
	<b>Sub-total</b>	<b>1250</b>	<b>5000</b>	<b>31250</b>	<b>250</b>	<b>20250</b>	<b>0</b>	<b>11250</b>	<b>5000</b>	<b>64000</b>	<b>10250</b>
<b>2.2</b>	<b>Equipment</b>										
2.2.1	computers&equipment	5000		0	560	0	765	0			
2.2.2	office furniture&equipmen		1000	0	750	0		0			
2.2.3	Vehicles	20000		0		0		0			
2.2.4	Field equipment	0		0		0		0			
2.2.5	Lab equipments	0		0		0		0			
	<b>Sub-total</b>	<b>25000</b>	<b>1000</b>	<b>0</b>	<b>1310</b>	<b>0</b>	<b>765</b>	<b>0</b>		<b>25000</b>	<b>3075</b>
<b>2.3</b>	<b>Running costs</b>										
2.3.1	Travel										
2.3.1.1	International	20000		11310		10000		10000			
2.3.1.2	national(DSA)	1250		1250	950	2250	1700	2000	2225		
2.3.2	National meetings,workshops	1600		2000	900	2000	1000	2500	1250		
2.3.3	Offfice running costs	1125		1125	225	1125	450	1125	1125		
2.3.4	Vehicles running costs	2000		2500	0	2250		2250			
2.3.5	Laboratory running costs	0		0		0		0			
2.3.6	Communications&public utiliti	1250		1250	225	1250	500	1250	1050		
2.3.7	maintenace of equipment	0	1250	0	2340	0	2500	0	3000		
2.3.8	Communications materials	4100		4100	820	4100	1640	4100	3250		
	<b>Sub-total</b>	<b>31325</b>	<b>1250</b>	<b>23535</b>	<b>5460</b>	<b>22975</b>	<b>7790</b>	<b>23225</b>	<b>11900</b>	<b>101060</b>	<b>26400</b>
	<b>Yearly totals</b>	<b>67675</b>	<b>2250</b>	<b>54,785.00</b>	<b>7020</b>	<b>43225</b>	<b>8555</b>	<b>34475</b>	<b>11900</b>	<b>190,060.00</b>	<b>29725</b>

**Global budget for ""Fight against rinderpest" component of PACE Eritrea  
for the period 1 November 2000 to 31 October 2004**

(in Euros)

Code	Cost Item	Year 1		Year 2		Year 3		Year 4		Total costs	
		EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE
	<b>Fight against rinderpest</b>										
	<b>Personnel</b>	0		0		0		0			
	<b>Equipment</b>										
	Computers and accessories	6000		0		0		7000			
	Office furniture & equipment	0		0		0		68000			
	Vehicles			0		0					
	Field equipment	0		0	0	0	0				
	Laboratory equipment	33000	0	0	0	0	0				
	<b>Sub-total</b>	<b>39000</b>		<b>0</b>		<b>0</b>		<b>75000</b>		<b>114000</b>	0
	<b>Running costs</b>										
	<b>Travel</b>										
1.1	International (air fares, DSA,	13250		25500		22500		21500			
1.2	National (DSA)	500		250	1325	500	1900	500	4250		
2	National meetings, workshops	6000		13000		9000		8000			
3	Office running costs	625		625	63	625	125	625	625		
4	Vehicle running costs	4000		4000	1000	4000	2000	4000	5000		
5	Laboratory running costs	15000		7000	750	7000	1500	8000	4250		
6	Communications and public uti	625		625	63	625	120	625	625		
7	Maintenance of equipment	1250		1250	125	1250	250	1250	625		
8	Communication materials	500	0	500	0	500		500			
	<b>Sub-total</b>	<b>41750</b>		<b>52750</b>	<b>3326</b>	<b>46000</b>	<b>5895</b>	<b>45000</b>	<b>15375</b>	<b>185500</b>	<b>24596</b>
	<b>Yearly totals</b>	<b>80750</b>		<b>52750</b>	<b>3326</b>	<b>42000</b>	<b>5895</b>	<b>120000</b>	<b>15375</b>	<b>295500</b>	<b>24596</b>

**Global budget for "Control of other epizootics" components of PACE Eritrea  
for the period 1 November 2000 to 31 October 2004**

(in Euros)

Code	Cost Item	Year 1		Year 2		Year 3		Year 4		Total costs	
		EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE
	<b>Control of other epizootics</b>										
	Personnel	0		0		0		0			
	<b>Sub-total</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>			
	<b>Equipment</b>										
	Computers and accessories	5000		0		0		0			
	Office furniture & equipment	0		0		0		45000			
	Vehicles	20000		0		0		0			
	Field equipment	0									
	Laboratory equipment	0	4000	0	6500	0	7500	0			
	<b>Sub-total</b>	<b>25000</b>	<b>4000</b>	<b>0</b>	<b>6500</b>	<b>0</b>	<b>7500</b>	<b>45000</b>		<b>70000</b>	<b>18000</b>
	<b>Running costs</b>										
	Travel										
.1	International (air fares, DSA,	10100		11000		11000		11000			
.2	National (DSA)	5000		17850		5850		8950			
	National meetings, workshops	7650		13000	1300	15000	9000	10000	6000		
	Office running costs	625		625	65	625	125	625	312		
	Vehicle running costs	15450		15250	1525	15250	3050	16250	8125		
	Laboratory running costs	15358		12358	1235	12358	2500	12358	6000		
	Communications and public ut	1250		1250	125	1250	250	1250	625		
	Maintenance of equipment	1250		1250	125	1250	250	1250	600		
	Communication materials	2500		2500		2500		2500			
	<b>Sub-total</b>	<b>59183</b>		<b>75083</b>	<b>4375</b>	<b>65083</b>	<b>6175</b>	<b>64183</b>	<b>21662</b>	<b>263532</b>	<b>32212</b>
	<b>Yearly totals</b>	<b>84183</b>	<b>4000</b>	<b>75083</b>	<b>10875</b>	<b>65083</b>	<b>13675</b>	<b>109183</b>	<b>21662</b>	<b>333532</b>	<b>50212</b>

**Summary of Global budget for the Work Programme of PACE Eritrea  
for the period 1 November 2000 to 31 October 2004**

*Euro*

ode	Cost Item	Year 1		Year 2		Year 3		Year 4		Total costs	
		EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE	EDF	GoE
<b>1.00</b>	<b>Enhanced national capacities</b>										
1.10	Personel	0	351169	0	351169	0	351169	0	351169		1404676
1.20	Equipment	174800	0	19159	0	0	0	17500	8750	211459	8750
1.30	Running costs	53212	3060	57279	5015	63691	11795	40791	10143	214973	30013
	<b>Sub-total</b>	<b>228012</b>	<b>354229</b>	<b>76438</b>	<b>356184</b>	<b>63691</b>	<b>362964</b>	<b>58291</b>	<b>370062</b>	<b>426432</b>	<b>1443439</b>
<b>2.00</b>	<b>Improved veterinary services</b>										
2.10	Personnel	1250	5000	31250	250	20250	0	11250	5000	64000	10250
2.20	Equipment	25000	1000	0	1310	0	765	0	0	25000	3075
2.30	Running costs	29265	1250	23535	5460	22975	7790	23225	11900	99000	26400
	<b>Sub-total</b>	<b>55515</b>	<b>7250</b>	<b>54785</b>	<b>7020</b>	<b>43225</b>	<b>8555</b>	<b>34475</b>	<b>16900</b>	<b>188000</b>	<b>39725</b>
<b>3.00</b>	<b>Fight against rinderpest</b>										
3.10	Personnel	0	0	0	0	0	0	0	0	0	0
3.20	Equipment	39000	0	0	0	0	0	60000	0	99000	0
3.30	Running costs	41750	0	48750	3326	42000	5895	43000	15375	175500	24596
	<b>Sub-total</b>	<b>80750</b>	<b>0</b>	<b>48750</b>	<b>3326</b>	<b>42000</b>	<b>5895</b>	<b>103000</b>	<b>15375</b>	<b>274500</b>	<b>24596</b>
<b>4.00</b>	<b>Control of other epizootics</b>										
4.10	Personnel	0	0	0	0	0	0	0	0	0	0
4.20	Equipment	25000	4000	0	6500	0	7500	40000	0	65000	18000
4.30	Running costs	59183	0	72753	4375	62748	15175	59848	21662	254532	41212
	<b>Sub-total</b>	<b>84183</b>	<b>4000</b>	<b>72753</b>	<b>10875</b>	<b>62748</b>	<b>22675</b>	<b>99848</b>	<b>21662</b>	<b>319532</b>	<b>59212</b>
	<b>Yearly totals</b>	<b>448460</b>	<b>365479</b>	<b>252726</b>	<b>377405</b>	<b>211664</b>	<b>400089</b>	<b>295614</b>	<b>423999</b>	<b>1208464</b>	<b>1566972</b>
	<b>Contingency 10%</b>	<b>44846</b>	<b>36548</b>	<b>25273</b>	<b>37741</b>	<b>21166</b>	<b>40009</b>	<b>29561</b>	<b>42400</b>	<b>120846</b>	<b>156697</b>
	<b>GRAND TOTAL</b>	<b>493306</b>	<b>402027</b>	<b>277999</b>	<b>415146</b>	<b>232830</b>	<b>440098</b>	<b>325175</b>	<b>466399</b>	<b>1329310</b>	<b>1723669</b>

*Euro.*

