
New Partnership for
Africa's Development (NEPAD)

Comprehensive Africa Agriculture
Development Programme (CAADP)


Food and Agriculture Organization
of the United Nations

Investment Centre Division

# GOVERNMENT OF THE REPUBLIC OF ANGOLA

## SUPPORT TO NEPAD–CAADP IMPLEMENTATION

## TCP/ANG/2908 (I)

**(NEPAD Ref. 05/15 E)**

## Volume IV of VI

## BANKABLE INVESTMENT PROJECT PROFILE

## Agricultural Research and Extension

***December 2005***

# ANGOLA: Support to NEPAD–CAADP Implementation

**Volume I: National Medium–Term Investment Programme (NMTIP)**

***Bankable Investment Project Profiles (BIPPs)***

**Volume II: Irrigation Rehabilitation and Sustainable Water Resources Management**

**Volume III: Rehabilitation of Rural Marketing and Agro–Processing Infrastructures**

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**Volume V: Forestry and Natural Resources Management**

**Volume VI: Small and Medium Scale Fishery Project**

# NEPAD–CAADP BANKABLE INVESTMENT PROJECT PROFILE

**Country:** Angola

**Sector of Activities:** Research & Extension

**Proposed Project Name:** **Agricultural Research and Extension**

**Project Area:** Rural

**Duration of Project:** 5 years

**Estimated Cost:** **US$28.97 million**

**Suggested Financing:**

| ***Source*** | ***US$ million*** | ***% of total*** |
|---|---|---|
| ***Government*** | 5.8 | 20 |
| ***Financing institution(s)*** | 20.3 | 70 |
| ***Private sector*** | 2.9 | 10 |
| ***Total*** | ***29.0*** | ***100*** |

# ANGOLA:

## NEPAD–CAADP Bankable Investment Project Profile

## *"Agricultural Research and Extension"*

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## Abbreviations

| | |
|---|---|
| EEA | *Estacões Esperimentais Agricolas* (Agricultural Research Stations) |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| IDA | *Instituto de Desenvolvimento Agrário* (Agricultural Development Institute) |
| IDF | *Instituto de Desenvolvimento Florestal* (Forestry Development Institute) |
| INCA | *Instituto Nacional do Café* (National Coffee Institute) |
| MINADER | Ministry of Agriculture and Rural Development |
| NEPAD | New Partnership for Africa's Development |
| NGO | Non–Governmental Organization |
| NMTIP | National Medium–Term Investment Programme |
| OCHA | UN Emergency Coordination Unit |
| SENSE | *Serviço Nacional de Sementes* (National Seeds Service) |
| UNDP | United Nations Development Programme |
| UNICEF | United Nation Children's Fund |
| USAID | United States Agency for International Development |
| WFP | World Food Programme |

# I. PROJECT BACKGROUND

## A. Project Origin

I.1. This project profile proposes a set of investments to support agricultural research and extension in Angola, which faces severe shortages in terms of human resources, infrastructure, and communication and information management. The project is in line with the government's strategy to combat hunger and poverty through the elimination of constraints to development and interventions to promote agricultural productivity.

I.2. The interventions contained in this proposal are aimed at those areas that will rapidly contribute to sustainable development and allow an increase in agricultural production. Angola has a vast potential in terms of agricultural production and land availability but much of its agricultural resources are under–utilized. Poor performance in the sector has also been hampered by inadequate research into appropriate farm products or practices for the country's farming systems. Priority areas in agricultural research and extension where investment is urgently required include the following:

- Institutional strengthening;
- Qualification and capacity building of human resources;
- Rehabilitation and expansion of infrastructure;
- Access, management and dissemination of information;
- Technology transfer.

I.3. The intention of the proposed project is to strengthen research capacity at the national level through the improvement of the existing research programmes and increasing the professional qualification of the staff. There is a particular need for support for research programmes that focus on the supply of new technologies that would lead to improvement in production and food security.

I.4. This document presents a description of the main technical aspects of the project proposal as well as a discussion of the expected impact as a result of the direct intervention and investment.

## B. General Information

I.5. Although the humanitarian situation in the country increasingly shows signs of stabilisation, economic conditions continue to be poor and a large part of the population depends on emergency food relief and assistance.

I.6. At 1,246,700 $km^2$, Angola has enormous agriculture potential; its climate ranges from tropical humidity in the north to arid central and south region as well as a temperate high altitude climate in the interior of the country, the *planalto.* Nonetheless, agriculture is practised on only 3% of arable soil, and represents about 4% of the GNP (Source: DREE/Tresor, July 2003).

I.7. Years of conflict have forced thousand of families to abandon rural areas in favour of secure conditions in the urban areas and have also contributed to the deterioration of the rural economic structure.

I.8. Constraints facing the agriculture sector include low access to land and basic production factors, the fragile structure of basic community associations, the difficulty in obtaining bank credit, the lack of a transport network and poor market and post harvest activities.

I.9. As a result, food represents a significant import in Angola and agriculture is the sector with second highest import requirement. Food imports, which are 25% of the value of equipment and products linked to the gas and oil sector, are primarily supplied by South Africa, Portugal, Belgium and France.

I.10. The total population is estimated to be approximately 15 million inhabitants with an average income per capita of US$800 — but the purchasing power parity of 70% of the population is less than a dollar a day.

I.11. Climatic conditions for crop, livestock and forest production are generally favourable in large parts of the country but production is primarily subsistence; livestock production is very limited and forest exploitation is resulting in degradation of vast areas of the environment. The expansion of mono–culture and cultivation on marginal land with limited soil conservation, water, and use of organic fertiliser has led to soil degradation and, consequently, lower productivity. Lack of knowledge of soil nutrients and bio–chemical properties has also contributed to low productivity. The social upheaval associated with the conflict and its associated impoverishment has resulted in a scarcity of the means of production and the breakdown of the system for collection and dissemination of technical knowledge. As a result, productivity is extremely low and not sufficient for food self reliance. Other factors affecting productivity include the lack of seeds adapted to the specific agro–ecological characteristics of each region and lack of capital to invest in production. An estimated 77% of total income of rural families is used to buy food, leaving little room for other types of consumption or investments.

I.12. The *Ministry of Agriculture and Rural Development* (MINADER) has a mandate to define national agriculture policies in most areas with the exception of agriculture research, which falls under the responsibility of IIA (*Agronomy Research Institute*) and IIV (*Veterinary Research Institute*). Both institutes receive funding from the state budget, as well as some private institutions and NGOs. Research activity is carried out in an adaptive and participatory way, and technology transfer is undertaken in partnership with the extension service.

## II. PROJECT AREA

II.1. The project will contribute to the process of rehabilitation of research capacity that existed prior to the war, as well as to the development of new capacity. The project proposal focuses on three main areas: Agricultural Research, Veterinary Research and Fertilisers.

### A. Agricultural Research

II.2. The IIA is located in Huambo Province at the Chianga experimental station around 12 km from the centre of the town. The institute is managed by a General Director and two deputies, one for administration and one for technical issues.

II.3. The institute carries out adaptive and participatory research under research programmes in: cereals, vegetables, fruits, legumes roots and tubers, fodders and pasture and cotton. There is a particular focus on the introduction and improvement of cultivation, the management of plants (care against diseases and plague) and in testing of production systems, with particular emphasis on participatory farm research among the rural community of small farmers. To improve the research programmes, it will be necessary to increase the number of new varieties released, the development and dissemination of information on production systems and the transfer of technology.

II.4. The eleven experimental stations constitute the primary site of activity for research programmes, including routine research activities as well as testing and adaptation, and are located in the main agriculture and ecological zones of the country.

II.5. The staff of the institute is comprised of 10 PhDs, 3 MScs, 14 graduate technicians, 58 mid–level technicians, 350 undergraduate technicians and 450 general service staff, totalling 935 workers distributed across all stations. The majority of staff are located at the Chianga–Huambo station. The total area of the station is around 10,000 ha of arable land.

II.6. The structure of the institute also comprised of Technical–Scientific and Financial Directors, the Scientific Department, Agricultural and Forestry Experimental Stations, Department for Management of Budget, Human Resources Department, and the General Staff organs which include, the *Agricultural Documentation Centre, Statistical and Information Technology Centre* and the *Laboratories*.

II.7. The institute received resources from by government totalling around US$750,000 in 2003, but they are insufficient to guarantee the implementation of main programmed activities. In summary, the main constraints are:

- Human resources which are able to intervene in transfer of technology.
- Infrastructure (experimental stations, laboratories, equipment and vehicles)
- Communication resources and information management (library, IT, internet, telephone, parabolic antenna)
- Financial resources to implement different programmes.

### B. Veterinary Research Institute

II.8. The IIV is based in Luanda and has 8 veterinary stations and 6 regional veterinary laboratories. It is managed by a General Director and two vice Directors as well as a Council board and a Technical Scientific board. It also has five Scientific Departments: Pathology, Biological Products, Quality Control and Technology, Veterinary Science, and Wildlife.

II.9. There are two administrative departments: one for Administration and Budget Management and the other for Human Resources. The institute also has a Studies, Planning and Statistics Office and a Veterinary Database Centre. The staff of IIV is comprised of 3 PhDs, 6 MScs, 21 with University Degree and 57 undergraduates and 373 general staff workers. The budget for 2003 was US$1,600,000.

II.10. The Veterinary Stations in Humpata and Cacanda and the Laboratories in Lubango, Benguela and Luanda are the best functioning but still operate at a relatively low level activity. As a result, they are unable to fully address the needs of producers. Also, as is the case in agricultural research, IIV does not have an adequate number of technical staff and graduates to undertake a full research programme.

II.11. The salary scale in IIV is also not sufficient to attract and keep the necessary qualified staff despite some recent improvements. (see Appendix 1)

### C. Fertilisers

II.12. The development of local fertiliser production within Angola represents a way to add value to the country's mineral resources and contribute to agricultural development and food security. For this to occur, commercial production enterprises would have to emerge alongside identification of the potential agro–mineral resources and development of methods for exploitation and utilization.

## III. PROJECT RATIONALE

III.1. The agricultural potential of the country as well as the increasing importance of science and technology in knowledge generation and poverty reduction make investments in agricultural research particularly relevant for Angola. Greater support for institutions devoted to supply of technical scientific knowledge in the agriculture sector would allow emergence of a more dynamic research system that is able to provide solutions for development of the country's agrarian potential. The infrastructure supporting research, laboratories and experimental stations has been severely damaged and is in need of rehabilitation; as such, this would be the first target for support.

III.2. The project design would also have take into account the country context, which is still in a phase of social and economic recovery. Nonetheless, it is possible to develop short term actions designed to contribute to institutional strengthening and reducing the constraints to agricultural development that despite limitations can be implemented.

## IV. PROJECT OBJECTIVES

IV.1. The objective of the project would be to support to the institutions directly linked to agricultural research and dissemination of scientific knowledge in order to produce solutions for sustainable development of the Angolan agrarian sector and better address issues of food security and poverty reduction.

IV.2. Specific objectives would be to:

- Invest in human resources to create a critical mass of capable staff.
- Create and strengthen laboratory facilities and information management systems to empower researchers to undertake critical research, improve work conditions – which would also contribute to the retention of research staff – and allow better collaboration among technical teams.
- Define priorities and invest in those areas that can rapidly contribute to production of knowledge and technology for immediate application.
- Strengthen partnership within the Government, especially between education and extension, as well as between Government and private organizations and international organizations.
- Undertake priority research to improve the understanding, analyses and diagnosis of agricultural and veterinary systems and identify adaptable and innovative techniques. Research would focus in particular on: (i) national agrarian systems including technical and sociological aspects and the rural economy; (ii) basic resources of agricultural

production; (iii) livestock production and veterinary (biotechnical aspects and veterinary); (iv) soil nutrient analysis; (v) agro forestry development; (vi) agriculture mechanization and animal traction; and (vii) stocking and agricultural products transformation.

IV.3. Another aim of the project would be to encourage research that takes advantage of the already existing technical knowledge available in the world and develops greater linkages to different international and foreign organizations as a way of accelerating the process of innovation and augmenting the capacity for technology transfer.

## V. PROJECT DESCRIPTION

V.1. The activities supported by the project would be directed at strengthening agricultural research in the following components: human resources, infrastructure, communication and information management, research programmes, and fertiliser development.

V.2. ***At the level of IIA***, the project would support the following:

- Purchase of reagents and equipment to allow laboratories to function and give consistency to the research programmes in line with the 5–year plan discussed during the XVI scientific council.
- Improvements to the infrastructure of research stations as a way of boosting research programmes and retaining staff.
- Development of options to improve the employment continuity of qualified personnel in research stations.
- Allocation of resources to improve communication and management of information to improve interaction with partners and formation of research networks to accelerate the information dissemination process and training of technical staff and producers.
- Development of policies and systems that allow coordination and integration of research and extension functions, such as:
  - Systems of planning, follow up and evaluation of projects and technology transfer;
  - Communication systems directed to internal and external public;
  - Training and selection of managers (research centre directors and experimental stations) and policies of international cooperation.

V.3. ***At IIV*** the project would support the following:

- Implementation of research programmes;
- Introduction and development of small scale livestock production (ducks, swine, etc);
- Introduction and development of other non–traditional animal production (forest animals);
- Production of technical information bulletins;
- Animal disease control;

- Improvement of natural pasture and introduction of cultivated pastures;
- Support to the Humpata station, which is located near one of the most important agrarian region in the country;
- Development to administrative systems and financial management.

V.4. The project would focus in its first phase primarily on rehabilitation and institutional strengthening and in latter phases, depending on the implementation of the first phase, development of a more detailed analysis of needs and priorities in the sector.

V.5. ***Component 1: Human Resources Capacity Building.*** Capacity building and training would be provided for PhD and MSc levels over a short period (up to six months) in universities and institutes in middle income countries most likely in Africa and Latin America. Training would also be provided in a smaller number of institutions in developed countries at the PhD and post doctorate level. Capacity building would also be provided in the form of technical assistance contracts and specialists from other countries to provide the on job training and research team formation.

| Type of Training and Indicative Costs (for 5 years) | | | |
|---|---|---|---|
| Type/Level of Training | No. | Location | Cost (US$ million) |
| PhD | 25 | Developed Countries | 3.00 |
| PhD | 25 | Developed Countries | 1.00 |
| MSc | 100 | Developed Countries | 1.50 |
| Short duration | 25 | Developed Countries | 0.37 |
| Short duration | 75 | Developing Countries | 0.45 |
| Specialised technical assistance (period of 24 months) | 10 | | 2.00 |
| Total | 260 | | 8.32 |

V.6. ***Component 2: Access, Management and Information Dissemination.*** The second component would provide funds to improve library and bibliographic materials, access to virtual libraries, signature of leaflets, and equipment to disseminate research results, such as video production and rapid leaflet printing.

V.7. ***Component 3: Rehabilitation and Strengthening of Infrastructure.*** Infrastructure investments would be concentrated in the rehabilitation of EEA of RA, which will have immediate impact in terms of research and will sustain the basic scientific programmes. For IIV, the programme would rehabilitate the Regional Diagnosis Laboratories.

V.8. ***Component 4: Institutional Strengthening.*** The fourth component would provide support to research activities in terms of equipment for laboratories, computers, communication, machines and vehicles.

V.9. ***Component 5: Research Planning and Management.*** In order to supply the necessary tools for the research management and to follow the evolution of other similar institutions, the project would support the strengthening of the planning system through the implementation of a management information system that enables better follow up and evaluation of results.

V.10. ***Component 6: Strengthening of Research–Extension Linkages.*** Resources would be allocated in the sixth component to fund projects focused on participatory and adaptive research,

dissemination of research results, partial funding to private sector research, and participation in national and international research networks.

V.11. The criteria used in supporting projects would be: project focus (the type of problem being addressed and which segment of producers and consumers would benefit); quality of the research project; and creativity and opportunity to attract new resources. Priority areas are those aiming at identification, analysis, improvement of the production system, including those focused on formation of groups that multiply technology; and projects aiming at technology transfer. Key priorities also include:

- Creation of community seed banks;
- Introduction of plants and genetic improvements;
- Services of production of basic seeds (which should be under co–ordination of research institution).

V.12. ***Component 7: Fertiliser Development.*** The project would support:

- Identification and research on raw minerals produced locally, with the intention of contributing to local agro–mineral development;
- Development of transforming industries of natural mineral;
- Creation of national and regional laboratories.

## VI. ESTIMATED PROJECT COSTS

VI.1. The estimated financial resources required for the five years project's (first phase) are listed in the table below. Depending on progress during the first phase, a second phase may be developed with local financing. Other investments considered important in the second phase and would be rehabilitation of all other experimental stations, and continued upgrading of human resources.

| Estimated Project Cost by Component/Activity | |
|---|---|
| Component/Activity | Estimated Cost (US$) |
| 1. Human Resources Capacity Building | 8,320,000 |
| 2. Access, Management and Diffusion of Information | 500,000 |
| 3. Recovery and Strengthening of Infrastructures | 6,750,000 |
| 4. Institutional Strengthening (equipment acquisition, laboratories and computers, etc.) | 2,000,000 |
| 5. Strengthening of Planning and Technology Transfer Management Model | 400,000 |
| 6. Implementation of Projects on Research and Extension | 8,000,000 |
| 7. Fertiliser Development | 3,000,000 |
| Total Project Cost | 28,970,000 |

## VII. PROPOSED SOURCES OF FINANCING

VII.1. Lack of investment has been the main constraint to re–starting agricultural research activities and donor financing will be necessary in the short term to meet financing gaps. However, for a system to be sustainable, it is not advisable that the majority of financing is obtained through external contributions. The country will have to progressively increase its investment in the sector from its own state budget.

VII.2. The main government partners in the agricultural sector, food security and nutrition in the past few years include the UN (through WFP, OCHA, UNDP, UNICEF and FAO) EU, USAID and the World Bank. Bilateral donors include: Italy, France, Norway and Sweden. A significant amount of donors contributions have been channelled through NGOs for both development activities and emergency assistance programmes. Some programmes such as the FAZ (financed by the World Bank) and the PAR (financed by the EU) have been using special funds designated to reconstruction of infrastructure and directed through provincial governments.

VII.3. On the ground, NGOs, both national and international, have been essential in supplying help to the population, working in many cases in extremely adverse and difficult conditions. Their interventions have been directed to seed supply, distribution of agri–tools and fertiliser, micro–credit, support to the development of animal traction, veterinary development and animal health care, capacity building of government workers and farmers, and strengthening of institutions and rural infrastructure. With regard to agricultural research, some NGOs such as World Vision (with funds from Chevron–Texaco) and the Marques de Valle Flor Institute (EU funds), have been supporting interventions ranging from the rehabilitation of infrastructure to equipment supply (reagents, equipment's, agri–tools).

VII.4. In the context of this proposed project, such organisations can provide a valuable contribution, complementing government's work in the field of technology development and transfer.

VII.5. It should be reiterated, however, the availability of funds from the government itself, through the exportation of gas and oil and diamonds and/or importation of machines, equipment and agri–tools destined to the agri–veterinary sector, should be explored in line with other donor financing.

## VIII. PROJECT BENEFITS

VIII.1. The highest priority for agricultural and veterinary research in Angola is the need to increase knowledge for immediate use and translate research into advisable and appropriate farming techniques for the diverse regions of the country, and seasons of cultivation.

VIII.2. Thus, the immediate benefits off the project are expected to be:

- Development and dissemination of technological packages at different levels based on the priorities and needs of researchers, extensionists and producers;
- Improvement in the working conditions of the EEA's and expansion in the geographic area of coverage of scientific programmes;
- Improved capacity to perform analyses of soils and routine plants;

- Greater capacity to recommend appropriate fertilisers according to the characteristics of the actual soil;
- Increased food security and improved productive capacity of small farmers;
- Increased access by farmers to knowledge of a variety of production practices, particularly among resettled farmers;
- Opportunities for scientific staff to update their technical scientific and professional knowledge through participation in workshops, seminars, and trainings within the country and abroad;
- Regular training for extension personnel to help them to work with farmers and develop interventions according to community needs;
- Training for farmers on problem identification and field techniques through on the job training in the camps and field demonstrations;
- Publication and dissemination of the results of scientific studies;
- Population aware of and sensitised about the need for protection and management of natural resources;
- Supply of new technologies that improve production to farmers.
- Research institutions strengthened in terms of execution capacity of their routine activities, through:
  - Increase in the number of stations rehabilitated and equipped,
  - Increased number of researchers training, dealing with scientific research at local level and in regional centres;
- Introduction and diversification of new variety of plants, including from other countries, to mitigate the risks inherent in monoculture;
- Small farmers and producers, and displaced and resettled people have greater access to genetically and improved raw material (seeds, changes and replacements) as well as high technology packages that fit their needs;
- Increase in supply of products from animal origin;
- Increase in farmers with cattle and higher livestock ownership per capita;
- Use of animals of improved species type;
- Industrialisation of products from animal origin and improvement in its marketing mechanisms;
- Higher reproductive capacity in animals.

## IX. IMPLEMENTATION ARRANGEMENTS

IX.1. The proposed project would be implemented primarily through MINADER. There may be some exploration of partnerships with IDA and SENSE, who could play a role in supporting farmers associations to become multipliers of seeds (cereals, fodder, etc). In the area of fertilisers, the project would focus on agricultural aspects of the fertiliser industry. Two other areas are also in need of development: geological, and industrial, but fall outside the mandate of MINADER. Fertiliser activities under the proposed project would be financed according to the State Budget (OGE).

IX.2. Other implementation arrangements include:

- Development of linkages to different international networks, as well as the strengthening of co–operation ties with the biggest research centres (should be a priority);
- Creation of multidisciplinary teams, to eliminate the tendency towards isolated work and allow the resolution of problems through collaboration.

IX.3. Implementation of project activities would start as soon as financial resources are made available. However, to enable this, adequate preparation would be required. At some research stations there may be a need to strengthen some capacities in terms of human resources and materials to prepare for the project, including some investments outside the project's scope, such as small primary nets of water distribution. This and other preparatory work would be required to ensure the proposed project would be well integrated to the national programme and will require an organisational effort on the part MINADER.

## X. TECHNICAL ASSISTANCE REQUIREMENTS

X.1. Required technical assistance would consist of support to planning and management functions both during preparation and during implementation. In particular, technical assistance would be required to:

- Develop a simple structure for supervision, implementation and management of the project that is flexible and appropriately scaled to the volume of expected investment and the implementation timeframe;
- Create research networks;
- Define strategies for linking government research with other research partners such as *Centre of Phytogenic Resources*, the *Agrarian Science Faculty*, IDA, IDF, INCA and some NGOs;
- Mobilise of policy makers about the urgency of implementing the project and develop other advocacy, information and communication activities.

## XI. ISSUES AND PROPOSED ACTIONS

XI.1. Areas that would require more detailed analysis are:

- Identification of specific investments and partnerships at all levels for the rehabilitation of the research system and improving human resource capacity;

- Identification of priority programmes and sources of financial support;
- Identification of specific institutional strengthening investments, such as:
  - the principal areas of research to support,
  - infrastructure needs at research stations and existing veterinary centres,
  - laboratory and equipment needs,
  - functioning research and extension structures;
- Identification of methods to strengthen farmer–extension–research linkages and adaptive research (on farm and on station) that allows better identification of conditions and farmers preferences;
- Study on fertilisers, soils and fertilisers methods;
- Identification of construction and equipment needs of laboratories for fertilisers analysis;
- Initial steps in forming partnerships with international research centres;
- Identification of training and team formation needs;
- Assessment of the feasibility of fertiliser production including the supply chain for fertilizers production.

## XII. POSSIBLE RISKS

XII.1. Potential risks facing the project include:

- The availability of resources for funding the project;
- Insufficient technical capacity to follow up on project activities or which could hamper project implementation;
- Lack of transparency in the management of resources made available;
- The lack of complementary rehabilitation activities such as of the rehabilitation of access routes that could prevent project implementation in certain areas.

XII.2. To mitigate risks during implementation, a monitoring and evaluation system would be put in place to produce reports on a quarterly and annual basis on key indicators of risk.

## Appendix 1: Research Station Data (Location, Present Situation, Activities, and Staff)

| Item | Data as of 2003 |
|---|---|
| 1. Station of Cavaco – Benguela – Agricultural Zone number 22/29 | |
| Type of activities | – fruit (banana, mango)<br>– horticulture<br>– cereals<br>– roots and tubercles |
| Nr of researchers | 1 |
| Nr of support staff | 89 |
| Situation<br>(operational) | – office<br>– meteorological post<br>– nursery |
| 2. Cela Station – Kwanza Sul – Agricultural zone number 17 | |
| Type of activities | – fruit growing (banana, mango)<br>– sylviculture<br>– cereals; roots and tubercles<br>– horticulture<br>– fodders |
| Nr of researchers | 1 |
| Nr of support staff | 61 |
| Situation<br>(burned building, collection of germo–plasm) | – residences<br>– offices<br>– meteorological station<br>– workshop |
| 3. Chinga Station – Huambo – Agricultural zone number 24 | |
| Type of activities | – fruit growing (banana, mango)<br>– horticulture<br>– seeds production<br>– production of ornamentation plants<br>– fodder–agriculture |
| Nr of researchers | 3 |
| Nr of support staff | 332 |
| Situation<br>(dilapidated, ransacked) | – laboratory of analysis of plants and<br>– soil<br>– phytopathology<br>– entomic<br>– maize and weather genetic<br>– herbal<br>– fleet of machines |
| 4. Humpata Station – Huila – *Agricultural zone number 30* | |
| Type of activities | – fruit growing (Mediterranean and tropical)<br>– horticulture<br>– ornamental plants<br>– seeds production |
| Nr of researchers | 3 |
| Nr of support staff | 167 |
| Situation<br>(to be rehabilitated) | – research infra structures<br>– laboratories for soil<br>– phytosanitary<br>– meteorological post<br>– veterinary post<br>– stock seeds |

| Item | Data as of 2003 |
|---|---|
| 5. Quilombo Station – Kwanza Norte – *Agricultural zone number 3* | |
| Type of activities | – horto–botannical)<br>– floriculture<br>– fruit growing<br>– sylviculture<br>– seeds production |
| Nr of researchers | 2 |
| Nr of support staff | 35 |
| Situation<br>(ransacked) | – office<br>– residences<br>– warehouse<br>– areas for nursery |
| 6. Malange Station – Malange – *Agricultural zone number 13/14* | |
| Type of activities | – seeds production<br>– fruits growing production<br>– forestry exploration production |
| Nr of researchers | 1 |
| Nr of support staff | 122 |
| Situation (being completed) | – to be built with the support of PRODECA |
| 7. Mazozo Station – Bengo – *Agricultural zone number 7/8* | |
| Type of activities | – tropical fruit growing<br>– food crop culture (short growing cycle)<br>– phytological studies |
| Nr of researchers | 5 |
| Nr of support staff | 58 |
| Situation<br>(new station, insufficient equipment) | – office<br>– warehouse<br>– meteorological post |
| 8. Namibe Station – Namibe – *Agricultural zone number 22/29* | |
| Type of activities | – temperate fruit growing<br>– tropical fruit growing<br>– fodder<br>– vegetables and cereals |
| Nr of researchers | 1 |
| Nr of support staff | 49 |
| Situation<br>(operational, insufficient equipment) | – office<br>– warehouse<br>– fleet of machines<br>– cow–shed |
| 9. Sacaala Station – Huambo – *Agricultural zone number 24* | |
| Type of activities | – production of fertilisers<br>– re–forestation<br>– replacement of fishery capacity<br>– honey exploration |
| Nr of researchers | none |
| Nr of support staff | 55 |
| Situation<br>(destroyed) | – warehouse (building)<br>– meteorological post<br>– nursery, irrigation channels<br>– fish ponds (32)<br>– quarantine station |

| Item | Data as of 2003 |
|---|---|
| 10. São Vicente Station – Cabinda – *Agricultural zone number 1* | |
| Type of activities | – seeds production<br>– roots and tubercles fruit growing |
| Nr of researchers | 3 |
| Nr of support staff | 26 |
| Situation (operational) | – warehouse<br>– office |

## Appendix 2: Veterinary Station Data (Location, Present Situation, Activities, and Staff)

| Item | Data as of 2003 |
|---|---|
| 1. Humpata Station – Huila Province – *Agricultural zone nr 30* | |
| Type of activities | Research on stock raising for milk production, ovine, swine and apiculture |
| Nr of researchers | 3 |
| Nr of support staff | 109 |
| Situation | – A significant part of the infra structure has been recuperated<br>– Lack of agricultural equipment<br>– Still to recuperate the water pumping and irrigation system<br>– Animals under study and multiplication of specie to foment the cattle raising |
| 2. Cacanda Station – Namibe Province – *Agricultural zone nr 22/29* | |
| Type of activities | Research in cattle, fodders–agricultural and tropical fruit growing |
| Nr of researchers | none |
| Nr of support staff | 41 |
| Situation | – A significant part of the infra structure has been recuperated<br>– Lack of agricultural equipment<br>– Still to recuperate the water pumping and irrigation system<br>– Animals under study and multiplication of specie to foment the cattle raising<br>– Lack of qualified staff well trained for the research |
| 3. Caraculo Station – Namibe Province– *Agricultural zone nr 22/29* | |
| Type of activities | Research in caprine and ovine |
| Nr of researchers | 1 |
| Nr of support staff | 28 |
| Situation | – A significant part of the infrastructure still to been recuperated<br>– Lack of agricultural equipment<br>– Still to recuperate the water pumping and irrigation system<br>– Lack of qualified staff well trained for the research |
| 4. Ganda Station – Benguela Province – *Agricultural zone nr 22/29* | |
| Type of activities | Research in cattle and swine |
| Nr of researchers | 1 |
| Nr of support staff | 89 |
| Situation | – All infra structure completely down<br>– Lack of agricultural equipment<br>– Lack of qualified staff well trained for the research |
| 5. Quilengues Station – Namibe Province – *Agricultural zone nr 22/29* | |
| Type of activities | Research in cattle and fodder agriculture |
| Nr of researchers | 1 |
| Nr of support staff | 49 |
| Situation | – All infra structure completely down<br>– Lack of agricultural equipment<br>– Lack of qualified staff well trained for the research |
| 6. Malange Station – Province Of Malange– *Agricultural zone nr 13/14* | |
| Type of activities | Research in cattle and fowl |
| Nr of researchers | 1 |
| Nr of support staff | 122 |
| Situation | – A significant part of infra structure completely down<br>– Lack of agricultural equipment<br>– Lack of qualified staff well trained for the research |

| Item | Data as of 2003 |
|---|---|
| 7. Lungo Station – Zaire Province – *Agricultural zone nr 22/29* | |
| Type of activities | Research in cattle (native species) |
| Nr of researchers | 1 |
| Nr of support staff | 49 |
| Situation | – All infra structure completely down<br>– Lack of qualified staff well trained for the research |
| 8. Cabinda Station – Cabinda Province – *Agricultural zone nr 1* | |
| Type of activities | Research in cattle (tripanotolerant) |
| Nr of researchers | 3 |
| Nr of support staff | 30 |
| Situation | – Conditions been set up for the implementation |
| 9. Veterinary Laboratory of Lubango – Huila Province – *Agricultural zone nr 30* | |
| Type of activities | – Reinforce the research capacity on animal diseases particularly the PPCB, Brucellosis and analyse of ration<br>– Equipment with material and reagents |
| Nr of researchers | 3 |
| Nr of support staff | 188 |
| Situation | – Equipment and reagents to do diagnosis for some disease typical of the zone<br>– Technicians training in diagnosis |
| 10. Veterinary Laboratory of Benguela – Benguela Province – *Agricultural zone nr 22/29* | |
| Type of activities | Diagnostic of animal diseases and control of products from animal origin |
| Nr of researchers | 1 |
| Nr of support staff | 188 |
| Situation | – Proper facilities<br>– Refreshed staff for some areas of diagnosis and quality control |
| 11. Veterinary Laboratory of Luanda – Luanda Province | |
| Type of activities | Diagnostic of animal diseases |
| Nr of researchers | 4 |
| Nr of support staff | 12 |
| Situation | – Installation almost finished but lacking equipment<br>– Qualified personnel to diagnose diseases |
| 12. Luanda Headquarters | |
| Type of activities | Headquarters |
| Nr of researchers | 5 |
| Nr of support staff | 31 |
| Situation | – Lack of proper installations |