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Capacity Building for the Rehabilitation of the Food Industry in Angola

Final Report of Mission I

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From April 23rd to May 12th 2003

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Introduction -

During the mission carried out in Angola from April 23rd to May 12th 2003, were developed some activities to give emergency assistance to the fishery industry. The assistance was based on the evaluation of the main necessities, guiding and advising the government and industry on the measures to be taken and implemented in aspects related to the safety and hygienic - sanitary control of fishery products.

Food inspectors, controllers and staff of the enterprises selected were trained on basic aspects related to inspection and quality control of fishery products.

Recommendations about implementation of Good Manufacture Practices (GMP) were made, as well as the introduction of an auto-control system based on HACCP system in 4 selected fishery companies.

It was carried out a review of the current regulations regarding to the fishery safety. It was analyzed a new proposal about inspection regulations and relevant recommendations were made. Two laboratory auditing were realized. It was evaluated the needs of technical assistance and training of the staff of the laboratories.

The activities were organized from April 23rd to May 4th in Luanda City and from May 5th to 10th in Namibe City.

| Date | Activity | Participants | Local |
|---|--|--|--------------------------|
| April 23 rd -25 th | Evaluation of the emergency necessities, and beginning of the measures to implement. Review of regulations Visit to PESINAGRI enterprise | Marine Research Institute | Luanda City (MINIPESCAS) |
| April 28 th - 30 th | Workshop on training of inspectors and technicians. | Enterprises from the fish sector: IANORQ, IEI, MINADER, MINCO, MINIPESCA | Luanda city (MINIPESCAS) |
| May 2 nd | Laboratory auditing Meeting with inspectors | MINIPESCA | Luanda City (MINIPESCAS) |
| May 5 th - 8 th | Workshop on training of inspectors and technicians. Visit and selection of enterprises for the project. | Enterprises from the fish sector: Pestombwa, Cruceiro do sul MINIPESCA | Namibe City |

1. Developed activities

1.1. Capacitation and training

For the development of this activity, 2 theoretical - practical workshops of four days of duration (each one) were organized. The workshops were directed to government technical personnel as well as for personnel from the private sector. All these technical staff develops activities related to the inspection and quality control of fishery products.

Sixty seven (67) people were trained in total, thirty eight participants (38) in Luanda City and twenty nine people (29) in Namibe City. (See PHOTOGRAPHS)

It is attached (ANNEX I) a photocopy of the list of participants. Many of the names are not easy to read, so it is suggested to make forms and fill them in Angola.

The program of the workshops was

- I. Diseases transmitted by Fishery Products
- II. Hazard associated to Fishery Products
- III. Processing of Fishery Products (basic aspects)
- IV. Lay-Out operational
- V. Good Manufacturing Practices (GMP)
- VI. Personal Hygiene and Hygiene Plan
- VII. Sanitation Standard Operating Procedures (SSOP)
- VIII. HACCP System
 - The seven principles
 - Elaboration of HACCP Plans
 - System of Records

Theoretical presentations were used as methodology by the consulter in the workshops. He complemented the expositions with the utilization of videos and slides. The participants visited some processing plants and they made several dynamic exercises with the presentation of they experience. It was emphasized the training of trainers in formulation of HACCP Plans.

1.2. – The Laboratory of the Marine Research Institute in Luanda.

The facilities of the laboratory of the Marine Research Institute in Luanda have been recently constructed (Financial Contribution from Spanish Cooperation). It was built following the current requirements. The laboratory has the most modern and necessary equipment for the assurance of quality control of fishery products for domestic market as well as for exportation.

The laboratory has three separate areas: Chemistry, Microbiology and Sensorial Analysis. The Chemistry area has a chemical room, a room of scales, an area for

samples preparation and an area with equipment of atomic absorption. The microbiological area has a reception zone of samples, an area for samples preparation, one area of culture, and an area of decontamination, sterilization. The area for sensorial analysis is specially equipped with testing panels. (See PHOTOGRAPHS)

ANNEX II, documents of analysis and protocols of laboratory.

The staff of the laboratory is composed by:

| | |
|--------------------|--|
| Chemistry | 4 Chemists, 3 Analysts, 1 “basic” |
| Microbiology | 1 Boss, 2 technicians, 1 student, 3 assistants, 1 “basic” |
| Sensorial Analysis | in charge of fishery products inspectors |

The main equipment of the laboratory is:

| <i>EQUIPMENT</i> | <i>MARK</i> | <i>MODEL</i> |
|-------------------------------------|--------------------|---------------------|
| Atomic Absorption Spectrophotometer | Shimadzu | AA_6650G |
| Graphite Furnance Atomicer | Shimadzu | GFA_EX7 |
| Auto Sampler | Shimadzu | ASC_6100 |
| Fluorescence Detector | Shimadzu | RF_10AXL |
| Liquid Chromatograph | Shimadzu | LC_10ATVP |
| System controller | Shimadzu | SCL_10AVP |
| Auto Injector | Shimadzu | SIL_10ADV |
| Spectronuc | Genesys 5 | Genesys 5 |
| Conduimeter | Crison | 524 |
| Ph meter | Jenway | 320Ph meter |
| Destiller | Milipore | Elix 3 |
| Purificator | Milipore | |

Besides this equipment, the laboratory has sterilizers, unit of microbiological incubation, glass material, chemical reagents, etc.

The techniques that the laboratory can carry out, according to the installations, equipment and available reagents are:

Chemical

| | | | | | |
|----------|----------|-----------|-----------|-----------|----------|
| Moisture | Fat | Ash | Nitrogen | NVBT | DMA |
| Mercury | Lead | Impurity | Calcium | Magnesium | Iodine |
| Sulfites | Indol | Histamine | Chlorates | Sulfates | Hardness |
| Residuum | Ammoniac | Silicon | Nitrites | Nitrates | |

Microbiological

| | |
|------------------------------|------------------------|
| Mesophila aerobic bacteria | Yeast |
| Lactobacillus | Micrococos |
| Microorganisms - 22 and 37°C | Total Coliforms |
| E. Coli | Staphylococcus |
| Salmonella | Listeria monocytogenes |
| Enterococos | Vibrio sp. |

Sensorial evaluation

Evaluation of Freshness

The laboratory is in the stage of “beginning of the operations”. We did not have the opportunity, in this mission to see the laboratory operating.

1.3 Analysis of the Legislation.

The analyzed legislation was the proposal of Decree, that actually is in the stage of approbation by the authorities of Angola. (ANNEX III)

In general terms it is a well structured document, which responds and contemplates the sanitary demands of fishery products and also is guided to the compliment of the requirements of the international markets, especially from European Union.

Observations: (see ANNEX III.)

- 2 This point should be considered as an antecedent. It does not seem opportune the written specification about the current bad situation, because this position could change and the Decree could still being in force.

- 3 There is a considering.
- 4 Besides of handling, storage and transport should be included: wholesalers, retailers, and placed in the market.
- 5 This item is fundamental for products to export. It is defined in different way in many places of the Decree: Article 2º definitions - Competent Authority, (*Ministerio das Pescas e Ambiente ou organismo tutelado a quem delegue expresamente competencia em funcao da materia*), Article 3, Chapter 2, Competent Authority (*Nos termos do presente Decreto Ejecutivo Conjunto la Autoridad Competente es el Instituto de Investigación Marina*).
- 6 It should be included the definition of accredited establishment
- 7 To use Perigro (in Portuguese), not riscos
- 8 To use “pathogenic agent” instead of “pathogenic microorganism”
- 10 Fresh Product ... that has not suffered any process except refrigeration
- 13 In the Article 2 definitions, should be included terms like:
Economic Fraud (fraud to the consignee or to the consumer of fishery products, due to an irregular labeling, incorrect declaration of species, products, weight, ingredients etc.
Sanitary Auto-control (Group of activities that allow to guarantee and to demonstrate that a fishery product comply with the established requirements in the presently regulation or in the standards dictated by the Competent Authority. *It will be part of an internal proceeding of the establishment and it will be elaborated and developed by responsible technicians of each company, properly accredited by the Competent Authority*),
Certificate of register or habilitation, (*Written Document emitted by the Competent Authority that authorize sanitarily, in the terms established by the present regulation*)
- 14 There is not necessity to include the structure of the Service in the Decree (Organization of the Competent Authority) because you run the risk of disabling adaptations and future reorganizations.
- 16 The inspection of vessels and establishments carried out by the competent authority can be made in periodic o permanent period of time.

18 It is not specifically and generates a new confusion in sanitary matters and looks as an apparently subordination of the Competent Authority the Marine Research Institute to the Ministry of Fisheries.

19 In the definition of Fish Inspector (Article 6°), it will be convenient to establish the minimum requirements to development this activity.

20 With reference to the powers of the fish inspector (Article 7°) it should be included: (When an inspector understands – with reasonable scientific bases – that exist a fault inside the present regulation or to any of its dispositions all product o containers *can be retained. The retained consignment can be confiscated or sampled again for analysis in the laboratory. These new samples will not be comercialized until the Competent Authority rules in this aspect. The inspectionated and analyzed consignment declarated NO capatables for human consumption, they will have to be reduced to fishmeal or other subproduct with the supervision of the Competent Authority. With the purpose of preventing the identity of any fishery product, the fish inspector will attach to the product a numbered label with the following information:*

21

1. *the word RETAINED*
2. *number of identification*
3. *date*
4. *a brief description of the lot*
5. *the name and signature of the inspector*

20 It should be included a chapter with (*infractions to the present regulation*)

22 (Article 10)

1.4 Selection of the enterprises.

Selection of the enterprises to participate in the project and to implement a program of quality control based on HACCP System. (ANNEX IV Information of the enterprises)

PESINAGRI (See Photographies)

It is an exporter enterprise from the fishery sector, which process fundamentally frozen tails of Real lobster (*Panulirus regius*) to European Union, mainly to France.

The volume of exports is around 3.000 kg per year. The staff of the processing plant is five (5) workers and one (1) French technician. The facilities and the process

perform absolutely with the modern demands of the international market. The company has very new equipment and performs in very strict form with the Good Practices of Hygiene.

Although the PESINAGRI enterprise does not have implemented the HACCP System, the company has an auto-control system of quality. It was discussed with the responsible of quality control and with technicians from the Ministry of Fishery, the steps to follow to implement the HACCP System.
(ANNEX IV all the sanitary information of the enterprise)

PESTOMBWA Group (Process of Canning) (See Photographies)

It is a canned enterprise of fishery products. The company produces mainly for domestic market and has around 250 workers.

The species utilized are Carapau, Cavala, Sardine, and Tuna, and the main products are basically in nature, in oil and with tomato.

It has new equipment with a present production of 660.000 cans/month (303.600 kgs of product), which represents 50% of its installed capacity.

In ANNEX—detailed information about the enterprise, which shows interest to constitute a joint venture.

CRUCEIRO DO SUL (See Photographs)

It is company that process dried-salted fishery products. The production is for local market and for exportation (Democratic Congo). The process of cut is manually and they have a process of natural dry and other artificial. The company has a production capacity of 50 ton/day.

The enterprise does not have implemented HACCP System, but it has an auto-control system of quality, so the company is under conditions for the implementation of HACCP System.

1.5 Recommendations and proposal for a new Mission

For the next stage, the realization of a new mission with three consultants is recommended aiming to execute three basic objectives:

- I. Training of trainers;*
- II. Assistance to the Marine Research Institute in strengthening of the Inspection System*
- III Training of the staff of the laboratory and beginning of the operation of the equipment.*

I. Training of trainers;

This activity will consist on training people with conditions of Leaders, due to their activities and type of job. These people in the future could train more technicians from the public sector. This activity will be in charge of Dr. Nelson Avdalov. The topics of this training will be:

1. Diseases transmitted by Fishery Products
2. Hazard associated to Fishery Products
3. Processing of Fishery Products (basic aspects)
4. Lay-Out operational
5. Good Manufacturing Practices (GMP)
6. Personal Hygiene personal and Hygiene Plan
7. Sanitation Standard Operating Procedures (SSOP)
8. HACCP System
 - The seven principles
 - Elaboration of HACCP Plans
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9 AUDITS

Introduction

Definitions and terminology

General vision of the productive chain of the fishery products

Objectives of the audit

Characteristics of the audit (concepts)

The auditor

The ten commandments of the effective communication

Classification or types of audits

Frequency of the audits and classifications of the enterprises

Activities of pre - audit

Organization of the team, which will act in the audit

Desirable attitude during an audit

Activities or phases of the audit

Step by Step of the audit

Initial Meeting

Preliminary Verification, "in situ", of the "layout" of the establishment and confirmation in the production line, of the diagram(s) of flow(s) of the products in the HACCP Plan.

Audit of the pre-requirements (Good Manufacturing Practices - GMP)

Audit of the Critical Control Points – CCP's

The audit of the procedures of the records

Preparation of the report of audit of HACCP System

Final Meeting with the General Direction of the Company and the team.

Schedule of the Report of the audit of the HACCP System

Evaluation of HACCP Plan

Hygienic - Sanitary Control of the establishment

Control of Good Manufacturing Practices GMP

List of classification of defects

II. Assistance to the Marine Research Institute in strengthening of the Inspection System

It will be guided to strength the inspection system and the Competent Authority, in modern aspects and according to the international reglamentation and assisting the result of the last inspection of the European Union. The assistance will be dedicated specially to inspectors from the Marine Research Institute and it will has the following contents:

- 1 Objectives of the Inspection
- 2 Characteristics of the Inspection
- 3 The inspector
- 4 Frequency of the inspections and classifications of the enterprises
- 5 Previous Activities
 - Initial Meeting
 - Step by Step of the inspection
 - Observation of the Lay Out and process flows
 - Water Safety
 - Surfaces that enter in contact with food
 - Prevention of crossed contamination
 - Personal Hygiene
 - Adulteration, contamination
 - Toxic products
 - Workers Health
 - Control of Plagues
- 6 Final Meeting
- 7 Sample of Fishery Products
- 8 Preparation of reports of inspections

For this activity it is recommended Dr. Amador Ripoll (ANEXO V CV). Dr Amador Ripoll has very wide experience in inspection and quality control of fisheries products. He is responsible of Inspection Service of in his country, Uruguay (List 1 of EU). He carried out many consultancies in no development countries, including a mission of 10 months in Mozambique.

III Training of the staff of the laboratory and beginning of the operation of the equipment.

This activity will be centered in the laboratory of quality control of the Marine Research Institute. It will consist on personnel's training in the techniques named in the item 1.2. Fundamentally it will consist in calibration and beginning of operation of the equipment, mainly of the "Atomic Absorption Spectrophotometer Shimadzu".

For this activity is recommended Chemical Eng. Horacio Giudice, (ANEXO VI CV) Great National Medical Award in 1993. He has wide experience in laboratories of quality control and training of personnel.

In Conclusion: it is recommended a simultaneous consultancy of 3 weeks of duration in Angola by three experts with wide and recognized international experiences, coordinated by Dr. Nelson Avdalov.