Country:	Mozambique
Project title:	Establishment of Pest Free Areas regarding Lethal Yellowing Disease of Coconuts in Mozambique
Project number:	MTF/MOZ/098/STF (STDF 230)
Starting date:	June 2009
Completion date:	December 2010
Government Ministry Responsible for project execution:	Ministry of Agriculture
STDF Contribution:	USD 346 528 (including USD 20 000 retained by STDF for evaluation)
Government of Mozambique	USD 39 000

PART I: PROJECT AGREEMENT

1. Within the framework of its agreement with the Government Standards and Trade Development Facility (STDF) and upon request from the Government of Mozambique, the Food and Agriculture Organization of the United Nations (FAO) will supply assistance for the execution of the following project once it is accepted by the Donor Government.

Project Title: MTF/MOZ/098/STF (STDF 230) Establishment of Pest Free Areas regarding Lethal Yellowing Disease of coconuts in Mozambique:

Estimated Costs (Plan of Expenditure in Part II, I.B):

Donor Contribution: USD 346 528

Counterpart Contribution (in kind): USD 39 000

A detailed description of project design, including background, purpose and work plan, is provided in Part II of the present document (attached).

FAO OBLIGATIONS:

2. FAO shall be responsible for the recruitment, international travel, salaries and emoluments of the international staff (except volunteers) shown in Part II (I.B). Appointments of international staff shall be submitted to the Government for clearance. All staff will work under the direction of the Project Manager who, on behalf of FAO, is responsible for the technical execution of the project.

3. FAO will provide the equipment and supplies shown in Part II (I.B) (detailed in Annex III). The equipment will remain the property of FAO for the duration of the project. Its ultimate destination shall be decided by FAO in consultation with the Government.

4. FAO will arrange for yearly supervisory travel visit to the project, to be financed from project costs as shown in Part 11 (I.B).

5. All FAO's obligations arising under this Project Agreement shall be subject to (i) the decisions of its governing bodies and to its constitutional, financial and budgetary provisions; and (ii) the receipt of the necessary contribution from the Donor Government. Any obligations assumed by FAO may, at any time, be taken over by the Donor Government.

6. FAO may, in consultation with the Government, execute part or all of the project by subcontract. The selection of the subcontractors shall be made, after consultation with the Government, in accordance with FAO's procedures.

GOVERNMENT OBLIGATIONS

7. The Government shall take all necessary measures to facilitate the execution of the project and to assist the FAO staff in obtaining such services and facilities as they may require to fulfil their tasks. The Government shall apply to FAO, its property, funds and assets, its officials and to the persons performing services on its behalf, in connection with the project, the provisions of the Convention on Privileges and Immunities of the Specialized Agencies; the currency exchange rate established with the United Nations.

8. The Government shall deal with any claims brought by third parties against FAO, its personnel or other persons performing services on its behalf in connection with the project, except when it is agreed by FAO and the Government that such claims arise from gross negligence or wilful misconduct of such persons.

9. The Government shall be responsible for the recruitment, salaries and social security measures of the national staff. The Government shall also provide the facilities and supplies shown in Part II (E), as and when required for the project.

10. The Government shall grant to the staff of FAO and of the Donor Government and to persons acting on their behalf, access to the Project site and to any material or documentation relating to the Project and shall provide any relevant information to such staff or persons.

11. The Government is responsible for the cost of import and customs clearance of project equipment, its transportation, handling, storage, and related expenses within the country; its safe custody, maintenance, insurance and replacement, if necessary, after delivery to the project site.

REPORTING

12. FAO will report on the project to the Donor and recipient Governments as detailed in Part II (H).

13. The Government shall agree to the dissemination of information like descriptions of the project and of its objectives and results, for the purpose of educating public opinion.

14. The project may be subject to independent evaluation according to the arrangements agreed to between the donor, recipient government and FAO. The evaluation report will be treated as confidential with restricted access by parties not directly involved in the Project. However, FAO is authorized to prepare a brief summary of the report for the purpose of disseminating broadly its main findings, issues, lessons and recommendations as well as to make judicious use of the report as an input to evaluation synthesis studies.

CLAIMS, AMENDMENTS AND TERMINATION

15. Any dispute, controversy or claim arising out of or in connection with this Agreement or any breach thereof, shall, unless it is settled by direct negotiation, be settled by arbitration in accordance with the UNCITRAL Arbitration Rules in force on the date when this Agreement takes effect. The parties hereto agree to be bound by any arbitration award rendered in accordance with this Section as the final adjudication of any disputes.

16. The present agreement shall be governed by general principles of law, to the exclusion of any single national system of law.

17. Nothing in or related to any provision in this Agreement shall be deemed a waiver of the privileges and immunities of FAO.

18. This Project Agreement may be amended or terminated by mutual consent. Termination shall also take effect sixty days after receipt by either party of written notice from the other party. In the event of termination, the obligations already assumed by the Government shall remain in force to the extent necessary to permit orderly withdrawal of the funds and assets of FAO and of personnel performing services on its behalf.

19. This Project Agreement shall enter into force upon signature by both parties.

For the Government of Mozambique	For the Food and Agriculture Organization of the United Nations
Date:	Date: .....

PART II: PROJECT PROPOSAL

Executive Summary

Horticultural crops are an invaluable instrument for food security and foreign exchange of Mozambique largely because of their high economic returns and nutritive value, and their latent ability to serve as an engine for agricultural and economic diversification especially for smallholders that gear production to specific local, regional or export markets.

Coconut is one of the main crops produced and exported by Mozambique. Mozambique's coconut industry has been severely affected by the introduction of lethal yellowing disease of coconuts, a situation which has caused major trading partners like South Africa to prohibit coconut imports from Mozambique. The pest has affected production in the north and some central regions of the country and is not known to occur in the South. In this regard, Mozambique sought and obtained funding from the Standards and Trade Development Facility (STDF) to establish lethal yellowing-free areas in the south of the country. FAO is now requested to implement the project on behalf of the STDF. Technical support will be provided by the International Plant Protection Convention Secretariat (IPPC).

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Acronyms

APHIS	Agricultural Plant Health Inspection Services
AU	African Union
CAADP	Comprehensive Africa Agriculture Development Programme
CEPAGRI	Centro de promoçao à agricultura
DNSA	National Directorate of Agrarian Services
DPAs	Directorate Provincial of Agriculture
FAO	Food and Agriculture Organization of the United Nations
IIAM	Instituto de Investigacao Agraria de Moçambique
IAPSC	Inter-African Phytosanitary Council
IPPC	International Plant Protection Convention Secretariat
ISPM	International Standard for Phytosanitary Measures
MCC	Millennium Challenge Corporation
NEPAD	New Partnership for Africa's Development
NPPO	National Plant Protection Organization
STDF	Standards and Trade Development Facility
UEM	Universidade Eduardo Mondlane
USDA	United States Department of Agriculture
WTO	World Trade Organization

1. BACKGROUND

1.1 General Context

Lethal Yellowing Disease of coconuts is very devastating in areas where it occurs. It is very prevalent in Central and South America, Jamaica and in Africa. The United Republic of Tanzania and counties in West Africa have also experienced the damaging effects of this disease. It was introduced to Mozambique for more than a decade and has since spread through production areas in northern and central provinces. It has not expressed itself in the production areas in the south of the country. This may be because of several factors: 1) local quarantine measures are in place to prevent movement of coconut from infested areas to the south; 2) The Millennium Challenge Cooperation (MCC) and MADAL Coconut Industry have engaged in rehabilitation efforts to contain the disease by replacing susceptible varieties with tolerant varieties; 3) the river which runs between the central and southern areas may itself provide some degree of protection against spreading southwards.

1.2 Sectoral Context

1.2.1 Development priorities and MDGs

Agriculture is a key sector for economic growth and poverty reduction in Mozambique. In 2002 it accounted for 23 percent of the Gross Domestic Product (GDP) and give work to more than 70 percent of the workforce, being the main activity for 95 percent of the people living in rural areas. Agricultural products contribute approximately 20 percent of total exports, with main external markets being the European Union (Portugal, Belgium, and Spain); Southern African Development Community (SADC) countries (mainly South Africa and, less, Zimbabwe); Switzerland and Japan. Main agricultural exports include products like cotton, sugar, tobacco, copra (coconut), cashew nut, oilseeds (sunflower, sesame, soy), and spices (paprika and ginger).

With respect to the Coconut Industry, Mozambique has a production area of about 160 000 ha mainly in four provinces, namely Zambezia, Inhambane, Nampula and Cabo Delgado. Zambezia province produces about 70 percent of this total. Approximately 62 000 tonnes of copra is produced annually for export, oil production and local consumption. It is estimated that 50 percent of total production is consumed locally and in this regard, provides significant nutrition and food security. About 45 percent is converted to copra and 5 percent sold as fresh coconuts.

In Zambezia, 65 000 ha are owned by small holders, 44 200 are industrial farms. Information suggests that up to 30 percent of the population depends directly or indirectly on coconut production (Relatório da **SODETEG/CIRAD** – 2000). The coconut subsector contributes approximately USD 20 million per year to the economy of Mozambique.

1.2.2 NMTPF and UNDAF

The NMTPF for Mozambique is supported by the One UN fund as one of the eight pilot countries under this arrangement, and includes provisions for responses to government priorities in plant protection that threaten food security and income generation as is the case in this project. Poverty alleviation and hunger reduction hinge very much on the ability of the Government to manage threats to production and export of key crops such as coconuts. Furthermore, coconut as an industry contributes directly to nutrition as an important source of food. It also provides the basis of an industry that produces oils for consumption and export, soaps and other products.

1.3 Sectoral Policy and Legislation

Linkages to regional development priorities

Principal phytosanitary Legislation is now in place to prevent the movement of coconuts from infested areas into areas where the disease is not known to occur.

The government is committed to the industry's rehabilitation**.** Currently, a project funded by MCC (Millennium Challenge Corporation) –United States, seeks to address the rehabilitation of areas devastated by this disease in the northern and central provinces in the country by cutting and replacing with a local tolerant variety apart from introducing and testing other varieties which may have tolerance or resistance to LY.

One of the core activities of the Inter-African Phytosanitary Council (IAPSC), the regional Plant Protection Organization (RPPO) for Africa, as defined in the Maputo Declaration (1954) under which it was established, is the *Capacity building among Member states in phytosanitary and plant protection activities*. The proposed project directly addresses this priority. More recently, the Comprehensive Africa Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD) under the African Union (AU) has defined four 'pillars' for improving Africa's agriculture, and among them, the improvement of trade related capacities for market access is specifically mentioned. These pillars are to be implemented through the Regional Economic Communities (RECS) which are eight. Mozambique is a member of the SADC which major initiatives include enhancing trade, implementation of Trade Protocol towards Free Market Zone from 2008, monitoring the regional initiatives to enable the Liberalization of Trading through sustainable programs, costumer's union activities to establish a common .market for SADC Countries, develop mechanisms to enhance a regional monetary union establishing harmonized and sustainable currency systems.

2. RATIONALE

2.1: Problems/Issues to be addressed

The project seeks to promote in particular the understanding and application of relevant International standards for Phytosanitary Measure (ISPMs); ISPM #4: *Requirements for the Establishment of Pest Free Areas*; ISPM #6: *Guidelines for surveillance*, and ISPM #8: *The determination of Pest Status in an Area* are particularly relevant here in that these standards are internationally recognized and give guidance to the establishment and maintenance of pest free areas.

The proposed project directly addresses STDF Theme 2: *Capacity building for public and private organisations, notably with respect to market access.* The project is directed towards capacity building of staff of NPPO and the private sector in the various provinces where coconuts are produced. This project will increase the ability of Mozambique to satisfy phytosanitary requirements for the export of coconuts to its major international markets, create wealth at all levels, from macro-economic growth to poverty reduction at both the individual and family level.

The project provides for synergies with ongoing activities and is expected to explore the establishment of lethal yellowing free production areas in the south, with supporting verification systems of surveillance as a basis for dialogue on trade resumption with trading partners.

South Africa has now closed its market to dried coconuts from Mozambique because of the occurrence of lethal yellowing disease in Mozambique. This has led to an actual loss of foreign exchange as well as opportunities for expanding market access either for dried coconuts or as planting material. Between 1994 and 2004 export losses per year average about 14 000 tonnes valued between USD 240 and USD 500 per tonne.

The government of Mozambique is justifiably concerned about the negative impact of a declining industry on the economy and nutrition and employment of its people. A healthy coconut industry would assist the country to achieve food security in addition to offering increased opportunity for trade and employment. The fact that a total of about 65 ha are owned by small holders would suggest that rural poor households would be severely affected by the occurrence and spread of lethal yellowing disease.

Project Justification

The impact of the project as outlined in various sections aforementioned suggest that the establishment and maintenance of lethal yellowing free areas in the south will complement very well ongoing work for revitalizing a major industry in Mozambique. Successful alternative management techniques are not known. The project is deemed to be technically and financially feasible and failure to capitalize on existing protocols for managing the disease may result in a progressive spread of the pest with more severe economic and social consequences.

2.2 Objectives of the Assistance

Development Objective:

To build phytosanitary capacity in Mozambique to implement ISPMs #4, #6, # 8 and #9 in their application to management of Lethal Yellowing Disease on palms, to increase market access for coconuts from Mozambique and to increase food security and income generation by contributing to a viable coconut industry

Specific objectives:

1. To conduct a national surveillance to determine the distribution of LYD, the varieties of palms affected and organisms which may act as vectors in the spread of the disease.
2. To identify mechanisms including vectors which contribute to the spread of the disease.
3. To identify and verify areas of apparent freedom from LYD.
4. To determine and initiate implementation of phytosanitary actions (legal, technical and administrative) required for establishing and maintaining pest freedom in those areas that can be designated as pest free.
5. To prepare a technical/scientific report as a basis for dialogue for the resumption of exports to South Africa.
6. To preserve environmental integrity and pest free areas from which disease free material can be used for propagation and to satisfy local industrial and consumption needs.
7. To conduct sensitization workshops with stakeholders regarding their possible roles in maintaining PFA.

2.3 Past and Related Work

Rehabilitation of the coconut industry -a project funded by MCC –seeks to address the rehabilitation of areas devastated by this disease in two Northern provinces in the country by cutting and replacing with a local tolerant variety the *Mozambique tall* apart from introducing and testing other varieties which may have tolerance or resistance to LY. The current strategy seeks to concentrate replacement in border areas of the sites of infection. This in an effort to contain the disease or at least slow its spread.

2.4 Stakeholders and Target Beneficiaries

National Directorate of Agrarian Services-Ministry of Agriculture, Mozambique
will be a major stakeholder in the rehabilitation of the coconut industry. This project will build on existing expertise for successful implementation of relevant international standards for establishing and maintaining pest freedom in the south

Coconut Industry – MADAL Company: This Company produces value added commodities like oils and soaps for local consumption and exports. It provides a ready outlet for smaller farmers by purchasing directly coconuts from farmers. This project should help to ensure viability of the industry.

Universidade Eduardo Mondlane
The university has about 16 000 students, most of who benefit from the Government. It has a well established Faculty of Agronomy and Forest Engineering, and offers a full range of courses in the field of plant protection. Required expertise and technical support will draw on resources of the university.

Farmers-small and large scale producers benefit directly by the project in that healthy plants provide for increased production, better incomes and farmer confidence in a situation where the solution to the problem is beyond their capabilities

Rural Poor. Many of these will find employment in a rejuvenated industry and enjoy increase farm incomes where appropriate

2.5 FAO's Comparative Advantage

FAO is well placed to respond to this situation because of its experience and expertise in this area. It has done similar work in establishment of pest free areas in for instance Belize, Panama and Costa Rica. The international standards of the International Plant Protection Convention are very relevant for this project and any intervention will draw on the experience of the IPPC in surveillance and establishment of pest free areas.

3. PROJECT FRAMEWORK

3.1 Impact

Increased food security and income generation through a viable coconut industry and market access for coconuts from Mozambique.

3.2 Outputs

1. Surveillance data and map showing distribution and plant host species of LYD.
2. Vectors and other mechanisms of disease spread identified.
3. Areas free from the pest identified and designated for maintenance as pest free areas.
4. Phytosanitary measures identified for application to establish and maintain pest freedom of designated areas.
5. A framework for dialogue and an agreement framework between Mozambique and SA regarding possible acceptance of coconuts from PFA.
6. A sensitized public and stakeholders regarding their possible roles in establishment and maintenance of PFA.

3.3 Sustainability

Elements of Sustainability and Feasibility

It is anticipated that the survey will provide possibilities for establishment and maintenance of a pest free area in the South. To date, there is no record of any vector for Lethal Yellowing Disease in the country, and should the survey confirm this to be true, the probability of successful management of pest free areas becomes much higher while costs of maintaining such an area would be greatly reduced. Further, the activities conducted by MCC and their strategy to replace susceptible varieties with tolerant varieties with emphasis on containment would certainly contribute to the probability of success of this project.

In the event that the findings show lethal yellowing is in the south, which seems unlikely at this stage, the question will then become whether it is technically and economically feasible to isolate large production areas for protection through the same strategy or whether the project merges with the objectives of the MCC strategy in the broader rehabilitation process.

Trained national staff and experts involved in the project will underpin the revival and maintenance strategy. The Government is committed to ensuring the rehabilitation of the industry, given its importance to the country and will make the necessary budgetary provisions for this activity. In the medium term, industry will be able to sustain itself through increased production, processed products and trade. The involvement of the private sector in processing is currently substantial, and sustainability is likely to be industry driven rather than government driven in the longer term.

The results of this project will be shared among stakeholders in the country, notably those directly involved in the industry and its rehabilitation. This will be important for proper coordination and role definition in the national effort to rehabilitate the coconut industry. Positive results will set the stage for urgent implementation and enforcement of national regulations to prevent the movement of infected material from infested areas to designated pest free areas. All regulatory personnel as well as the public will be sensitized regarding the national objective to encourage compliance and collaboration. External interests for example the NPPOs of South Africa and neighbouring countries will be notified of the results.

3.4 Risks and Assumptions

The outputs of the project are well defined and achievable. However, successful implementation requires a high level of coordination, national and regional cooperation, successful application and enforcement of legislative provisions to prevent movement of infested areas from designated

free zones, absence of effective vectors of the disease; The project also assumes that the acceptable level of protection required by trading partners would be met through the risk mitigating factors employed by the project. Assumptions and risks are detailed in Annex 2.

4. IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1: Institutional Framework and Coordination

The project will be grounded within the Ministry of Agriculture. A project Management Committee (PMC) will be comprised of six persons: Two from the Ministry of Agriculture, two from the Eduardo Mondlane University (EMU), one from the private sector and one from the IPPC Secretariat. The PMC will meet on project inception, twice during implementation and once for evaluation and defining next steps for project sustainability.

The practical project management, technical and financial reporting shall be the responsibility of FAO Mozambique. The IPPC, in its role as PMC member will provide technical supervisory services.

The surveillance programme will be organized specifically by a surveillance management/ implementing team of the lead phytopathologist (EMU), the lead Entomologist (EMU), the Head of the Plant Protection Unit, an international surveillance consultant and supported by the provincial experts in the Ministry of agriculture

4.2 Strategy/Methodology

The strategy will build on existing initiatives to rehabilitate the industry. The activities will be focussed with full participation of all stakeholders and partners. Surveillance will be conducted for delimiting the distribution of the pest, identifying areas which could be protect and designated as pest free areas. Surveillance for LYD may be limited to central and southern areas. Surveillance and testing for effective vectors as agents of disease spread will take place simultaneously across the country.

Specimens taken for testing will be done at the University and sent for verification at the coconut research centre in the United Republic of Tanzania.

Identification and application of phytosanitary measures to establish and maintain LYD free areas will be a very important step involving enforcement of legislative instruments to prevent movement of coconut material into the designated areas, replacing susceptible varieties with tolerant ones to form a buffer around the designated area and any other measure that prevents pest movement.

Training and public awareness will be integral components of the strategy. Personnel from the Federal and provincial governments, private sector and collaborating partners will be trained in surveillance methodology for effective and consistent data gathering. The public will be sensitized through awareness campaign activities for their cooperation and compliance with legal and cultural enforcement mechanisms.

Surveillance data will form the basis of understanding pest distribution, effectiveness of phytosanitary measures applied, declaration of pest freedom and dialogue with trading partners.

4.3 Capacity Building

The project intends to strengthen the capacity of relevant personnel on the implementation of international standards relevant to the identification, establishment and maintenance of pest free areas regarding LYD in Mozambique It will build on existing capacities both within the Government service as well as partners from the private sector and collaborating institutions. Both personnel and institutional frameworks will be strengthened for sustainability.

4.4 Government Inputs

The Government of Mozambique, at its own cost, will make available facilities and other resources necessary for successful implementation of the project. In particular, it will:

- provide services of technical personnel needed to ensure successful completion of the project and in particular, officers of the core plant protection team who could be counterpart to consultants and other collaborating institutions to ensure adequate technology transfer and sustainability of the project;
- provide laboratory facilities for testing or culturing vectors, preparing samples for identification or verification make available office space and facilities, as well as transportation where necessary, for use by the consultants and for the project activities;
- identify and release for training those officers for whom training is required;
- and adopt a long-term strategy for sustaining and further strengthening the national capabilities for managing the threat of LYD to national production and export;
- exempt from taxes/duties all equipment and supplies provided by this project;
- provide 10 percent of the financial resources of the project as outlined as government responsibilities in the budget.

4.4 Donor Inputs

The budget approved by the STDF is given in Annex 11. This has been transformed to the FAO format presented below and showing only those components to be managed by FAO.
The STDF will provide USD 346 528 of the total budget to support activities as detailed in the budget in Annex 1. This is inclusive of USD 20 000 for external evaluation of the project but not reflected in the budget to be managed by FAO. Budget details are as follows:

Consultants

One International Pest surveillance consultant whose TORs is attached (for one month).
One National Consultant Entomologist - seven months (WAE) over one year at USD 3 500 per month. One National consultant Phytopathologist - seven months (WAE) over one year at USD 3 500 per month One National Phytosanitary Consultant for six months (WAE) over one year at USD 3 500 per month Soil Nutrition Specialist/Agronomist for four months (WAE) over one year at USD 3 500 per month

Technical Supervisory Services (IPPC), 1.5 months in three missions. These missions will be linked to Project Management Committee meetings for the project

Travel for supporting TSS and consultants is detailed in the budget, **USD 28 860**

Workshops, Meetings, Training

Four (4) Management/coordination meetings (travel and accommodation where necessary, document preparation etc) and training workshops for surveillance staff are provided for in the budget, **USD 17 000**.

USD 10 000 is budgeted for preparation of a database by the International Pest Surveillance Consultant

Equipment

The project requires much equipment for project implementation as well as to provide reliable and credible results. USD **125 771** is provided for this purpose. The items are detailed in Annex 4.

General Operating Expenses

To cover costs relating to the operation of transport vehicles (fuel and oil) communications, utilities, manuals preparation, printings, **USD 12 000**. Government contribution of **USD 12 000** to this component is anticipated.

Direct operating costs
To cover miscellaneous expenses at FAO headquarters, budget holder's activities related to the implementation of the project. **USD 39 183**

4.5 Technical Support/Linkages

The project will be managed by FAO Mozambique. Technical support will be provided by the IPPC Secretariat. Collaborating institutions such as the university, provincial governments, MADAL and the MCC will also provide inputs to implementation of the project

5. OVERSIGHT, MONITORING, MANAGEMENT INFORMATION AND REPORTING

The reporting on the progress of the project, including financial reporting, to the STDF and to partners will be carried out by FAO Mozambique and endorsed by the IPPC. Two half yearly interim reports and a final report will be technically cleared by the IPPC in its role of providing technical and supervisory services and forwarded to the STDF.

The results of this project will be shared among stakeholders in the country, notably those directly involved in the industry and its rehabilitation. This will be important for proper coordination and role definition in the national effort to rehabilitate the coconut industry. Positive results will set the stage for urgent implementation and enforcement of national regulations to prevent the movement of infected material from infested areas to designated pest free areas. All regulatory personnel as well as the public will be sensitized regarding the national objective to encourage compliance and collaboration. External interests for example the NPPOs of South Africa and neighbouring countries will be notified of the results.

An external evaluation will be conducted at the end of the project by an independent evaluator to be appointed by the STDF Secretariat.

Budget **Annex 1**

Country: **MOZAMBIQUE**
Project title: Establishment of Pest Free Areas regarding Lethal Yellowing Disease of Coconuts in Mozambique
Project symbol: MTF/MOZ/098/STF

Comp.	Component Description	Sub Comps.	Main Comp.
5013	**Consultants**		**103 000**
5542	Consultants - International	19 000	
5543	Consultants - National	84 000	
5014	**Contracts**		**10 000**
5650	Contracts Budget	10,000	
5021	**Travel**		**28 860**
5661	Duty travel others (only FAO staff)		
5684	International Consultants	6 000	
5685	Consultants - National		
5692	Travel TSS	20 160	
5698	Travel – Non-staff (e.g. counterparts)	2 700	
5023	**Training**		**17 000**
5920	**Training Budget**	17 000	
5025	**Non Expendable Equipment**		**125 771**
6100	Non Expendable Equipment Budget	125 771	
5027	**Technical Support Services**		
6111	Report Costs	2 000	**29 897**
6120	Honorarium TSS	27 897	
5028	**General Operating Expenses**		**12 000**
6300	General Operating Expenses Budget	12 000	
5029	**Support Cost**		**39 183**
6118	Direct Operating Costs/PSC	39 183	
	Grand Total		**365 711**

Logical Framework **Annex 2**

Design Summary	Indicators/Targets	Data Sources	Assumptions
Impact Increased food security and income generation through a viable coconut industry and market access for coconuts from Mozambique	LYD free production in South Mozambique industry intake from farmers increased increased employment at farm and processing level bilateral protocols developed with South Africa	• Production and employment reports • farm incomes and industry output data	• South Africa will accept LYD–free status
Expected Outcome LYD - free area established and maintained in South of Mozambique	• Official declaration of pest freedom • Legislation enforced • Phytosanitary measures in place	• Legislation • gazette decrees • surveillance data for verification	A compliant and cooperative public Effective vectors are absent
Expected outputs: 1. Surveillance data and map showing the occurrence, distribution and plant host species of LYD 2. Vectors and other mechanisms of disease spread identified 3. Areas free from the pest identified and designated for maintenance as pest free areas	Database with surveillance data; No. of samples sent for verification Pest distribution maps Results of infectivity tests Samples of possible vectors Surveillance data and maps indicating infested and non infested areas	Progress reports and surveillance data; Provincial records and consultants reports. Reports and records Reports, maps and surveillance data	Surveillance programme is well coordinated and supported by provincial directorates Stability of pest status in the south is maintained

4. Phytosanitary measures identified for application to establish and maintain pest freedom of designated areas	Phytosanitary legislation and internal quarantine mechanisms enforced	administrative provisions, legislation, programme of phytosanitary measures outlined	effective enforcement of legislation
5. A framework for dialogue and an agreement framework between SA and Mozambique regarding possible acceptance of coconuts from PFA	reports from monitoring surveys available;	surveillance data, information sent to S.A	surveillance data is credible
6. A sensitized public and stakeholders regarding their possible roles in establishment and maintenance of PFA	No movement of infected material reported or, incidences of interception reported	A public awareness programme with appropriate supporting materials and reports. enacted legislation	public awareness programme will reach all concerned
Activities 1.1: Appointment of PMC, pest surveillance management team; Recruitment of Consultants	PMC appointed; stakeholders consulted; Consultants identified and appointed	Reports, correspondence and contracts prepared	none
2. Training of pest surveillance team and related ISPMs	Training manual and training schedule in provinces	Reports Monitoring and evaluation missions	none
3.1 PMC meeting to develop a realistic work plan as well as to discuss the project and define roles	Detailed work plan	Report of meetings	None

3.2 Meeting with Provincial Directorates and stakeholders to discuss logistical and technical requirements for each province	Meeting reports and decisions	Meeting reports	None
4.1 Preparation of a survey protocol for LYD 4.2 Preparation of a survey plan for vectors of LYD and protocol for infectivity testing of potential vectors 4.3 Preparation of procedure for testing soil nutrient content	Survey plans for LYD and infectivity tests of vectors Documented procedure for testing soil nutrient	Invoices, records, reports Field visits Reports Reports	none infectivity tests are conclusive
4.4 Discussion of protocol with South Africa NPPO to facilitate agreement on and acceptance of protocols	Meeting agenda and invitation	Meeting Report	The NPPO of S.A. will agree to participate in discussions
4.5 Identification and training of personnel from the provinces	List of participants from each province; training programme and schedule	Training materials and workshop reports	Trainable personnel are available in each target province
5.2 Prepare a MoU regarding on sample preparation, timing of delivery and identification services for samples	MoU with verification institute	documents	Timely processing of samples is possible
6.Procurement of Equipment to support surveillance of targets	Procured equipment	invoices	Equipment are readily available
7. Develop and implement a public awareness campaign for			Transport arrangements

partners and stakeholders for cooperation to realize the project objectives			are adequate
8. 1 Systematic Implementation of the survey plans for LYD and vectors	Survey data	reports and record of samples collected	materials are available
8.2 Set up screen house for vector infectivity tests in a specified province	Screen house erected in specified provinces	Invoices	None
9. Preparation of technical reports/data on disease occurrence, host plants affected, vectors found/tested for infectivity	Technical reports, distribution maps	Reports and maps	The pest does not occur in the South None
10. Identification of production areas and measures to establish and or maintain pest freedom	Pest distribution maps, delimited pest free areas; Measures identified with schedule for implementation	Maps and reports Schedules for application	None
11.Meetings of PMC and Stakeholders	Decisions reached	Report of meetings	
12. Evaluation and Reporting	Evaluation reports available and circulated	reports	None

Work Plan and Implementation Schedule **Annex 3**

Activity	Activity Description	Timing					
		Q1	Q2	Q3	Q4	Q5	Q6
Activity 1	1.1 Appointment of the Project Management Committee 1.2 Appointment of a Pest Surveillance Management Team 1.3 Recruitment of Consultants 1.4 Identifying stakeholders (private and public)	xx xx					
Activity 2	Training of pest surveillance team in pest surveillance and related ISPMs						
Activity 3	3.1 PMC meeting to develop a realistic work plan as well as to discuss the project and define roles 3.2 Meeting with Provincial Directorates and stakeholders to discuss logistical and technical requirements for each province						
Activity 4	4.1 Preparation of a survey protocol and survey strategy for LYD 4.2 Preparation of a survey plan for vectors of LYD and protocol for infectivity testing of potential vectors 4.3 Preparation of procedure for testing soil nutrient content 4.4 Discussion of protocol with South Africa NPPO to facilitate agreement on and acceptance of protocols 4.5 Identification and training of personnel from the various provinces to assist in conducting surveys in their provinces						
Activity 5	5.1 Identify collaborators for sample analyses and independent verification of samples (within or outside the region) 5.2 Prepare a MoU regarding on sample preparation, timing of delivery and identification services for samples		Xx xx				
Activity 6	6.1 Procurement of equipment to support surveillance of targets	xx	xx	xx			
Activity 7	7.1 Systematic Implementation of the survey plan, samples collection, identification and verification of LYD						

	7.2 Systematic implementation of survey plan for vectors						
Activity 8	Procure and set up screen house for vector infectivity tests in a specified province		xx	xx	xx	xx	xx
Activity 9	Preparation of technical report/data on disease occurrence, host plants affected, vectors found/tested for infectivity		xx	xx	xx	xx	xx
Activity 10	Analysis of results and identification of production areas for application of phytosanitary measures to establish and or maintain pest freedom				xx	xx	xx
Activity 11	Identification of phytosanitary measures to be applied for establishment and or maintenance of pest free areas				xx	xx	Xx
Activity 12	Meetings of PMC and Stakeholders	xx	xx		xx		Xx
Activity 13	Evaluation and Reporting; Discussion of results with SA.		xx		xx		Xx

Equipment List **Annex 4**

Description	Quantity	Unit Price (USD)	Total Price (USD)
Thermal cycler (PCRmachine), 96X0.2 ml	1	5,000.00	5,000.00
Carolina TM Gel electrophoresis chamber set	1	400.00	400.00
Carolina™ Electrophoresis Power Supply	1	350.00	350.00
UV Transilluminator/Digital Camera System	1	3,500.00	3,500.00
96 well Micro plate ELISA Reader (400-750nm spectral range)	1	4,000.00	4,000.00
Autoclave, Tuttnauer Classic, Model 2340M, Chamber 9 x 18 in	1	4,250.00	4,250.00
Handheld GPS	6	500.00	3,000.00
Microwave oven	1	350.00	350.00
Eppendorf High-Speed Microcentrifuge	1	3,250.00	3,250.00
Deep-freezer (-200C)	1	1,000.00	1,000.00
Microfuge tubes (0.5, 1.5, and 2.0 ml)			500.00
Timer	1.00	30.00	30.00
Multichannel pipettes (8 channels): 20 - 200 ul	1.00	1,068.00	1,068.00
Reagent reservoir for multichannel pipette	1xPkt/100	228.00	228.00
Automatic pipette (adjustable for 0,5 - 1 ul)	1.00	380.00	380.00
Micropipette: (1 - 10 ul), (10-100 ul), (100-1000 ul)			1,000.00
Pipette Tips (100 ul)	2x1000	29.00	58.00
Pipette Tips (200 ul)	2x1000	14.00	28.00
Pipette Tips (1 000 ul)	2x1000	17.00	34.00
Watman n1 Filter paper 11 mm - 90 mm	10xPkt/100	9.50	95.00
Examination latex gloves: 5xsmall, 5x medium, 5xlarge	25xPkt/100	6.00	150.00
Digital camera			500.00
Chemicals			5,000.00
Sampling bags			
Greenhouse/glasshouse	2	45,000	90,000
Soil corers	3	200	600
Regional maps			1,000
Total Equipment Budget			**125,771**

TORs for National Surveillance Consultant - Phytopathologist/Virologist **Annex 5**

Under the overall supervision and guidance of the FAO Representative in Mozambique, and under the direct technical supervision of the Plant Protection Service, AGPP/IPPC, and in close collaboration with the Plant Protection Department and the national project coordinator:

- prepare a survey plan for lethal yellowing disease on palms;
- prepare protocols for sampling, collecting, preparation, documentation, testing, identification and verification of samples;
- train support staff from the various provinces to undertake specific tasks as outlined in the protocols;
- organize and coordinate teams as appropriate to assist in the surveillance;
- liaise with regional and international institutes for their support in identification and verification of samples and develop an appropriate MoU or protocol for such collaboration;
- analyse data collected to determine the prevalence, distribution and host plants affected by the disease;
- prepare maps delimiting the occurrence of the disease;
- identify production areas where the disease is not yet present and which might be maintained as pest free;
- prepare a report detailing the results and recommendations for follow-up action.

Qualifications: Candidate must have an advanced degree in the required area of specialization with demonstrated experience in Pest surveillance of pathogens and mycoplasma

Terms of Reference for National Surveillance Consultant - Entomologist Annex 6

Under the overall supervision and guidance of the FAO Representative in Mozambique, and under the direct technical supervision of the Plant Protection Service, AGPP/IPPC, and in close collaboration with the Plant Protection Department and the national project coordinator:

- undertake a literature search on known or suspected vectors of the phytoplasma of Lethal yellowing disease, and any documented cases in Mozambique;
- prepare survey protocols for those vectors or their taxonomic groups which are likely to be in Mozambique;
- train supporting staff for undertaking such surveys;
- manage an island wide survey for possible agents (arthropods) of spread;
- conduct infectivity tests/screen suspected agents of disease spread;
- determine other mechanisms of spread of the disease;
- determine the role of vectors in Mozambique through correlations with disease occurrence and spread patterns;
- prepare a report and recommendations for limiting the spread of the disease through arthropods or other mechanism.

Qualifications: Candidate must have an advanced degree in the required area of specialization with demonstrated experience in Pest surveillance of insect pests or arthropods.

Terms of Reference for National Consultant - Soil Scientist **Annex 7**

Under the overall supervision and guidance of the FAO Representative in Mozambique, and under the direct technical supervision of the Plant Protection Service, AGPP/IPPC, and in close collaboration with the Plant Protection Department and the national project coordinator:

- study the occurrence of lethal yellowing disease in Mozambique;
- take and process samples from disease –infected and non disease infected production areas for nutritional quality;
- determine the role of soil nutrition in the incidence of lethal yellowing in Mozambique;
- prepare soil sampling and processing procedures and train support staff in their use;
- prepare a report at the end of the mission detailing the findings.

Qualifications: An advanced degree in soil science and at least five years relevant experience in testing for soil nutrients as applied to plant health

Terms of Reference for International Pest Surveillance Consultant **Annex 8**

Under the overall supervision and guidance of the FAO Representative in Mozambique, and under the direct technical supervision of the Plant Protection Service, AGPP/IPPC, and in close collaboration with the Plant Protection Department and the national project coordinator:

- train local staff in general and specific pest surveillance; pest listing, pest status in an area, and pest reporting in accordance with the relevant international standards for phytosanitary measures;
- demonstrate the use of relevant soft ware and tools to aid in the surveillance where necessary;
- assist in the procurement of units of soft ware and tools for use by the national team;
- if appropriate, give training in the application and use of these tools both in the lab as well as in the field;
- guide the national surveillance team in its organization of the surveillance programme
- prepare a format for data collection which takes into account transfer of the data into an electronic database;
- prepare a report at the end of the mission.

Qualifications: An advanced degree in plant pathology or crop protection with five years experience in pest surveillance, preferably in surveillance for LYD or similar organisms.

Terms of Reference for National Phytosanitary Consultant **Annex 9**

Under the overall supervision and guidance of the FAO Representative in Mozambique, and under the direct technical supervision of the Plant Protection Service, AGPP/IPPC, and in close collaboration with the Plant Protection Department:

- make preparations for all activities under this project and ensure smooth implementation and coordination of the project activities;
- assume responsibility for making internal arrangements to facilitate the consultants missions, coordination meetings including scheduling visits, organizing the stakeholders' workshops, transportation and general mobilization of resources;
- coordinate the development and implementation of a comprehensive public awareness campaign;
- liaise with relevant external institutions to ensure that supporting activities carried out by these organizations are performed in accordance to international norms and in a timely manner;
- discuss the survey plan and protocol with the NPPO of South Africa for their endorsement towards acceptance of the outcomes;
- give guidance to the surveillance strategy with regard to availability of resources in the various provinces;
- assist in the preparations for the training courses including logistical inputs;
- provide support to the various surveillance activities such as storage of specimens, packaging for identification, documentation;
- assist in defining next steps in accordance with the national strategy for development of the coconut industry;
- prepare a draft final report at the end of the project.

Qualifications: An advanced degree in plant protection with at least five years experience with the managing national phytosanitary systems.

Terms of Reference for IPPC Officer **Annex 10**

Under the overall supervision of the FAO Representative in Mozambique, and under the direct technical supervision of the Plant Protection Service, AGPP, and in close collaboration with the Plant Protection Department and the collaborating agencies, the IPPC Officer will:

- participate in all Project Management Committee meetings;
- identify and select consultants to the project;
- convene coordination meetings regarding implementation of the project;
- provide technical advice on the surveillance strategy and phytosanitary strategies to be applied against LYD;
- clear the work plan developed for implementation of the project;
- participate, where possible, in stakeholders meetings to be held under the project;
- establish a forum for discussion between the NPPOs of South Africa and Mozambique and provide technical support as necessary for dispute resolution;
- clear the reports of all consultants;
- conduct periodic review of the programme for technical and operational suitability;
- provide advice to the project management team on implementation of project activities;
- liaise with the STDF Committee on progress of the project;
- assess the nature, scope and impact of the outputs in the various areas – policies, legislative framework and institutional aspects (where necessary seeking the advice of LEGN) to strengthen the new mechanisms in Mozambique for collaboration between the central government and provincial government agencies;
- meet with donors and government representatives to discuss proposals for sustainability of the project;
- participate in the project evaluation and clear the final report for submission to the STDF.

STDF Approved Budget **Annex 11**

Project components	**STDF Contribution USD**	**Government Contribution USD**	**Total cost USD**
Personnel			
One National Consultant Entomologist -7 months (WAE) over one year at USD 3 500 per month	24,500		24,500
One National consultant Phytopathologist- 7 months (WAE) over one year at 3 500 per month	24,500		24,500
One National Phytosanitary Consultant for 6 months (WAE) over one year at 3 500 per month	21,000		21,000
Soil Nutrition Specialist/Agronomist for 4 months (WAE) over one year at 3 500 per month	14,000		14,000
One International Pest surveillance expert for 1 month in two mission	15,000		15,000
Key national support staff (sample preparation for analysis, storage, packaging, documentation etc) for 6 months (WAE) at USD 150/month	2,700	5,000	7,700
Technical Supervisory Services (IPPC) 1.5 months in 3 missions (full cost recovery)	52,057		52,057
Workshops/meetings			
4 Management/ coordination meetings (travel and accommodation where necessary, document preparation etc.)	10,000	4,000	14,000
Training workshop for surveillance staff	7,000	5,000	12,000
Information Management			
Preparation of a database to support surveillance data computer and software	10,000	5,000	15,000
Preparation of survey protocol		-	
Internal Travel and Transport (fuel for vehicle and vehicle rental)	10,000	12,000	22,000
Equipment to support surveillance programme	125,771		125,771

National laboratory facilities and office space etc	-	8,000	8,000
Contract with supporting institutions for identification and verification	10,000		10,000
External Evaluation	20,000		20,000
Total	**346,528**	**39,000**	**385,528**