

STDF PROJECT PREPARATION GRANT (PPG)

APPLICATION FORM

The Standards and Trade Development Facility (STDF) provides Project Preparation Grants (PPGs), up to a maximum of US\$50,000, for the following purposes (or a combination thereof):

- application of SPS-related capacity evaluation and prioritization tools;
- preparation of feasibility studies that may precede project development to assess the potential impact and economic viability of proposals in terms of their expected costs and benefits; and/or
- preparation of projects proposals that promote compliance with international SPS requirements, for funding by the STDF or other donors.

Applications that meet the STDF's eligibility criteria are considered by the STDF Working Group, which makes the final decision on funding requests. Complete details on eligibility criteria and other requirements are available in the Guidance Note for Applicants on the STDF website (www.standardsfacility.org). Please read the Guidance Note before completing this form. Completed applications should be sent by email (as Word documents) to STDFSecretariat@wto.org.

PPG Title	Developing Virus Indexing Capacity for Planting Materials
Budget requested from STDF	US\$31,096
Full name and contact details of the requesting organization(s)	The Director of Agriculture Research Services, Department of Agricultural Research Services, P.O Box 30779 Lilongwe 3 Malawi
Full name and contact details of contact person for follow-up	Dr. Alfred P. Mtukuso/Misheck M.M. Soko, Department of Agricultural Research Services, P.O. Box 30779, Lilongwe3 pamtukuso@gmail.com / m.soko@bvumbweresearch.com

Background and Rationale

Purpose

The purpose of this submission is to seek assistance for the preparation of a detailed project proposal on Capacity Building for indexing and production of virus-free planting materials for consideration by STDF jointly with other development partners or donors.

Key SPS problems and/or opportunities to be addressed

The second generation Malawi Growth and Development Strategy (MGDS II) seeks to improve the country's current account position through an export-led growth, heavy investment in Agriculture, manufacturing, mining and tourism over five years. It also identifies six broad thematic areas the country intends to implement in order to achieve economic growth and wealth creation which are critical for immediate improvement in the economic well-being of Malawians. Amongst them are agriculture and food security and integrated rural development.

The agricultural sector is considered in the MGDS as one of the national top priorities because the country's economy is agricultural based with the sector contributing over 80% of the foreign earnings. Annual agri-food exports averaged around US\$870 million over the period 2007 to 2010. Exports were largely dominated by tobacco, which accounted for around two thirds of agri-food exports. Significant amounts of coffee, tea, sugar and cotton accounted for most of the remainder.

Agri-food exports from Malawi that have the highest degree of SPS sensitivity include fish, live animals, meat and other animal products, fruits and vegetables and planting materials. Most of the agricultural production in the country is by smallholder farmers except in few cases where their participation remains very minimal. Malawi's agri-food trade is directed predominantly to Europe, though recently exports to neighboring countries have been on the increase (especially the Democratic Republic of Congo and South Africa). All the export markets have specific SPS requirements. Malawi also imports a lot of agricultural based commodities like fruits and vegetables from most of the countries within the region and more so from neighboring countries like Zambia, Mozambique and Tanzania. Zimbabwe also contributes a fair share of this import.

The Government of Malawi is promoting the intensification of horticultural crop production for export, including fruit pulp products to mitigate the geographical and infrastructure challenges faced by Malawian exporters. Export potential also exists for planting materials to regional markets. Bananas are not currently a major export but there is potential. Bananas are imported occasionally from South Africa, Tanzania and Mozambique on a limited scale. There is strong growth in demand for mango and banana pulp in global and regional markets. Malawi Mangoes (MM) Ltd. was established recently to take advantage of this potential to produce and export mango and banana pulp, and supports this application (see below). Virus-free seed and planting materials remain a key input for improved productivity and food security. While virus-free seeds and planting materials are one of the most important inputs for agriculture in Malawi, their availability (particularly for smallholder producers) is limited by insufficient domestic supply and the implementation of phytosanitary and quarantine legislation to prevent the entry, via trade, of seeds and planting materials infected by plant pests. While planting materials imported from South Africa are reliable because indexing is done, there are concerns that unclean materials are brought in from neighbouring countries (e.g. Mozambique and Zambia) due to the porosity of local borders, informal trade in planting materials, movements of people and informal exchange of germplasm by families living along the borders, etc.

Most horticultural crops in Malawi, such as Irish potatoes, bananas, sweet potatoes and pineapples, are propagated from live vegetative planting material. Banana, which is both a staple food in some areas of the country and a source of income for most growers, is facing extinction due to Banana Bunchy top disease which is caused by the Banana Bunchy Top virus. This disease has also been reported in Zambia and Mozambique and will likely cross into neighboring countries, spelling disaster in the region. Unfortunately, like most if not all viral diseases of plants, there is no chemical treatment. The same is the case with viral diseases in potato and pineapples. The risk therefore is that in all vegetatively propagated crops pests and diseases can be carried through to succeeding crops. In particular viruses and mycoplasma-like organisms are readily transmissible through vegetative planting material even if they go through a tissue culture phase. This therefore directly affects movement of banana planting materials within the

region, and beyond, such that availability of planting materials remains a big challenge. To address the issues associated with Banana Bunchy Top virus, the Government is seeking support to develop capacity to test and certify live planting material in Malawi. Certification will call for indexing for viruses in such crops which will eventually lead to improved horticulture productivity. It will also facilitate the development of new exports in certified virus-free planting materials for bananas to neighboring countries, which presently do not have such facilities.

This PPG will therefore aim to develop a project to increase the availability of disease-free (certified) planting materials in Malawi and promote exports to neighbouring countries. This is expected to enhance banana production and address problems related to the spread of the Bunchy Top virus in Malawi and elsewhere in the region, and diversify exports and generate revenues through trade in clean planting materials to regional markets. The project is likely to directly benefit smallholder farmers in Malawi and the region (many of whom are women) who currently have very limited access to safe banana planting materials, as well as the industry. The industry, the National Plant Protection Organization (NPPO) and researchers have a crucial role to play in attaining this goal.

Virus indexing is the testing of materials to confirm presence or absence of transmissible viruses or diseases, with the purpose of preventing distributions or establishment of infected planting materials. It is done to identify previously characterized viruses. This is very important because viruses are difficult to eliminate without eliminating the host, therefore infected plants or plant lots must be removed as early as possible before they get into the field. All pathogens (disease causing organisms) that infect vegetatively propagated crops are transmitted through regeneration parts. In order to conduct effective virus indexing, the basic requirements include:

- Well equipped laboratory and associated facilities
- Well trained staff
- Robust virus indexing procedures

Virus Indexing Capacity for Planting Materials was one of the top four ranked priorities that emerged from work to use the Multi Criteria Decision Analysis (MCDA) framework to prioritize SPS capacity options in Malawi in 2011. The MCDA work indicated that virus indexing of planting materials would have a strong impact on poverty reduction and vulnerable groups since crops like banana, potato and cassava are grown by many smallholders and any improvement in yield resulting from use of clean materials will likely have an immediate impact. Most of the people involved in banana and potato business in Malawi are women, and this would have an obvious impact on their wellbeing.

The MCDA analysis also revealed that virus indexing ranked very high in terms of both trade diversification and agricultural productivity. Currently all indexed materials of bananas and potato are imported from South Africa, which renders them non-accessible to small holder farmers. With the presence of bunchy top disease in Zambia and Mozambique, Malawi's nearest neighbors, the project will provide an opportunity for diversification in terms of exports as Malawi would likely offer a cheaper source of disease free planting materials for these two countries.

There is a serious shortfall in human and infrastructural capacity to manage phytosanitary issues in Malawi and this needs to be further developed. Complementary measures to ensure that risks related to the spread of Banana Bunchy Top virus would also have to be put in place. Containment measures would include public campaign for the destruction of all old banana plantations/matts, which as of now are believed to be carrying the virus. The destruction will have to be procedurally; physical digging or destruction by use of chemicals/herbicides. Designated nurseries will have to be established, using indexed materials, which would be

routinely inspected for freedom from the disease and additionally plants routinely indexed. These will be used as nucleus or primary nurseries. This will also have to be followed by intensive surveillance for the disease, associated with destruction of symptomatic plants.

Government agencies, private sector, academic or other organizations in support of this PPG request

The need for a project proposal on capacity building in virus indexing in horticultural sector in Malawi is supported by public and private sector organizations involved in agri-food sector. Written support for this PPG is included from sample institutions, namely: Ministry of Industry and Trade, World Vision Malawi, Malawi Mangoes Limited and the Department of Crop Development in the Ministry of Agriculture.

Mangoes Malawi¹ is a privately-owned company which has just been established in Malawi, with investors from Europe and represents the first large scale fruit processing facility in the country. Its major focus is on commercial production of fruits and fruit products, particularly mangoes and bananas. Currently they have the largest banana plantation of 800 ha and expansion plans are in place, though this will depend to a large extent on the availability of disease free planting materials. Malawi Mangoes Ltd is building a processing plant to convert banana and mango into concentrate and pureé for export to African, Western and Asian beverage and retail markets. The business model is to source large volumes of bananas and mangoes from smallholder farmers and its own plantations. Bananas will be grown on the company's own plantation in the first instance, partly to control the Bunchy Top virus disease. In an area where less than 15% of the population has regular employment, MM plans to generate over 1,000 jobs in farm work and at their processing plant.

The **Ministry of Industry and Trade** is the main driver in trade and industrialization of the country. They are also responsible for the provision of relevant information related to trade and are key in trade negotiations.

The **Department of Crop Development** which is in the Ministry of Agriculture and Food Security is responsible for promotion of crop production and therefore very key in the development of crop production policies. It is also responsible for providing the link between stakeholders in the agricultural sector with relevant institutions/ministries.

The **Banana Bunchy Top Task Force** was commissioned by the Ministry of Agriculture and Food Security to spearhead efforts to manage Banana Bunchy top diseases in Malawi. It is composed of a variety of stakeholders; including FAO, Civil society, Farmers Union of Malawi and all departments in the Ministry of Agriculture (Extension, Crops Development and research). It has drawn recommendations for the management of the disease and one of them is to formulate proposals for submission to donors for possible funding.

World Vision Malawi as an NGO is directly involved in the promotion of crop production through its economic empowerment programmes. Crop production and productivity as one of the focus areas has been affected seriously by different diseases, where in some cases has led to the abandonment of programmes.

Complementarity and/or links to past, ongoing and/or planned national programmes and/or donor-supported projects

¹ For information on Mangoes Malawi, see <http://businessinnovationfacility.org/page/malawi-mangoes-farm-planning-malawi>

The government is keen to diversify its economy into horticultural crop production after realizing that it is an area with great economic potential. Currently most of the horticultural fruits and vegetables came from South Africa putting further strain on the scarce foreign exchange. There are two horticultural projects in the country; one is funded by the EU called Farm Income Diversification Project (FIDP) and another jointly by Irish and Scottish Aid. These projects will be direct beneficiaries of any activities/projects to result from this PPG.

The effects of virus diseases are quite obvious in bananas programmes propelled by the FIDP and World Vision Malawi. The FIDP project is promoting agricultural productivity and natural resources management, with a lot of effort directed towards fruit production. Their efforts towards banana production have been hampered by Banana bunchy top disease. This means that in areas where banana is the best option, the project has failed to deliver because there is no source of disease free suckers and the capacity to index whatever banana planting material is there is very limited. As a result of this the crop is being abandoned with time despite the economic potential it has.

Bioversity International in collaboration with Malawi government initiated a project which is looking at building capacity in banana seed systems and also piloting the reestablishment of Cavendish plantations in two villages in Nkhata-bay district. The focus of the project is the use of macro-propagation techniques to establish planting materials for farmers in those areas. The funding is very limited (US\$25,000 in the first phase and US\$70,000 in the second phase). The other set back is that the method of propagation employed in this project has a very low multiplication rate. The activities include destruction of infected plants, taking the multiplication technique to the farmers and strengthening surveillances and preserving the areas which do not yet have the disease thus; Chitipa and Karonga districts in northern Malawi. Data on disease epidemiology will also be collected in order to understand more about the disease and the vector.

The potato project, which is funded by the Irish and Scottish Aid, has bought some basic equipment for virus indexing in potato which has been installed at Chitedze Research Station, which is one of the Research Institutions under the Department of Agricultural Research Services, in the Ministry of Agriculture and Food Security. The project has trained one scientist to do indexing for potato viruses. Some backup indexing is being conducted at Scottish Crop Research Institute in the United Kingdom. It is also doing all the pathogen characterization. The project has also rehabilitated a tissue culture facility to complement the effort of producing disease-free planting materials. The same tissue culture facility is supposed to be shared with the project to be formulated through this PPG but has a very limited capacity both in terms of human and space and apparatus. With banana bunchy top around there is need for massive production of banana planting materials as production will have to provide for the renewal of orchards within the shortest prescribed intervals based on surveillance and testing/indexing. The same requirement is anticipated in the neighboring countries that are affected by the disease.

There is an urgent need to expand the tissue culture capacity to effectively cater for banana, while at the same time establish associated facilities (for hardening/conditioning) for banana multiplication. Our Plant Protection Act (1969) clearly spells out that banana planting material can only be allowed into the country if it has been indexed for viruses and is a product of tissue culture. This is a standard condition therefore applicable to most, if not all countries.

The country does not have banana clean seed multiplication capacity, including virus indexing facilities and limited trained personnel to run such a facility. Currently government through its extension department is making efforts to create public awareness on possible containment measures, which includes destruction of infected plants, use of clean planting materials and control of movement of suckers from areas with the disease to disease free areas. This is

however challenged by lack of certified source of clean planting materials to back up the prescription. As of to date, neither Zambia nor Mozambique produces disease free banana planting materials. Indexed materials are only available from South Africa and are either sold as small (5cm) plantlets or as small suckers of about 20cm. The later is very bulky and therefore extremely expensive to transport. Currently the price for each plantlet of 5cm transported to Malawi is about US\$0.80 to 0.90. There is also a minimum amount (2,000) which can be packaged per shipment making it even more difficult for small scale farmers to afford.

Discussions with potential donors (bilateral, multilateral, Enhanced Integrated Framework, etc)

Preliminary discussions have been held with FAO, Malawi office who showed some interest but without any commitment. They are also part of the task force for Banana Bunchy Top Disease, which was constituted by the Ministry of Agriculture in 2006. The EU (FIDP) and World Bank would be other possible donors that would be consulted during the implementation of the PPG. USAID is also another possible donor and discussions were initiated through the SPS expert office in Pretoria, South Africa.

Expected outcomes

The consultant will formulate a full project proposal to be submitted for funding to STDF and any other possible development partners which will have to address, among other things, the following:

- Detailed situation analysis of banana virus disease in Malawi and assessment on the feasibility to develop a supply of clean planting materials (for local use and export to regional markets) including capacity to adequately contain the virus
- Stakeholder analysis identifying public and private sector interest in the project to be developed, their contributions (if any) and related capacity constraints
- Infrastructural requirements (Laboratory equipment, Seed multiplication facilities and associated facilities – screen houses, hardening sheds, etc) to develop virus indexing capacity
- Human capacity requirements (capacity in virus indexing and tissue culturing at professional and technical level)
- Economic and social benefits

It is anticipated that the project will specifically focus in areas where banana was the main crop before the disease. This includes Nkhatabay, Nkotakota, Salima, Thyolo and Mulanje districts. In these districts the farmers livelihood has been seriously affected and the need to bring back hope to them is a priority to the government of Malawi. Clean planting material that will be produced will be distributed in these areas. This will also help to safeguard the new establishment by Mangoes Malawi Ltd. whose plantation is obviously under disease threat from sick plants in farmers' fields in surrounding villages.

Implementation & Budget

PPG leadership

It is being proposed that STDF should lead the implementation of the project preparation exercise, in collaboration with the Director of Agricultural Research Services (NPPPO), in the

Ministry of Agriculture and Food Security. All relevant public and private sector stakeholders in Malawi would be consulted during the implementation of the PPG.

The main activities to be carried include:

- Identification and Engaging of the international consultant
- Consultations and drafting of the project proposal
- Workshop to validate the draft proposal and finalizing the proposal
- Submitting of the final project document to DARS and the then to WTO and other donors

The associate budget estimate is tabulated below:

Item	Description of input required	Estimated Budget (US\$)
1 Expert honorarium		
1.1 International	21 days at US\$600/day	12,600
1.2 National – Plant Health	10 days at US\$150/day	1,500
2. Travel		
2.1 International Expert	DSA at US\$226/day for 21 days	4,746
	Airfare – International to Malawi (Blantyre/Lilongwe)	4,400
2.2 National travel	DSA at 175/day for 10 days	1,750
3.0 Workshop		
3.1 Stakeholder meeting/validation workshop	Stakeholder proposal validation workshop (travel of participants, hire of venue and facilities, refreshments)	4,100
4.0 Other costs		
4.1 General consumables	Telephone, fuel for vehicles, printing and miscellaneous items	2,000
Total		31,096

Appendixes

Appendix 1: Letters of support from each of the organizations supporting this proposal.

- a) From Ministry of Agriculture and Food Security
- b) Mangoes Malawi Ltd
- c) Ministry of Industry and Trade
- d) World Vision International
- e) Banana Bunchy top Task Force Secretariat

Appendix 2: Curriculum Vitae and record of achievements for any consultants proposed to implement this PPG.

The International consultant will have to be identified and hired by STDF based on the appropriate criteria as prescribed by the Secretariat. The CV for the local consultant can be sent if necessary.