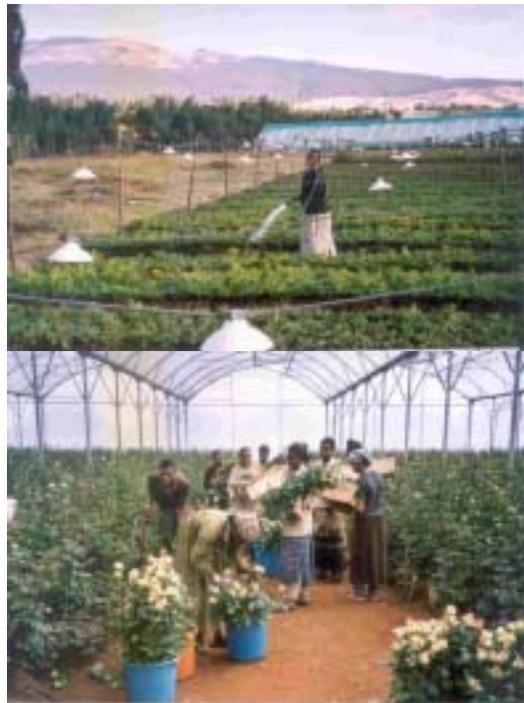


**Phytosanitary services in the Ethiopian export-oriented
horticulture;
An assessment of needs and potentials for further
development**

Mission Report



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Executive summary

With the fast development of the export-oriented horticultural sector in Ethiopia the demands for a well-functioning phytosanitary inspection and control system have gained in importance. As a precondition for sustained market access and export growth it is essential that the Ethiopian phytosanitary services are in compliance with the international standards and regulations. Under the umbrella of the Ethiopian-Dutch Partnership for the horticultural sector development an assessment was made of the current performance of the phytosanitary services in the export-oriented horticultural sector. On the basis of the assessment undertaken in November/December 2006 a number of recommendations aimed at strengthening the phytosanitary services in the context of export-oriented production and horticultural development were formulated.

The responsibility for phytosanitary inspection, certification and control in Ethiopia lies with the Crop Protection Department of the Ministry of Agriculture and Rural Development. This department is furthermore responsible for pesticide registration and control and issuing general crop protection advice and monitoring of migratory pests. In view of the fact that an effective and transparent pesticide registration and control system is an important prerequisite for the development of the horticultural production and export, this aspect of the department's responsibility was considered as well.

The mission came to the conclusion that the Crop Protection Department is staffed with hard-working and dedicated officers. However, to effectively undertake their increasing tasks in relation to export inspections and certification of consignments of cut flowers and other horticultural produce for the European market it is recommended that capacity is developed in this area through: (a) additional staff recruitment and training; (b) development of new procedures and arrangements for consignment based inspections at Bole airport. The mission also recommends that capacity is developed in the field of phytosanitary monitoring and surveillance. Starting with surveys on *Thrips palmi* in cut flowers and *Heliothis armigera* in beans a system of cooperation between officers of the Crop Protection Department and crop scouts working for the export growers may be developed to monitor the presence of important quarantine organisms in the main production areas (Holetta, Sebeta, Nazret, Debre Zeit, etc.). Diagnostic capacity may have to be developed to support the inspection and surveillance activities. Currently the Crop Protection Department's capacity in this area is limited and it is proposed that during the project it is assessed whether available expertise related to (mainly entomological) diagnostics at agricultural research stations can be used for this purpose or whether arrangements have to be made otherwise. Some training and equipment supplies may be organised in accordance with this assessment.

The current legislation for the registration and control of the pesticides will have to be adjusted to the needs and development in the fast growing horticultural sector. The revision of the current pesticide legislation has been drafted already and needs to be finalised in the near future. With technical assistance through the project it is proposed that the reformulation of the new pesticide registration and control act will be concluded in 2007. This will formalise the production, importation, domestic trade, use and control of plant protection products required by the export-oriented horticultural sector. It will also include the registration and control of bio-pesticides.

As an additional component to the project it is proposed that the feasibility of pre-shipment testing of residue levels of commonly used pesticides on export fruits and vegetables are checked. This will result in the formulation of an organisational plan, possibly based on a cooperation between the laboratory of the Crop Protection Department and a European laboratory.

The project is expected to start in the second quarter of 2007 and will require a total estimated budget of around Euro 265,000 from the Dutch-funded partnership programme. The estimated contributions by the Ethiopian partners amounts to more that ETB 330,000. Technical assistance required will be provided by Wageningen University and Research (overall coordination) and the Dutch Plant Protection Services (phytosanitary inspections, surveillance, diagnostics, pesticide registration). Additional expertise will be mobilised from Advance Consulting (institutional development) and AgriQ (residue testing). The main activities will take place in the period 2007 – 2008, with a possible extension into 2009.

Abbreviations

CPD	Crop Protection Department
CPM	Commission for Phytosanitary Measures (IPPC)
EHPEA	Ethiopian Horticultural Producers and Exporters Association
FAO	Food & Agriculture Organisation
GAP	Good Agricultural Practices
IAPSC	Inter-African Phytosanitary Council
IPPC	International Plant Protection Convention
ISPM	International Standards for Phytosanitary Measures
MoARD	Ministry of Agriculture & Rural Development
MRL	Maximum Residue Level
NPPO	National Plant Protection Organisation
PCE	Phytosanitary Capacity Evaluation
RPPO	Regional Plant Protection Organisation
USD	United States Dollar
WSSD	World Summit on Sustainable Development
WTO	World Trade Organisation

1. Introduction

1.1 Rationale behind the assessment

The export-oriented horticulture in Ethiopia is a fast growing sector. Particularly the floriculture sub-sector is very important in terms of generating foreign exchange export earnings (see table 1) and employment creation, thereby contributing towards poverty reduction. Currently over 25,000 people are employed within the floriculture sector, which is dominated by rose production. Increasingly also cuttings (Chrysanthemum and poinsettias)

Year	No. of stems exported	Foreign currency earned in USD
2002/2003	16,000,000	2,900,000
2003/2004	32,000,000	5,050,000
2004/2005	83,000,000	12,700,000
2005/2006	186,000,000	21,900,000

Source: Ethiopian Customs Authority

and summer flowers (gypsophila, carnation, hypericum, geranium) are cultivated for the export trade. The area under production and number of exporting firms continues to grow rapidly and the sustained growth of the floriculture sub-sector is expected to increase the socio-economic importance even further.

The growth of the export-oriented horticulture is actively promoted by the Ethiopian Government amongst others through subsidies and tax reductions for starting national and international investors. Added to the favourable climatic conditions and the low-costs of labour the Governmental support provides the sector with a competitive edge as an exporting country. In addition to roses and other cut-flowers also vegetables and fruits are exported. Floricultural products are mainly exported to Europe with the auctions in the Netherlands being the main destination. Fresh produce such as citrus fruits, tomatoes, onions, etc. are predominantly exported to countries in the region (Djibouti, Yemen) and the Middle East. Vegetable exports include also fresh 'Bobby' beans, which are sourced by Dutch and other European importers to complement their year-round supplies during the European winter months. The export of fruits and vegetables in 2002 amounted to nearly 32 thousand tonnes with a total value of over USD 11 million according to statistics of the Ethiopian Export Promotion Agency. Diversification of vegetable exports towards Europe is being attempted, with for example starting exports of fresh herbs.

The Netherlands' Government has committed itself to contribute to a balanced growth of the horticulture sector in Ethiopia through a public-private partnership program along similar lines as the WSSD partnership programmes with other countries in Southern and Eastern Africa. The mission of this partnership is to contribute to:

- A competitive, demand driven, self sustaining and innovative horticulture cluster well connected in international networks.
- Environmentally and socially friendly production.
- Human resource development and enlarging the positive spin-off on local, regional and national social development
- Enlarging the positive spin-off on the local, regional and national economic development.

- A strong international reputation of the Ethiopian Horticulture Cluster
- An institutional framework which enables the sector to meet (future) market demands and opportunities and to operate in a socially and environmentally friendly and broadly accepted manner.
- Strengthening the cooperation between Ethiopia and the Netherlands.

One of the preconditions for sustained horticultural growth is the sector's ability to comply with standards and regulations pertaining to food safety and agricultural health in Europe and other important export markets. For the floriculture and fruit and vegetable exports to Europe it is essential that the following two main phytosanitary functions are adequately fulfilled:

- ensuring compliance by Ethiopian growers to EU phytosanitary and safety requirements for horticultural products exported to the European market through monitoring and inspection services
- contributing to the overall image of the export-oriented sector as a safe and high quality industry by phytosanitary monitoring, surveillance and enhanced transparency.

The assessment of the current performance of the Ethiopian phytosanitary services in facilitating the export-oriented production and trade is to be seen in this light.

1.2 Objectives and programme of the mission

A one-week mission was implemented by two experts from the Netherlands in the period 27 November – 2 December 2006 in order to review the phytosanitary standards and systems in the export-oriented horticulture. In addition to phytosanitary services the team was also requested to look at the approach and conformity of the pesticide registration system in Ethiopia in relation to international standards and regulations. For this assignment they worked closely together with their Ethiopian colleagues of the Crop Protection Department (CPD) in the Ministry of Agriculture and Rural Development (MoARD) and the export growers organized under the umbrella of the Ethiopian Horticultural Producers and Exporters Association (EHPEA). On the basis of the findings and conclusions of the mission experts of both countries developed a plan of action that comprises the following outputs:

- a summary overview of the needs and potentials for improvements in phytosanitary service delivery and pesticide registration in the export-oriented horticulture
- an outline of the strategies and investments required to pursue the identified improvements
- the operational, financial and organisational implications of the proposed strategies and investment options

With the assistance of the CPD and EPHEA a programme was prepared and implemented that included visits and discussions with management and key members of staff at the Crop Protection Department, EPHEA and a series of visits to the export handling sites at the airport, quarantine stations and several flower and vegetable growers in the main production regions around Addis Abeba (Debre Zeit, Nazaret, Holetta, Sebeta, Upper Awash). The mission was concluded with discussions on the main findings and recommendations with the management of CPD, respectively the Executive Director of EPHEA.

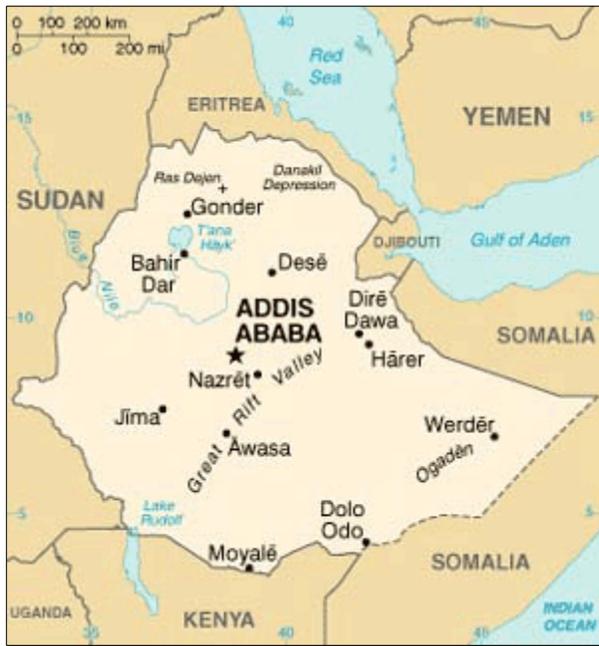
Details of the Terms of Reference for this mission can be found in annex A and a summary overview of the programme is included in annex B. The outputs of the mission are reflected in the following chapters in the form of a draft action plan. It is suggested that this plan of action is implemented in the context of the Ethiopian-Dutch Horticultural Partnership Programme.

2. The existing phytosanitary services

2.1 The Crop Protection Department

The establishment of national plant quarantine services has been arranged after the adoption of the Plant Protection Decree in 1971 (Decree No 56/1971; see also section 2.2.1). This resulted in the creation of Plant Quarantine Division under the then Ministry of Agriculture in 1975. Subsequently four quarantine stations were established at Bole International Airport

(near Addis Ababa), Dire Dawa, Moyale and Nazaret. This institutional arrangement was maintained until 1993, after which the regional stations were placed under the responsibility of the regional governments as part of the decentralisation of government services. In September 2005 the Federal Government of Ethiopia realised that it appeared very difficult to implement a harmonised and effective phytosanitary system under decentralised conditions and the regional stations were placed under direct responsibility of the national plant quarantine services. The Crop Protection Department (CPD) under the Ministry of Agriculture and Rural Development with its headquarters at Sholla (on the outskirts of Addis Ababa)



became the national quarantine service and quarantine personnel were recruited, stations equipped, communication radios installed, etc.

The CPD is managed by a Head of Department and comprises amongst others the Plant Quarantine Division. The officer in charge of the Plant Quarantine Division is the contact on behalf of Ethiopia's National Plant Protection Organisation (NPPO). As per the IPPC guidelines the responsibilities of the NPPO range from inspections and the issuance of phytosanitary certificates for imports and exports to surveillance and pest risk analyses. Most of these responsibilities have indeed been placed with the CPD Plant Quarantine Team. In addition the CPD comprises also a Crop Protection Team and a Pesticide Registration and Control Team. The former division focuses primarily on the management and supervision of several migratory pests of national importance (e.g. locusts, *Quelea* and army worm) and the provision of technical training and information services for regional staff on crop protection issues. The Pesticide Registration and Control Team oversees and coordinates the technical and administrative processes preceding the registration and release of imported and domestically produced pesticides. In addition this Team is in charge of the control and supervision of the pesticide sales and utilisation; due to lack of staffing this latter task is however virtually impossible to implement. At the CPD Headquarters in Sholla a small

laboratory has been established where it is possible to monitor residue levels for six different pesticide residues.

The CPD Quarantine Team comprises a total of 19 technical members of staff. In addition four plant quarantine staff are employed at the Ethiopian Institute for Agricultural Research in Holetta. A summary overview of the current staff situation and resources available at the various stations is provided in table 2 below. In addition to the four stations mentioned above also a fifth plant quarantine station has been established in Metema, on the border with Sudan in the North-western part of the country. Given the range of responsibilities given to the CPD Quarantine Team it may be concluded that the Ethiopian phytosanitary services are understaffed and lack essential equipment and facilities. This particularly applies also to the team responsible for most of the phytosanitary export inspections on horticultural exports that are based at Addis Ababa / Bole Airport.

Station	Staffing	Main facilities & equipment	Communication
Headquarters (Sholla)	4 MSc	Office, greenhouse, laboratory, store	Radio, telephone, computer & internet
Bole airport	2 MSc and 1 Diploma	Office	Telephone & computer
Nazaret	1 MSc, 2 Diploma and 1 Certificate	Office, small laboratory	Telephone, computer & internet
Dire Dawa	1 MSc, 1 BSC, 1 Diploma and 1 Certificate	Office	Telephone & computer
Moyale	2 Diploma	Office, laboratory, store, fumigation chamber	Radio & telephone
Metema	1 MSC and 1 Diploma	Office	Radio

The quarantine regulation in Ethiopia states that plants and plant products exported from the country have to be inspected and accompanied by a phytosanitary certificate. As such the commodities certified for export include a products ranging from cereals, fibre crops and oilseeds to vegetables, fruits and flowers. As indicated in table 3 the total volume of inspected export products has increased over the past few years, but the number of issued phytosanitary certificates has nevertheless declined. This is mainly due to the fact that the volume of individual consignments has significantly increased. Compared to most other countries, however, Ethiopia probably still issues more phytosanitary certificates than required for the type of commodities exported.

Year	Total export (MT)	Phytosanitary certificates
2000/01	146,768	48,663
2001/02	273,035	41,408
2002/03	301,014	37,754
2003/04	278,245	38,634
2004/05	456,864	35,437

2.2 Legal phytosanitary framework

The current national phytosanitary legislation is contained in the plant protection decree published in the Negarit Gazeta No 56/1971 and was updated with the Plant Quarantine Council of Ministers Regulation No 4/1992. The existing legislative framework comprises (a) a compilation of definitions, (b) a description of the responsibilities of inspectors, (c) specifications on quarantine control and import restriction and measures and (d) description of phytosanitary certificates.

The Plant Quarantine Regulation of 1992 comprises also three schedules which are attached as an annex. The first schedule deals with “restricted plants” and includes a list of 72 different crops which are not allowed to be imported into Ethiopia unless these are accompanied by a phytosanitary certificate and an import permit issued by the MoA. In the Plant Quarantine regulation there is no indication of harmful organisms related to the crops listed in the annex neither is a schedule containing a list of quarantine organism included. Those specifications are included in the CDP manual for plant protection inspectors. The second schedule comprises a list of 58 weeds classified as “prohibited plants and other articles”. Furthermore it indicates that at import plants and plant products soil must be absent, compost is not allowed as a growing medium, cultures of plant pathogens are prohibited and it is not allowed to use packing material of plant origin. The third and last schedule contains an overview of the fees for the different inspection activities. The fees have not been updated since 1992.

The prevailing Ethiopian phytosanitary legislation is giving the inspector the authority to inspect any plant or plant product at import or export on any pest. If the inspector finds a pest he has the authority to prescribe measures including destruction of the plant material.

There is a small article indicating that at export of plant or plant products a phytosanitary certificate is required if the country of destination is asking for it.

New national phytosanitary legislation is being developed. It is intended that in future a division is made between the legal framework and a number of annexes with quarantine organisms and prohibited combinations of plants and plant products with quarantine organisms. Future annexes may be updated by the Minister in line with criteria and procedures specified in the new legal framework without a complete revision of the legal framework itself.

2.3 Export inspections and procedures for horticultural products

In addition to the two legal documents described in the previous section the phytosanitary inspectors have a manual with guidelines and specifications based on which he/she is to fulfil their responsibilities. It would facilitate the job of inspectors if an overview of country-specific requirements would also be available. The work of the phytosanitary inspector would be further facilitated if they would be provided with an additional set of tools (mainly for first line diagnosis and sample taking from perishable products such as cut-flowers and vegetables).

The Ethiopian phytosanitary services follow a so-called 'system inspection approach' for the plants and plant products that are intended for export. This means that the production of cut flowers and vegetables are inspected during the growing stage rather than the actual export consignments themselves. In case an inspector finds any harmful organism in the greenhouse or field, the inspector is requesting the grower to take measures. This request is in line with the current Ethiopian phytosanitary legislation, as any harmful organism is of interest to the inspector. No distinction is being made here between quarantine and quality organisms, nor is a reference made to the list of quarantine organisms of the relevant country or countries of export destination.

Each inspection visit is concluded with an inspection report. The reports are filed at the inspector's office and all these reports are later used for the compilation of the annual reporting of the Crop Protection Department. It is not customary to provide the export grower with a copy of the inspection report; any recommended phytosanitary measure is thus only communicated verbally and is issued without any sanctions.

Phytosanitary certificates for export consignments are prepared by the quarantine officers of the Bole station. Most exporters employ handling officers who ensures that the export consignments are sent with the proper documentation, airway bill and phytosanitary certificate. All export consignments with cut flowers and vegetables are packed at the place of production and transported with conditioned vans or trucks to Bole airport near Addis Ababa. In many cases the trucks are accompanied by army personnel in order to prevent any changes in the consignment during transport to the airport. At the airport in Addis Ababa the export consignments arrive at a separate custom area where the boxes are placed on new pallets under conditioned circumstances. The phytosanitary certificate is attached to the consignment together with the other paperwork; earlier in the day the exporter's handling officer has collected the certificate prepared by an inspector in a separate office in Addis Ababa outside the airport. The phytosanitary certificate is prepared on the basis of specifications of the consignment phoned to the handling officer from the grower's production place. Last minute changes to the consignment (e.g. different number of boxes, variations in content) are not uncommon; these will have to be reflected on the phytosanitary document in the correct manner or a new certificate will have to be issued. Incorrect phytosanitary documents will lead to rejections of the consignment by the importing country.

Whilst it is possible in theory, in practice it hardly ever happens that a consignment with flowers or vegetables for export is inspected at the airport. A complicating factor is the absence of an inspection table and other facilities at the airport. Another factor is that there are no facilities and arrangements for unpacking and repacking of the cut flowers. In some cases the boxes with export produce are wrapped already in plastic foil at the place of production, which implies that the phytosanitary inspector should demolish the wrapping should he decide to inspect the consignment at the airport.

The phytosanitary inspectors have access to a small office in the cargo section of the airport, but this has to be shared with the Ethiopian veterinary services. The office only contains a desk and chairs but does not have a telephone, nor computer facilities, a working table, cupboards, etc..

The phytosanitary certificate is prepared by the inspector and filled in by hand with the data provided by the handling officer. There are plans to print the phytosanitary document on the computer with the use of special paper with some special marks to reduce the possibility of fraud.

2.4 Plant protection measures in the export horticulture

Compliance with phytosanitary regulations and standards is in the first place a responsibility of the growers themselves. As such it is positive to note that rejections of consignments of roses (and other flowers) as well as vegetables exported from Ethiopia to Europe hardly ever occur as a result of phytosanitary interceptions by European inspectors. In terms of meeting phytosanitary standards and regulations, the Ethiopian exports so far have had a good record, which is to be viewed as a positive achievement by the horticultural export growers.

In rose cultivation the most common diseases include downy mildew (*Peronospora sparsa*), powdery mildew (*Sphaerotheca pannosa var. rosa*), and botrytis blight. Prevailing pests comprise aphids and spider mites (most common specie is *Tetranychus urticae*). The major quarantine organism in rose cultivation – *Thrips palmi* – is not a common occurrence in the Ethiopian flower sector. As part of the pest and disease control Ethiopian rose growers deploy Crop Scouts; these specialised workers oversee the plant health situation in a designated part of the greenhouse and notify the farm management when a certain pest or disease is spotted in the crop. Pest and disease management is predominantly implemented on the basis of a chemical control (combination of preventative and curative sprayings). Biological control measures are not applied yet (see also 2.5 below), but a number of export growers are interested in the possibilities of biological control as part of an integrated pest management regime. In this respect it is relevant to note that around 15 – 20% of the export rose growers have applied or are in the process of meeting the requirements for the MPS-certificate¹. Imports of specific agro-chemicals required for the protected rose cultivation is possible under a special clause under the current pesticide registration system (see section 2.5). As such the rose growers can have access to the required pesticides even if these are not (yet) registered in Ethiopia. Expertise and materials for plant protection purposes is often imported from other African production regions (particularly Kenya), the Netherlands and Israel. Currently there are over 50 rose growers who export to Europe, but soon the number of export growers will increase to 70 – 80. This figure is likely to increase further in the not too distant future.

The so-called 'bobby beans' (*Phaseolus vulgaris*) are cultivated as a seasonal field crop and as such require a different crop protection management system. The most common pests and diseases in beans include the bean-shoot fly (*Ophiomyia phaseoli*), spider mite, respectively bean rust (*Uromyces phaseoli var. typical*) and botrytis blight. Already cultural measures have been taken to control the rust with wider spacing of the plants. For the bean fly less obvious solutions are available during cultivation, partly the problem could be solved with dressing the seeds with an insecticide. The cotton bollworm (*Heliothis armigera*) is

¹ MPS ('milieu project sierteelt') is an international certification scheme for the ornamental crop production sector. Environment, quality and social aspects are main topics covered by MPS, but crop protection guidelines are relatively speaking the most important elements of the certification scheme.

(currently) not a serious production problem in beans, but needs to be kept under control given the fact that this poses the most important threat as quarantine organism. Crop rotation is very important in this respect given the fact that the *Heliothis* has a number of host plants, including cotton. Beans for the European market are currently produced by a handful of large-scale farms (both private and state-owned) where beans are cultivated under irrigated conditions for exports mainly during the period November – February/March. Some of the export growers are certified for EurepGAP and as such need to comply with amongst others integrated pest management regimes and a restricted use of agro-chemicals.

2.5 Current pesticide registration and control systems

The mandate for the pesticide registration process is laid down in the Decree No 20/1990 provided by the Council of the State to the MoARD. Under the prevailing legislation the dossier for the evaluation of applications for pesticide registration comprises the provision of data on efficacy, mammal toxicology and physical and chemical properties.

Recently new legislation for the registration of and control on of the application of pesticides has been drafted. The new legislation is expected to be ready for parliamentary approval in 2007. Technical Assistance in formulating the new legislation in line with internationally accepted standards has been provided, but a few additional issues require attention. When compared with the existing registration application forms the request for data on ecotoxicology, fate and behaviour and residue have been added. In line with amongst others EU-standards it is suggested that data on operator exposure are also included.

Ethiopian expertise could be developed further in order to cover these new sections for the dossier evaluation. Possible experts from other Ethiopian institutes could be approached in order to have an active role in the dossier evaluation for the pesticide registration in these new chapters.

A very important part is the chapter on residue and setting a Maximum Residue Levels (MRL) for the pesticide. Currently no Ethiopian legislation exists on setting a MRL. As a start the MRL setting for the pesticides developed by the Codex Alimentarius could be transposed into the Ethiopian legislation.

Another challenge with the adoption of the new act for the pesticide registration will be to bring the already registered pesticides under the updated stricter requirements. A period of grace could be considered, during which the renewing of the application could take place. Normally a pesticide is registered for a period of five years. The MoARD list of registered pesticides of September 2006 includes a total of 171 different pesticides. Every five years these pesticides will have to re-register. If the new pesticide registration and control act would come into force it is expected that the use of a number of currently registered pesticides will no longer be allowed when assessed for re-registration.

Under the current legislation for the registration of the pesticides no biological control agents are allowed. As mentioned in the previous section spider mites are a common pest in the horticultural sector. At the moment the only registered control is the use of acaricides. For

the biological control of spider mite, predatory mites like *Phytoseiulus* spp., *Amblyseius* spp. or *Metaseiulus* spp. are available. However it is not known whether these predatory mites occur in Ethiopia or whether these can be introduced through a commercial organisation. At the moment the introduction of possible new organisms into Ethiopia is not allowed.

The draft version of the new Ethiopian legislation on the registration of the pesticides includes the regulation allowing the introduction of bio-pesticides. However knowledge and experience in dealing with the dossier for such biocides is at the moment absent in Ethiopia.

Pesticide import for the cultivation of roses

In the cultivation of the roses a number of pesticides are needed to control the diseases and insect pests, which are currently not (yet) registered. The Ethiopian government wishes to facilitate the growth of the rose cultivation sector and therefore allows the introduction of these pesticides under certain conditions without the concerned agro-chemicals having been subjected to the lengthy registration process. Imports of specific chemicals required by the floriculture sector are possible from production countries where the pesticides are registered. Most of these pesticides come from Kenya, but some of the agro-chemicals are procured also in Europe, Israel or elsewhere.

Whilst the exemption of registration prior to the introduction in the floriculture sector provides the opportunity to produce roses and other flower species under modern crop protection regimes, the procedures for actual importation are still considered bureaucratic and time consuming by the sector.

A special import license should be requested first with the Ministry of Trade and Industry and then permit for pesticide imports from the MoARD should be obtained. The quantity that can be procured under special licence is restricted to own use; in practice it is not uncommon that several growers procure the pesticides together in order to reduce the transaction time and costs.

As the labels of the specially imported pesticides are often printed in the language of the country of origin, problems sometimes occur in the correct and safe application of the pesticides. Luckily a large number of these pesticides contain a label in the English language as well.

Ethiopia is aware of the risks of the import facilitation of the pesticides from other countries and the current exemption of the registration requirements for pesticides used in the export horticulture are viewed as a temporary measure only. Eventually all pesticides used in Ethiopia will have to be registered under the Ethiopian legislation. On the other hand MoARD realises that a large number of the new pesticides would have to be assessed and checked prior to formal registration. This is a time-consuming and extensive package of work and it is not sure how long this will take with the current capacities and procedural arrangements.

In order to solve this problem possibilities are evaluated to transfer the registration of the pesticides in surrounding countries with similar agro-climatic conditions and cropping systems to the registration data bank in Ethiopia. Already discussions have been started to recognise each others pesticide registration systems in the countries Ethiopia, Kenya, Tanzania and Uganda.

Another observation is the possible reluctance with the industry to apply for the registration of their pesticide because of the small quantities used in floriculture. However the fees required for the registration of the pesticide are rather low (1000 Birr, which is about Euro 86) in comparison with the EU fees and could not be the reason. The collection of the data for the dossier evaluation could be more troublesome for the industry especially the subjects linked to the Ethiopian environment. In general the issue of "minor uses" is an important subject in the EU and could be worthwhile to look into as a point of attention for the pesticide registration division of the Crop Protection Department.

3. International phytosanitary standards and requirements

3.1 EU requirements for flower and vegetable imports

All cut flowers exported to the European Union have to comply with EU Directive 2000/29/EC² and Annex IV A1 and the lists of harmful organisms mentioned in Annexes 1A1 and 1A2. The most important phytosanitary requirement for cut flowers exported to Europe specifies that all consignments include an official Phytosanitary Certificate. The Phytosanitary Certificate should state the absence of a number of quarantine organisms, of which *Trhrips palmi* and *Bemisia tabaci* are the most important.

The EU Phytosanitary Directive furthermore states that all consignments of roses and other cut flowers imported into Europe need a phytosanitary import check. Such an import inspection comprises a document check followed by a phytosanitary inspection. Only when both are found in order can a consignment be released. However, to reduce the number of

Table 4: Reduced phytosanitary check status in the EU

Flowers	Country of origin	Minimum % of consignments to be checked 2006	Minimum % of consignments to be checked 2007
Aster	Zimbabwe	25	50
Dianthus	Colombia	3	3
Dianthus	Ecuador	15	15
Dianthus	Israel	25	25
Dianthus	Morocco	25	50
Dianthus	Turkey	25	25
Rosa	Colombia	10	5
Rosa	Ecuador	5	5
Rosa	Ethiopia	25	25
Rosa	India	50	50
Rosa	Israel	10	10
Rosa	Kenya	5	1
Rosa	Tanzania	25	25
Rosa	Uganda	5	5
Rosa	Zambia	10	10
Rosa	Zimbabwe	5	25

import inspections a system of 'reduced checks' is applied on the percentage of the consignments being inspected at import in the EU. The percentage of cut flower consignments to be checked is determined by the European Commission in Brussels on an annual basis for each of the exporting countries on the basis of (a) the number of consignments over the past three years and (b) the number of notifications by phytosanitary services in EU Member States on the presence of harmful organisms. Reduction in the number of checks for a particular commodity from an exporting country is only possible in case a sufficiently large number of consignments are sent without any notified

presence of harmful organisms. As indicated in the adjacent table 25% of the Ethiopian roses exported to Europe will have to be checked in 2007 by a phytosanitary inspector upon entry into the EU market; in comparison with other major African exporting countries (e.g. Kenya, Zambia, Uganda) this is significantly more.

² http://europa.eu.int/eur-lex/pri/en/oj/dat/2000/l_169/l_16920000710en00010112.pdf

For fresh beans being exported to the EU the same general rules apply from the 2000/29/EC Directive. For beans the most critical phytosanitary problem with export is the cotton bollworm, *Heliothis amigera*. Phytosanitary export inspections in Ethiopia for consignments of bobby beans for Europe will have to concentrate particularly on this quarantine organism.

3.2 IPPC standards

The International Plant Protection Convention (IPPC) is an international treaty aimed at preventing the spread and introduction of pests of plants and plant products, and to promote appropriate measures for their control. The IPPC was established at the sixth Conference of the FAO in 1951. The Convention was updated in 1997 primarily to introduce a mechanism for developing and adopting International Standards for Phytosanitary Measures (ISPM). In this way the 1997 revision aligns the Convention with the Agreement on the Application of Sanitary and Phytosanitary measures ('the SPS Agreement') of the World Trade Organisation (WTO). Ethiopia is a signatory to the IPPC and has submitted a request to access WTO in January 2003. IPPC membership dates back to 1977 and the acceptance of the revised IPPC (1997) was formalised

IPPC revised text – General provisions relating to the organizational arrangements for national plant protection

Article IV-2: The responsibilities of an official national plant protection organization shall include the following:

- a) The issuance of certificates relating the phytosanitary regulations of the importing contracting party for consignments of plants, plant products and other regulated articles;
- b) The surveillance of plants, including both areas under cultivation (inter alia fields, plantations, nurseries, gardens, greenhouses and laboratories) and wild flora, and of plants and plant products in storage or in transportation, particularly with the object of reporting the occurrence, outbreak and spread of pests, and of controlling those pests, including the reporting referred to under Article VIII paragraph 1 (a);
- c) The inspection of consignments of plants and plant products moving in international traffic and , where appropriate, the inspection of other regulated articles, particularly with the object of preventing the introduction and/or spread of pests;
- d) The disinfestation or disinfection of consignments of plants, plant products and other regulated articles moving in international traffic, to meet international standards;
- e) The protection of endangered areas and the designation, maintenance and surveillance of pest free areas and areas of low pest prevalence
- f) The conduct of pest risk analyses;
- g) To ensure through appropriate procedures that the phytosanitary security of consignments after certification regarding composition, substitution and reinfestation is maintained prior to export; and
- h) Training and development of staff.

in September 2006 after an application was issued in 2005. Compliance with IPPC standards harmonises the phytosanitary systems and facilitates the international trade of plants and plant products from Ethiopia. Furthermore the Plant Quarantine Service in Ethiopia is member of the Regional Plant Protection Organisation, the Inter-African Phytosanitary Council (IAPSC).

To minimise impediments to the exports of flowers, vegetables and other horticultural produce from Ethiopia to Europe it is important that the Plant Quarantine Division of the Crop Protection Department has adequate capacity to fulfil the responsibilities of an NPPO as described in the IPPC general provisions for national plant protection arrangements (see text

box). In relation to the export-oriented horticulture meeting the IPPC standards pertaining to the issuance of export certificates (paragraph a) and maintaining phytosanitary security of export consignments after certification (paragraph g) are the greatest priority for the Ethiopian NPPO. A second priority would be the compliance with the IPPC regulations for phytosanitary surveillance (paragraph b), import inspections (for planting material in the flower sector; paragraph c) and possibly the designation, maintenance and surveillance of pest free areas (paragraph e).

In order to facilitate the compliance and harmonisation with the IPPC standards the Commission for Phytosanitary Measures developed a series of International Standards for Phytosanitary Measures (ISPM). The list of ISPM's (edition 2006) includes a total of 27 guidelines which may be used as an important benchmark by the CPD in Ethiopia to check the level of compliance with the required international phytosanitary standards. In relation to the phytosanitary inspections and certification of export consignments there are a number of differences between the current procedures in Ethiopia and the IPPC standards (see also section 2.3). A phytosanitary monitoring and surveillance system for the export-oriented horticulture is not yet developed in Ethiopia.

The IPPC also developed a Phytosanitary Capacity Evaluation (PCE). This PCE is a standard used by the IPPC for establishing the level of organisation of a plant health service. Such an evaluation would be very useful for the Ethiopian phytosanitary authority to assess the level of organisation and harmonisation in relation to the international standards.

4. Phytosanitary priorities to be addressed

4.1 Export inspections

The current system of phytosanitary export inspections is difficult to maintain given the fast growing sector and the current staffing levels and capacities. The majority of the horticultural farms are situated in an area with a radius of 100 – 150 km around Addis Ababa. Visiting all export growers on a regular basis to ensure compliance with international phytosanitary standards and regulations is too time consuming for the CPD's Plant Quarantine Team. Only a dramatic increase in inspection staff numbers would be sufficient to ensure an adequate export inspection system in the export horticulture.

A more effective and efficient approach would be to change from the current on-farm inspections of the overall cultivation process to export inspections of the actual consignments at the port of exit prior to issuing of certifications. To make the change of inspection system successful a number of related aspects require due attention:

- the focus of the inspection activities should be on quarantine organisms listed by the country of destination; quality issues are the responsibility of the growers and their buyers
- phytosanitary export inspectors need to be trained and issued with some equipment and inspection facilities at the airport; development of an (export) inspection manual for the phytosanitary staff at Bole station and providing them with access to information on quarantine organisms for horticultural produce in important market destinations should be part of the capacity building.
- proper arrangements are to be made between the phytosanitary services and the export growers to allow for inspections to take place at the port of exit; this includes for example the availability of facilities for unpacking and packing of sample boxes for inspection purposes under conditioned circumstances.
- To compensate for the loss of information on the prevalence of quarantine organisms in the main horticultural production areas, an effective monitoring and surveillance system is to be developed (see section below).

ISPM No. 7 – Export certification system

To meet international standards it is important that the CPD's Plant Quarantine Team have adequate personnel and resources available to undertake the following functions:

- Maintaining information on importing countries' phytosanitary requirements
- Production of operational instructions to ensure that importing countries' phytosanitary requirements are satisfied
- Inspection and testing of consignments and associated conveyances
- Identification of organisms found during inspection of consignments
- Verification of the authenticity and integrity of phytosanitary procedures
- Completion and issue of phytosanitary certificates
- Document storage and retrieval
- Training
- Dissemination of certification-related information
- Regular review of the effectiveness of its export certification system
- Development of bilateral protocols if necessary

4.2 Monitoring & surveillance

Phytosanitary monitoring and surveillance of important quarantine organisms in the horticultural sector will give the growers and the phytosanitary services in the importing countries clear information on the pest and disease risks. Implementation of the phytosanitary monitoring and surveillance activities in line with ISPM No 6³ is essential in order to provide the importing countries with reliable data.

A distinction should be made between general surveillance and specific phytosanitary surveys. In each country there are many sources of information on pests and diseases in important crops. These sources may include the observations of the phytosanitary inspectors, research institutes, universities, producers, the general public, etc. To utilise data and information from these sources, it is recommended that the CPD develops a system whereby appropriate information on particular pests and diseases is collected, verified and compiled. Information gathered through such general surveillance may be used (a) to support a NPPO declaration of pest freedom, (b) to aid early detection of new pests, (c) for reporting to other organisations such as RPPOs and FAO and/or (d) for compiling host and commodity pest lists and distribution records. It is strongly recommended that the CPD develops its capacity to conduct general surveillance activities for important pest / commodity combinations.

ISPM No 6 – Guidelines for surveys

The **survey plan** should include:

- A definition of the purpose (e.g. assurances for pest free areas, information for a commodity pest list) and the specification of the phytosanitary requirements to be met
- Identification of the target pest(s)
- Identification of the timing (dates, frequency duration)
- In the case of a commodity pest list, the target commodity
- Indication of the statistical basis (e.g. level of confidence, number of samples, selection and number of sites, frequency of sampling, assumptions)
- Description of the survey methodology and quality management including an explanation of the sampling procedures (e.g. trapping, whole plant sampling, visual inspection, etc.), diagnostic procedures and reporting procedures.

For the most important quarantine organisms in the export horticulture – *Thrips palmi* in cut flowers and *Heliothis armigera* in beans – it is however recommended to set up and implement specific phytosanitary surveys. These specific surveys are based on a plan (see text box) which is approved based on its sampling design and statistical basis in order to make more conclusive statements on for example declarations on the pest status, early detection, etc. Personnel involved in general surveillance should be adequately trained in the appropriate field of plant protection and data management. Personnel involved in surveys should furthermore be competent, and where appropriate audited, in sampling methods,

preservation and transportation of samples for identification and record keeping associated with samples. Appropriate equipment and supplies should be used and the survey methodology used should be technically valid. To support general surveillance and specific survey activities, the CPD should have access to appropriate diagnostic services (see section 4.5 below).

³ ISPM no 6 'Guidelines for surveillance' (2005 edition)

The development and implementation of general surveillance and specific surveys in the Ethiopian export horticulture will only be feasible if the export growers fully cooperate with the CPD. Crop scouts working for the flower and vegetable export producers may be trained in sampling procedures. Without the assistance of the export growers, it will be impossible to undertake any serious surveillance and specific surveys activities. On the request of growers and importers the CPD should distribute reports derived from surveillance and specific surveys on pest presence, distribution or absence.

4.3 Pesticide registration and control

The current legislation for the registration and control of the pesticides needs to be adjusted to the needs and development in the fast growing horticultural sector. The revision of the current pesticide legislation has been drafted already and will bring the legal framework largely in line with the internationally prevailing systems and standards for pesticide registration.

However, a number of practical issues still need to be addressed before the draft Registration and Control of Pesticides Proclamation can be submitted for formal approval in 2007. These include:

- a) A feasible procedure should be identified and agreed upon by all concerned for the formal registration of pesticides currently used already in the export-oriented horticulture which are temporarily exempted from registration requirements under the current law. If all agro-chemicals that are currently imported by growers under a special arrangement with the Ethiopian agriculture for application in the floriculture and vegetable production are to be assessed and checked prior to granting a registration, the Pesticide Registration and Control Board and its technical committees would be overburdened with work in the short term
- b) A decision needs to be made for the status of the list of currently registered pesticides. It is impossible to request for a re-registration of all listed chemicals immediately following on the new legislation coming into force. However, it is also not acceptable to extend the registration period of all currently listed pesticides without applying the new criteria and procedures. A grace period during which all pesticide manufacturers or their agents can apply for a re-registration may have to be decided upon
- c) The draft legislation on pesticide registration includes a section allowing the introduction and use of biological control. Given the fact that this is a new element, technical assistance and support may have to be provided in building capacities for the development and implementation of specific registration and control procedures related to bio-pesticides.

For the medium-term it is also important that additional capacities are developed within the CPD's Pesticide Registration and Control Division related to the inspection and supervision of

the pesticide marketing and utilisation. The pesticide control function is currently not in place and following the adoption of the new legislative framework and the implementation of the improved registration procedures it is important to develop also the inspection on the marketing and use of pesticides. Only then the new pesticide legislation can be enforced.

4.4 Residue analysis

Maximum Residue Levels (MRLs) may be set for all commonly used pesticides in Ethiopia and simultaneously a monitoring system for controlling the MRLs in food and food stuff may be developed. This implies that first of all national legislation on maximum residue levels is developed. The Codex Alimentarius is recommended as the main reference for developing the Ethiopian standards. Secondly, institutional arrangements may have to be put in place for a residue monitoring programme and enforcement procedures.

The range of active ingredients (a.i.), especially the ones applied in the plant protection products used in export products, that can be checked at the CPD's laboratory may have to be broadened. In this way the laboratory can play a more important role in supporting the residue monitoring programme. It is probably beyond the scope of the proposed phytosanitary services development project to develop a comprehensive national MRL inspection and control system. Furthermore such a system is to be developed in cooperation with other main Ethiopian stakeholders, including the Ministry of Public Health.

For the export-oriented vegetable and fruit production it is important, however, to provide the export growers with residue laboratory services as a pre-shipment testing facility. Residue testing in Ethiopia will make the export grower less reliant on the laboratories and information from the importing countries and may strengthen his position in the case of a dispute. Furthermore such pre-shipment tests can save the exporters considerable direct (international transport and handling charges) and indirect (damage of reputation) costs if produce with exceeding residue levels are detected prior to export. However, such a laboratory service will be only of use to the export growers if the range of a.i. to be analysed in the residue laboratory of the CPD has been broadened.

4.5 Diagnostics

To support general phytosanitary surveillance and specific surveys the CPD should have (access to) additional capacity related to diagnostic services. Characteristics of such diagnostic services include:

- Expertise in disciplines relevant to pest (and host) identification
- Adequate facilities and equipment
- Access to specialists for verification where necessary
- Facilities for record keeping
- Facilities for processing and storing of specimens
- Use of standard operating procedures, where appropriate and available.

Given the nature of the most important quarantine organisms of the Ethiopian exports to Europe, the development of diagnostic capacity in the field of entomology is the most important. The current Crop Protection Division has a number of experts who could possibly assist in providing diagnostic services. However, their current mandate is to focus on technical support and information to the regional plant protection officers, rather than assisting their colleagues of the Plant Quarantine Division. Developing (entomological) diagnostic capacities as part of supporting surveillance and phytosanitary inspection activities should be an important element of the CPD's organisational development plan for the medium-term. Consideration should be given what the most appropriate organisational division of responsibilities should be in this respect.

5. Proposed plan of action

5.1 Objectives

The compliance with international phytosanitary standards and regulations is a precondition for extended growth and development of the export-oriented horticultural sector in Ethiopia. A well-functioning phytosanitary service furthermore can contribute significantly to developing an image and track-record of the export sector as a reliable and safe supplier of horticultural produce through monitoring, surveillance and enhanced transparency⁴. Given the rapid growth of the export sector the demand for phytosanitary services in terms of export inspections, monitoring and surveillance data and diagnostic services will be growing consistently. Although strictly speaking not a phytosanitary service, the registration and control on pesticides for the horticultural sector will be another aspect of the Crop Protection Department's functions that will have to be further developed as part of the enabling environment for further sector growth.

In line with the findings and issues discussed during the mission in November 2006 it is proposed that the Ethiopian – Dutch partnership programme comprises a component on phytosanitary capacity building. The overall goal of this component would be:

- ⇒ Creation of phytosanitary services that facilitate and support the sustained growth and development of the export-oriented flower and vegetable sector in Ethiopia.

In order to contribute towards this general development goal the phytosanitary capacity building activities under the partnership programme will have to achieve the following purpose:

- ⇒ Organisational capacities of the CPD and institutional arrangements in the export horticulture are adequate to comply with international phytosanitary standards for production and export of flowers and vegetables for the European market.

To achieve this purpose the partnership component on phytosanitary development will have to produce results in relation to phytosanitary capacities and sector arrangements pertaining to (a) export inspection and certification systems, (b) phytosanitary monitoring and surveillance (including diagnostic support) and (c) pesticide registration and control services. The following section will specify the particular outputs to be achieved in relation to these three areas of attention.

⁴ Organisations such as IDS and World Bank have done some relevant background research on this subject reflected in amongst others the following publications:

- Jaffee, S. (2003): 'From challenge to opportunity: transforming Kenya's fresh vegetable trade in the context of emerging food safety and other standards in Europe'. World Bank, Washington
- World Bank (2005): 'Food safety and agricultural health standards: challenges and opportunities for developing country exports'. Agriculture & Rural Development Department, World Bank, Washington

5.2 Expected outputs

In relation to the improvements in export inspection and certification systems it is proposed that the following outputs are delivered:

- A. Procedures and reference documents are modified and introduced to CPD staff to bring the phytosanitary inspections and certification of flowers and vegetables export consignments in line with requirements of the EU market.
- B. Feasible arrangements and systems are developed and implemented by CPD/MoARD, export growers and the airport handling agents for the phytosanitary inspections of export consignments at Bole airport.

Related to monitoring and surveillance the partnership component on horticulture dealing with phytosanitary issues the following outputs are to be produced:

- C. The CPD of MoARD have institutionalised general surveillance systems through which data and information on pests and diseases relevant to the export horticulture are collected, verified and compiled
- D. Specific phytosanitary surveys are implemented and reported upon on *Thrips palmi* in cut flowers and *Heliothis armigera* in beans through a collaboration between CPD and export growers
- E. The CPD Plant Quarantine Division has access to diagnostic services to support the phytosanitary surveillance and inspection functions in the export horticulture.

In relation to the pesticide registration and control activities the partnership component on phytosanitary capacity building is expected to deliver the following outputs:

- F. New legislation on pesticide registration and control has been finalised, approved and communicated to the private sector stakeholders
- G. The feasibility of pre-shipment testing of MRLs of commonly used pesticides on export vegetables by the CPD has been checked and formulated in the form of an organisational development plan
- H. Capacities for the control on the use of registered pesticides in the export-oriented horticulture have been put in place by public and private partners

5.3 Activities

Below the main activities are listed that need to be implemented in the coming years (2007 – 2009) in order to produce the above mentioned outputs:

Output A: Procedures and reference documents are modified and introduced to CPD staff to bring the phytosanitary inspections and certification of flowers and vegetables export consignments in line with requirements of the EU market.

- Procedures are updated by CPD with the technical advice of an European specialist for a consignment-based phytosanitary inspection and certification approach (in line with the relevant ISPM guidelines)
- Assistance with the development of a computer-based format of the export certificate in line with ISPM guidelines

- CDP inspection staff are familiarised with procedures and practical implementation of phytosanitary inspections in the Netherlands and Kenya.
- Formulation and/or compilation of reference materials (phytosanitary inspection manual, list of quarantine organisms per crop in the EU) for CPD inspectors
- Development and implementation of a practical training module for CPD inspectors on export inspection procedures and issuing certification for export consignments
- Procurement of desk-top computers, printers and small equipment to be used for export inspection and certification purposes

Output B: Feasible arrangements and systems are developed and implemented by CPD/MoARD, export growers and the airport handling agents for the phytosanitary inspections of export consignments at Bole airport.

- Assessment of opportunities and requirements (facilities, operations, etc.) to perform all phytosanitary inspection and certification activities on export consignments of flowers and vegetables to EU at Bole airport
- Dialogue between CPD, export growers and handling agents on the proposed changes in phytosanitary inspection procedures
- Seeking commitment and arranging support of export growers and handling agents to institutionalise the airport-based inspections and certification of horticultural export produce.

Output C: Specific phytosanitary surveys are implemented and reported upon on *Thrips palmi* in cut flowers and *Heliothis armigera* in beans through a collaboration between CPD and export growers

- Design of specific surveys (survey objectives, sampling procedures, etc.) by CPD Plant Quarantine Division in cooperation with Dutch technical assistance
- Communication and planning with export growers (through EHPEA) on the survey designs and cooperation between crop scouts working at the horticultural farms and CPD staff on data collection (e.g. through traps)
- Practical training of responsible CPD staff and crop scouts in their respective survey tasks
- Analyses of survey results and communication of outcomes to the export growers and international phytosanitary organisations (e.g. IAPSC, IPPC)

Output D: the CPD of MoARD have institutionalised general surveillance systems through which data and information on pests and diseases relevant to the export horticulture are collected, verified and compiled

- CPD, regional plant protection staff and export growers agree on a system of data and information collection for phytosanitary surveillance purposes in the export-oriented horticulture
- CPD capacity is developed to (a) systematically analyse and compile information on prevailing pests and diseases in the export-oriented horticulture and (b) issue reports and information on pest and disease status on the basis of these surveillance records

Output E: The CPD Plant Quarantine Division has access to diagnostic services to support the phytosanitary surveillance and inspection functions in the export horticulture.

- Facilitation of a discussion (within CPD, MoARD, agricultural research centres) on the priorities and organisational implications of developing diagnostic services in support of surveillance and inspection functions
- Decision making on the development of diagnostic capacity (particularly related to entomology) either within the CPD or at associated agricultural research centres
- Training and equipment supplies for the development of diagnostic capacities tailored to the needs of phytosanitary services in the export-oriented horticultural sector

Output F: New legislation on pesticide registration and control has been finalised, approved and communicated to the private sector stakeholders

- Technical advice and discussion with the export growers (through EHPEA) on the outstanding issues (see section 4.3) in the draft pesticide registration and control protocol
- Finalisation of the new legislative framework and submission for governmental and parliamentary approval
- Communication to growers, input supply agents, etc. on the implications of the new pesticide registration and control legislation upon formal approval of the new protocol
- Technical advice on the assessment of bio-pesticides (in cooperation with specialists of the partnership component on integrated and biological pest management)
- Develop further the initiative to acceptance of regional registered plant protection products utilised in the horticulture sector.

Output G: The feasibility of pre-shipment testing of MRLs of commonly used pesticides on export vegetables by the CPD has been checked and formulated in the form of an organisational development plan

- Collection and compilation on the MRL's prevailing in Europe and the related testing procedures of the most important pesticides on exported vegetables
- Assessment of the existing capacities (human resources, facilities, operations) at CPD for MRL testing
- Dialogue with the exporters (of vegetables and fruits) on the possibilities of pre-shipment testing and their willingness to pay for such services
- Formulation of an organisational development plan summarising the outcome of the previous activities and issuing an advice on the most feasible MRL capacity building strategy for the CPD (Note: it is foreseen that the most cost-effective approach will be the development of CPD capacity for sampling and pre-testing treatment, whereby the tests themselves will be undertaken at an associated laboratory in the Netherlands or elsewhere)

Output H: Capacities for the control on the use of registered pesticides in the export-oriented horticulture have been put in place by public and private partners

- Assessment of different options to pursue the control on pesticide use through a division of responsibilities between private sector (e.g. MPS, GAP) and supervision by government officials
- Technical support with the institutionalisation of the most feasible and preferred pesticide control option.

5.4 Phased implementation approach

It is proposed that the range of activities listed in the previous section will be implemented in phases. The first year the focus of attention will have to be primarily on pursuing the achievement of outputs A, C

and F dealing with phytosanitary inspections of export consignments, specific surveys on *Thrips palmi* and *Heliothis armigera*, respectively finalisation of the protocol on pesticide registration and control. Following on from the results in 2007 the implementation of the other five

outputs will be pursued in 2008, with the possibility to extend the implementation into 2009 in case required. In 2008 the attainment of output B (airport inspections) and H (pesticide control) will have priority. The implementation of the activities related to the other three outputs will commence in 2008, but will be completed in 2009. This implies that the institutionalisation of the phytosanitary surveillance, the full development of specific diagnostic support services and the MRL testing capacities will be finalised towards the end of the project implementation cycle.

2007	2008	2009
Output A		
	Output B	
Output C		
	Output D	
	Output E	
Output F		
	Output G	
	Output H	

This phased implementation approach follows the prioritisation of the most critical phytosanitary issues to be addressed in the export-oriented horticultural sector. Furthermore this approach is opted for as in particular the implementation of the functions related to phytosanitary surveillance (output C), specific diagnostic services (output E) and MRL testing capacities (output G) will require additional human and other resources. Through the Ethiopian - Dutch partnership programme technical assistance and limited material support can be provided. Recruitment of additional staff for inspection and the phytosanitary functions as well bearing the additional operational costs will be a responsibility for CPD/MoARD. The phased implementation approach allows for a start in 2007 with a limited number of priority issues, whilst at the same time additional staffing and operational budgets can be arranged as a precondition for the implementation of other issues planned for the subsequent two years.

A more detailed work plan has been included in annex C.

5.5 Technical assistance requirements

The implementation of the work plan as described above will require the mobilisation of the required technical assistance. The various technical assistance and institutional development inputs are summarised in the table below. Given the broad range of subjects to be covered by this project, a total of seven different advisors may be required.

Table 6: technical support positions foreseen

Position	Terms of Reference	Planned inputs
1. Coordinator	<ul style="list-style-type: none"> ▪ plan and oversee the detailed implementation of the work plan ▪ liaison with the Director CPD on all aspects of the project implementation ▪ ensure the mobilization of the various TA inputs ▪ monitoring and reporting on project progress and impact ▪ information dissemination on project issues ▪ organize the study tour to the Netherlands in cooperation with Plant Protection Department ▪ procurement of equipment and supplies 	<ul style="list-style-type: none"> ▪ 3 one-week missions to Ethiopia (at start-up, end of 2007 and towards end of project in 2008/09) ▪ training, reporting & coordination in Netherlands (20 days)
2. Advisor Institution Building	<ul style="list-style-type: none"> ▪ facilitate dialogue between CPD and private sector related to arrangements for consignment inspections ▪ facilitate discussion with private sector on needs and cooperation with phytosanitary surveillance ▪ explore needs and options of diagnostic services (in cooperation with Advisor Diagnostics) ▪ Assess demand for MRL-testing of horticultural export products ▪ advice on public and private roles related to controlling pesticide utilization 	<ul style="list-style-type: none"> ▪ two one-week missions to Ethiopia (third quarter 2007 and early/mid 2008) ▪ report completion in Netherlands (4 days)
3. Advisor Phyto. Inspections	<ul style="list-style-type: none"> ▪ assist the CPD with the review and development of inspection guidelines and support materials ▪ advice on the technical aspects and requirements of consignment inspections at Bole airport ▪ participate as resource person in the implementation of the study tour to the Netherlands 	<ul style="list-style-type: none"> ▪ one mission of 10 days early in the project cycle, followed by a one-week mission to complete the work before end of 2007 ▪ training, reporting & backstopping in the Netherlands (10 days)
4. Advisor Surveillance	<ul style="list-style-type: none"> ▪ assist the CPD with the design and capacity building for surveys on <i>Thrips palmi</i> and <i>Heliothis armigera</i> ▪ analyses and reporting on survey results together with CPD counterparts ▪ advice on the technical aspects of diagnostic capacity development at CPD 	<ul style="list-style-type: none"> ▪ three missions of 10 days each to Ethiopia; the first two missions are planned for second half of 2007; third mission mid-2008 ▪ backstopping, data analyses and reporting in the Netherlands (10 days)
5. Advisor Diagnostics	<ul style="list-style-type: none"> ▪ assess available diagnostic capacity at agric. research institutes and universities ▪ advice on appropriate development options for phytosanitary diagnostics ▪ issue technical advice on (entomological) diagnostic aspects for surveillance and inspection purposes, including procurement of equipment 	<ul style="list-style-type: none"> ▪ two one-week missions to Ethiopia in 2008 / 09 ▪ report completion and backstopping in the Netherlands (5 days)
6. Advisor Pesticide Legislation	<ul style="list-style-type: none"> ▪ assist CPD with the completion of the draft pesticide registration and control act ▪ advice CPD on communication process to growers and input suppliers on new act. 	<ul style="list-style-type: none"> ▪ one 6-day mission to Addis Ababa ▪ backstopping in the Netherlands (6 days)
7. Advisor Residue Control	<ul style="list-style-type: none"> ▪ assess the laboratory capacities in Ethiopia pertaining to pesticide residue testing ▪ advice on technical capacities for sampling, pre-testing preparations and MRL-testing ▪ pilot testing of sampling and pre-testing preparations 	<ul style="list-style-type: none"> ▪ two one-week missions to Addis Ababa in 2008 ▪ reporting in the Netherlands (4 days)

The technical assistance team for this phytosanitary project will comprise the following specialists:

1. Coordinator – Andre de Jager, Wageningen University & Research
2. Advisor Institution Building – Frank Joosten of Advance Consulting
3. Advisor Phytosanitary Inspections – Mr Jan Arie Nugteren, Dutch Plant Protection Services
4. Advisor Surveillance – Mr Henk Stigter, Dutch Plant Protection Services
5. Advisor Diagnostics - Mr Jos van Meggelen or Mr Jaap Janse, Dutch Plant Protection Services
6. Advisor Pesticide Legislation - Mr Ton Rotteveel or Mr Erno Bouma, Dutch Plant Protection Services
7. Advisor Residue Control – Mr Jan Paul Koorn, of TNO/Blgg AgriQ

The technical assistance approach will be based on a close cooperation between the technical advisors and their counterparts from the CPD. It is therefore important that for each mission the CDP identifies one or two counterparts who will work alongside with their Dutch colleagues. For example the Advisor Phytosanitary Inspections will most likely work closely together with the head of the Plant Quarantine Team or one of his senior officers. The various technical missions will have to be sequenced carefully so that sufficient capacity and follow up can be organised by CDP. Each mission will be concluded with a list of actions, timeframe and a division of responsibilities to ensure that follow-up will be facilitated.

For the Dutch Plant Protection Services the cooperation with their colleagues of the Ethiopian National Plant Protection Services is considered very important in their role as facilitator of international trade of plants and plant products with the Netherlands. This project can contribute to the development of a common understanding on phytosanitary issues in the horticulture. To strengthen the working relationships even further a visit to Ethiopia by a member of the management team of the Dutch Plant Protection Services is foreseen during the second half of the project.

5.6 Budget proposal

The improvement and expansion of phytosanitary services as outlined in this proposal will require investments in human resource development and some hardware and equipment. The costs involved will be shared by the Ethiopian and Dutch project partners. Recurrent costs will be covered by-and-large by the Crop Protection Department, whilst costs of technical assistance and investments in equipment and facilities will be mostly covered from the Dutch contribution to the partnership programme. Contributions by the private sector will comprise (a) ensuring that arrangements are made for phytosanitary inspections at the port of exit and (b) payment of fees for inspections, certificates, etc.

Personnel	Estimated person months	Estimated costs
Project coordinator	36	ETB 79,200
senior experts (4)	36	ETB 72,000
driver	18	ETB 9,000
secretarial support	18	ETB 10,500
office accommodation		ETB 75,600
telephone, electrics, other services		ETB 72,000
Total		ETB 318,300

In the table below the estimated additional inputs in the CPD are listed which will be funded from the Government of Ethiopia's budget; these costs are estimated in Ethiopian Birr⁵ and cover a three year period 2007 – 09.

The budget requirements for the implementation of technical assistance, services and equipment under this project are estimated at Euro 265,268. Table 8 below provides a breakdown of the estimated project costs. Details can be found in Annex D.

	Amount
Technical assistance in Ethiopia	€ 101,700
Preparation, reporting & training activities in Netherlands	€ 53,100
Services	€ 13,200
Equipment	€ 56,760
Other costs	€ 34,038
Overhead costs	€ 6,470
Overall total:	€ 265,268

⁵ ETB 1.00 = Euro 0.085

Annex A: Terms of Reference

Background:

In June 2006 a mission was implemented by André de Jager and Jan Helder (both Wageningen UR) to set the agenda for the Ethiopian-Netherlands Horticulture Partnership. The capacity building of the Ethiopian phytosanitary services to facilitate the export trade of flowers to Europe was jointly identified as one of the issues on the partnership agenda. Within the context of the bilateral partnership programme a plan of action will have to be developed that outlines the objectives, main components, approach and timeframe for the strengthening of the phytosanitary services. To this effect a joint assessment by Ethiopian and Dutch experts will be undertaken and a study trip of Ethiopian phytosanitary staff to Kenya and Europe will be planned. This paper outlines the main steps through which the plan of action will be developed in the coming months.

Objectives:

The main purpose of the phytosanitary services is to facilitate the production and international trade of agricultural crops in Ethiopia. For the floriculture and horticulture sector this implies the following two main phytosanitary functions:

1. ensuring compliance to EU phytosanitary and safety requirements for horticultural products exported to the European market
2. contribute to the overall image of the export-oriented sector as a safe and high quality industry.

In line with these two functions it is important that the Ethiopian-Dutch partnership will achieve the following objectives:

- the effectiveness and efficiency of the current phytosanitary procedures are assessed, checked and modified against the requirements of the importing markets
- information on phytosanitary regulations and procedures, monitoring and surveillance results, phytosanitary measures, etc. are shared by the phytosanitary services with the national and international horticultural business community.

Outputs of the preparatory work:

Experts of both countries will jointly develop an action plan that is based on stakeholder consultations and fact finding activities. The plan of action will consolidate the following outputs of the preparatory team:

- capacity building needs are identified
- strategies and investments to pursue improvements are discussed
- the operational, financial and organizational feasibility of the various strategies and investment options are checked
- improvements are prioritized and a timeframe, approach, division of roles and responsibilities for pursuing improvements, etc. are defined and agreed upon.

Key activities:

A joint team of Ethiopian and Dutch experts will conduct an assessment (26 November – 2 December 2006) of the current phytosanitary procedures and organization of the phytosanitary unit, with a main focus on the floriculture sector. They will undertake the following activities:

- list the main phytosanitary issues in the Ethiopian export oriented floriculture supply chains

- describe and check the effectiveness and efficiency of the existing procedures and use of facilities with the EU phytosanitary requirements and the list of phytosanitary issues in mind
- identify the costs (human resources, financial, materials) that both the public and private sector have to incur to comply with EU standards and regulations; check the possibilities to reduce some of these costs
- discuss options and investments for possible phytosanitary improvements with the Crop Protection Department and private sector representatives
- Organise and facilitate a meeting/interviews with public and private sector partners to discuss the possible needs related to phytosanitary monitoring and surveillance, diagnostic services, document handling, phytosanitary (preventative) measures, information needs, etc.
- Preparation of a draft report in the form of an objective-oriented action plan aimed pursuing needs-based phytosanitary service developments

Preceding this mission four senior officers of the Ethiopian horticultural sector visited Wageningen, the Netherlands to discuss the programme of activities with representatives of the Dutch Plant Protection Services and Wageningen International.

The preparatory activities will be concluded with a final meeting with decision makers in the Ethiopian and Dutch partnership programme.

Responsibilities:

From the Dutch side a two-person team will be charged with the responsibility to liaise with the Phytosanitary Unit of MoARD, EPHEA and MoTI. This team will comprise of:

- A phytosanitary expert having ample affinity with the (international) horticulture and practical expertise of European phytosanitary import / export inspection systems (regulations, standards, inspection procedures, phytosanitary institutional systems)
- An economist having experience with in international SPS-issues, stakeholder assessments, feasibility assessments and project formulation.

Annex B: Mission Programme

Date	Visits / activities
Monday 27 Nov 06	Introductory briefing at the Crop Protection Department (MoARD), Addis Ababa <ul style="list-style-type: none"> ▪ Mr Fikre Makros (Head of Department) ▪ Mr Mired Kumsa (Quarantine Team Leader)
	Quarantine Station, Bole <ul style="list-style-type: none"> ▪ Mr Eliase Sahle Dengel (Entomologist & Station Head)
	Farm visits in Debre Zeit area together with Mr Eliase Sahle Dengel: <ul style="list-style-type: none"> ▪ Dugda farm – Mr A. Omondi (Farm Manager) ▪ JoyTech – Agronomist & Export Officer
	Visit handling unit Bole International Airport with Mr Solomon Ayele (Sr. Plant Quarantine Inspector)
Tuesday 28 Nov 06	Visit Nazaret Plant Quarantine Station with Mr Merid Kumsa; discussion with Mr Teklu Bayisa (Head of Station) and staff – Mr Abraham Desalga (Lab Technician), Mr Mekonnen Bushan (Sr. Inspector) and Mr Belete Moges Haile (Sr. Inspector)
	Visit on the inspection of green beans in the field and packing houses at Upper Awash Agro Industry (UAAIE) together with Mr Merid Kumsa and Mr Teklu Bayisa.
	Visit of warehouse of bean commodity trader in Nazaret
Wednesday 29 Nov 06	Visit Crop Protection Department for (a) discussions on pesticide registration with Ms Tsehay Azage, Pesticide Registration and Control Team Leader and (b) visit of Pesticide Residue Laboratory
	Discussions with the Crop Protection Team Leader (Mr Lema Gebeyehu) and Pathologist on control of migratory pests and the possibilities for diagnostic activities
	Checking of existing and draft legal Ethiopian framework on (a) phytosanitary services and (b) pesticide registration
	Visit Ethiopian Horticultural Producers and Exporters Association (EHPEA) for discussions with Mr Sisay Habte on phytosanitary issues and options export certifications and phytosanitary monitoring
Thursday 30 Nov 06	Farm visits to observe plant health and discuss phytosanitary issues organised by EHPEA: <ul style="list-style-type: none"> ▪ ETH Highland Flora (Sebeta area) – Mr Tim Harrup (Farm Manager) ▪ ODA Flowers (Sebeta area) – Mr Jackson (Farm Manager) ▪ Arsi Flowers (Holetta area) - Agronomist ▪ Metrolux Flowers (Holetta area) – Farm Manager
Friday 1 Dec 06	Final discussion on main findings and drafting of recommendations at Crop Protection Department with Mr Fikre Markos, Ms Tsehay Azage and Mr Mired Kumsa
	Training session for crop protection officers on EU phytosanitary legislation
	Discussions on plant health care and pesticide availability with Sindy Vreugdenhil (MPS)

Annex C: Tentative work plan

Activities	2007				2008				2009			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Output A: Procedures, reference documents, etc. on phytosanitary inspections are updated and CPD staff are familiarised												
review of procedures & reference documents		■										
develop computer based export certificate		■										
familiarisation training / study tour		■										
production / compilation of updated references			■									
training/supervision of improved export inspections			■									
procurement of equipment for inspectors			■									
Output B: Feasible arrangements and systems are developed for consignment inspections at Bole airport												
assess opportunities and requirements		■	■									
dialogue between CPD, exporters, handlers,			■		■							
seek commitment & support of private partners					■	■						
Output C: Phytosanitary surveys for Thrips palmi and Heliothis armigera are implemented												
design of the specific surveys			■									
communication & planning with growers			■									
practical training of CPD staff in surveillances				■								
analyses & reporting of survey results				■								
Output D: Institutionalised phytosanitary surveillance systems												
public & private partners agree on work division					■							
capacity development for design, analyses & reporting						■						
Output E: CPD Plant Quarantine Division has access to diagnostic services to support phytosanitary surveillance and inspections												
facilitation of discussion on priorities and options					■							
decision making on development of capacity					■							
training and equipment supplies							■	■	■			
Output F: New legislation on pesticide registration and control has been finalised, approved and communicated to private sector												
advice and discussion on draft legislation		■										
finalisation of new legal framework		■	■									
communication to growers & input suppliers				■								
technical advice on assessing bio-pesticides				■	■							
Output G: Feasibility of pre-shipment testing of MRL's and related organisational implications are checked												
overview of important MRL's and testing procedures					■							
assessment of available capacities					■							
dialogue with exporters on needs and payments					■							
formulation of a feasible plan of action						■						
Output H: Capacities for the control on use of registered pesticides in the export horticulture sector has been put in place												
assess different options for control on pesticide use						■						
technical support to pursue institutionalisation								■			■	

Annex D: Estimated budget requirements

Technical assistance in Ethiopia	Organisation	Visits	days	rate	costs	total
Coordinator	WUR	3	18	€ 900	€ 16,200	
Advisor Institution Building	Adv. Cons.	2	14	€ 900	€ 12,600	
Advisor Phyto Inspections	PPD	2	17	€ 900	€ 15,300	
Advisor Surveillance	PPD	3	30	€ 900	€ 27,000	
Advisor Diagnostics	PPD	2	14	€ 900	€ 12,600	
Advisor Pesticide Legislation	PPD	1	6	€ 900	€ 5,400	
Advisor Residue Control	AgriQ	2	14	€ 900	€ 12,600	
sub-total A:						€ 101,700
Preparation, reporting & training activities in Netherlands			days	rate	costs	total
Coordinator	WUR		20	€ 900	€ 18,000	
Advisor Institution Building	Adv. Cons.		4	€ 900	€ 3,600	
Advisor Phyto Inspections	PPD		10	€ 900	€ 9,000	
Advisor Surveillance	PPD		10	€ 900	€ 9,000	
Advisor Diagnostics	PPD		5	€ 900	€ 4,500	
Advisor Pesticide Legislation	PPD		6	€ 900	€ 5,400	
Advisor Residue Control	AgriQ		4	€ 900	€ 3,600	
sub-total B:						€ 53,100
Services		Participants	days/units	rate	costs	total
study tour Ethiopian inspectors	PPD & WUR	6	7	€ 200	€ 8,400	
MRL testing (pilot)	AgriQ		30	€ 160	€ 4,800	
sub-total C:						€ 13,200
Equipment			No.	rate	costs	total
small inspection tools (kit)			10	€ 150	€ 1,500	
first line diagnosis at airport			lump sum		€ 16,000	
computer			4	€ 750	€ 3,000	
laser printer/ scanner			2	€ 250	€ 500	
fax machine			2	€ 130	€ 260	
diagnostic supplies			lump sum		€ 32,500	
training equipment			lump sum		€ 3,000	
sub-total D:						€ 56,760
Other costs			unit	rate	costs	total
International travel			21	€ 1,200	€ 25,200	
Subsistence allowance in Ethiopia			113	€ 76	€ 8,588	
Report production			lump sum		€ 250	
sub-total E:						€ 34,038
Total A+B+C+D+E:						€ 258,798
Overhead costs			2.5%			€ 6,470

Grand Total:						€ 265,268
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