Union Africaine
African Union
Uniao Africana
الاتحاد الأفريقي

For better Plant Health in Africa

AU-IAPSC's STRATEGIC PLAN 2014-2023

TABLE OF CONTENTS

Acknowledgement

I wish to express my sincere gratitude to various organizations and individuals for their contributions to the development of this Strategic Plan.

My special thanks should go to UN-FAO for the technical and financial support to this endeavour. My thanks also go to Dr. Christian PANTENIUS, who guided and facilitated the process and synthesized a huge amount of information and material in preparing this document.

I would also like to extend my thanks to various African Organizations and partners, specifically the National Plant Protection Organizations, the Regional Economic Communities (RECs), other offices of the African Union Commission, including the AU Fouta Djallon Programme, the AU Semi-Arid Food Grains Research (SAFGRAD), the AU Scientific, Technical and Research Commission (STRC), the Centre for Agriculture Biosciences International (CABI), the International Institute of Tropical Agriculture (IITA) and the African Seed Trade Association (AFSTA) for their valuable contributions to the development of this Strategic Plan. Their continued efforts, collaboration and participation in accomplishing the joint aspirations and achieving the common goals are highly appreciated.

Finally, I wish to thank the AU-IAPSC staff for their availability and dedication to the accomplishment of this Strategic Plan, which will guide us in the next 10 years.

Dr. Jean Gérard MEZUI M'ELLA
AU-IAPSC Director
Yaoundé, January 2015

AU-IAPSC

Foreword

I have the privilege to present the Inter-African Phytosanitary Council of the African Union (AU-IAPSC) Strategic Plan 2014-2023.

Over the past several years, agriculture in Africa has faced many challenges limiting its production. In the efforts to stimulate and increase crop and livestock production, the Comprehensive Africa Agriculture Development Programme (CAADP) was endorsed at the African Union Heads of State Summit as a New Partnership for Africa's Development (NEPAD) programme in July 2003. Its overall goal is to "Help African countries reach a higher path of economic growth through agriculture-led development, which eliminates hunger, reduces poverty and food insecurity, and enables expansion of exports." Whilst the causes of low productivity are complex, one major factor is high crop losses due to plant health problems. Pre and post-harvest losses are estimated to an average of 30–40% annually. Any future solution regarding improved food security must address these losses and that means improving continental plant health management systems.

The coordination of the implementation of CAADP at AU level is ensured by DREA which also takes AU-IAPSC activities into account within its Strategic Plan . However, these activities do not reflect the whole scope of Plant Health in the context of promoting Agriculture and are restricted to aspects on which AU-IAPSC is expected to deliver. Therefore AU-IAPSC, being the Plant Protection Organization for Africa, felt the high need to develop a more comprehensive Strategic Plan, which will help all stakeholders within the Plant Health sector to know better the priority initiatives they should focus on so as to achieve the highest impact and success. This Strategic Plan will also facilitate the inclusion of Plant Health priorities into the AU Agenda 2063 currently under finalization.

This Strategic Plan was developed mainly through intensive participatory discussions involving AUC, selected Member States and various other partners. It is therefore expected that key stakeholders to Plant Health in Africa will own this Strategic Plan and thus put their best efforts in activities aligned to therein set priorities. Strong partnerships among all parties have to be established with AU-IAPSC playing its coordination role at continental level.

Last but not least, this Strategic Plan and its Implementation Plan will guide in making the choices that will result in the best possible use of valuable human and financial resources as well as a tool for resources mobilization.

Dr. Jean Gérard MEZUI M'ELLA
AU-IAPSC Director
Yaoundé, January 2015

Abreviations

AfDB	African Development Bank
AFSTA	African Seed Trade Association
AGRHYMET	Centre Régional de Formation et d'Application en Agro-météorologie et Hydrologie Opérationnelle
ARIS	Animal Resource Information System
ASP	Africa Stockpile Programme
AU	African Union
AUC	African Union Commission
AUC-DREA	Department of Rural Economy and Agriculture of the AUC
AU-IAPSC	Inter-African Phytosanitary Council of the African Union
AU-IBAR	Inter-African Bureau for Animal Resources
CAADP	Comprehensive Africa Agriculture Development Programme
CABI	Centre For Agriculture Biosciences International
CILSS	Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
CLCPRO	Commission de Lutte contre le Criquet Pèlerin dans la Région Occidentale
COLEACP	Europe-Africa-Caribbean-Pacific Liaison Committee
COPE	Centre of Phytosanitary Excellence
CPM	Commission on Phytosanitary Measures
CRC	Commission for controlling the Desert Locust in the Central Region
DIFID	Department for International Development
DLCO-EA	Desert Locust Control Organization for Eastern Africa
DLIS	Desert Locust Information Service
DRR/M	Disaster Risk Reduction/Management
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FARA	Forum for Agricultural Research in Africa
FFS	Farmer Field Schools
G8NA	G8 New Alliance for Food Security
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit

GM	Genetically Modified (crops)
IAS	Invasive Alien Plant Pest Species
ICIPE	International Centre of Insect Physiology and Ecology
ICT	Information and Communication Technology
IITA	International Institute of Tropical Agriculture
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
IRLCO-CSA	International Red Locust Control Organization for Central and Southern Africa
ISPM	International Standards for Phytosanitary Measures
IT	Information Technology
KEPHIS	Kenya Plant Health Inspectorate Service
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
NARES	National Agricultural Research and Extension Systems
NEPAD	New Economic Partnership for African Development
NPPO	National Plant Protection Organization
OAU	Organization of African Unity
PCE	Phytosanitary Capacity Evaluation
PH	Plant Health
PHIS	Plant Health Information System
PRA	Pest Risk Analysis
R&D	Research and Development
REC	Regional Economic Community
RPPO	Regional Plant Protection Organization
SAP	Structural Adjustment Programmes
SCPI	Sustainable Crop Production Intensification
SOP	Standard Operating Procedures
SPS	Sanitary and PhytoSanitary measures
SRO	Sub-regional Research Organization
STDF	Standard and Trade Development Facility
ToT	Training-of-Trainers
UN	United Nations
UN CERF	Central Emergency Response Fund of the UN
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WTO	World Trade Organization

Executive Summary

AU-IAPSC Strategic Plan for the period 2014 - 2023 is understood as an integral part of the commitments reflected in the Comprehensive Africa Agriculture Development Programme (CAADP) and the New Economic Partnership for African Development (NEPAD) to "accelerate higher economic growth through agriculture-led development – thereby eliminating hunger, reducing poverty and food insecurity, enabling the expansion of exports and supporting environmental resilience."

The Department of Rural Economy and Agriculture of the AUC (AUC-DREA) mirrors the vision of the New Partnership for African Development in the context of CAADP, and aims in its Strategic Plan 2014–2017 at stimulating agricultural productivity, food and nutrition security, expansion of value addition and market access, and environmentally sound pest management practices.

Since AU-IAPSC is one of the flagship programmes within AUC-DREA's Strategic Plan, this Framework is intended to serve as a platform in establishing new partnerships in the promotion of continental plant protection matters in the fight against poverty and hunger, and as an important driver for economic growth in Africa, because pre- and postharvest crop losses on the continent in terms of quantity and quality are among the highest in the world. Consequently, these losses are significantly reducing the potentially available food for a growing population. However, plant protection remains poorly recognised as an important contributor to food security, economic growth and to preserving Africa's biodiversity and its natural heritage.

Thus, this Plan is geared towards significantly reducing the loss of potentially available food as one of the critical options to improve food security in order to provide a basis for Sustainable Crop Production Intensification and to enhance market chances of African plant products regionally as well as internationally, and envisages that:

"Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa."

The Plan aims at inclusively addressing all crop damaging factors, the development, harmonization and pooling of administrative solutions, and dissemination of sound pest management practices and tools in partnership with the national and regional entities. It encompasses four programmatic areas:

1. Phytosanitary Accordance, by recognizing the increasing importance to facilitate market access and to increase chances for African plant products, but also to prevent the incursion of exotic plant pests into the continent through imported goods and packing materials,
2. Plant Pest Risk Reduction, by realizing early detection of pest outbreaks as a prerequisite for preventing socially and economically unacceptable damage to crop production,
3. Human Capacity Development, by acknowledging the importance of human capacity building to perform plant protection work more efficiently and to make available knowledge of pest identification and management options to the lowest level,
4. Awareness Creation, by admitting the need of bringing the significance of plant protection matters again back on the national, regional and continental agendas.

The core functions of AU-IAPSC in the implementation process of the Plan are:

- Facilitation and support in the process of elaboration of harmonized policies, standard procedures, guidelines and other decision-support tools.
- Facilitation and articulation of common African positions on aspects of phytosanitary matters in international fora.

- Provision of technical leadership and advisory services to Member States.
- Sensitization and advocacy on issues relevant to continental plant protection, and mobilization of public and private sector investments in support of regional and national programmes and projects.
- Provision of diagnostic support and data collection, management and exchange, analysis and dissemination of information of pest incidences to concerned parties.
- Provision of strategic support to countries in emergency situations, and facilitation of countries to maintain core plant protection functions.

The present Strategic Plan is not intended to be implemented by AU-IAPSC alone. AU-IAPSC has thus to rely on functional and reliable partnerships with its Member States, Regional Economic Communities (REC), regional CG-Centres, other public and private partners and the international community. It is therefore anticipated that priority setting under this Plan, programming and implementation will be at the national level, coordinated by the RECs and orchestrated by AU-IAPSC, and eventually translated into projects and programmes of national and regional economic significance and social relevance. It is further expected that this process will be supported and effectively guided by AUC-DREA and FAO.

With this joint framework AU-IAPSC enters a new but overdue avenue, which may not entirely be completed within the projected horizon to reach all its ambitious goals. But it characterizes an inspiring turn and significant paradigm and culture change not only as far as the Organization is concerned, but also of how crop protection is being managed on the continent in a more holistic, inclusive and coordinated manner to the benefit of the people of Africa.

1. Introduction

This Strategic Plan is the result of intensive discussions involving the Inter-African Phytosanitary Council of the African Union (AU-IAPSC) team, selected stakeholders, specifically representatives from the National Plant Protection Organizations (NPPOs) of its Member States, as well as other partner institutions, such as the Centre for Agriculture Biosciences International (CABI), the International Institute of Tropical Agriculture (IITA), UN-FAO and the African Union Commission (AUC), particularly its Department of Rural Economy and Agriculture (DREA). Many interviews were conducted and a questionnaire circulated to all AU-IAPSC partners within Africa to invite feedback from the various parties involved. Finally, a participatory workshop was conducted in Accra from 13 to 16 May 2014 to examine the appraisal findings, the prospects for plant protection in Africa in a rapidly changing economic and environmental perspective. The workshop participants analysed the challenges of continental plant protection structures and approaches, identified the opportunities, reviewed the strategic goals and objectives, and defined the main actions to achieve the objectives. A peer review group was formed to ensure technical quality control in the drafting process of this Strategic Plan.

The draft Strategic Plan was presented and adopted by AU-IAPSC's Steering Committee in Accra in June 2014, and a detailed Strategy Implementation Plan elaborated by stakeholders during an interactive workshop in Addis Ababa from 8 to 12 December 2014.

The joint AU-IAPSC Strategy and Implementation Plan is understood as an integral part of the commitments reflected in the Comprehensive Africa Agriculture Development Programme (CAADP) and the New Economic Partnership for African Development (NEPAD) to-

"accelerate higher economic growth through agriculture-led development – thereby eliminating hunger, reducing poverty and food insecurity, enabling the expansion of exports and supporting environmental resilience"

and sets an ambitious goal of 6% of annual growth for the agricultural sector. To achieve this goal, CAADP directs investment to four "Pillars":

1. Extending the area under sustainable land management and reliable water control systems;
2. Improving rural infrastructure and trade-related capacities for improved market access;
3. Increasing food supply and reducing hunger;
4. Agricultural research, technology dissemination and adoption.

Each of these pillars incorporates policy, institutional reform and capacity building. As a programme of the AU, CAADP is a common framework reflected in a set of key principles and targets collectively defined by the African Heads of States in order to :

- Guide country strategies and investment programmes;
- Allow regional peer learning and review; and to
- facilitate greater alignment and harmonisation of development efforts.

After almost 30 years of negligence it is widely accepted that there is a high need to review and to increase investment in agricultural development to raise agricultural productivity, food availability and quality sustainably in order to achieve the Millenium Development Goals (MDG) targets and post-2015 development.

AUC-DREA mirrors the vision of the New Partnership for African Development in the context of CAADP, and aims in its Strategic Plan 2014–17 at stimulating agricultural productivity, food and nutrition security, expansion of value addition and market access, and sound environmental management practices. Within its Strategic Plan, AUC-DREA is giving particular attention to facilitating regular consultations on how regional priorities and programmes related to Africa's continental agendas as well as various flagship programmes could be refined and further strengthened.

One of the flagship programmes is related to enhancing the national and continental plant protection capacities in which AUC-DREA's Specialized Technical Office, the Inter-African Phytosanitary Council (AU-IAPSC), which also plays the role of Regional Plant Protection Organization (RPPO) in the context of the International Plant Protection Convention (IPPC), is expected to play a leading role. Therefore, AU-IAPSC's Strategic Plan must reflect the changes both in Africa and on the global scene and should serve as a platform in establishing new partnerships in order to regain confidence of its member countries and the international community.

The Plan should also be in alignment with the proposed AU Agenda 2063 under finalization. This agenda is a new effort to envision Africa's long-term development trajectory which allows Africans to imagine an Africa that is transformed, with vibrant and inclusive economies, free from the burden of poverty, hunger, integrated and with free movement of people and goods. One of the identified priorities is to grow the agricultural and agro-processing sectors to ensure collective food security and to become a net exporter of food. This could not be achieved if AU-IAPSC is left aside.

2. The State of Plant Protection in Africa

2.1 The Socio-Economic and Ecological Context of the Plant Protection Sector in Africa

Despite all the efforts for many decades by AU-IAPSC and other national and international institutions, most decision-makers still do not adequately value the potential contributions of plant protection in the fight against poverty and hunger and as an important driver for economic growth in the continent.

Global pre- and postharvest crop losses caused by various insect pests, mites, pathogens and weeds of average 30–40% are commonly assumed as realistic. But tropical areas usually suffer from higher losses, with actual losses in West and East Africa among the highest in the world (Oerke, 2006). This significant loss of potentially available food must be addressed as one of the options to improve food security. How much of these losses can be prevented through better and more intelligent pest management approaches is difficult to predict. But experiences from the Integrated Pest Management (IPM) example show that crop yields can effectively be increased with less expensive and environmentally less harmful pest management systems and thus significantly reducing external costs.

Yet, plant protection matters remain poorly recognised in food security and often receive little attention as compared to animal health issues (Flood 2010). Only when vast cropping areas are being destroyed by suddenly emerging pest outbreaks or new plant pests that are of potential risk for the development of threats of global dimension, does the world turns its temporary attention to such events with often limited longer-term consequences for improving the system of Plant Health as a whole.

As if it is not enough, Africa is still struggling to manage appropriately endemic plant pest problems, leaving annual crop losses in terms of quantity and quality at a staggering high level. The continent is confronted with new emerging threats. With the increasing mobility of people, trade, food aid shipments, changes in climate and in farming systems, and the weakening of the national plant protection and quarantine services, sudden outbreaks of novel or incursion of Invasive Alien Plant Pests (IAS) generate new and unexpected challenges.

Globalization : Plant pests can rapidly move across entire regions, making existing endemic problems worse, thus posing additional threats to national economies and endangering the livelihoods of people specifically in the rural areas. Moreover, enhanced trade and exchange of contaminated seed are often the root causes for the spread and incursion of plant pests into new areas. If not prevented, invasive alien pests will quickly spread across the continent. It is estimated that over 230 new insect, mite, weeds and pathogen pests were introduced in Africa in the 20th century.

Examples of IAS include the cassava mealybug *(Phenacoccus manihoti)*, which caused cassava yield losses of up to 80%, before it was brought under biological control. The Larger Grain Borer *(Prostephanus truncatus)*, native to Central America, attacks stored maize and cassava and has the potential to cause average weight losses as high as 40%. In Tanzania, it causes economic losses of US$ 91 million per annum, and in West Africa it is responsible for cassava losses of approximately US$ 800 million per annum. These and other invasive species have been estimated to cause losses in yield of eight of Africa's principal crops amounting to US$ 12.8 billion per annum.

One of the most recent cases of IAS is the fruit fly Bactrocera invadens. This fruit fly, probably of Asian origin, was first detected in Kenya in 2003 and is now reported in several countries of East, West and North of Africa. In 2010 it was also detected in South Africa and in Botswana and continues spreading to other territories of the continent. This new pest is highly polyphagous and has a wide host range, which includes mango, citrus, guava and pawpaw and

is gradually outcompeting native fruit fly species. Its likely pathway of distribution is through infested fruits. Damage levels on mangoes in Kenya have been reported to be as high as 80%. More important is its impact on trade and associated economic losses, as whole consignments are restricted from import in case one fruit is found infested with eggs or maggots. It is estimated that export restriction to South Africa alone costs Kenya's fruit industry up to US$ 6 million per year.

Other examples concern invasive alien plant species such as *Prosopis juliflora, Parthenium hysterophorus, Argemone ochroleuca and Solanum elaeagnifolium*, which are becoming an increasing threat to African agriculture especially in Eastern and Southern Africa, and are causing huge economic losses. They reduce biodiversity by outcompeting native plant species, transforming ecosystems and are often toxic to livestock and can put whole areas out of production.

Climate Change : Global climate change models indicate that Africa will probably experience increased temperatures with more droughts in some areas, but also unusual torrential rainfall in others. As the biology of all living organisms is directly linked to climate, changing ecological conditions will have a large impact on the biodynamics of pests. How the various insect pests, microorganisms and weeds will adapt to a changing environment, is difficult to predict and depends on how different external factors interact, as well as on how individuals and societies respond to climate-induced effects. But it is virtually certain that higher temperatures will increase the chances of pest outbreaks and incursions of new pests. First signs give good reasons to assume an increase of severe plant pest incidences due to changing ecological conditions such as the occurrence of alien fruit fly species and the development of highly virulent new wheat rust strains such as *Ug99* - just to mention some of the most recent observations. Also, other more common endemic migrant or transboundary pests for example grasshoppers, locusts, armyworms and grain eating birds, may change their breeding and migration behaviour and patterns and might move into areas where they are currently not common.

Crop Production Intensification : The pressure to intensify agricultural production to feed a growing population and livestock, and to respond to the changing demands, will lead in the first place to an increase of food available to plant pests due to increased mono-cropping, introduction of high yielding crop varieties and higher fertilizer inputs. Up to now, the first choice to protect harvest against pests remains the use of chemical pesticides, thus contributing to growing resistance in pests and additional damage to the crop ecosystem by destroying the population of natural enemies. In Sub-Saharan Africa alone, more than US$ 1,2 billion is being spent annually on pesticides (FAO, 2010), mainly for use in migratory pest control, and on commodity (cotton, coffee, cocoa) and horticulture crops. Though pesticide use in Africa is comparatively low – about 5% of the global use – it is likely to increase significantly. But frequent misuse of pesticides and accidents, improper pesticide handling, storage, and management, stockpiles of obsolete pesticides, as well as more rigorous quality standards for export horticulture crops call for alternatives and promotion of new pest control technologies and tactics. Also new trends in agribusiness are about to change crop production patterns with consequences for plant protection. Foreign investment in agriculture in Africa often results in soil degradation, an increase of fertilizer and pesticide use with all related environmental consequences and economic costs (Jorgenson and Kuykendall, 2008). Intensive cultivation of bio-fuel crops attracts new pests, which may also attack other crops. Some of the second-generation woody species themselves are known to be, or have the characteristics of invasive weeds (Buddenhagen et al., 2009; Witt, 2010).

Gender Considerations : Women in Africa are largely being ignored as vital drivers in rural development. But according to FAO, women contribute 60 to 80 % to food production for household consumption and sale, and play a major part in agricultural activities such as

sowing, weeding, application of fertilizers and pesticides, harvesting, threshing, food processing, transportation and marketing. Women often manage complex production systems with multiple functions, purposes and species. These systems are not intended to maximize the productivity of any single crop, but to ensure overall food stability and resilience such as kitchen gardens to grow vegetables, sweet potatoes and fruit crops- often considered as minor or women's crops - as a source of vitamins and income. However, despite their key role in food production, food security and trade, they are the most disadvantaged and side-lined, especially as far as access to farm implements, advanced technologies and know-how are concerned. As FAO states, there is a significant gender gap in agriculture, which translates into a costly loss of opportunities to improve the quality and quantity of food supply. If women had the same access to, and control over productive resources as men, it is estimated that they would increase yields on their farms by 20 to 30%. This could raise total agricultural output in Africa by 2.5 to 4%.

Recognizing the difference women can make also in the field of plant protection is important, as women are more frequently involved in traditional farming practices and are better observers also as far as plant pest problems are concerned. If given the opportunity, they could play a vital role in pest surveillance and reporting activities and in promoting IPM. The latter is of particular importance as women are usually less informed about safe pesticide practices and the dangerous side effects of pesticides than men. But women are particularly vulnerable to pesticides especially when they are pregnant. Growing evidence of relations between pesticide exposure, women's reproductive problems, and health problems passed on to their children adds to the concern over sub-lethal pesticide poisoning of women. In addition, significant quantities of out-dated and even fake pesticides remain in circulation, and extension agencies as well as pesticide dealers may not necessarily promote "new-generation" pesticides, which are difficult to afford by smallholders. Instead, subsistence farmers are often left with cheaper but obsolete and more hazardous products. It is estimated that as much as 30% of the pesticides sold in Africa do not meet international quality standards.

Experiences in IPM advocate policies that support strategies which do not further exclude women. These strategies include promoting less toxic options to hazardous chemicals and to facilitate women's access to training opportunities and information. Messages designed to improve women's awareness, knowledge, and skills with respect to plant protection must be designed to overcome the barriers that are often raised by women's lower socioeconomic status and education. The use of more appropriate and smarter communication techniques should be explored more in order to value women's role in building safety nets, producing safer quality food and improving access to markets.

Market Access : As markets are becoming increasingly demand-driven and selective, producers of plant products in Africa are facing many barriers in accessing formal markets, the same for traders in their hope to obtain acceptable profit margins for their commodities. Higher quality standards with regard to food safety and quality add more pressure on producers to respond to the changing conditions. With trade liberalization in the framework of World Trade Organization (WTO) and Regional Trade Agreements, competition is becoming ever more stringent. But despite most African countries being members of the International Plant Protection Convention (IPPC), only few are living up to the reporting expectations or comply with Sanitary and Phytosanitary Measures (SPS) and International Standards for Phytosanitary Measures (ISPMs). Though the NPPOs have the obligation for surveillance, diagnostics, risk analysis, import and export inspection, and certification, they are often not in the position to provide the expected information. When they are, the data is regularly insufficient in terms of quality, quantity and timeliness to draw a correct picture of the evolving situation and to make technically

sound decisions with regard to various control options. As a result, many African countries are facing severe difficulties to meet the IPPC and SPS requirements to access high value markets because of inappropriate legal frameworks in many cases, scattered responsibilities, lacking facilities and technical skills to carry out thorough inspection, sanitary and phytosanitary work.

Disaster Risk Reduction : Because of the complexity of transboundary pest issues as compared to indigenous endemic pests, preparedness to outbreaks or the incursion of IAS, is in most cases inadequate to understand the seriousness of the event. Consequently, national agencies often fail to respond fast enough with appropriate counter measures with often disastrous consequences for the most vulnerable. Governments are usually slow in realizing or keen to acknowledge – often for political reasons - a pest incursion in their country and the possible threat to their economies. These delays are frequently made worse by the failure of the international community to recognise the seriousness of the situation at early stages. The cornerstone for any national risk prevention and eventually region-wide early warning system is to carry out regular field observations which aim at identifying the presence of unwanted pests that may be harmful to plants, humans and the environment as early as possible. Surveillance, as a prerequisite for any Pest Risk Analysis (PRA), requires correct plant pest diagnosis, evaluating pest population severity over time and space, counting the various pest species and numbers, and includes cropland monitoring as well as main international points of entry and market places.

Regional and Continental Cooperation : Obviously, an increasingly interconnected world calls for intensified cooperation and coordination at the global and regional levels. The prevention and management of transboundary plant pest issues must be understood in a wider context, beyond national boundaries. This should involve the full range of pest management activities including its regional dimension, as invasive and transboundary pests cannot be effectively addressed at national level alone. A mechanism for preventing the outbreak and spread of a transboundary plant pest is particularly beneficial as the costs of control may be largely incurred in one country only where the outbreak has first been observed, but with many of the benefits accruing in neighbouring countries. To guarantee the smooth implementation of policies and instruments of regional concern, collaboration and coordination should first clearly define its scope, mandate and responsibilities. This will depend fundamentally on questions of ownership, how much of their sovereignty member states are willing to share with and/or delegate to a multinational body, to what extent they would be willing to contribute in terms of expertise, information, data and funds, and ultimately of the benefits member states could expect from participating in a regional network. In addition, it is expected that regionalisation could be a strong driver not only for streamlining transboundary pest risk reduction and harmonizing phytosanitary regulations, chemical and biological control product regulations and registration, but also for optimising bio-safety frameworks in relation to genetically modified (GM) crops, and research around thematic projects relating to pest management especially in the case of new emerging pests.

Enhanced regional collaboration under the stewardship of AU-IAPSC and some stronger RECs could be a driver for more cost effective plant pest management, as regional solidarity would also allow compensating for the limited capacity of the weakest to prevent a disaster of regional scale. As AU-IAPSC has a large number of countries to serve, mechanisms are required to enable AU-IAPSC to play a stronger, more strategic role in the future. The establishment of sub-regional offices has been suggested by AU-IAPSC as a possible way forward. But in order to avoid duplication of efforts and to stimulate regional cooperation it might be more appropriate to nominate AU-IAPSC Focal Points within the REC structures and at other sub-regional organizations as part of a renewed regional commitment to plant protection.

As a medium-term perspective, capacities need to be developed and established which would enable AU-IAPSC and sub-regional bodies to play their role within the regional network as:

- Coordinator and service providers in plant protection matters to its member states;
- Promoters of African countries' views on plant protection and pest management issues;
- Focal points in early warning, risk assessment and mitigation and disaster management;
- Interlocutors in demand driven research with regional and international research institutions,
- and brokers in awareness creation, and fundraising and resources mobilization efforts specifically in emergencies.

Research and Technologies : Many research areas in plant protection require facilities and equipment that are too expensive for most countries, in which case, regional research organizations can provide opportunities for national scientists to use well-equipped research centres such as IITA, ICIPE, AGRHYMET, CILSS and NEPAD's bioscience centres. Many of these institutions have their own source of funding and require little support from the national governments. Thus, regional and international collaboration is most beneficial in order to access knowledge, intellectual property, and facilities. Some of the possible areas in advanced plant protection research include genetic modification of crops, modern varietal selection and breeding techniques, biochemical and molecular diagnostic methods, identification and use of natural enemies, bio-pesticides and semiochemicals. National agricultural research institutions in collaboration with Sub-regional Research Organizations (SRO) could play a vital role in the context of plant pest diagnostics, training and technical backstopping as well as in advocating and promoting the development of demand-driven ecologically sound control tactics. Furthermore, the use and potential of modern Information and Communication Technologies (ICT) in pest management and early warning systems has not been fully explored yet. In many cases data is still being recorded on paper with little relevance for appropriate PRA. But new tools such as handheld devices with a custom database would allow plant protection officers to enter field observations and transmit them in real time to the NPPO where the field data is entered in a tailor-made Geographic Information System (GIS) that allows the National Pest Information Officer to manage and analyse the environment, survey and control data and use the results of such analysis in more sound decision-making. Standardized, geo-referenced field surveillance of pest incidences using ICT opens up a new avenue to manage and analyse relevant field data; it is less time consuming and facilitates information sharing with neighbouring countries and international and continental institutions such as IPPC and AU-IAPSC.

Policies, Partnerships and Programs : Arising ad hoc issues, particular interests, political agendas such as the Structural Adjustment Programmes (SAP), imposed priorities or opportunities, have often been the driver of plant protection policies in Africa. This approach led to often biased decisions at the expense of the larger picture, and did not necessarily contribute to stimulating cooperation among projects and programmes neither at the national nor regional levels, and did not build the foundation for developing better messages for the farm communities or achieving sustainability of well-intended efforts in the past. Scarce national resources are frequently directed from less favoured, but equally important areas to better funded programmes, with negative consequences for the Plant Health system as a whole. The common goal should be a re-enforcer for building better synergies among various international, continental, regional and national entities. But this will require a new and different degree of cooperation and commitment to partnerships among programmes, professional staff, across all technical subjects and governance of those in order to address the complex question of agro-ecological sensitive pest management in Africa.

2.2 Main Challenges and Opportunities of Continental Plant Pest Management

In Africa pre- and postharvest crop losses in terms of quantity and quality caused by various plant pests and weeds are among the highest in the world. These losses are significantly reducing the potentially available food for a growing population and are putting Africa's competiveness of agricultural products in the regional and global markets at stake. In addition, rising mobility of people alongside with increasing urbanization, growing trade, changes in climate and of farming systems, as well as sudden outbreaks of novel or incursion of exotic pests, add more pressure on the already poorly equipped national and continental plant protection and phytosanitary structures, which are already hardly in a position to control and manage the more common pest problems. Yet plant protection matters remain poorly recognised by decision-makers and the international community as an important contributor to food security, economic growth and to preserving Africa's biodiversity and its natural heritage.

In the forefront of more appropriate plant pest management systems stands the protection of livelihoods of the rural and urban populations to meet their needs in quantitatively and qualitatively safer food and nutrition; and to enable better market access and thus revenue generation through improved adherence to phytosanitary standards and instruments.. This is done by preventing unwanted plant pest incursions, and unanticipated outbreaks with environmentally safer control tactics.

The fundamental questions raised by strategic partners to overcome the core challenges in the framework of AU-IAPSC's mandate stated:

- How to convince decision-makers at the AU, RECs and national governments of the member states of the significance of improved plant pest management and ecologically acceptable control methods to the economy and people's livelihoods, so that appropriate funding of plant protection issues could be assured in the future?
- How to increase support to AU-IAPSC to facilitate better implementation of international phytosanitary standards by Member States and to improve coordination of phytosanitary matters among stakeholders, and to increase the regional and national capacities to implement those standards?
- How to assist member states so that they are in a better position to strengthen and maintain their quarantine capacities, to adhere to phytosanitary standards and to raise awareness among clients and stakeholders of the importance of phytosanitary procedures?
- How to manage pests of plants, plant products and pesticides more effectively and to strengthen human capacity building systems through better qualified trainers and appropriate messages and standard procedures of good practices on plant protection matters at the continental, regional and national levels?
- How to improve the knowledge on plant pest incidences, developments and distributions within the continent in order to facilitate more timely and effective response to the development of unexpected threats to agricultural production?

There is no simple answer to all the technical, structural and political crop protection and pest management problems in Africa and to effectively face the threats of common, alien, invasive and migratory plant pests.

Policy and decision-makers must be better sensitized so that they manifest their political will to reconsider the development of the agricultural sector and sustainable resources management as public good and also substantially increase their investments in plant protection.

Plant protection needs to be understood as part of a sound and more resilient agro-ecosystem to preserve and improve biodiversity in order to produce healthy and enough crops in a sustainable way.

It is required a more inclusive systems approach comprising all plant protection issues as opposed to a subject-matter/sector oriented

way of handling plant pest aspects separately and often uncoordinated, by involving all actors (international, continental and regional organizations, national agencies, private sector and scientists), by putting farmers again into the focus of the process and by taking due recognition of social and economic factors.

The plant protection set-up in Africa must become more consistent, coherent, better coordinated, and more proactive by anticipating and responding to pest problems before they become a serious threat to food security and trade. Thus, more cost effective pest control – in terms of livelihoods saving and ecological damage - call for integrated Plant Health systems, and timely and well-coordinated actions by national, regional and continental entities. In order to cope with the crop protection challenges ahead in Africa such as climate change, enhanced trade, incursions of exotic and invasive plant pest species, crop production intensification etc., countries and regional partners need to focus on:

Country level :

- Developing the capacities and capabilities of national plant protection services and personnel;
- Building - as integral part of a regional and continental early warning system - national capacities to collect, compile and analyse data, and to provide information to multiple sectors;
- Implementing phytosanitary measures and adhering to internationally agreed standards to prevent spread of invasive alien and incursions of new plant pest species;
- Working with civil society organizations to ensure the participation of local communities in processes to identify/assess risks and develop customized solutions;
- Increasing public awareness to ensure that remote areas are informed of the risks;
- Involving all participating groups, particularly the vulnerable communities, in risk preparedness;
- Enhancing the collaboration between the national agricultural research institutions, farmers, private sector and national plant protection services to develop customized solutions to plant pest problems.

Continental/regional level :

- Supporting up-dating and harmonisation of national and regional plant protection regulations and legal instruments to comply with international standards;
- Harmonizing regional and sub-regional plant pest intelligence and early warning systems;
- Streamlining and raising capacities of continental and regional entities to coordinate transboundary pest control measures and implementation of phytosanitary standards;
- Creating capacities of the regional organizations to manage pest data and to carry out appropriate pest risk analyses;
- Assisting regional institutions in developing their capacities to carry out risk assessments, based on identified hazards and vulnerabilities;
- Developing standards of incident reporting, preparedness and contingency planning at continental and regional levels;
- Identifying the related programmes of various partners in order to improve coordination and transparency at continental and regional levels and to enhance synergies;
- Fostering pest management research programmes at regional research institutions;
- Enhancing the collaboration between regional and national agricultural research organizations to develop advanced and customized plant protection solutions;
- Consolidating the vertical and horizontal coordination capacities of the institutions responsible for plant protection and risk reduction;
- Translating risk reduction policies into adequately resourced programmes.

AU-IAPSC is in the position to play a dominant role in advocating the continental challenges more vigorously and to catalyse possible solutions together with Member States and RECs.

Being a specialized technical office of AUC-DREA, AU-IAPSC is entrusted with the mandate to support and coordinate plant protection and phytosanitary matters in Africa. Consequently, the Council is tasked with the important role to stimulate an enabling environment within the African continent by mediating among continental, regional and national stakeholders for more effective pest management and risk mitigation strategies against plant pests and inappropriate pesticide use. AU-IAPSC is thus contributing to sustainable and healthy food production, better market access, livelihoods resilience, biosecurity and climate change adaptation.

Consequently, it is expected that AU-IAPSC would act as clear continental vision carrier in Plant Health matters and to integrate its activities in a results-oriented manner. In order to meet these expectations, AU-IAPSC must seriously strengthen its managerial capacities and to enhance confidence of Member States by advocating their concerns and interests in international and continental fora. It should also seek and foster the trust of development partners and other stakeholders in its potential to perform as an effective and reliable service provider.

Countries and the international community are increasingly taking note of the importance of better disaster risk prevention and management and the need for seed money in the context of contingency funds in order to help affected countries to rapidly scale up their response capacities in emergency situations. The Central Emergency Response Fund of the UN (UN-CERF) is one of the examples, which is already operational.

The "One Health – One World" Initiative has been defined as "the collaborative effort of multiple disciplines — working locally, nationally, and globally — to attain optimal health for people, animals and the environment". Since the Plant Health approach is equally committed to preserving human, animal and environmental safety, it would be worthwhile exploring the possibilities of integrating plant protection concerns within Africa as part of the continental One Health platform.

National, regional and continental authorities are increasingly concerned about the devastating impacts exotic invasive plant pest have on the national economies and African biodiversity, and realize the importance of knowledge management for better risk assessment, and decision-making.

Due to the increased availability and use of ICT facilities, information sharing has become much easier. This opens unique opportunities to address the challenge of access to information and knowledge products required to support pest management in Africa.

3 The Strategic Framework 2014-2023

Increased efforts are expected under this Strategic Plan to harmonize, pool and address holistically all crop-damaging factors, to develop technical and administrative solutions and to disseminate smarter approaches and management tools in partnership with the national and regional stakeholders.

This would allow NPPOs, RECs and AU-IAPSC to provide more sound and better thought-out programmes, which could be implemented in the field more efficiently. Undoubtedly, this requires a serious process of discussion coordinated by AU-IAPSC to outline the specific plant protection goals for the African regions as a more specific part within the CAADP framework by taking due recognition of the social and economic dimensions, and to set priorities.

These priorities and needs in the context of a broader continental agro-ecosystems approach must be identified in the first place by the countries themselves, including its wider range of issues in the context of preserving crop production comprising:

- IPM,
- Phytosanitary and plant quarantine matters,
- Migratory pests and invasive plant species management,
- Prevention of pest outbreaks and new and alien invasive pests,
- Disaster risk reduction,
- Post-harvest and pesticides management,
- Legal aspects,
- Research and training,
- Food safety and
- Preservation of biodiversity.

The priority setting and programming should be coordinated by the RECs and orchestrated by AU-IAPSC, and eventually translated into projects and programmes of regional economic significance. This process should be supported and effectively guided by AUC-DREA and FAO.

3.1 Vision, Mission, and Expected Outcome

As a result of the brainstorming process conducted during the AU-IAPSC strategic planning workshop in Accra 2014, AU-IAPSC's vision and mission were re-examined, and its strategic outcome and programmatic outputs defined as follows:

Vision : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Mission : To develop, promote and coordinate sustainable Plant Health systems among continental, regional and national actors for increased agricultural production and market access.

Goal : Continental Plant Health management systems improved by 2023.

It is hoped that the results to be achieved by programmes and projects under the Strategic Plan will contribute to the development of local, national and regional plant protection expertise and improved pest surveillance/diagnosis and reporting mechanisms, and the establishment of preparedness capacities by building synergies with other on-going projects. Reinforced national and regional entities through regional plant pest information and risk assessment services will ultimately support enhanced food security in Africa within the CAADP framework.

The core functions of AU-IAPSC in the implementation process could be summarized as follows :

- Facilitation and support in the process of elaboration of harmonized policies, standard procedures and guidelines and other decision-support tools.
- Facilitation and articulation of common

African positions on aspects of phytosanitary matters in international fora.

- Provision of technical leadership and advisory services to Member States.
- Sensitization and advocacy on issues relevant for continental plant protection, and mobilization of public and private sector investments in support of regional and national programmes and projects.
- Provision of diagnostic support and data collection, management and exchange, analysis and dissemination of information of pest incidences to concerned parties.
- Provision of strategic support to countries in emergency situations, and facilitation with special needs of countries to maintain core plant protection functions.

3.2 Programmatic Areas

Four Programmatic Areas have been identified to focus intended efforts under this Strategic Plan. While Awareness Creation policies and Human Capacity Building are crosscutting issues, the aspects of Phytosanitary Compliance and Plant Pest Risk Reduction are addressing specific areas geared towards reducing crop production and quality losses.

1. **Phytosanitary Compliance :** The increasing importance of compliance with phytosanitary standards and regulations as key factor not only to adapt to changing demands with regard to food safety and quality, and thus to facilitate market access and increase chances for African plant products, but also to prevent the incursion of exotic plant pests into the continent through import goods.

2. **Plant Pest Risk Reduction :** Early detection of pest outbreaks and correct identification of incursions of new threats as a prerequisite for preventing socially and economically unacceptable damage to crop production alongside the increased efforts to promote IPM. Specific attention needs to be given to the development of policies in consultation with Member States and RECs to increase the chances of detecting and controlling transboundary threats at early stages.

ICT as an increasingly available and affordable product should be introduced, as well as national and local capabilities strengthened to operate new Information Technologies (IT). This provides an enormous opportunity to access and manage pest information to allow more targeted and early reaction, and better decision-making.

3. **Human Capacity Development :** Building human capacities to carry out plant protection work, to effectively monitor various pests and to spot outbreaks, as well as novel or alien pests at early stages, and to react rapidly with the appropriate measures, should be one of the priority areas and a continuous effort. This not only in view of compensating for the high staff fluctuation in the national plant protection services, but also to cope with new technical developments, to make knowledge of pest identification and management options available to the lowest level especially women farmers, and to foster the establishment of community based pest information systems.

4. **Awareness Creation :** In the 70s and 80s of last century, plant protection was better recognized than today. The rising international concerns with regard to the negative impacts that toxic pest control substances may have on the environment certainly contributed to the declining interest in addition to the trend in recent years for governments to decentralize and privatize many of the public services. Both factors had particular implications for the capacities of the NPPOs, regional pest control organizations and AU-IAPSC, with negative consequences to cope with new arising transboundary challenges and the harmonization of plant protection policies at the regional level. Efforts need to be undertaken to reverse this trend and to bring the significance of plant protection matters again back on the national, regional and continental agendas to become part and parcel of the One World – One Health Initiative in order to

address effectively the issue of transboundary threats and issues of food safety by promoting environmentally less harmful pest management strategies.

3.2.1 Impact Focus Area 1 : Enhanced compliance with international phytosanitary standards and regulations

3.2.1.1 The Context

International trade has on the one hand the potential for stimulating economic growth, but entails on the other hand many risks with regard to human and animal health, biodiversity and business itself. Shipments of food can harbour pathogenic microbes and thus represent a threat to food safety (Day, 2013). They may contain potentially harmful residues of chemicals used during production, such as pesticides or veterinary drugs, and they can carry pests from one country to another where these pests are not indigenous, but where they could provoke serious damage.

The microorganisms, chemicals or pests that are transported during trade are technically referred to as hazards, while the risk defines the probability of an event occurring. It is with the determining and managing of these risks that SPS systems are concerned.

For many developing countries, SPS issues have become closely associated with access to developed countries' markets. However, this potentially overlooks the fact that developing countries are also importers, so must protect themselves from the SPS risks that imports present.

The WTO's Agreement on the Application of Sanitary and Phytosanitary Measures recognizes countries' concerns to protect their human, animal and Plant Health by managing these risks. The agreement thus covers the three areas of food safety, animal health and plant health. Key elements of the agreement are:

- International standards as the basis for harmonized SPS measures,
- Risk assessment based on scientific principles and evidence,
- Consistency in the application of appropriate levels of protection (non-discrimination),
- Acceptance of equivalence of measures,
- Transparency through notification of measures.

SPS measures must be scientifically justifiable, and based on international SPS standards recognized by the Agreement. Countries that want to access and maintain export markets must be able to comply with the importing country's public and market standards. Government regulatory agencies and the value chain actors must have the capacity to undertake a range of SPS functions, which together provide assurance to the importing country that SPS risks have been managed to an acceptable level.

3.2.1.2 Main Challenges

The challenges to address SPS issues in Africa are immense; this is mainly because of the absence of clear national and regional legal frameworks and poor national and regional coordination to deal with food safety and plant health issues (Magalhães, 2010). As a result, in many African countries the designated national authorities, the NPPOs, remain utterly underfunded and poorly equipped to effectively adhere to the international phytosanitary standards to secure market access. Thus, deficiencies related to ineffective inspection services, poor laboratory capacity and training needs are common observations.

Therefore, there is a high need for increased attention and intervention at the highest levels in order to unleash the potential of trade for economic growth and to protect Africa's crops and natural heritage from incursion of unwanted pests.

Several RECs have developed or are developing regional phytosanitary policy frameworks, which include considerations to assist member states in the proper implementation of the WTO/SPS agreement. But it is not always clear to what extent they effectively contribute to the

international agreements. Obviously, most RECs have only very basic capacities and their roles and responsibilities are not always well articulated. In addition, coordination and harmonization requires good interaction with the national parties.

To begin with, it might be advisable to initiate regional networking in plant protection matters with comparatively stronger RECs. Both, AU-IAPSC and the collaborating RECs need to be reinforced in terms of sufficient and experienced staff, and equipment. Their governance structure should be reviewed and supported in the process of identifying and executing their roles appropriately in a broader regional and continental context of agricultural development. They need to establish effective coordination tools with regard to phytosanitary issues, harmonization of legal instruments, risk assessment, early warning and transboundary pest management. Enhanced regional collaboration under the stewardship of AU-IAPSC and some RECs could trigger more cost effective plant pest management.

As noted above, the legal basis in many African countries to implement SPS instruments in a more coherent way is either not existing or outdated. But renewing of the legal frameworks is not necessarily encouraged also by the uncoordinated way that these issues are being treated at the regional level. Coordination and harmonization of efforts to achieve a common SPS policy will be a demanding process and eventually require a thorough examination and review of many of the existing national and regional SPS frameworks.

3.2.1.3 Main Opportunities

Trade is increasingly being considered as an important driver of development (DFID, 2011). It is estimated that by increasing a country's trade by 10%, revenues can be raised by 5% (Feyrer, 2009). Thus, there is now much importance attached to trade by international development agencies - The New Alliance for Food Security and Nutrition (G8NA) - and continental bodies for promoting private investment and trade. Since agriculture is central to the economies of most African countries, trade in agricultural products is potentially a key component of their economic growth. Global trade has expanded rapidly in the last decade, including trade in agricultural products, yet developing countries' share of global trade is currently still relatively low but likely to expand rapidly also due to new opportunities such as fair-trade and an increasing demand for bio-products (Ercsey-Ravasz et al., 2012). In addition, growing urbanization in Africa and rising incomes are creating higher demands for fresh produce providing domestic or regional market opportunities for higher value and safer products.

- Governments as well as AUC and the RECs are increasingly aware of the importance of SPS matters and the risks unregulated trade may have on the natural resources of the continent.
- The AUC recognizes the constraints regarding limited access to SPS information, adequately trained personnel and infrastructure.
- The AUC is committed to assist Member States and RECs and to strengthen their capacity to effectively and actively participate in standard-setting activities.
- The AUC can play an important role with regard to resource mobilization and rally political awareness and support at a high-level policy decision-making.
- Regional SPS policy frameworks may provide members with the legal basis that they do not have in place.
- Regional SPS frameworks could potentially be important for countries that are not yet WTO Members by offering these countries a legal environment to benefit from.
- Regional SPS frameworks may provide unique opportunities for increased regional coordination and cooperation through the establishment of regional implementation mechanisms. A long-term vision and leadership, shared norms and values, and rules

and institutions will build more trust and cohesion.

- RECs have a comparative advantage to identify and promote SPS regional interests.

3.2.1.4 Key Result Areas

To effectively assume a more ambitious role in the SPS area, AU-IAPSC in close collaboration with RECs needs to address the structural weaknesses, including limited human resources to carry out phytosanitary functions, to ensure Member States' implementation of policy frameworks, and to provide clear guidance for future action. Undoubtedly, the development and effective implementation of regional SPS policy frameworks by Member States will require substantial financial and human resources from members, the AUC and the international community.

Strategic Objective 1: To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant to plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop producers to enter high value markets – within and beyond the continent.

Outcome 1 : ISPMs effectively implemented.

Output 1.1 : NPPOs structures amended.

Output 1.2 : ISPM implementation well coordinated.

Output 1.3 : African countries' contribution to standard setting improved.

Output 1.4 : National plant quarantine services operational according to standards.

3.2.2 Impact Focus Area 2: Mitigation of impacts and risks of pandemic and exotic invasive plant pest species on livelihoods and biodiversity in Africa

3.2.2.1 The Context

The aspect of managing pandemic and invasive exotic plant pests is closely related to the previous chapter. Although there are many similarities and issues interlinked with SPS aspects, the nature of incursions as well as the coping strategies are distinctly different although not entirely incompatible. But these differences and possible synergies need to be addressed in the national and regional strategies, supported by AU-IAPSC. The previous section mainly addressed consequences related to trade and SPS, while the following is referring to local and transboundary pest problems of both endemic and exotic nature, which are of concern or may equally affect smallholders' livelihoods directly.

The plant protection functions in Africa at the national level are structured and managed differently from country to country for various – mainly historical - reasons. It is common to find a host of entities covering different aspects of crop protection. Some services, such as general Plant/Crop Protection, Plant Quarantine, Pest Control Products/Pesticides Registration, and Migratory Pest Control are operated collectively within one NPPO or in separate Departments under the supervision of the Ministry of Agriculture. Others such as agricultural research, technical universities, inspection, and extension services may come under different line-ministries or local governments depending on the institutional framework of the country. In some countries, autonomous Locust Control Units have been established while in others migratory or pests of national concern (as opposed to local pests) are handled in assigned sections by the NPPO.

Hence, mandates and responsibilities for different crop protection functions differ considerably from country to country, do not always

respond to the challenges ahead, and their inter-linkages are often not clear[1]. But indistinct leadership, competition among national plant protection institutions specifically in issues related to trade, certification or in an emergency situation, the right choice of pest control options and pesticide management etc. usually lead to conflicting decisions, uncertainty, uncoordinated, delayed and eventually ineffective actions which usually come at a high cost.

Key for national pest risk prevention and eventually region-wide early warning systems is to conduct regular observations that aim at identifying the presence of unwanted pests that may be harmful to plants, humans and the environment at early stages. Surveillance and inspection, as prerequisite for any risk assessments, requires correct plant pest diagnosis, evaluating pest population severity over time and space, counting the various pest species and numbers, and includes cropland monitoring as well as main international points of entry and markets.

To be effective, the surveillance and reporting setup should have a broad coverage, significantly supporting the technical capacity and timely information exchange and reporting. A coalition of scientists, extension workers, local authorities and farmers – with the emphasis on the latter who have most at stake – need to be involved. At village level, community-based information sources, Plant Health Clinics and Farmer Field Schools (FFS), can play an important part in the overall information network.

Laboratories specialized in plant pest diagnostics need to be involved to provide technical backstopping and to verify/confirm field observations. Here again, reliable networks are critical; one example is the International Plant Diagnostic Network established by National Agricultural Research and Extension Systems (NARES) in collaboration with the International Institute of Tropical Agriculture (IITA). In other cases bilateral collaboration between specialist laboratories (Centres of Excellence) between the regions and national counterparts could support and extend diagnostic capacities.

To meet the requirements of better regional networking and collaboration in the context of transboundary threats to crop production due to actively moving and passive spread of pests across national boundaries, the national information network should be inter-linked with regional and continental entities. Ultimately, a continental Plant Health Information System (PHIS) should be established and hosted by the participating RECs and AU-IAPSC to regularly receive and analyse data sheets and reports (bulletins) from NPPOs. To this end, the required data management system needs to be developed and introduced as well as training provided to the designated staff. In return, the regional/continental entities provide periodical newsletters/bulletins of the pest situation including forecasts and issue special warnings and alerts when required, and liaise and share information with other relevant regional entities and the international community as fundamental part of risk and emergency preparedness and coping strategies.

3.2.2.2 Main Challenges

The African continent harbours some of the world's most devastating migrant pests and is increasingly becoming a victim of invasive alien species, which can affect food security of entire

[1] Under IPPC, countries are required to establish a National Plant Protection Organization (NPPO). Its responsibilities in relation to IPPC are specified by the Convention. But in practice the NPPOs are usually also involved in providing services and functions outside the scope of the Convention. Thus what is meant by a plant protection organization as opposed to a national plant protection directorate or a plant health service is not well defined.

In addition, the term plant protection is usually interpreted as including the full range of pest management activities, whereas the scope of the IPPC is generally on trade and quarantine, and has been described according to the WTO Agreement on Sanitary and Phytosanitary Measures as "phytosanitary". The meaning of phytosanitary again is plant health, thus all aspects of crop protection could be said to concern plant health. While this may be etymologically correct, in common usage, the term "phytosanitary" does not refer to all aspects of plant health. The various terminologies used should be clarified to avoid confusion among stakeholders.

regions. Because the dynamics of such pests are very complex, making a prediction of outbreaks and pathways is extremely difficult. As some of these pests can move rapidly from one country to another, their management requires close collaboration and coordination of national, regional and continental entities to avoid further spreading. And, it needs special skills related to proper communication policies, incidence reporting, data management, risk analysis, early warning techniques, appropriate intervention options, preparedness and eventually disaster management. But most of the NPPOs entirely lack these early warning and rapid response capacities in order to minimize the risk of emergencies. Consequently, the usual response to transboundary pest outbreaks can be summarized as too little, too late, with frequently harsh consequences and at a high, often unaccounted for, cost for food security, the environment due to the massive amount of chemical pesticides used to stop the outbreak, and the social welfare of the affected communities.

Ecologically safer pest control strategies such as IPM and bio-control techniques are widely accepted in principle, but the use of chemical pesticides remains in most African counties still the first choice. Although many governments in Africa have declared policies for IPM within the context of sustainable agriculture, in some countries these policies are often not enacted and there is no real commitment to the stated objectives. Another major challenge to IPM is that the approach implies an interdisciplinary, multi-functional approach to solving pest problems and entails the way in which research, extension and technical support services are organized. There are also many vested interests associated with the pesticide industry, which should be addressed by an explicit policy on IPM. While pesticide subsidies continue, and if government-provided credit for crop production is tied to these, they become a major constraint to farmers' acceptance of IPM and biological control methods.

With regard to bio-control, several technical considerations contributed to the slow adaptation of these options. First and foremost, conventional pesticides are highly effective and easier to apply as compared to bio-pesticides, which are often slow acting agents, leaving in many cases doubts as far as their efficacy is concerned, as well as their comparatively higher prices. But also further important factors may have added to the slow introduction of alternative control tactics such as their very specific effects on target pests only, which makes them unattractive for multipurpose uses. Other constraints towards user-friendly bio-control strategies include the formulation of the product, ensuring quality standards, socio-economic adaptation, registration, shelf life and commercialization. Much of the funding for the development of user-ready and –friendly bio-control products is with the public sector. But many developing countries often lack the experience of working with the private sector to translate research results into commercial products. Current regulations for pesticide registration and concerns to release for instance exotic natural enemies into the environment can further hinder their introduction. In addition, defining plant protection options in terms of priority pests on priority crops is often ignoring other relevant limiting factors, such as yield security and food preferences, while screening for pest-tolerant or resistant crops, when there are other aspects relating to policy, socioeconomics and input supply that may be equally, if not more important, in solving a pest problem.

In short, many political, scientific and socio-economic and practical considerations need to be taken into account in order to decide whether an alternative pest control option is realistic and feasible or not. Thus, joint efforts between researchers, policy-makers, regulators and the private sector can be a painstaking process and can take many years before eventually deciding, whether or not an innovation may see the light of the day.

In conclusion, the concept of integrated pest management and bio-control has been largely accepted, but its implementation remains complex and faces numerous potential difficulties. If more alternative pest management options

are to enjoy widespread approval and adoption, it must be clearly defined and economically and socially sound.

The current organisational set-up of many national plant protection organisations in Africa is still designed according to the traditional fire brigade style of pesticide based control and eradication of pests instead of eventually less costly preventive and smarter concepts. In addition, the division of mandates and authorities makes effective coordination of plant protection and phytosanitary matters extremely difficult. Concentration of authorities and clearly defined mandates and lines of command in strategically important areas such as plant protection policy implementation, concept development, information and risk management, law enforcement, certification etc. would significantly facilitate harmonisation of standards and procedures at the regional and continental levels. The change towards a preventive agro-ecosystems management within a framework of inter-agency collaboration has been started in some countries, but needs more substantial political support if ecological thinking is to bring about change into more sustainable practice in crop production.

3.2.2.3 Main Opportunities

National authorities in recent years became more aware of the negative impacts of hazardous pesticides on the environment, human and animal health and on food safety and became more supportive towards alternative pest management approaches such as IPM and biocontrol. Also international development partners are nowadays very restrictive as far as assistance to conventional pest control concepts are concerned and do no longer support pesticide donations.

National, regional and continental authorities are increasingly concerned about the devastating impacts exotic invasive plant pest have on the national economies and African biodiversity and realize the importance of knowledge and information management and the exchange of data as basic requirement for better risk assessment, decision-making and enhanced market access.

- Due to the increased availability and use of ICT facilities, including the use of e-mail and access to Internet, information sharing has become much easier. This opens unique opportunities to address the challenge of access to information and knowledge products required to support pest management in Africa.
- Most of these technologies are being developed to respond to the requirements of the developed world. But investment into so-called niche markets, such as tailor-made software, applications and devices also in the area of pest management, relies on special funding and, often, individual initiatives and should be supported and harmonized.
- Promising examples of advanced information and knowledge management systems in Africa do already exist such as the Animal Resource Information System (ARIS) of AU-IBAR, Plantwise, the Reconnaissance And Management System of the Environment of Schistocerca (RAMSES) data management system and the hand-held data logging device "eLocust". Advantages from these examples for better decision-making should be taken and adapted and modified to the requirements of the NPPOs, RECs, AU-IAPSC and IPPC.
- The designated recipients of field data should be supported in building their capacity to receive and analyse the data using GIS tools, in conjunction with other data layers (rainfall, temperature, digital elevation, cropping systems, satellite imagery, etc).
- AU-IAPSC should be given the opportunity to up-scale its information and knowledge management and succeed as a centre of excellence for African plant protection resources. A harmonized international and regional information system would increase data and information sharing among stakeholders and facilitate access to information.
- Countries and the international community are increasingly taking note of the impor-

tance of better disaster risk prevention and management and the need of seed money in the context of contingency funds in order to help affected countries to rapidly scale up their response capacities in emergency situations. The UN-CERF is one of the examples, which is already operational.

- The potentials of advanced plant protection research in the areas of genetic modification of crops, modern varietal selection and breeding techniques, biochemical and molecular diagnostic methods, identification and use of semio-chemicals, as well as the prospects and risks of nanomaterial in plant protection should be explored in collaboration with national and regional agricultural research institutions.

- The development of demand-driven ecologically sound control tactics should be investigated in collaboration with regional agricultural research institutions as well as their role in plant pest diagnostics and technical backstopping in advocating and promoting IPM.

3.2.2.4 Key Result Areas

There is a high need to streamline information flow, and to develop knowledge management as a cross-cutting instrument at the national, regional and continental levels alongside with developing the capacities of stakeholders to collect, process and analyse data and to make information available to the public and private sectors for better decision-making as far as potential risks and sound management options are concerned. By taking advantage of new innovations and combining both factors of enhanced pest intelligence and access to know-how of advanced and environmentally acceptable management options, the chances of more effective and timely pest control will increase before they can affect crop production, livelihoods and market chances.

Strategic Objective 2 : To catalyse the development of early detection and rapid reaction capacities, and strengthen pest and pesticide management at the national and regional levels.

Outcome 2: The impacts and risks of pandemic and exotic invasive plant pest on livelihoods and biodiversity in Africa mitigated.

Output 2.1: Enabling continental environment for effective management of pests and pesticides created.

Output 2.2 : Functional transboundary pest early warning and rapid response systems established.

Output 2.3 : Effective continental Plant Health Information System established and in use.

3.2.3 Impact Focus Area 3: Promotion of human capacity development

3.2.3.1 The Context

There are three essential factors for economic growth, (1) human resources, (2) natural resources and (3) capital resources. Without adequate human resources, development is impossible, since it is humans who explore natural assets by making use of state-of-the-art technologies and tools to generate capital. Thus, human resource development is a prerequisite for social and economic growth and cannot be overemphasized. This general statement is equally true in the context of crop production and protection especially as far as the recipients' end of knowledge transfer by their mediators is concerned. UNDP defines capacity as the ability of individuals, organisations and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner. Transfer of skills should thus be understood as an organized and structured learning process with the primary aim of improving job performance by transferring specific technology and knowledge to the targeted persons or groups in the context of institutional capacity-building, by taking care of providing equal chances and opportunities to men and women.

As such, many initiatives with regard to capacity building in the area of plant pest management are already on-going, but are in most cases only parts of the overall picture and need to be better interlinked and streamlined, and reference

made to promising examples in other parts of Africa. For instance, IPPC has clearly recognized the gap in phytosanitary capacities as a major area for attention. In response IPPC has prepared a strategy for capacity development.

3.2.3.2 Main Challenges

Human resources and institutional capacity of many African countries are not adequate to deal effectively with crop protection and phytosanitary issues. But investments in human development are key to success in a more competitive and dynamic world economy. In particular, these investments should target the poor by connecting them to markets and increase their livelihood opportunities (UNDP, 2013).

Many of the institutional and structural weaknesses have been discussed above with regard to shortage of an effective national Plant Heath systems, legislation, commodity inspection services, diagnostic facilities, effective participation in the work of international standard setting and trade, etc. in addition to access to adequate technical know-how. Despite long-term investments in human capacity development in the past, gaps and training needs obviously remain in a wide range of groups and subjects such as pest diagnostics, safe handling of pesticides, IPM, phytosanitary matters, PRA application, data processing, information and knowledge management. The technical know-how and guidelines of good practices to perform better services is certainly available in many aspects, but not always well enough processed, disseminated and translated into the appropriate messages according to the needs of the various target groups especially in the rural areas.

Obviously, there is a high need to develop a holistic strategic capacity building programme which identifies all the areas and sectors, the partners and all points of intervention into a cohesive framework which can be used by the various agencies as a pilot to advise on the requirements.

3.2.3.3 Main Opportunities

Africa harbours a good number of excellent institutes that could play a vital role in the development of national training curricula, modules and lesson plans and the development of a critical mass of competent national and regional master trainers. Making systematic use of existing models and capacities will foster the south-south cooperation and will be more cost effective.

- Many universities in Africa could probably benefit from the model of the University of Nairobi, which introduced phytosanitary aspects of crop protection in its curricula addressing ISPMs, phytosanitary measures applied to agricultural commodities in international trade, diagnosis of crop diseases, arthropods and weeds, pest risk analysis etc.
- Also the experience from the Kenyan Plant Health Inspectorate Service (KEPHIS) could be beneficial with regard to phytosanitary and IAS matters.
- National training curricula and lesson plans could be developed based on the experience from the University of Cape Town School of Public Health and Family Medicine to ensure regular training of pesticide regulators, inspectors, public health pest control managers, pesticide laboratory analysts and disposal and waste management managers.
- Learning from already existing examples equally applies to FFSs, the community based armyworm monitoring system, as well as regional reference and analytical capacities within regional research institutions such as IITA, ICIPE and AGRHYMET.
- The Centre of Phytosanitary Excellence (COPE), recently established with its secretariat in Kenya, includes a PRA network coordinated from Zambia, which aims to share expertise and work.
- FFSs and Plant Health Clinics could play an important role in disseminating sound messages and practises to farmers, especially

women as well as engaging them as part of a community based pest information network.

3.2.3.4 Key Result Areas

Obviously, there is a high need to develop a more holistic strategic capacity building programme which identifies all areas and sectors, the partners and all points of intervention into a cohesive framework, which can be used by the various agencies to advise on the requirements. To this end, an in-depth analysis and stocktaking of the existing capacities and needs at the various levels and participating groups should be conducted to identify the weaknesses and the potentials in the context of national, regional and continental plant pest management.

As a result of the assessment, comprehensive training programmes, based on the Training-of-Trainers (ToT) approach, building local, national and regional teaching and advisory skills, needs to be developed and introduced. These programmes should include clear identification of the target groups, the preparation of training materials and curricula on general plant protection issues, pest identification, data collection, recording, and reporting at the local level for farmers groups, public schools, FFSs and extension workers. At the national level, e.g. NPPOs or universities, special training modules on communication systems, GIS data management, pest diagnosis and risk analysis should be developed. In addition, reference and awareness-raising material such as SOPs, videos, radio messages, posters etc., also in the local languages, should be prepared. The material must be made available to the frontline staff and civil society involved in awareness creation, and training provided to farmers and the general public.

Appropriate knowledge transfer concepts need to be understood as long-term initiatives, and should include principles, elements and steps that are flexible enough to allow accommodation of changes and innovations beyond the present perception.

Strategic Objective 3 : To support the development of harmonized training concepts and approaches at various levels by taking into account the regional, national and local needs and requirements.

Outcome 3 : Adequate Plant Health personnel at all levels to effectively perform better services.

Output 3.1 : Certified master trainers (male and female) in place at the local, national and regional levels.

Output 3.2 : Training curricula and facilities improved and up-graded.

3.2.4 Impact Focus Area 4: Sensitization of policy and decision-makers on the contribution of improved and strengthened plant pest management to the economy in Africa

3.2.4.1 The Context

The miracle of the "Green Revolution" is certainly attributed, amongst other factors, to the massive use of pesticides in crop production alongside with worldwide increase of monoculture cropping systems. Consequently, in the 70s and 80s of last century plant protection enjoyed higher attention than today. The international community and countries supported national plant protection agencies with hundreds of million of US$ especially in Africa. But growing worries about increasing routine, and often inappropriate use of pesticides in farming and horticulture production, sensitised the public opinion as far as pesticides residues in food products were concerned. As the adverse effects of chemical pesticides in pest control became obvious, Integrated Pest Management (IPM) was promoted through FFSs with the aim to solve pest problems by flexible crop management tactics and tools, which are environmentally acceptable and cost-competitive, to keep the pest population below damage/economic threshold. But the public interest to invest in crop protection continued to decline, due to the negative image as environmental polluter, despite many advances and promising results in

the area of biological control. This trend resulted in severe pressure on the plant protection sector not only in Africa. In addition to the diminishing interest in crop protection matters, the impact of the Structural Adjustment Programmes (SAP) on the African continent affected many of the civil services including the NPPOs. Many services were outsourced or field stations placed under the control of federal or local authorities with the effect that the NPPOs were no longer in a position to quickly react to emergencies and to monitor the pest situation, or to take full responsibly on SPS implementation. The often-criticized lack of plant pest information is certainly one of the results of the process.

The continuing gap in capacities of African agricultural institutions in general and the plant health sector in particular represents a major constraint to the design and implementation of effective programmes. As a consequence, most of the national plant protection services remain under-resourced, not able to adopt or to translate new science into good pest management practice and extension messages.

3.2.4.2 Main Challenges

Thus, plant protection policies in Africa experienced a remarkable change in recent decades and are facing critical new challenges due to climate change, globalization of trade, IAS and crop production intensification. Though there is a clear commitment by African leaders within the CAADP framework towards the acceleration of agricultural production as a key driver of development, the features of how to preserve the crop yields and to address the new challenges as a consequence of the paradigm change, has so far not explicitly been defined. But without more effective plant protection policies and appropriately equipped NPPOs and regional organizations, there are good reasons to predict that expected increases in crop yields will be halved due to plant pests with severe repercussions on the demands of a fast growing population and the economy. In essence, the challenge indeed is to raise awareness of the risks if the plant protection sector continues to deteriorate However, despite the obvious importance of agriculture to development, decision-makers and the general public have so far given little attention to crop protection and its potential contributions to food security and enhanced market access.

To fulfil its mandate as continental Plant Protection Organization, AU-IAPSC is facing already massive constraints for multiple reasons, but most crucially as it has to serve a vast region with only few professional staff, which is clearly not enough to satisfy all the current demands, not to speak of meeting the challenges ahead in the context of CAADP. Hence, AU-IAPSC's capacities need to be enhanced. It must adjust its scope and become more coherent and consistent in its objectives, and should undertake all efforts to scale up its institutional capacity accordingly by promoting well-designed project funded programmes.

But first and foremost, AU-IAPSC must review its communication strategy with its clients and beyond, and reinforce its role as information and knowledge provider in order to be recognised not only by the Member States and AUC, but also by its continental and international partners. The Council needs to advocate continental Plant Health matters and concerns in its broader context by making use of the appropriate media and tools in a y manner and in accordance with the expectations and requirements of its clients. With that, it is expected that AU-IAPSC will boost the attention of the audience to Plant Heath again and will receive due recognition from its Member States by having in mind that better advocacy has the potential to influence policy-makers and to increase investment in the Plant Health sector.

3.2.4.3 Main Opportunities

In the AUC-DREA strategic framework 2014 – 2017, AU-IAPSC has been recognised as one its technical lead programmes and the Council is expected to play a critical role related to enhancing the national and continental plant protection capacities. This prominent position provides a suitable platform for AU-IAPSC to advocate support from Member States and de-

velopment partners in drawing their attention to continental Plant Health issues.

The "One Health – One World" Initiative has been defined as "the collaborative effort of multiple disciplines — working locally, nationally, and globally — to attain optimal health for people, animals and the environment". The Initiative is so far focusing on human health and veterinary issues. The aspects of Plant Health have not been covered yet. Since the Plant Health approach is equally committed to preserving human, animal and environmental safety, it would be worthwhile exploring the possibilities of equally integrating plant protection concerns within Africa as part of the continental One Health platform.

The importance of modern communication technologies is widely recognized and has become an increasingly import tool in providing valid information to stakeholders and other interested parties. The use of ICT and improving the AU-IAPSC web site is key as communication tool and knowledge resources in English, French, Portuguese and Arabic languages. Thus resources should be allocated to ensure that the AU-IAPSC website is revitalized and kept up to date with relevant, technically sound and well-presented content.

3.2.4.4 Key Result Areas

The importance of continental crop protection in the aspiration to produce safer and enough food as an engine of development, its contribution to the GDP and its vital role in responding to the challenges of climate change, IAS and global trade, by safeguarding yields against the increased competition from weeds, insect pests, pathogens and viruses, needs to be vigorously addressed. In order to achieve better recognition, AU-IAPSC must become more visible as a vision carrier on the continental and international arena in order to advocate plant protection policies and needs at the highest decision-making levels, by underlining the Council's significance as facilitator and knowledge provider.

Strategic Objective 4 : To effectively advocate continental Plant Health issues in international and regional fora and to develop and apply appropriate communication strategies and channels.

Outcome 4 : Political support and financial investments in the Plant Health sector increased.

Output 4.1 : Effective communication strategies established.

Output 4.2 : Efficient resource mobilization mechanism in place.

Output 4.3: Functional partnerships among plant protection stakeholders established.

3.3 AU-IAPSC's roles and strategies to achieve desired results of impact areas

The significant loss of potentially available food should be advocated as one of the significant options to improve food security, to provide a basis for Sustainable Crop Production Intensification (SCPI) and to enhance market chances of African plant products regionally as well as internationally. This can be achieved by promoting ecosystem-based strategies addressing the challenges of globalization, incursions of new transboundary plant pests and climate change, harmonizing national and regional pesticide regulations according to international conventions, as well as enhanced compliance to international phytosanitary standards. More specifically:

- Priority investment areas should be identified and mitigation strategies developed at national and regional levels.
- Continental plant protection concerns need to be advocated in international conferences and fora, and support solicited from national governments and international development partners.
- Member States should be sensitized to substantially increase their investments in and contributions to plant protection.
- Interaction and collaboration should be

strengthened between research entities, end-users and the private sector on food security and ecologically relevant plant protection research topics.

- Economically relevant plant pest issues of regional/continental importance should be identified, documented and mapped.
- Only those control strategies that take advantage of beneficial species of pest predators, parasites and competitors, alongside bio-pesticides and selective, low risk synthetic pesticides, should be promoted. Investment will be needed in strengthening farmers' knowledge and skills.
- Emergency preparedness needs to be enhanced by undertaking proper pest risk assessments and contingency planning for when credible evidence of a significant pest threat emerges and to develop coping strategies accordingly.
- Regular field surveys should be encouraged to track pest infestation patterns in real time, and adjust response. Geo-referenced systems for plant pest surveillance, mapping and analysis tools should be introduced and promoted.
- Ultimately, a continental PHIS should be established and hosted at the participating RECs and AU-IAPSC to regularly receive and analyse data sheets and pest reports (bulletins) from NPPOs.
- To meet the requirements of better regional networking and collaboration in the context of transboundary threats to agricultural production, the communication and knowledge management should be improved and interlinked with sub-regional and regional entities.
- Collaboration, consultation, coordination, and communication, both between and within the various national, regional and international Disaster Risk Reduction and Management (DRR/M) entities should be initiated and enhanced.
- Selective pesticides with adequate regulatory supervision need to be identified, and specific communication to stakeholders.
- The phytosanitary capacities of the NPPOs need to be strengthened to meet the international SPS standards.
- National and regional plant protection regulations and SPS standards need to be harmonized by strengthening the cooperation with RECs.
- With regard to regional collaboration on phytosanitary issues, harmonization of legal instruments, pesticide registration, risk assessment, early warning, transboundary pest control and cross-border operations etc.; the scope, mandates, roles, responsibilities and tasks of the participating parties need to defined, and effective coordination mechanisms and capacities established.

In order to reach these objectives AU-IAPSC roles will focus on:

- Advice and advocacy,
- Resource mobilization,
- Coordination of actions that require involvement of RECs,
- Promotion of communication, knowledge management and information sharing,
- Promotion of partnerships,
- Technical support and capacity building,
- Facilitation of common platforms to enhance effectiveness in delivery of interventions at the continental level,
- Facilitation of participation of African countries in standard setting bodies, e.g. IPPC/CPM,
- Coordination and advocating of common position for Africa in continental and international fora.

3.4 Beneficiaries

Farm families and communities, consumers, business sector, countries and regional organ-

izations will benefit directly from technical and policy support through this Strategic Plan. The involvement of farmers and civil societies will be key in preventing crop damage, raising food safety and generating information of particular importance for detecting and tracking of plant pests. Field school activities will ensure gender balance, as women are over-represented in many tasks associated with crop cultivation, and should be given equal chances to access sound information and knowledge as well as appropriate responsibilities in pest management activities. The other key beneficiaries of the proposed partnership programme will be the national and regional organizations and stakeholders currently engaged in plant protection and crop production activities and strategies. The action will provide added value by significantly enhancing their capacity for phytosanitary work, information exchange, networking, and coordination through development of synergies between different initiatives.

3.5 Partnerships and strategic alliances

In order to build better partnerships, it became obvious during the strategic planning process that AU-IAPSC's advocacy, information and communication policy is weak and needs to be significantly improved. This includes the collection, collation and analysis of plant pest data and dissemination of information, as well as more efficient internal communication within and between management and staff, and external communication with clients, stakeholders and partners.

Improved information management and effective communication will be essential to increase the visibility of the Council's core values and work, which include transparent, trusted and embracing teamwork and partnership. Effective external communication with AU-IAPSC's most important clients, Member States, RECs and AUC-DREA, as well other interested parties, is key and will be achieved through most appropriate media, tools and languages. As one of the first steps, the AU-IAPSC website needs to be improved by taking care of timely updating of the contents with relevant pest information, important news and reference documents, SOPs, bulletins and reports.

In the context of improving AU-IAPSC's knowledge management system, its reference library at its HQ in Yaoundé needs to be taken into consideration. So far it is difficult to access, thus scarcely being used. Taking advantage of the new IT developments and with the necessary support, the most relevant documents should be digitalized/scanned and put online to make these references accessible for the interested audience inside and outside the African continent and to transform the library into a modern information centre.

To fulfil its mission, AU-IAPSC requires new, strong, innovative and effective partnerships and alliances, both to assemble and to disseminate know how of improved plant protection concepts and approaches, as well as to boost its performance in terms of harmonization of legislation and standards and to deliver standard operating procedures of good plant protection practices. As a continental organization, AU-IAPSC is committed to working with a range of various national, regional and international partners on both the technical and political levels.

AU-IAPSC is aware that the present Strategic Plan cannot be implemented with the available financial resources and the small number of professional staff and therefore has to rely on partnerships with the international donor community and CG-Centres. In its fundraising process, AU-IAPSC needs to consider the current donor policies, with a tendency towards a significant reduction in projects supported by single donors, but in the context of consortia. It is therefore necessary that AU-IAPSC considers in its project proposals the importance for longer-term approaches in the framework of strategic sector programmes to motivate the donor community in accordance with their development objectives and priorities. These are primarily focusing on the global impacts the project has e.g. on a society and the environment rather than on individual more technical goals or needs of an organization.

The present Strategic Plan provides a platform for the preparation of more demand driven

projects in programmatic areas in partnership with NPPOs, RECs, CG-Centres and the private sector, whereby countries and RECs identify their priorities within the Strategic Plan by taking into consideration that AU-IAPSC is one player within a larger effort and the implementation of the projects is executed by various partner institutions. Member States' individual fundraising efforts should be supported by AU-IAPSC. Within this framework of new partnerships, AU-IAPSC needs to focus its role in clearly identifying appropriate partners in various technical and political areas to raise complementary skills and resources necessary to deliver on its strategic objectives. Also , AU-IAPSC should proactively invest efforts on partnership management to ensure that it maintains focussed on clients' needs in order to strengthen their capacity and commitment to the common goal.

The workshop identified the following possible strategic partners :

Function	Key elements	Possible partners
Technical competencies and knowledge generation	Providing research results; technical synthesis and value addition	FAO (-IPPC, -ASP, -EMPRES-PP), IITA, ICIPE, CABI, AGYHMET, FARA, CILSS, SROs, CIRAD, NARES, NPPOs, Universities, Crop Life, AFSTA
Knowledge management	Data, information and knowledge gathering, organization, analysis and dissemination	IPPC, CABI, DLIS, IITA, ICIPE, COPE, Plant Health Clinics, local communities, farmer organizations
Advocacy	Bringing stakeholders together; using available evidence to enhance awareness and to draw attention to important issues	FAO, AUC, RECs, UNEP, Member States, farmer organizations
Policy development	Facilitating policy development processes, ensuring coherence	FAO, WTO, AUC, RECs, Member States
Capacity building	Training courses on topical issues; re-tooling of clients on a range of special topics/areas	Universities, KEPHIS, IITA, ICIPE, AGRHYMET, IPPC, FAO-ASP, NARES, NGOs, FFS
Disaster Risk Reduction and Management	Facilitating country-level actions to respond to specific emergencies, e.g. outbreak control	CERF, CLCPRO, CRC, AUC, national DRR/M agencies

3.6 Management and Governance

AU-IAPSC, RECs and NPPOs shall align their strategies and programmes with those of the present African Plant Health Strategy and also develop and implement programmes and projects that address the outlined impact focus areas (see 3.7). The goal, outcomes, outputs, activities and budget summaries of each programme will be presented in a logical framework following Results Based Management criteria and the Project Cycle approach by targeting social, economic and environmental needs (see Annex 6). To ensure consistency of results among the various programming partners, including country programmes, actions plans and other agency work plans, a programme governance and management team will be defined in consultation with the participating parties.

Annual progress reports will be provided under each programme, which include a true analysis of the level of achievements and the observed obstacles as well as a synthesis for each of the project/programme grants and titles. To ensure the smooth implementation and to allow adapting the implementation process to changing conditions, a mid-term review after three to four years will be conducted by an independent team of experts and the results of this review reported to General Assembly.

AU-IAPSC's Steering Committee and General Assembly shall provide oversight role in the implementation process of this strategy.

The Council is dedicated to respect the following overarching guiding principles:

1. As continental coordinating organization, AU-IAPSC will act as caretaker and vision carrier, and work cooperatively with all individuals and groups, with profit and non-profit corporations and organisations, and with national governments, regional and international entities committed to reducing livelihoods risks and damage due to plant pests in Africa, subject only to the policies and priorities set by its governing bodies.

2. It undertakes to be transparent, open, timely, honest and accountable in its relationships with all its collaborating partners and stakeholders and is committed to the principles of Good Governance.

3. AU-IAPSC will take decisions only based on sound, objective and professional analysis and high scientific standards.

4. AU-IAPSC will provide accurate and timely progress and financial reports of its activities to its partners.

5. As continental body, AU-IAPSC stands in solidarity with all African societies and will not act in a way that may affect other AU Chapters or UN Values as a whole.

3.7 Strategy Implementation

The Strategy Implementation Plan outlines AU-IAPSC's and other stakeholders' contribution and responsibilities to realize the Strategy as outlined in the Accra planning workshop in May 2014, and endorsed by the AU-IAPSC Steering Committee in June 2014.

The objective of the Strategy Implementation Plan (see Log-Frame, Annex 6) is to put the common AU-IAPSC strategic framework effectively into action so that the agreed strategic intents are converted into sustainable and high performance results.

The Implementation Plan has three purposes:

1. To provide a clear direction for AU-IAPSC and its stakeholders of the priorities, resource allocation and continental plant protection policies until 2023.

2. To provide the framework against which AU-IAPSC can be held accountable by its member states, governing bodies and external partners.

3. It includes key strategic initiatives, performance standards and deliverables, timing and sequencing, progress monitoring and means to evaluate impact.

The Implementation Plan should facilitate breaking down the AU-IAPSC Strategic Framework into programmatic areas and organizational/institutional sectors, and to translate the multi-year, high-level strategic goals as articulated in the Strategic Plan into phases and definable segments of relevance to the regional and national policy framework.

The overall implementation process should be divided into three phases, Phase 1 from 2014 to 2017, Phase 2 from 2018 to 2020, and Phase 3 from 2021 to 2023, and each cycle reviewed by an independent evaluation. Year one of Phase 1 was basically used for the preparation of the present AU-IAPSC Strategy and Implementation document. The total cost for the implementation of the 10-year Strategic Framework is estimated at approximately US$ 70 million.

The Implementation Plan should serve as an important tool to determine AU-IAPSC's and participants' viability in the venture of agricul-

tural development and poverty alleviation in Africa and should be part of the national, regional and continental advocacy approaches to attract political, institutional and financial support to the joint Strategy. It should provide the key elements and arguments in the inclusive design process of projects and programmes with various partners and beneficiaries.

Generally it is expected that a programme will be funded through more than one grant. Thus, it is anticipated that programmes will attract both core and project-specific funding. Programmes will be defined by the addressed problems and not by geographical boundaries or institutional needs. Each project or programme will have a defined specific purpose and concept, broken down into phases and annual work- and budget plans, including an M&E- and a reporting system to monitor the implementation process towards achieving the goals.

In view of the above, the participants of the joint Strategy Implementation Planning workshop in Addis Ababa, December 2014, addressed the following recommendations to AUC, AU-IAPSC, NPPOs, RECs and FAO:

Recommendations to AUC

- AUC to undertake more efforts to strengthen the organizational, structural, financial and human capacities of AU-IAPSC to facilitate the implementation of its Strategic Plan and in order to effectively meet the plant health challenges and expectations in Africa.
- AUC should conduct an audit to review AU-IAPSC's capacity as continental coordination body in order to ensure an effective implementation of its strategic intents.
- AUC should revamp and strengthen the structure of AU-IAPSC to ensure smooth implementation of the Plan.
- AUC to provide due political support in order to increase investments in the Plant Health Sector.
- AUC should permit AU-IAPSC to enter in direct negations with donors in the process of strategy implementation and fund raising.
- AUC to give more weight to Plant Health issues in order to facilitate enhanced trade between Africa and other continents.
- AUC should more actively involve AU-IAPSC in partnership meetings and CAADP platform meetings.
- AUC should support the visibility of AU-IAPSC at all levels and should recognize its potential contribution to continental Plant Health.
- AUC should support AU-IAPSC as coordination agency in continental Plant Health matters.
- IAPSC to promote this Strategy in the partnership meetings between AUC and donors.
- AU-IAPSC's Strategic Plan should be integrated into AU bilateral and multilateral cooperation agreements.

Recommendations to NPPOs

- NPPOs should take ownership of the strategy implementation process and should create awareness on Plant Health issues at government level.
- NPPOs should align AU-IAPSC's Strategic Plan in the national policies as part of the priorities in order to facilitate its implementation.
- NPPOs should be committed to cooperate with AU-IAPSC in the process of strategy implementation.
- NPPOs should actively perform the implementation of Plant Health related to activities at the national level and share/exchange information.
- NPPOs should adapt their activities, roles and functions in accordance with the AU-IAPSC Strategy.

Recommendations to RECs

- RECs should ensure that the AU-IAPSC Strategy is being communicated to member states and its implementation supported.
- RECs should endorse the common AU-IAPSC's Strategy and should enhance cooperation with the Council and member states in the implementation process.
- RECs should incorporate the AU-IAPSC Strategy as part of their strategic planning.
- RECs should harmonize their regional Plant Health programmes with AU-IAPSC's Strategy.
- RECs should appoint a Focal Point in order to facilitate the implementation of AU-IAPSC's Strategy.

Recommendations to AU-IAPSC

- AU-IAPSC should officially address the Plan as soon as possible to the NPPOs and ensure close follow up and monitoring.
- AU-IAPSC should make substantial efforts to implement this Strategic Plan.
- AU-IAPSC should step up its cooperation with Member States, RECs and other stakeholders to implement the Strategy.
- AU-IAPSC to reach out to all relevant stakeholders to start the implementation process.
- AU-IAPSC to prioritize actions under this Strategy Plan and prepare bankable projects and programmes that address these priorities.
- AU-IAPSC should effectively communicate its Strategy to all stakeholders in order to encourage member countries and other partners to join in the implementation process.
- AU-IAPSC should activate the Implementation Plan as soon as possible by taking into account the interests of the beneficiaries, other collaborating parties and those of the donor community.
- AU-IAPSC to strengthen the capacity of RECs and NPPOs with regard plant protection matters.

Recommendations to FAO

- FAO should advocate the Strategy to donor institutions in order to encourage support for its implementation.
- FAO to take active role soliciting donor support to implement the Strategy.
- FAO to support AU-IAPSC in marketing the Implementation Plan to possible partners and funding sources.
- FAO regional, sub-regional and country offices to facilitate the linkage between AU-IAPSC Strategy and FAO's strategic framework and work plans.
- FAO should avail the necessary technical support and advice to AU-IAPSC in its strategy implementation process of its Strategy and the formulation of projects and programmes.

References

AUC-DREA (2013). Draft Strategic and Operational Plan, 2014-2017, 56 pp.

AU-IBAR (2009). Strategic Plan 2010-2014, 75 pp.

Von Braun J. (2007). The World Food Situation. New Driving Forces and Required Actions. International Food Policy Research Institute, Washington, D.C.

Buddenhagen, C. E., Chimera, C., & Clifford, P. (2009). Assessing biofuel crop invasiveness: a case study. PloS one, 4(4), e5261. doi: 10.1371/journal.pone.0005261.

Chakraborty S., NewtonA. C. (2011). Climate change, plant diseases and food security: an overview, Special Issue, Plant Pathology, Volume 60, Issue 1, pages 2–14,

Cribb J (2010). The coming famine. University of California Press. Berkeley, Los Angeles, London, 248pp.

Day, R.K. (2013) More Trade, Safer Trade: Strengthening Developing Countries' Sanitary and Phytosanitary (SPS) Capacity, CABI Working Paper 4

DFID (2011). The Engine of Development: the Private Sector and Prosperity for Poor People. Department for International Development, London, 34 pp.

Ercsey-Ravasz, M., Toroczkai, Z., Lakner, Z. and Baranyi, J. (2012) Complexity of the international agro-food trade network and its impact on food safety. PLOS ONE 7(5), 7 pp. doi:10.1371/journal.pone.0037810

FAO (2010). FAOStat. http://faostat.fao.org.

FAO (2011). Crop Protection in Africa: Situation Analysis and Strategic Framework, 145pp.

FAO (2011). Save and Grow, A Policymaker's Guide to the Sustainable Intensification of Smallholder Crop Production, 106pp.

FAO (2011). Proceedings of FAO Eastern Africa Sub-regional Strategic Workshop on Crop Production and Protection, 42 pp.

FAO (2013). The State of Food and Agriculture

Feyrer, J. (2009). Trade and Income-Exploiting Time Series in Geography. NBER Working Paper 14910. National Bureau of Ecomonic Research, Cambridge, Massachusetts.

Flood J (2010). The importance of plant health to food security. Springer Science+Business Media B.V. & International Society for Plant Pathology, 215-231.

Godfray H.C.J. et al (2010). Food Security: The Challenge of Feeding 9 Billion People. Science, Vol. 327 no. 5967 pp. 812-818.

IPPC (2013). Market Access, A guide to phytosanitary issues for national plant protection organizations

Jorgenson, A. K., & Kuykendall, K. A. (2008). Globalization, Foreign Investment Dependence and Agriculture Production: Pesticide and Fertilizer Use in Less-developed Countries, 1990-2000. Social Forces, 87(1), 529-560. doi: 10.1353/sof.0.0064.

KEPHIS (2008).Minutes of the First Project Management Committee (PMC) Meeting & Inception Report of the Project Center of Phytosanitary Excellence, Eastern Africa (COPE), 37 pp.

Masters, G., Norgrove, L. (2010). Climate change and invasive alien species. CABI Working Paper 1, 30 pp.

Magalhães, J. (2010). Regional Sanitary and Phytosanitary Frameworks and Strategies in Africa, Report for the Standards and Trade Development Facility (STDF)

McIntyre B. D., Herren H. R.; Wakhungu J., Watson R. T. (2009). Eds., Agriculture at a Crossroads: A Synthesis of the Global and Sub-Global IAASTD Reports [International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), Island Press, Washington, DC, 2009.

Nellemann, C., MacDevette, M., Manders, T., Eickhout, B., Svihus, B., Prins, A. G., et al. (2009). The environmental food crisis – The environment's role in averting future food crises (p. 103pp). United Nations Environment Programme.

Oerke, E.-C. (2006). Crop losses to pests. Journal of Agricultural Science, 144, 31-43. doi: 10.1017/S0021859605005708.

UNDP (2013). Human Development Report, 216 pp.

Walwema T. (2013), Adjusting Structural Adjustment: The Role of the Structural Adjustment Program in Africa's Development, 37 pp.

An abridged AU-IAPSC Background

AU-IAPSC was established on recommendation of FAO in 1956 in London, and became part of the Organization of African Unity (OAU) in 1965. In 1967 the Headquarter of the Council was transferred from London to Yaoundé, Cameroon. AU-IAPSC's mandate is to coordinate and provide support to the protection of plant resources for the welfare and economic development in the Member States of the African Union (AU). It collaborates with 54 National Plant Protection Organizations (NPPO) and eight Regional Economic Communities (REC) in the effort to supporting the Member States in the phytosanitary capacity building process, preventing the introduction and spread of exotic and invasive plant pests, and increasing intra- and inter-continental market access. AU-IAPSC is a specialized technical office of the AUC-DREA, governed by a Steering Committee to provide technical and political oversight to AU-IAPSC.

Strategy Implementation Plan

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 1 : To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Outcome 1: ISPMs effectively implemented	A.1: Sustained support provided by Member States to NPPOs	I.1: Rejection rate for plants and plant products in numbers and in US$ reduced by 50% by 2023 as compared to 2015	Export data collected annually by the nat. Trade Ministry and forwarded to WTO	Lead: NPPOs Strategic partners: AU-IAPSC, IPPC, RECs	2015 to 2023
Output 1.1: NPPOs structures amended	A.1.1: Governments recognize the importance of ISPMs to the national economies A.1.2: NPPOs benefit directly from revenues generated from various plant protection services rendered	I.1.1: Number of NPPOs structures reviewed according to proposed recommendations; 16 NPPOs by 2017, 38 by 2023	Annual NPPO reports to AU-IAPSC General Assembly	Lead: NPPOs Strategic partners: AU-IAPSC, IPPC	2015 to 2023
Activity 1.1.1: Carry out baseline studies				Lead: NPPOs Strategic partners: AU-IAPSC, IPPC	2015 to 2017
Activity 1.1.2: Promote and implement PCE				Lead: NPPOs Strategic partners: AU-IAPSC, IPPC	2015 to 2023

Overall Goal: Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal: Continental Plant Health management systems improved by 2023

Strategic Objective 1: To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 1.1.3: Develop and implement NPPO strategic plans				Lead: NPPOs Strategic partners: AU-IAPSC, IPPC	2015 to 2020
Activity 1.1.4: Review and strengthen legal frameworks				Lead: NPPOs Strategic partners: RECs, FAO, AU-IAPSC, IPPC	2015 continuous
Activity 1.1.5: Prepare and implement guidelines of NPPO structures and functions				Lead: AU-IAPSC Strategic partners: NPPOs, IPPC	2015 to 2017
Activity 1.1.6: Produce SOPs and guidelines for priority ISPMs related NPPO functions				Lead: AU-IAPSC Strategic partners: NPPOs, IPPC	2015 to 2023
Output 1.2: ISPM implementation well coordinated	A.2.1: All stakeholders collaborate in the ISPM implementation process	I.2.1: Number of joint ISPM programmes carried out by countries and RECs; at least 10 programmes by 2018, at least 20 by 2023	Programme documents and records kept by AU-IAPSC	Lead: AU-IAPSC Strategic partners: Member States, RECs, IPPC	2015 to 2023
Activity 1.2.1: Support harmonization of phytosanitary regulations				Lead: AU-IAPSC Strategic partners: NPPOs, RECs, IPPC, FAO	2015 to 2023

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 1 : To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 1.2.2: Organize regular ISPM review meetings				Lead: AU-IAPSC Strategic partners: NPPOs, RECs, IPPC, FAO	2015 to 2023
Activity 1.2.3: Develop ISPM information and data sharing protocols				Lead: AU-IAPSC Strategic partners: NPPOs, RECs, IPPC, FAO	2015 to 2017
Activity 1.2.4: Compile ISPM information from various sources and disseminate analysed information to member states				Lead: AU-IAPSC Strategic partners: IPPC, NPPOs	2015 continuous
Activity 1.2.5: Prepare TORs and appoint AU-IAPSC Focal Points at REC HQs				Lead: AU-IAPSC Strategic partners: RECs	2015 to 2017
Activity 1.2.6: Monitor ISPM implementation progress at country level and inform other relevant stakeholders				Lead: AU-IAPSC Strategic partners: NPPOs	2015 continuous

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 1 : To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 1.2.7: Prepare and disseminate technical priority ISPM implementation guidelines				Lead: AU-IAPSC Strategic partners: I PPC, NPPOs	2015 to 2021
Activity 1.2.8: Conduct priority ISPM training courses for national phyto-sanitary officers				Lead: AU-IAPSC Strategic partners: IPPC, NPPOs, RECs	2015 to 2023 continuous
Activity 1.2.9: Prepare and carry out joint ISPM programmes				Lead: RECs Strategic partners: AU-IAPSC, NPPOs, RECs	2015 to 2023
Activity 1.2.10: Conduct awareness raising meetings for clients on ISPM compliance requirements				Lead: NPPOs Strategic partners: AU-IAPSC, RECs, IPPC	2015 to 2023
Output 1.3: African countries' contribution to standard setting improved	A.1.3.1: Member countries attach high importance to the standard setting process	I.1.3.1: No. of countries submitting comments on specifications and draft ISPMs per year; 30/year by 2018 and 45/year by 2023 I.1.3.2: No. of regional standards adopted by General Assembly; 2 by 2017, 5 by 2023	IPPC website regularly consulted by AU-IAPSC. Minutes of meeting of the General Assembly	Lead: AU-IAPSC	2015 to 2023 continuous

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 1 : To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 1.3.1: Organize regional workshops for comments and review of phytosanitary standards				Lead: AU-IAPSC Strategic partners: IPPC, RECs	2015 continuous
Activity 1.3.2: Analyse the current review mechanisms in consultation with RECs and IPPC				Lead: AU-IAPSC Strategic partners: IPPC, RECs	2015
Activity 1.3.3: Collect and circulate Standard Committee and subsidiary bodies reports				Lead: AU-IAPSC Strategic partners: NPPOs	2015 continuous
Activity 1.3.4: Coordinate Africa's representation in IPPC and subsidiary bodies				Lead: AU-IAPSC Strategic partners: NPPOs, IPPC	2015 continuous
Activity 1.3.5: Organize technical consultations for common African position at CPM				Lead: AU-IAPSC Strategic partners: NPPOs, FAO, IPPC, RECs	2015 continuous
Activity 1.3.6: Develop mechanisms and processes for standard setting at the regional level				Lead: AU-IAPSC Strategic partners: NPPOs, RECs	2015 – 2020

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 1 : To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 1.3.7: Develop and adopt regional standards				Lead: AU-IAPSC Strategic partners: NPPOs, RECs	2015 - 2017
Activity 1.3.8: Promote understanding of IPPC and regional standard setting process				Lead: AU-IAPSC Strategic partners: NPPOs, IPPC, RECs	2015 continuous
Output 1.4: National plant quarantine services operational	A.1.4.1: Member states allocate adequate resources to nat. plant quarantine services	I.1.4.1: No countries with fully functional plant quarantine services; 10 by 2017, 20 by 2020, 40 by 2023	NPPO annual reports on the process to AU-IAPSC	Lead: NPPOs Strategic partners: WTO, AU-IAPSC, FAO, IPPC, RECs	2015 to 2023
Activity 1.4.1: Conduct need assessment studies to identify critical gaps in infrastructure and skills				Lead: NPPOs Strategic partners: FAO, IPPC	2015 to 2017
Activity 1.4.2: Sensitize policy makers to support and fund infrastructure measures				Lead: NPPOs Strategic partners: FAO, IPPC	2015 continuous

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 1 : To strengthen Africa's ability to adhere to essential phytosanitary and trade standards relevant for plants and plant products (SPS, food safety and quality standards, and certification systems) that facilitate competitiveness of African crop products to enter high value markets – within and beyond the continent.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 1.4.3: Review and update plant quarantine legislations and laws in compliance with international requirements				Lead: NPPOs Strategic partners: FAO, IPPC	2015 to 2020
Activity 1.4.4: Replace obsolete and supply new equipment and materials				Lead: NPPOs Strategic partners: FAO, IPPC	2015 to 2023

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal: Continental Plant Health management systems improved by 2023

Strategic Objective 2 : To catalyse the development of early detection and rapid reaction capacities, and strengthen pest and pesticide management at the national and regional levels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Outcome 2: The impacts and risks of pandemic and exotic invasive plant pest on livelihoods and biodiversity in Africa mitigated	A.2: Regional cooperation and common prevention and intervention framework functional	I.2: Number of pests outbreaks in Africa significantly reduced by 2023 through intra- and interregional cooperation, prevention and risk reduction policies	AU-IAPSC Plant Health Information System (PHIS)	Lead: AU-IAPSC Strategic partners: FAO, NPPOs, RECs	2015 to 2023
Output 2.1: Enabling continental environment for effective management of pests and pesticides created	A.2.1: National, regional and continental policy support and effective coordination mechanisms in place	I.2.1: African Plant Health policy endorsed by Member States by 2018	AU Head of States Declaration	Lead: AU-IAPSC Strategic partners: FAO, NPPOs, RECs, CG-Centres, local communities	2015 to 2023
Activity 2.1.1: Conduct baseline studies on the current status of pest and pesticides management in selected regions and take stock of the on-going initiatives				Lead: AU-IAPSC Strategic partners: FAO, NPPOs, RECs	2015
Activity 2.1.2: Develop and promote guidelines on NPPO recommended structure and functions				Lead: AU-IAPSC Strategic partners: FAO, IPPC, RECs, NPPOs	2015 to 2017

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal: Continental Plant Health management systems improved by 2023

Strategic Objective 2 : To catalyse the development of early detection and rapid reaction capacities, and strengthen pest and pesticide management at the national and regional levels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 2.1.3: Develop and promote pesticide risk reduction strategies in national plant protection-policies				Lead: NPPOs Strategic partners: FAO AU-IAPSC, RECs	2018 to 2020
Activity 2.1.4: Create and strengthen cooperation agreements on transboundary plant pest management between countries, and RECs				Lead: AU-IAPSC Strategic partners: RECs, NPPOs, FAO	2018 to 2020
Activity 2.1.5: Promote and support R&D of alternative pre- and postharvest pest management approaches and techniques				Lead: AU IAPSC Strategic partners: RECs, NPPOs, CG-Centres, private sector partners, farmer associations, local communities	2015 to 2023
Activity 2.1.6: Foster integration of IPM approaches in national plant protection policies				Lead: NPPOs Strategic partners: IAPSC, RECs, CG-Centres, farmer associations, local communities	2015 to 2023

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 2 : To catalyse the development of early detection and rapid reaction capacities, and strengthen pest and pesticide management at the national and regional levels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Output 2.2: Functional transboundary pest early warning and rapid response systems established	A.2.2: National and Regional harmonized Pest Risk Analysis (PRA) and response system	I.2.2: AU Member States established effective pest monitoring and response systems 20% by 2017, 30% by 2020, 50% by 2023	Plant Health reports prepared by NPPOs and reported annually to IAPSC	Lead: AU-IAPSC Strategic partners: FAO, IPPC, RECs, NPPOs, farmer associations, local communities	2015 to 2023
Activity 2.2.1: Set up functional PRA, surveillance and reporting mechanisms				Lead: AU-IAPSC Strategic partners: FAO, IPPC, RECs, NPPOs	2015 to 2020
Activity 2.2.2: Develop and establish an efficient pest forecasting and alert mechanisms				Lead: AU-IAPSC Strategic partners: FAO-EMPRES, RECs, NPPOs	2015 to 2017
Activity 2.2.3: Set up coordinating mechanism for emergency, control/eradication operations				Lead: FAO Strategic partners: IAPSC, RECs, NPPOs	2015 to 2017
Activity 2.2.4: Develop and establish rapid response capacities at nat. and reg. levels				Lead: AU-IAPSC Strategic partners: FAO, RECs, NPPOs	2018 to 2023

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal: Continental Plant Health management systems improved by 2023

Strategic Objective 2 : To catalyse the development of early detection and rapid reaction capacities, and strengthen pest and pesticide management at the national and regional levels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 2.2.5: Strengthen and follow up regular national pest reporting to IPPC				Lead: AU-IAPSAC Strategic partners: NPPOs, RECs, IPPC	2015 to 2023 continuous
Output 2.3: Effective continental Plant Health Information System established and in use	A.2.3.1: Adequate IT infrastructure operational at the national levels A.2.3.2: Adequate regional and national information data management, analysis and exchange capacities in place	I.2.3: NPPOs making regular use for decision-making of PHIS platform: up to 10 by 2020, 30 by 2023	Data records in PHIS from NPPOs	Lead: AU-IAPSC Strategic partners: FAO, IPPC, RECs, NPPOs, farmer associations, local communities	2015 to 2023
Activity 2.3.1: Identify and define the roles of key partners in the PHIS network				Lead: AU-IAPSC Strategic partners: RECs, NPPOs	2015
Activity 2.3.2: Design PHIS information management and exchange platform and tools				Lead: AU-IAPSC Strategic partners: IPPC, FAO-EMPRES, RECs, NPPOs	2015 to 2017

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 2 : To catalyse the development of early detection and rapid reaction capacities, and strengthen pest and pesticide management at the national and regional levels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 2.3.3: Train participants in the information network on the use of PHIS				Lead: AU-IAPSC Strategic partners: FAO, RECs, NPPOs, Plant Health Clinics, farmer associations, local communities	2017 to 2023
Activity 2.1.4: Promote the integration of PHIS tools by Member States and RECs				Lead: AU IAPSC Strategic partners: RECs, NPPOs	2017 to 2023
Activity 2.3.5: Promote and introduce community based pest information system and tools at country level				Lead: NPPOs Strategic partners: CG-Centres, farmer associations, local communities	2015 to 2023

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 3 : To support the development of harmonized training concepts and approaches at various levels by taking into account the regional, national and local needs and requirements.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Outcome 3: Adequate Plant Health personnel at all levels in the position to effectively perform better services	A 3: Qualified plant protection staff are retained in office	I 3: No. of countries with at least 50% of their personnel qualified according to good pest management and phytosanitary practices; 20 by 2017, 30 by 2023	Records from training institutes and NPPOs collected by AU-IAPSC on annual basis; Assessment reports	Lead: Member States Strategic partners: AU-IAPSC, Training Institutes/Universities	2015 to 2023
Output 3.1: Certified master trainers (male and female) in place at the local, national and regional levels	A 3.1: Regular refresher courses included and maintained in the ToT programmes	I.3.1: No. of master trainers operating at local, national and regional levels; at least 10 in 2 regions and at least 5 countries by 2017, at least 30 in 5 regions and at least 15 countries by 2023.	Records and reports from training institutes and NPPOs collected by AU-IAPSC on annual basis; Assessment reports	Lead: Member States Strategic partners: AU-IAPSC, Training Institutes/Universities	2015 to 2023 continuous
Activity 3.1.1: Conduct training need assessment studies and take stock of existing examples as well as of adult education approaches				Lead: AU-IAPSC Strategic partners: NPPOs, Training Institutes, farmer associations, local communities	2015 to 2017
Activity 3.1.2: Develop a comprehensive training concept for selected regions by taking up-to-date teaching techniques and methodologies into consideration				Lead: Training Institutes Strategic partners: AU-IAPSC, FAO, IPPC, RECs, farmer associations, local communities	2015 to 2017

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 3 : To support the development of harmonized training concepts and approaches at various levels by taking into account the regional, national and local needs and requirements.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 3.1.3: Prepare, test, produce and disseminate various teaching materials for various target groups in different languages (incl. important local languages)				Lead: Training Institutes/ Universities Strategic partners: AU-IAPSC, FAO, IPPC, farmer associations, local communities	2018 to 2023 continuous
Activity 3.1.4: Qualify local, national and regional master trainers on relevant PH modules of local, national and regional priority and needs				Lead: Training Institutes/ Universities Strategic partners: AU-IAPSC, FAO, IPPC, farmer associations, local communities	2018 to 2023
Activity 3.1.5: Integrate PH curricula into the national education and extension policies				Lead: NPPOs Strategic partners: AU-IAPSC	2018 to 2020
Activity 3.1.6: Promote and reinforce FFSs and PH Clinics at the local level				Lead: NPPOs Strategic partners: Training institutes, farmer associations, local communities	2015 to 2023 continuous

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 3 : To support the development of harmonized training concepts and approaches at various levels by taking into account the regional, national and local needs and requirements.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline	Inputs/ Resources
Activity 3.1.7: Identify and promote sustainable financing mechanisms for human resource develop menT				Lead: Member States Strategic partners: AU-IAPSC, FAO, RECs	2018 to 2023	
Output 3.2: Training curricula and facilities improved and up-graded	A.3.2: Plant protection training institutes have the capacity to meet the requirements	I.3.2: No. of well equipped training institutions (national and regional) offering Diploma and Degree courses in plant health subjects including phytosanitary, safe handling of pesticides and IPM topics; at least 1 per region by 2017, 2 per region by 2023.		Lead: Training Institutes/ Universities Strategic partners: CG-Centres, NPPOs, FAO	2015 to 2023	
Activity 3.2.1: Provide training equipment and facilities				Lead: Training Institutes/ Universities Strategic partners: Member States, AU-IAPSC, RECs, FAO	2018 - 2023	
Activity 3.2.2: Provide tailor-made short- and medium term scholarships and training courses on specific PH topics				Lead: Training Institutes/ Universities Strategic partners: CG-Centres, NPPOs, FAO	2018 to 2023 continuous	

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 3 : To support the development of harmonized training concepts and approaches at various levels by taking into account the regional, national and local needs and requirements.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 3.2.3: Develop harmonized short and medium-term training curricula, modules and lesson plans on various PH subjects for various target groups taking into account Anglo-, Francophone and Arab regions				Lead: AU-IAPSC (umbrella) Strategic partners: Training Institutes/ Universities, CG-Centres FAO, IPPC, WTO/STDF,	2015 - 2023 continuous

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 4 : To effectively advocate continental Plant Health issues in international and regional fora and to develop and apply appropriate communication strategies and channels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Outcome 4: Political support and financial investments in the continental Plant Health sector increased	A.4: AU gives appropriate attention in terms of human and financial resources as well as political support to AU-IAPSC	I.4: National agriculture investments in the PH sector increase in average by 0.5% of the national GDP by 2020 and 0.7% by 2023 as compared to 2015	Annual NPPOs reports to IAPSC	Lead: Member States Strategic partners: NPPOs, AUC, RECs, AU-IAPSC, FAO	2015 to 2023
Output 4.1: Effective communication strategies established	A.4.1: Stakeholders appreciate and acknowledge the relevance, quality and contents of information provided by AU-IAPSC	I.4.1: NPPOs, RECs and policy-makers are significantly engaged in PH matters and are making effective use of the AU-IAPSC portal in decision-making; 5% of stakeholders by 2017, 20% by 2020, 50% by 2023	Annual NPPOs and RECS reports to AU-IAPSC; Assessment reports	Lead: AU-IAPSC Strategic partners: RECs, NPPOs, FAO	2015 to 2023
Activity 4.1.1: Develop comprehensive communication concept				Lead: AU-IAPSC Strategic partners: RECs, NPPOs, FAO	2015
Activity 4.1.2: Undertake advocacy and awareness raising campaigns on the economic benefits of plant protection				Lead: AU-IAPSC Strategic partners: RECs, NPPOs	2016 to 2020

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 4 : To effectively advocate continental Plant Health issues in international and regional fora and to develop and apply appropriate communication strategies and channels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 4.1.3: Develop and provide policy briefs on ISPMs implementation, pest and pesticide risk reduction				Lead: AU-IAPSC Strategic partners: IPPC, FAO	2015 to 2023 continuous
Activity 4.1.4: Redesign AU-IAPSC web portal and improve technical relevance, quality and contents				Lead: AU-IAPSC Strategic partners: FAO	2015 to 2023 continuous
Activity 4.1.5: Digitize all AU-IAPSC library documents and reports of public interest and publish resources on-line				Lead: AU-IAPSC Strategic partners: AUC	2015 to 2020 continuous
Activity 4.1.6: Publish bi-annual PH outlooks and quarterly newsletters				Lead: AU-IAPSC Strategic partners: RECs, NPPOs	2018 to 2023 continuous
Activity 4.1.7: Nominate ambassadors to promote IAPSC strategy				Lead: AU-IAPSC	2015 to 2023
Activity 4.1.8: Establish NPPO websites and other communication tools				Lead: NPPO Strategic partners: AU-IAPSC, FAO, IPPC	2015 to 2020

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 4 : To effectively advocate continental Plant Health issues in international and regional fora and to develop and apply appropriate communication strategies and channels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Activity 4.1.9: Assist NPPOs and RECs in developing a harmonized annual reporting template	A.4.2: Development partners and stakeholders are sensitized and committed to support the implementation of the joint AU-IAPSC Strategy	I.4.2: Number of projects/ programmes initiated under the common framework and approved; 5 by 2017, 30 by 2020, 70 by 2023	**AU-IAPSC project data base**	Lead: AU-IAPSC Strategic partners: RECs, NPPOs	2015 to 2017
Output 4.2: Efficient resource mobilization mechanisms in place				Lead: AU-IAPSC Strategic partners: NPPOs, RECs	2015 to 2020
Activity 4.2.1: Lobby for integration of the Strategic Plan into AUC's bilateral and multilateral cooperation agreement				Lead: AU-IAPSC	2015 to 2017
Activity 4.2.2: Develop a strategy for alternative funding mechanism				Lead: AU-IAPSC Strategic partners: FAO, RECs	2015 to 2017
Activity 4.2.3: Develop bankable projects/programmes proposals				Lead: AU-IAPSC Strategic partners: RECs, NPPOs, FAO	2015 to 2020

Overall Goal : Robust Plant Health systems and reduced pest risks contribute to better livelihoods, enhanced trade and biodiversity preservation in Africa.

Goal : Continental Plant Health management systems improved by 2023

Strategic Objective 4 : To effectively advocate continental Plant Health issues in international and regional fora and to develop and apply appropriate communication strategies and channels.

Results and Activities	Assumptions and Risks	Indicators/ Milestones	Means of Verification	Responsible Lead Agency, Partners	Timeline
Output 4.3: Functional partnerships among plant protection stakeholders established	A.4.3: Stakeholders and partners are convinced of socio-economic and environmental benefits of improved PH management	I.4.3: Number of joint ventures between public and private sector, technical and development partners at national and regional levels; At least 1 by 2017, 5 by 2020, 10 by 2023	AU-IAPSC data base	Lead: AU-IAPSC Strategic partners: RECs, NPPOs, FAO	2015 to 2017
Activity 4.3.1: Review and strengthen institutional arrangements among IAPSC, RECs and NPPOs				Lead: AU-IAPSC Strategic partners: RECs, NPPOs, FAO	2015 to 2017
Activity 4.3.2: Identify relevant stakeholders and establish strategic partnership				Lead: AU-IAPSC	2015 on-going
Activity 4.3.3: Integrate crop protection concerns as part of the continental "One Health" platform				Lead: AU-IAPSC Strategic partners: AUC, FAO	2015 to 2017
Activity 4.3.4: Develop a framework for the engagement of the private sector in plant protection				Lead: NPPOs Strategic partners: IAPSC, RECs	2015 to 2017

Le paysage actuel de l'intégration de l'Afrique contient un tableau de Communautés économiques régionales, dont 8 sont considérées comme les éléments constitutifs de la Communauté Economique africaine. Il s'agit des organisations suivantes:
l'UMA/AMU, la CEN-SAD, le COMESA, l'EAC, la CEEAC / ECCAS, la CEDEAO / ECOWAS, l'IGAD et la SADC.