The International Standards for Phytosanitary Measures and their applications in managing introduced and invasive forest pests and invasive species in Africa

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Preventing accidental introduction is the first line of defense in managing any exotic pests. This can be followed by the following lines action:

- Restrictions on imports from high risk areas
- Inspection of incoming materials at ports of first entry.
- Treatment of infested plant materials and wood products.
- Internal quarantines

These systems are implemented through passage of appropriate legislation, decrees or regulations; employment of trained inspectors who can recognize and intercept infested material and treat or dispose of infested material. In order to minimize the risk of new pest introductions, it is also necessary to also inspect wooden cargo crates, pallets, and scrap lumber in addition to plant materials, unprocessed logs and lumber.

A total of 99 pest species have been reported from seven African countries with 60% of these being indigenous and the rest, introduced. Insect pests predominate, followed by pathogens, mainly the Ascomycota, and the Basidiomycota. They constitute but are not limited to:

On *Eucalyptus*:

- The longicorn borers - *Phoracantha recurva* and *P. semipunctata*
- *Gonipterus scutellatus*
- *Leptocybe invasa*

On *Leucana leucocephala*:

- *Heteropsylla cubana*

On African mahogany (*Swietenia macrophyla*, *S. mahogany*) and Teak (*Tectonia* spp.):

- *Hypsipyla robusta*

Of the introduced pests, *Armillaria mellea* is still a threat to both naturally regenerated and planted forests while *Mycosphaerella pini* and *Sphaeropsis sapinea* are recorded in planted forests.

The table below gives a summary of forest pests species reported from Africa:

Number of pest species

Pest Type	Total	In naturally generated forests	In planted forests	In both types of forests	On broadleaf	On conifer	On both host types
Indigenous							
Insect	53	26	25	2	39	12	2
Diseases	6	1	1	4	3	1	2
other	1	0	0	1	0	1	0
Introduced Species							
Insects	19	0	19	0	1-	9	0
Diseases	20	2	14	4	11	5	4
other	0	0	0	0	0	0	0
TOTAL	**99**	**29**	**59**	**11**	**63**	**28**	**8**

Twenty eight of these pests were recorded on conifers, while 8% were on conifers and broadleaves. Confers are common in North Africa. With the exception of ISPM 15 where nearly all African countries are making efforts to comply with, not much information (with an exception to the Republic of South Africa) has been found in Africa, in which the NPPOs mainstream forest health into their work programs. This means that much of the work relating to forest health in Africa is left to the Forest Departments, foresters or to networks, and NGOs; those who may not be familiar with ISPMs. This is a great concern to Africa.

Africa boasts of large expanses of tropical rain forest cover in most of the West and Central African countries. Through traditionally knowledge, chiefs and custodians of the African traditional cultures preserved certain forest areas as sacred grooves where traditional ancestors reside. Further, there were some places in the forested areas where people were forbidden to enter or more so, some trees by culture were not allowed to be cut or used indiscriminately. These beliefs preserved these forests till today. One of the benefits of these practices is that these forests have served as homes and reservoirs for natural enemies, predators and parasitoids that have preserved the ecosystems in these areas, providing protecting the trees, and providing the local communities with a livelihood side by side with the forests. While these practices should be continued to enhance integrated forest management through systems approaches, occasional access by the National Plant Protection Services should be allowed to document the biodiversity of the natural enemies that can be found in there. This will benefit the plant protection community.

There is an emerging concern to Africa, of countries that are under threat of encroachment by deserts. The majority of these countries are to be found in the SAHEL as well as North Africa. This concern has prompted a program of the *Great Saharan Green Wall* by the African Union Commission to resist the advancing desert through

planting of trees. Fast growing tree species that establish quickly may be the obvious choice; but quick establishment means that the trees can also be invasive. Invasiveness can carry the disadvantage of such trees becoming pests. Care should be taken while choosing the tree species for these programs. Advice and words of caution, and/or shared experiences that may come as a result of this guide will therefore be very useful for Africa.

When new trade routes for forest products or plant materials are planned, analysis of the risk of introduction of potentially damaging pests should be conducted. Cooperation between trading partners to prevent introduction of potentially damaging forest pests is also desirable. This could involve the exporting country providing technical assistance and training to the importing country on how to detect, identify and treat potentially destructive insects or inspection and treatment of infested products before they are shipped. In Africa however, only 2 countries have notified their trading partners their regulatory requirements;

Egypt
G/SPS/N/EGY/2
(Unofficial Text) Egypt has notified the WTO that as of October 1, 2005 it is adopting the ISPM 15 standard for imports of wood packaging materials. According to the Egyptian regulations, imported wood packaging materials must be either fumigated with methyl bromide or heat treated. Such products must be stamped with the international IPPC stamp (under authorized country programs) on two sides and carrying either H (heat treated) or B (methyl bromide) treatment.

South Africa
-G/SPS/N/ZAF/18/Add.1 (updated)
Implementing Guidelines for Regulating Wood Packaging Material in International Trade (SPM 15)
-G/SPS/N/ZAF/18 Text verison
Wood Packing Material
-G/SPS/N/ZAF/18

Guidelines for Regulating Wood Packaging material in International Trade (ISPM 15) will be fully implemented on 1 January 2005, requiring that all wood packaging material entering South Africa should be treated and marked in accordance with ISPM 15. Enforcement of ISPM 15 will be from 1 March 2005.

Further information may be obtained through:

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AWARENESS AND NETWORKING

Workshops are an important means for bringing people together with common concerns to exchange information and ideas. Since 1991, the FAO Forestry Department, thanks to financial assistance provided by USDA Forest Service through its Tropical Forestry Program, has had the opportunity to collaborate with three member countries in the organization of workshops on forest pests of mutual concern. These include the 1991 workshop on conifer aphids held in Muguga, Kenya, the regional conference on the European wood wasp, *Sirex noctilio,* held in Florianopolis, Brazil in 1992 and the workshop on leucaena psyllid, organized by the Tanzania Forest Research Institute (TAFORI). The list of collaborators on leucaena psyllid in addition to FAO includes the USDA Forest Service, CAB International Institute of Biological Control (IIBC), the International Centre for Research on Agroforestry (ICRAF), and the Sokoine University of Agriculture. This clearly reflects the concern for this latest threat to Africa's forest resources.

In 1991, as a result of the conifer aphid workshop, there was some interest expressed in establishing a forest pest network for the countries of eastern and southern Africa.

Forest Invasive Species Network for Africa - FISNA

The Forest Invasive Species Network for Africa (FISNA) was created during a Task Force Meeting held in Zomba, Malawi from 13-15 December 2004. Seven African countries (Ghana, Kenya, Malawi, South Africa, United Republic of Tanzania, Uganda, and Zambia) were represented and the 14 members successfully defined objectives and activities of the network.

The mandate of the network is to coordinate the collation and dissemination of information relating to forest invasive species in sub-Saharan Africa for sustainable forest management and conservation of biodiversity.

EMERGENCY RESPONSE AND CAPACITY BUILDING

Assistance has been provided through FAO's Field Programme to a number of member countries to help them respond to damaging pest outbreaks. In 1991, assistance was provided to the Kenya Forest Department through the FAO Technical Cooperation Programme (TCP) to initiate work on the management of cypress aphid. This enabled the Forest Department to survey infested areas, treat high value sites with chemicals and begin a search for natural enemies of this insect. This project served as an important bridge to two longer term projects designed to address the cypress aphid problem in Kenya, funded by UNDP and World Bank. These projects have resulted in a stronger capacity within Kenya to address not only the cypress aphid problem but other forest pests as well. They are also providing a key linkage to the IIBC regional conifer aphid biological control programme. TCP assistance is also being provided to Nigeria for control of Oriental scale of neem, to Niger for monitoring and assessment of a decline of neem and to China to enable foresters and plant quarantine officers to recognize infestations of potentially destructive insects in log imports. A sub-regional TCP on the

management of leucaena psyllid recently approved for Kenya and Tanzania is also in progress and should provide benefits throughout the region as a result of networking and technical cooperation.

Targeting individual species is the most common approach to preventing the introduction of invasive organisms. However, a more comprehensive strategy is to identify the major pathways through which harmful invasions occur and then manage the associated risks. Pathways as well as individual species can be subjected to risk assessments, and exclusion methods based on the latter would probably be more efficient, since efforts could then be concentrated where pests are most likely to enter. At present, while international trade and travel are believed to be the leading cause of harmful unintentional introductions, in most countries there is a lack of solid evidence concerning the actual pathways? In the case of forestry pests, for example, forestry products such as packaging materials can be particularly important in facilitating the worldwide movement of pest species.

It has been argued that, because some pathways have been used for decades (or even centuries) without any prevention methods, all invasive species have probably already spread to most areas. However, it is now obvious that establishment rates can vary over time, with some alien species known to have been introduced to a particular area decades ago only recently becoming established. Reasons for this delayed establishment include alterations of the alien species itself, changes in the pathway, climatic changes and changes in human impact in the area of introduction (e.g. growing forests near entry points). The accelerating rate of establishment of alien species demonstrates that the concern over accidental introductions is still valid. Furthermore, new pathways will be created with increased mobility and trade.

There are many challenges and opportunities associated with protecting forests from damage by insects, diseases and other pests in Africa. Specifically, Africa has many forest species growing in government reserve or protected areas. Occasionally, the indigenous communities who may have their live hoods dependent on forests use the densely forested areas as damping grounds for wastes. This behavior can create corridors for pests thereby defeating the noble service of providing shelter for natural enemies, predators and parasitoids, and providing the ecosystems services as alluded to in the foregoing. Use of chemicals is not an option and must be avoided at all costs. It is necessary for authorized officials of the BPPOs to gain access to these forests to carry out surveys and develop pest status reports. This will enable them register such forest reserves either as pest free areas **(ISPM, 4)** or as pest free places of production in accordance with the specific IPMs. The contribution of NPPOs can reinforce the efforts already being undertaken by the Forest Invasive Species Network for Africa (FISNA) and other stakeholders. Consequently however, neighboring countries and international organizations must work together to help prevent the spread and resource damage caused by pests. This was the spirit reflected at the COP MOP 4 in Bonn in 2008 where African countries endorsed a STATEMENT OF COMMITMENT TO COMBAT INVASIVE SPECIES. Specific actions undertaken to be taken include:

1) Creation and funding of a National Invasive Species Council;
2) Promulgation of a national invasive alien species reference list;
3) Creation and funding of a National Invasive Alien Species Strategy;
4) Creation and staffing of Invasive Species Coordinator positions;
5) Implementation of control work in protected area systems;

6) Information sharing to prevent the impacts of invasive alien species;
7) Strengthening and harmonization of bio-security frameworks and staffing to prevent the introduction or movement of invasive alien species, especially using risk and pathways assessments;
8) Development of a National Early Detection and Rapid Response plan;
9) Co-operation with international and regional regimes, conventions, and agreements governing the movement of living organisms;
10) Coordination with other major regional initiatives to achieve mutually supportive conservation and social development goals.