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Transboundary Plant Pests and Diseases: Management and Challenges

Introduction

1. Transboundary plant pests and diseases (TPPDs) are among the major challenges for global food security. TPPDs jeopardize food security, especially in highly vulnerable rural communities, and can have major economic, social, environmental and public health impacts. Therefore they need to be monitored well, prevented in advance and responded to in time at national, regional and international levels.
2. TPPDs constitute an important component of the major area of work “Preventing and controlling transboundary food chain threats to enhance resilience” developed within Strategic Objective 5 on resilience. They are corporately addressed through the Food Chain Crisis Management Framework - Emergency Prevention System (FCC-EMPRES) with the objective of mitigating the risks on agricultural production and livelihoods through sustainable and environmentally friendly approaches. TPPDs expertise of FAO at the global level lies with “Locust and Transboundary Plant pests and Diseases Team”, decentralized offices and affiliated structures including regional Desert Locust Commissions.
3. Major TPPDs include insect pests such as locusts, which are major threats to the agropastoral resources and livelihoods mainly in Africa and Asia, armyworms and fruit flies as well as crop specific diseases such as rust diseases of wheat and coffee, wilt diseases of banana and viral diseases of cassava and maize.

Management of TPPDs and current threats

4. TPPDs can move rapidly and quickly threaten neighbouring countries, regions and continents. Regular surveillance and adequate preparedness are essential for prevention and timely response to protect crops. This requires strong local capacities, concerted efforts and coordination at the national, regional and international levels.
5. Prevention, rather than curative actions, is the most effective strategy as this reduces loss to crops and rangelands, minimizes pesticide use and negative environmental impacts and requires less investment. As an example, the recurrent costs of implementing the Desert Locust preventive strategy in West and North-West Africa are approximately USD 3.3 million per year while it took nearly USD 600 million to bring the 2003-2005 plague under control – equivalent to 170 years of prevention.
6. Focus of EMPRES-Plant is to ensure sustainable management of TPPDs through improved coordination, contingency planning, monitoring, early warning, rapid reaction, and promotion of

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environmentally sound control techniques and tools. These necessitate capacity development efforts at national level and a blend of regional and international cooperation and partnerships. FAO's comparative advantage is its unique ability and long experience in promoting the preventive strategy, developing competencies and bringing all stakeholders together to facilitate regional and international collaboration.

7. Desert Locust prevention and control has been so far the largest programme of EMPRES Plant, and has been highly successful. The Desert Locust Information Service (DLIS) operates as a global early warning system that monitors the situation and alerts member countries. Unique tools have been developed for timely monitoring and data exchange that can be adapted for other TPPDs. The Desert Locust regional commissions and global Desert Locust Control Committee are effective coordinating mechanisms. These combined efforts have reduced the duration, intensity and frequency of plagues that historically lasted for up to 15 years and affected 50 countries or more. The lessons learned from the Desert Locust programme are being applied in prevention and management of other locusts in Caucasus and Central Asia. In addition to locusts, there are other TPPDs threatening agricultural production, which EMPRES is currently addressing as a priority. Armyworm is becoming a serious threat in Southern and Eastern Africa for which a regional programme to support surveillance and integrated management is being put in place. Similarly, for fruit fly management in Africa and Asia, continent-wide programmes are under development to facilitate information sharing and coordination for effective management. Diseases of maize, banana and cassava in Africa, and of citrus greening and coffee leaf rust disease in Central America and the Caribbean are compromising production and regional programmes are being implemented for their prevention and management. Wheat rust diseases remain a major threat to wheat production and preventing epidemics caused by emerging strains in Africa, the Middle East and Central and South Asia is a priority global programme for EMPRES-Plants. Another challenge is banana Fusarium wilt disease (Tropical race 4) threatening banana crops in Africa, Asia and Latin America. In addition to EMPRES, FAO's successful integrated pest management (IPM) programmes in Asia and other regions contribute to prevention of TPPDs.

8. If prevention measures are not successful under certain circumstances, major crises can occur and emergency responses might be needed. This is the case of the locust plague in Madagascar where currently, FAO and the Ministry of Agriculture are implementing a Three-Year Locust Emergency Response Programme to combat this plague and to protect the livelihoods and food security of 13 million people. Recently, rapid response actions have been also taken for the control of Ug99 race of wheat stem rust at global level and of coffee rust disease epidemic in Central America, Maize Lethal Necrosis Disease in East Africa and armyworm outbreak in South Africa.

Challenges and perspectives for improved management

9. TPPDs need to be considered among the national development goals of member countries if they are to be managed efficiently over the long term. Effective preventive strategies and contingency planning have to be employed and supported by all stakeholders. Main constraints in many vulnerable countries include insufficient capacities and resources and weak coordination among the related institutions and stakeholders at the national and regional levels. These need to be improved to ensure collective and inclusive planning processes for sustainable management of these threats.

10. Due to the rapid spread of TPPDs within and among the regions, international collaboration and related governance and financial mechanisms are essential to ensure sustainability of integrated management and prevention efforts which require effective monitoring, information and knowledge exchange, planning, early warning and rapid response. A major challenge in achieving these objectives is to guarantee the availability of adequate resources and support at national, regional and international levels to allow effective coordination and implementation of existing and new initiatives.

11. The following areas of EMPRES-Plant need special attention and related extra budgetary resources so that FAO can: (i) maintain and strengthen its current locust programmes; and (ii) expand its efforts and activities to curtail other TPPD threats in Africa, Asia and Latin America:

- Desert Locust: strengthening of national capacities, regional commissions and DLIS with focus on developing governance and financial mechanisms to ensure sustainability of Desert Locust management;
- Migratory Locust plague in Madagascar: support to the three-year emergency response programme to return to a recession situation and, in the future, allow effective implementation of locust preventive strategy;
- Locusts in Caucasus and Central Asia: strengthening of national capacities and development of a regional network for locust management based on the key principles of preventive strategy;
- Regional platform for management of TPPDs in Africa: development of initiatives and networks to address the pest and disease challenges particularly on cassava, maize and banana as well as on armyworm and fruit fly outbreaks;
- Strengthening of fruit fly, tomato leaf miner and red palm weevil control in the Near East region: development of regional collaboration networks and enhancement of national capacities;
- Coffee leaf rust, banana diseases and citrus greening in Latin America and the Caribbean: development of regional networks for surveillance and implementation of regional strategies and actions;
- Wheat rust diseases and banana Fusarium wilt (TR4) at global level: promotion of international collaboration, surveillance, knowledge exchange and improvement of national capacities.

12. Regional and global programmes and projects will facilitate development and implementation of strategies for collective management of transboundary plant pests and diseases through enhancing capacities and promoting international collaboration and synergies among the stakeholders. Ownership by the concerned countries of these initiatives and support for collaboration and resourcing is essential for sustainable management of these transboundary threats.