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I. Purpose and Background

1. The purpose of this document is to provide the CPM with the current status of the ePhyto Solution project, to point out areas of future need and to identify strategic opportunities and considerations.
2. The global hub, which is a centralized system to facilitate the exchange of ePhytos between National Plant Protection Organizations (NPPOs) and a Generic ePhyto National System (GeNS), which is a web-based system to allow countries without their own systems to produce, send and receive ePhytos in the correct format that are exchanged through the hub, make up the IPPC 'ePhyto Solution'.
3. With increasing digital and electronic communication in daily work, a number of IPPC Contracting Parties advocated the adoption of electronic phytosanitary certificates (termed ePhytos) to facilitate trade. Consequently, ISPM 12 – APPENDIX 1: Electronic phytosanitary certificates, information on standard XML schemas and exchange mechanisms (2014) was approved in support of the use of electronic/digital means of exchanging ePhytos. At the same time the IPPC Secretariat received approval from the Standards and Trade Development Facility (STDF) partnership at the World Trade Organization (WTO) for a proposal to support the development of an ePhyto "hub" and the generic system to facilitate the exchange of ePhytos.
4. The ePhyto hub facilitates the harmonized exchange of ePhytos between Contracting Parties. It prescribes standardized rules to send and receive ePhytos in much the same way as letters are handled in a post office. Based upon the information coming into the Hub from the ePhyto issuing NPPO, (similar to the address of the recipient in the case of a letter in the post office) the Hub will forward the

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certificate to the intended recipient NPPO. **The contents of the ePhyto, in a harmonized digital format, are never examined by anyone other than the issuing and receiving NPPOs and are protected by strong digital security.** The Generic National System (GeNS) is being developed specifically for those countries without a national system to produce and receive electronic certificates and will be made freely available to those countries wishing to participate in the ePhyto system once the development and testing are completed; expected sometime at the end of 2018.

5. The STDF project provides funding for the development and piloting of the hub and GeNS. In order to transition both into operation as the complete ePhyto Solution, resources for sustained operations of the hub (estimated at US\$200,000 per year) as well as training and implementation of the system (estimated at US\$250,000 per year) must be identified and obtained.

II. STDF project and governance

6. In December 2016 the STDF provided the resources to the IPPC for the ePhyto Solution project. The project aims to provide developing countries with a simple generic system for the production, sending and receipt of ePhytos and to establish a harmonized exchange tool to facilitate the exchange of electronic certificates as an alternative to the current practice of exchanging paper certificates. These tools should improve the security of official communications between countries, improve trade flows by facilitating the improved border access of plants, plant products and regulated articles; eliminate the cost and complexity of countries developing individual systems for electronic certificate exchange and remove the need for countries to negotiate the necessary exchange protocols on a country by country basis. The United Nations International Computing Center (UNICC) was selected as the best practical option to develop and host both the hub and GeNS.

7. The project required the establishment of two specific groups for governance; a Project Technical Committee (PTC) (composed primarily of the ePhyto Steering Group (ESG) and UNICC project managers) to manage the technical components of the project, and a Project Advisory Committee (PAC) for the purpose of engaging other international organizations to facilitate feedback and review particularly regarding interoperability with other electronic trade certificate initiatives. The STDF funding is expected to be exhausted in early 2019.

III. Recent PTC/ESG activities

8. CPM-12 (2017) supported the continued work of the IPPC Secretariat and the ESG in advancing the development of ePhyto. The PTC/ESG met twice in 2017. The ESG finalized the specifications for the hub and the details of the web services description language (WSDL) that is used in harmonizing exchanges through the hub in March 2017. The details of the hub user interface and connection procedures were finalized in October 2017, allowing the commencement of the ePhyto hub pilot. The ESG also:

- Readied the mapping of the ePhyto for piloting;
- Established key code lists for use in ePhytos;
- Finalized the specification allowing for the development of (GeNS);
- Revised a policy on the secure and uniform use of the hub and GeNS;
- Defined the sequential process of implementing the connection to the hub;
- Began defining the evaluation criteria for the pilot;
- Established criteria for evaluating technology to be used in the development of the GeNS; and
- Worked closely with a contractor to develop options for a business funding model for the long-term operation of the ePhyto Solution (the hub and GeNS)

IV. Recent ePhyto PAC activities

9. The PAC met for a second time in Geneva, Switzerland in December 2017 and brought together international experts on electronic certification from the World Bank (WB), the World Customs

Organization (WCO), The Convention in Trade in Endangered Species (CITES), the World Organization for Animal Health (OIE), CODEX and others to review the developments in the project and to provide updates on electronic certification being undertaken by these organizations. The objective of the meeting was to better align ePhyto work to other electronic certificate initiatives. Both CODEX and OIE are beginning to investigate electronic certification and the IPPC Secretariat continues to liaise with these organizations to increase harmonization between the three. Development of the IPPC ePhyto Solution continues to be more advanced than work of the two sister organizations.

V. Implementation of the hub

10. Nine countries joined the hub pilot in early October 2017 by connecting their existing national systems to the hub. These pilot countries are at various stages of testing exchanges of certificates. Some commenced exchanging certificates for consignments in the full production environment in early January 2018. Until early March 2018 approximately 10,000 exchanges have occurred. Many of these have been exchanged in a test environment. However, at least three countries have exchanged about 2000 certificates in relation to actual trade of plants and plant products proving the utility of the system.

11. The Secretariat worked with the UNICC and the ESG to develop orientation and training documents and other technical tools necessary for implementing the pilot. It is anticipated that the hub pilot which has focused on the testing the technical operation of the hub will be completed by about March 2018. Once the hub pilot, evaluation and the implementation of any required changes are completed, a documented implementation process will be developed and published to the international phytosanitary portal to guide other countries with national systems that can produce XML messages in keeping with the harmonized schema to implement the hub.

VI. Development of the GeNS

12. The IPPC and UNICC finalized contracting for development of the GeNS in late January 2018. System development is expected to take 4-6 months, with the first pilot planned for around July 2018. The pilot countries of Ghana, Samoa and Sri Lanka will begin to validate the design of the system during development, which will allow the UNICC to use an iterative-type of development process. This permits feedback during development from actual users to guide the final structure of the system.

13. The proposed timeline for the full operation of both the hub and GeNS is dependent on a number of factors including:

- Sufficient piloting to validate the operation of the hub and the GeNS;
- Outcome of the pilots and any requirements for reconfiguration of the systems;
- Readiness of countries with national systems to configure those systems to operate in keeping with the hub requirements;
- Availability of training capacity to assist countries in joining the GeNS.

14. The integration of GeNS into regulatory operations is critical for its effective use. The IPPC Secretariat and ESG members continued to work with GeNS pilot countries to assist with business process evaluation and reengineering to prepare the countries for implementing the GeNS. Meetings were held with the phytosanitary authorities of Samoa and Sri Lanka to document current phytosanitary certification procedures and to evaluate the business changes and stakeholder consultations required to implement electronic certification including implications for other business activities such as fee collection, inspection and testing, reporting, etc. The work also included further examination of collaboration between border agencies to simplify trade and border procedures.

15. The IPPC Secretariat worked with the WB in a series of discussions between phytosanitary and Customs authorities in Samoa and the Philippines on the potential for using electronic certification to assist in electronic data sharing between agencies in improving trade procedures. The implementation of an ePhyto system provides the opportunity to better analyze data and to obtain advanced information

about consignments which can improve the use of risk-based approaches for imports. Recommendations were provided to both agencies, and the procedures and analysis developed during these missions is being used in the development of an implementation guide for use by countries intending to implement the GeNS.

VII. Industry Advisory Group

16. The IPPC ePhyto Industry Advisory Group (IAG) met in Washington DC, USA, in June 2017. The IAG provided support for pilot implementation by suggesting development of a framework for measuring the improvement in the trade of plants and plant products resulting from use of ePhytos. Although the proposed trial will be limited to a few shipments and anecdotal information and observations, it should provide some useful information that may support a more robust analysis of benefits and challenges from implementation. The IAG also discussed the ePhyto Solution business modelling work being undertaken by the Secretariat and provided feedback in support of developing some recommendations to CPM on a business model.

VIII. Business and funding model

17. The IPPC Secretariat engaged a consultant to undertake an analysis of potential business models, including funding options, for the sustainable long-term operation of the ePhyto Solution. The consultant reviewed options for cost recovery used by other international agencies, various non-governmental organizations and conducted separate surveys of NPPOs and industry representatives. A meeting of business experts, combined with representatives of other international organizations and members of the CPM Bureau, reviewed the draft report on business modelling options and the results of the survey at a meeting held in December 2017 in Geneva, Switzerland. This expert meeting was very useful in further refining the potential business models that could be used for maintaining and financing the stable operation of the ePhyto Solution. Analysis currently suggests that the ePhyto Solution may be best supported by donor funding for at least 5 years until the costs of operation, the impact of implementation and a thorough analysis of the costs and benefits of the ePhyto Solution to both governments and the trading community can be fully analyzed.

18. A revised business and funding model will be considered by the Bureau and SPG during 2018 for presentation to CPM in 2019. In the interim, financial and in-kind contributions will sustain the program through any funding gap arising from the end of the STDF program to the adoption of the final model by CPM. Contracting parties are encouraged to contribute funding in support of ePhyto operations and implementation.

IX. IPPC Global symposium on ePhyto

19. The Third IPPC Global Symposium on ePhyto took place in Kuala Lumpur, Malaysia from 22 to 26 January 2018. With the support of the Department of Agriculture of Malaysia, the Government of Australia, the Asia and Pacific Plant Protection Commission (APPPC), and the IPPC, over 85 participants from 36 countries heard presentations and discussed the implications of ePhyto on trade facilitation; technical information on implementing the hub and GeNS and information related to business process reengineering and policy support for implementation. Participants highlighted the need for further communications and advocacy on the ePhyto Solution and provided recommendations for future enhancements of the ePhyto system components. The Symposium provided useful knowledge on the system components and how they relate to more efficient phytosanitary management systems.

X. Donor contributions

20. During 2017, the IPPC received financial contributions of approximately USD 700 000 from the United States of America, Australia, the Republic of Korea and Switzerland. In addition to these financial contributions, the Secretariat has also received in-kind contributions to support Secretariat work in implementing the ePhyto Solution from Canada, Japan and the People's Republic of China. The

financial contributions have been directed to supporting the development and operation of the ePhyto Solution and the use of funds have been routinely reported to the ESG for review and comment.

XI. Development of medium term strategic plan

21. The significant progress achieved towards the development of an operational hub and a supporting GeNS provides increasing confidence that the ePhyto Solution is a viable proposition. However, a great deal of work still needs to be done to ensure it is implemented effectively and operates in a stable and sustainable way. Business imperatives require the hub to operate globally, without interruption and at a reasonable cost. Once the solution is implemented, it will likely not be able to be turned off as dual paper/electronic systems are not expected to be maintained in the long term by contracting parties using electronic documentation transmission systems.

22. A sustainable funding model for the ePhyto Solution needs to be developed, adopted by CPM and implemented. This might be separate to funding for capacity development in-country, although would cover the costs of developing reference materials and manuals. An orderly and planned transition of the ePhyto Solution into global operation is also needed to avoid trade disruption. Contingency plans for routine maintenance and unplanned outages must be developed and potentially practiced. Governance systems also need to be developed and applied. This will become even more important when the funding model is implemented.

23. In order to fully implement the ePhyto Solution, an implementation plan is needed. The IPPC Secretariat proposes developing the plan as directed by the CPM Bureau and in coordination with the ESG for consideration by the CPM Bureau at its June meeting. This plan should be presented to the CPM in 2019 for consideration because both the hub and GeNS pilots should be completed, the funding and business model will be completed and STDF and donor funds will be nearing exhaustion.

24. The components of the plan should include:

- a) Overall strategy for implementation of ePhyto Solution components
- b) Draft work plan for the medium term [2018-2023])
- c) Clarity on the running and administrative costs of the ePhyto Solution;
- d) Accountability structure for funds supporting the ePhyto Solution and a governance framework for its administration;
- e) The potential capacity development costs to Contracting Parties to transition from the use of paper certificates to ePhytos
- f) Strategic options for investments in the ePhyto Solution over the short term (2018-2023);
- g) Strategy to secure long term stabilized funding.

XII. Next steps

25. The ePhyto Solution elements include:

- 1) Completion of the hub pilot
- 2) Analysis of hub pilot results completion of any required adjustments and establishment an implementation process for other CPs (estimated July 2018)
- 3) Completion of the development of the GeNS
- 4) Piloting of the GeNS
- 5) Analysis of GeNS pilot results; completion of any required adjustments and establishment an implementation process for other CPs (estimated February 2019)
- 6) Completion of resource materials to guide implementation of the hub and GeNS (estimated February 2019), including information to support funding application for readiness and implementation activities by CPs

26. Development of an IPPC implementation strategy including:
- 1) Development of a 5 year implementation plan for presentation to CPM in 2019;
 - 2) Associated funding and maintenance model finalized for presentation to CPM in 2019, including a cost-benefit analysis

XIII. The CPM is invited to:

- 1) *note* the work of the IPPC Secretariat and the ESG in advancing the development and implementation of the ePhyto Solution;
- 2) *support* the continued work of the IPPC Secretariat and the ESG under the supervision and direction of the CPM Bureau;
- 3) *request* the CPM Bureau, as the lead, together with the ESG, to develop a strategy for the sustained operation of the ePhyto Solution which will include a five-year implementation plan and suitable business model for approval to CPM-14;
- 4) *acknowledge* the support provided by Australia, Canada, the Peoples Republic of China, Japan, the Republic of Korea, Switzerland and the United States and the member countries of the ESG who have provided significant contributions to advancing the development and implementation of the ePhyto Solution through funding and technical support;
- 5) *acknowledge* the contributions of the pilot countries who have participated in the ePhyto hub pilot and the countries who have agreed to participate the GeNS pilot in 2018;
- 6) *support* the continued progress in implementing the ePhyto Solution and in particular continue to urge countries to financially support the operation of the hub and generic system through donor funding;