Annex – I

STDF PROJECT GRANT APPLICATION FORM

Project Title	**Demonstrating the impact on trade and regional plant protection of streamlined information systems for pest surveillance and reporting**
Objective	The project goal is: **Reduced likelihood that outbreaks of new pests spread to neighbouring countries and trading partners through commerce** The immediate objective is: **A regionally harmonised, pest information framework developed, demonstrated and adopted** The project will be implemented over three years commencing in 1 December 2016. The project will demonstrate that a regionally harmonised, pest information framework can be developed, based on streamlined data collection, internationally recognised data standards, and simple protocols for exchanging data with existing, national systems. A series of case studies, including surveillance to support market access proposals and assist early detection of high priority quarantine pests, will be used to demonstrate that such a regional framework can enable more cost-effective collection of pest records, more robust management of pest data, and more credible and timely reporting of pest status.
Budget requested from STDF	**STDF Project Contribution (US $) 897,595** **Overhead (US $) 100,000** **Total STDF Funding (US $) 997,595**
Total project budget	**$1,705,455**
Full name and contact details of the requesting organization(s)	**Plant Health Policy Branch, Australian Government Department of Agriculture and Water Resources, GPO Box 858, Canberra, ACT, Australia 2601.** **Department of Agriculture, 3rd Floor, Wisma Tani, Jalan Sultan Salahuddin, 50632, Kuala Lumpur, Malaysia.** **Department of Plant Protection, Sanitary and Phytosanitary, General Directorate of Agriculture, #54B/49F, St. 656, Teuk Laak III, Toul Kole, Phnom**

	Penh, Cambodia. **Department of Agriculture, Ministry of Agriculture and Forestry, Patuxay Square, Vientiane, Lao PDR.** **National Agriculture Quarantine Inspection Authority, P.O. Box 741, Port Moresby National Capital District, Papua New Guinea** **Bureau of Plant Industry, Department of Agriculture, 692 San Andres, Malate, Manila, Philippines.** **Plant Protection Research and Development Office, Department of Agriculture, 50 Phaholyothin Rd, Chatuchuk10900, Bangkok, Thailand.** **Plant Quarantine Division, Plant Protection Department, Ministry of Agricultural and Rural Development, 149 Ho Dac Di, Dong Da, Hanoi, Vietnam.** **ASEANET, c/- CAB International – SEARC, Glasshouse Complex, MARDI HQ, 43400 Serdang, Selangor, Malaysia.**
Full name and contact details of contact person for follow-up	Dr Ian Naumann, Director, SPS Capacity Building Program, Plant Health Policy Brach, Plant Biosecurity, Department of Agriculture, GPO Box 858, Canberra, ACT 2601, Australia. Phone: 61-2-6272 3442. Mobile: 61-412-678463. Email: ian.naumann@agriculture.gov.au.

I. BACKGROUND & RATIONALE

1. Relevance for the STDF

(i) Good practice in SPS-related technical cooperation

The project will promote best practice in the design and implementation of pest surveillance, and in particular best practice in the efficient capture, management and reporting of information from surveillance.

Capacity to perform these tasks underpins at least nine International Standards for Phytosanitary Measures (ISPMs). The proposed system will promote pest surveillance (as outlined in *Guidelines for surveillance*, ISPM 6), determination of pest status (as described in *Determination of pest status in an area*, ISPM 8) and pest reporting (as prescribed in *Pest reporting*, ISPM 17). It is also applicable to demonstrating area freedom for international, market access purposes (as described in Requirements *for the establishment of pest free areas*, ISPM 4 and *Establishment of pest free areas for fruit flies*, ISPM 26).

The project is a practical demonstration of a remedy to the disparate implementation of pest surveillance across the Asia-Pacific region[1]. The project also responds to the inconsistent standard of pest reporting across the region[2]. The project complements the preparation of a series of technical, surveillance manuals identified as a priority by the APPPC[3], incorporated in a draft strategic work plan for an initiative, *Strengthening Implementation of the IPPC and ISPMs*[4] and included in the IPPC Capacity Development Committee work plan[5]. By building capacity for surveillance, encouraging systematic surveillance planning, increasing awareness of pest reporting, and developing case studies, the project implements four of the six ways identified by the IPPC's National Reporting Obligations Advisory Group[6].

The project will use coordinated, surveillance activities across seven Asia-Pacific countries to showcase:

(a) the use of mobile devices and a recently developed, customisable smartphone app ('*p-tracker*') to record surveillance data quickly and accurately in the field;

(b) a simple process for importing these surveillance data into a low-cost, flexible, in-house information system; and

(c) the ease with which this system can be used to generate pest lists required for trade and other reports required to meet international obligations, such as commitments to the International Plant Protection Convention (IPPC).

The project will enlist and train regional expertise to design up to 15 surveillance activities supported by project funding and drive regionally consistent approaches to data capture and management.

Each record digitised using mobile devices and the *p-tracker* app (a) will be geo-referenced and accompanied by a photograph of the collecting site or pest *in situ* and (b) will meet the international standard for a pest record as prescribed by *Determination of pest status in an area* (ISPM 8). Most records will be linked to a voucher specimen or sample. The *p-tracker* app does not require access to the internet or a mobile phone network and thus can be used at almost any collecting site. After surveillance data are obtained using this app, the records will be downloaded from the mobile device to a laptop or desk top computer, into a customisable, in-house *Plant Health Surveillance Database* (PHSD), which is a component of the *Surveillance Information Management System* (SIMS), or into the existing, pest databases of organisations participating in the project. PHSD has been created using MS Access and SIMS will be provided to participating organisations as part of the project. PHSD can be modified and managed by officers with basic MS Access skills, and licensing costs will be minimal. The system is innovative and has proved robust and flexible under challenging, field conditions in Timor Leste, Papua New Guinea and the Solomon Islands. The system has also been demonstrated to be applicable to surveillance for livestock diseases.

[1] See assessment in *Regional status of pest surveillance in the context of ISPM No. 6* (2012), IPPC Implementation Review and Support System, IRSS.
[2] Lalipat, P. (2013) *Report on Plant Protection Information Exchange through the APPPC Website and the International Phytosanitary Portal*.
[3] *Report of the Global Symposium on Plant Pest Surveillance*, 29 October – 2 November 2012, Anyang, Republic of Korea.
[4] Agenda item 10.2.1, Commission on Phytosanitary Measures, 31 March – 4 April 2014.
[5] *Report of the 4th Meeting of the IPPC Capacity Development Committee*, 2 – 6 June 2014, The Hague, Netherlands.
[6] *First Meeting of the National Reporting Obligations Advisory Group*, 1 – 3 July 2014, Rome, Italy.

(ii) Cross-cutting topics

The project promotes customisable, information technology tools and will make use of manuals developed during 2014 to support training in the use of these tools.

Since SIMS enables multiple views of aggregate pest data (e.g. country pest lists, geographical distribution maps of pests) it can be used across a broad spectrum of the policy and operational work of a National Plant Protection Organisation (NPPO). During the life of the project it is anticipated that the system will be used by specialists preparing technical, market access bids, by risk analysts developing phytosanitary polices for imported commodities, and by official SPS contact points reporting to international bodies and trading partners. Used in this way, the proposed system will promote science-based decision making in relation to SPS issues.

Since pest surveillance and reporting are fundamental tasks for NPPOs, the project demonstrates a suite of tools and processes (SIMS) which provides NPPOs with data on key performance indicators for these tasks.

Several of the proposed survey activities combine novel or interesting visual material with strong narratives and thus are potential subjects for promotional videos or brochures. For example, the proposed survey of bananas will encompass land-locked Lao PDR and coastal Papua New Guinea, include diverse pests (from readily visible fruit flies to a potentially devastating, newly discovered phytoplasma diseases) and will involve surveys of the plantings of both subsistence farmers and plantation owners. The proposed survey of aquatic plants destined for the aquarium trade in the European Union will focus on a high-value commodity, grown in unusual nursery situations. The aquatic plants survey will target diverse pests, from cryptic snails and slugs to round worms barely visible to the naked eye.

(iii) Regional approaches

The project is fundamentally regional in nature, proposing (a) a regional, pest information management framework, (b) multi-country, single crop surveys (e.g. bananas in Cambodia, Lao PDR and Papua New Guinea) and targeted, single-disease surveys (e.g. south American Leaf Blight of rubber in Malaysia, Indonesia and Thailand), and (c) a regional approach to diagnostic support (through the ASEAN Regional Diagnostic Network, ARDN). The project addresses regional priorities for pest information management systems[7] and complements the APPPC work programme which includes continuing work on ISPM 6, Guidelines for surveillance. The project will report to regional fora, including the ASEAN Sectoral Working Group on Crops (ASWGC) and the APPPC. Exchange of plant protection information, including information on pest status, is among the objectives of both the ASWGC and the APPPC.

Following formation in October 2014 of the Australia-Africa Plant Biosecurity Partnership[8], up to three delegates from African countries will be invited to the project's multi-country information management workshop in Year 1, Q3. It is anticipated that that the participation by African delegates will be facilitated by the Australian Plant Biosecurity Cooperative Research Centre. This participation will increase the global scope of the project beyond south-east Asia at no additional cost.

[7] *Regional status of pest surveillance in the context of ISPM No. 6* (2012), IPPC Implementation Review and Support System, IRSS.

[8] Supported by the Australian Plant Biosecurity Cooperative Research Centre, the Australian Centre for International Agricultural Research (ACIAR) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

(iv) Collaborative, interdisciplinary

The project hinges on collaboration between the Australian Department of Agriculture and regional NPPOs to transfer technological capacity and the NPPOs, in turn, collaborating with provincial field offices, universities, farmers and plantation owners to undertake surveillance. The project also encourages NPPOs to adopt more collegiate behaviours by reporting pest information which is of regional interest. The project also engages with the NGOs CAB International (through the *Plantwise* initiative) and the ASEAN Network on Taxonomy (ASEANET) -as coordinator of the ASEAN Regional Diagnostic Network.

The project sits at the interface of the study of pests and the use of pest information to obtain market access or manage biosecurity risks.

The Philippines cocoa survey has been proposed in response to a perceived threat to human health. Cocoa is a commodity generally regarded as free of significant phytosanitary risks. However, pesticide is being applied to cocoa trees to such an extent that there is grave risk that chemical residues will exceed the minimum residue levels (MRLs) of importing countries. The Philippines NPPO requires a much improved understanding of the actual pest and disease threats to cocoa production, in order to develop more rational strategies for the management of plant pests and diseases. It is anticipated that the Philippines cacao survey will be accompanied by a program of pesticide awareness which targets Filipino growers and emphasises the trade implications of farm-based practices.

2. SPS context and specific issue/problem to be addressed

(i) Food and agricultural trade flows and relevant SPS issues

Agriculture is a major economic driver in most ASEAN countries. For the 'transition economies', Cambodia and Lao PDR, agricultural gross value added represents between 36% and 28% of GDP respectively[9]. For Vietnam the percentage is about 19%, and for the Philippines, Malaysia and Thailand, with more diversified economies, the figure is between 9% and 12%. The aggregate value of both agricultural exports for ASEAN countries has grown approximately four-fold between 2000 and 2012[10]. About 20% of agricultural exports go to other ASEAN countries, about 12.2% to the European Community, 9.9% to North America and 16.1% to China. China's share of agricultural commodities exported by ASEAN countries is expanding at the expense of global markets.

Several ASEAN countries (e.g. Thailand) are major, global exporters to both developed and developing markets and other ASEAN countries (e.g. Malaysia, Vietnam) are working towards obtaining larger market share. Several countries also exploit niche markets (e.g. Lao coffee). Plant pest status, either because the status is unfavourable (necessitating phytosanitary management) or because pest status is poorly known (which prevents potential importers from developing science-based import protocols), remains a major impediment to expanding exports of agricultural commodities.

In 2015, ASEAN countries will form the ASEAN Economic Community, with the objective of stimulating economic growth through more freely flowing goods and services within the

[9] World Bank Development Indicators; http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS
[10] Daite, R.B., 2013; http://ap.fftc.agnet.org/ap_db.php?id=96&print=1

region. Non-tariff barriers, such as SPS barriers, have been recognised as a troubling impediment to the free flow of commodities. The ASEAN Sectoral Working Group on Crops and the Experts Working Group for the Harmonisation of Phytosanitary Measures have been working to develop harmonised, risk-based protocols for handling phytosanitary risk at ports and border crossings. However, these efforts have been delayed or undermined by the absence of credible, base line, pest lists for many commodities and countries. Obtaining this base line pest information is not the end of the matter. The long-term viability of harmonised border handling arrangements is dependent on countries being able and willing to report on emerging phytosanitary risks. The project addresses the development of base line pest lists, the ongoing monitoring of pest status and the reporting of changes in pest occurrences.

ASEAN countries have joined in multiplicity of free trade agreements with China, Japan, South Korea, India, Australia and New Zealand all provide substantial opportunities for ASEAN agricultural exports. However, the lack of credible information on pest status and the inability of ASEAN NPPOs to utilise strategies such as pest free areas or pest free places of production will continue to prevent ASEAN countries from capitalising on these opportunities.

(ii) Institutional frameworks

The project partners include the NPPOs, i.e. the organisations responsible for aspects of phytosanitary technical issues, quarantine regulation, quarantine policy and technical market access in Cambodia, Lao PDR, Malaysia, Papua New Guinea, the Philippines, Thailand and Vietnam. All reside within Agriculture departments or ministries. All are members of the World Trade Organisation (WTO), and parties to both the SPS Agreement and the International Plant Protection Convention. All operate under legislative frameworks that have been modernised so as to accommodate SPS principles.

(iii) SPS priorities or issues identified by studies, analyses

This project addresses SPS gaps identified by analyses on SPS handling in Cambodia, Lao PDR, Philippines and Thailand[11]; recommendations following several Australian Department of Foreign Affairs and Trade (DFAT) - funded initiatives in the ASEAN region[12]; assessments by the IPPC Implementation Review and Support System; regional reviews of surveillance[13] and analyses of pest reporting across the region[14].

The project will assist ASEAN to implement harmonised phytosanitary measures (biosecurity measures for plant pests and diseases) for ASEAN countries. Information from surveillance will enable science-based management of risk associated with transboundary movement of products and reduction in unwarranted quarantine procedures.

Reporting on pest and disease status by ASEAN plant protection organisations and forestry agencies is poor (as evidenced by 'obligatory' notifications to the International Plant Protection Convention, peer-reviewed scientific literature and CABI Crop compendium data).

[11] For example, van der Meer and Rasphone, 2014 http://www.laoftpd.com/attachments/article/322/Lao%20PDR%20country%20report%20Final%20170614.pdf

[12] For example, Naumann, I.D. and Lee, W. (2009) *Sanitary and Phytosanitary Capacity Building Program Activity Completion Report*.

[13] *Report of the Regional Asia-Pacific Workshop for the Global Review of Phytosanitary Surveillance in the context of the IPPC Standard (ISPM6). Identification of Challenges and Best Practice*. 31 January – 3 February 2014, Chiang Rai, Thailand.

[14] Lalipat, P. (2013) *Report on Plant Protection Information Exchange through the APPPC Website and the International Phytosanitary Portal*.

National pest lists, which are essential for market access purposes are invariably incomplete. Factors contributing to this include: lack of awareness of the benefits of surveillance, lack of capacity to plan and implement surveillance consistent with international standards, lack of diagnostic capacity, and poorly developed national, information management systems. In general, surveillance that does take place is fragmented and diagnostic capacity that supports surveillance is poorly networked. The present project will train a cohort of plant health specialists in the planning of national surveillance activities, the coordination of resources (including diagnostic resources) that support of surveillance, and efficient capture and management of pest information, the interpretation of surveillance results to develop evidence-based crop protection strategies and quarantine risk management measures to support market access.

Surveillance for pests and diseases in food crop systems provides information on current and emerging threats to yield and quality. Reliable identifications of pests and diseases enable public sector, agricultural advisors and farmers to select cost-effective, management strategies for the pests and diseases. Well-designed surveillance enables early detection of pest and disease outbreaks and thus timely interventions to minimise economic losses and uncontrolled spread of the pest or disease. The proposed project will assist countries in the south-east Asian region to implement two regional phytosanitary standards focusing on detection and emergency management of exotic pests[15].

Scientifically based surveillance supports a country's claims regarding plant health status. Positive records (i.e. detections) provide evidence of the presence of particular pests and diseases. Negative records for particular pests and diseases (i.e. failure to detect) promote confidence that the particular pests and diseases are not present. Generally, pest and disease lists are a pre-requisite for a country seeking to export agricultural commodities to high value markets, and they are essential underpinning for a country's own quarantine policies and operations. They can also be vital to avoiding costly trade disputes.

The activity will promote the implementation of best-practice surveillance in countries which have significant opportunities to benefit from expanded trade in agricultural commodities. In particular, the activity will promote the adoption of international standards relevant to surveillance[16], the coordination of surveillance on national and regional scales and the compilation of evidence of cost-effectiveness of surveillance in developing countries.

3. Links with national/regional development plans, policies, strategies, etc.

As noted above, the project supports development of the ASEAN Economic Community through rational SPS border handling practices. The project demonstrates how to compile and maintain compiles the credible pest status information required for harmonisation of phytosanitary measures across ASEAN, consistent with international standard. Harmonisation of phytosanitary measures is Action A7 iii in the *ASEAN Economic*

[15] *Guidelines for the establishment and application of emergency actions and emergency measures*. APPPC Regional Standards for Phytosanitary Measures 5. *Guidelines for protection against South American leaf blight of rubber*. Regional Standards for Phytosanitary Measures 7.

[16] *Requirements for the establishment of pest free areas*, ISPM No. 4 (1995); *Determination of pest status in an area*, ISPM 8 (1998); *Guidelines for pest eradication programmes*, ISPM No 9 (1998); *Requirements for the establishment of pest free places of production sites*, ISPM No. 10 (1999); *Guidelines on lists of regulated pests*, ISPM No. 19; *Requirements for the establishment of areas of low pest prevalence*, ISPM No. 22 (2005); *Establishment of pest free areas for fruit flies (Tephritidae)*, ISPM No. 26; *Recognition of pest free areas and areas of low pest prevalence*, ISPM No. 29 (2007); *Establishment of areas of low pest prevalence for fruit flies (Tephritidae)*, ISPM No. 30 (2008).

Community Blueprint (2008). The project also responds to SPS needs analyses undertaken in Cambodia and Lao PDR by the Asian Development Bank complements and extends SPS strengthening projects in Cambodia and Lao PDR. The project also supports collaborative surveillance between Australia and Papua New Guinea under the terms of a long-standing Memorandum of Understanding.

4. Past, ongoing or planned programmes and projects

The *p-tracker* and SIMS technologies have been used in Timor Leste, Papua New Guinea and the Solomon Islands as part of joint pest surveillance and development programs involving Australia and the NPPOs of these countries. The system has proved to be robust, practical and customisable in developing countries.

The project builds upon a series of donor-supported and national programmes in the Asia-Pacific region.

Asia-Pacific regional projects: The DFAT-funded Sanitary and Phytosanitary Capacity Building Program (SPS CBP) and ASEAN Australia Development Cooperation Program (AADCP) Plant Health Project both supported workshops on plant pest information management. Standards and strategies for sharing pest records were developed but neither the SPS CBP nor the AADCP Project had the scope or resources to drive implementation of these standards or strategies. The ASEAN Regional Network Project supported by the ASEAN-Australia-New Zealand Free Trade Agreement Economic Cooperation Work Program (AANZFTA ECWP) is supporting development of diagnostic capabilities and incidentally creating digital records, but does not address information systems *per se*. A recent NZAID project deployed phytosanitary databases in Cambodia, Lao PDR, Myanmar and Vietnam and these have recently been upgraded; however, the pest-record components of these databases have been discontinued. The ASEAN Experts Working Group for the Harmonisation of Phytosanitary Measures oversees an ongoing project to compile pest lists for an agreed set of high priority crops and commodities and uses these lists to develop harmonised phytosanitary measures for the ASEAN region. Essentially, this project relies on countries manually providing pest lists to the NPPO of the country identified as the lead for a particular crop or commodity. It would be significant advantage if the project were supported by an on-line database which could be viewed and updated by NPPOs of each ASEAN country.

The Pacific Islands Pest List Database (PIPLD) was a collaborative enterprise managed by country administrators in a set of Pacific Island nations and the South Pacific Community (SPC). The database stores records of pests known to affect agriculture, forestry and the environment in Pacific island countries and territories, and provided a model for making pest information available on a regional basis. While the PIPLD system proved practical, inexpensive and durable for over a decade, it has always had limited functionality. In recent years it has become increasingly difficult to maintain the currency of the data for all countries.

Asia-Pacific national projects: DFAT-funded projects have deployed Biolink[17] and MS Access databases to NPPOs in Thailand and the Philippines. Recent ACIAR projects have promoted use of databases associated with PaDIL[18]. Indonesia has a national database for biodiversity records and recently developed a national strategy for aggregating pest data. DFAT has assisted the development in Vietnam of skills for performing surveillance for forest

[17] http://code.google.com/p/biolink/wiki/BioLink
[18] http://www.padil.gov.au/

pests and for managing the data deriving from forest surveillance. DFAT Public Sector Linkages Program activities in Indonesia, Thailand and the Philippines have included projects to develop skills in designing and performing surveillance. Numerous agencies maintain MS Excel systems for primary records. In general, these systems are not integrated on a national basis. The Asian Development Bank will provide funding for targeted surveillance in Lao PDR and Cambodia over coming years, but little consideration has been given to the systematic and long-term management of data resulting from this surveillance initiatives.

Australia has invested in the development of the Australian Plant Pest Database[19], BioSIRT standards and systems[20] and in the Atlas of Living Australia[21]. The Plant Biosecurity Cooperative Research Centre has developed personal digital assistant (PDA) and smartphone applications for collection of field survey data and for providing diagnostic support, and systems for coordinating these with laboratory systems[22]. The Australia-based PaDIL has grown from an image library to a multifunction system supporting images, a diagnostic work flow and various biosecurity functions.

In summary, in the Asia-Pacific region there are numerous information management systems either currently used for pest information or fit for this purpose. On the other hand, there are very few examples of successful integration of these systems at the national or regional level. The IPPC has recently facilitated a global review of constraints to pest surveillance and this review has underlined the need for robust information management systems for surveillance data. At the same time, several new technologies, including smartphone applications, have emerged. It is timely to demonstrate how these technologies can be integrated with existing systems in novel, practicable ways to address the needs of pest surveillance and pest reporting.

Global initiatives: The Global Biodiversity Information Facility (GBIF)[23], based in Denmark and funded by a global consortium, has established or adopted standards, applications and systems to aggregate primary records of organisms from databases throughout the world. GBIF also has systems to check names against nomenclatural databases and perform various routines to enhance data quality. Few developing countries contribute records to GBIF, although most have reference collections and many have digitised at least some records. GBIF provides technological options for making primary pest data more widely available, but, thus far, these options have not been preferred by NPPOs in the Asia-Pacific region.

CAB International scans published pest records and other sources, and compiles pest information into a series of global compendia. These compendia are widely used and are of immense value. However, it is widely acknowledged that the veracity of some records is questionable and that the pest information for many countries is far from complete. There are many other global compilations which include pest information. Some have an “all-taxon” scope (e.g. the Encyclopaedia of Life[24]). Others are restricted to a particular taxonomic group (e.g. Scalenet[25]). Few of these secondary sources have formal endorsement by an NPPO. In principle, there is nothing to prevent NPPOs working more closely with the compilers of these secondary resources to create more comprehensive and reliable pest

[19] http://www.planthealthaustralia.com.au/go/phau/capacity-and-capability/information-support-systems/appd
[20] http://www.daff.gov.au/animal-plant-health/emergency/biosirt
[21] http://www.ala.org.au/
[22] http://legacy.crcplantbiosecurity.com.au/project/crc30014-pda-assisted-surveillance
[23] GBIF, http://www.gbif.org/
[24] http://eol.org/
[25] http://www.sel.barc.usda.gov/scalenet/scalenet.htm

information. However, for the present, lack of resources within NPPOs and genuine gaps in available pest information, together have curtailed this kind of collaboration.

The project will promote use of the existing manual, *Guidelines for surveillance for plant pests in Asia and the Pacific* (ACIAR, 2005) in the detailed design of surveillance activities. There may be opportunities to assist the compilation of several of manuals proposed by the APPPC and at least in part resourced by the STDF[26]. For example, drafts of the manuals could be 'ground-tested' by the proposed surveillance activities. The activities could provide important case histories to add practical, recent experience to these global manuals.

5. Public-public or public-private cooperation

The detection survey for South American Leaf Blight (SALB) will be implemented in cooperation with rubber plantation owners. This is a highly desirable cooperation, since it will enable the NPPOs to increase awareness within the private sector of the risks associated with importing, potentially infected planting material from South America. Commercial considerations encourage importation of planting material and illegal importation (which is difficult to prevent completely) must be discouraged.

The surveys for pests of aquatic plants would be undertaken in collaboration with exporters. They would be motivated to participate in the surveys since this provides the prospect of their gaining predictable access to lucrative, European markets.

The survey for parthenium weed would also involve public sector – private sector collaboration. It is anticipated that private sector, scientific teams would perform at least some of the surveys.

6. Ownership and stakeholder commitment

NPPOs of the following countries will implement surveillance activities, Manage pest information and report: Cambodia, Lao PDR, Malaysia, Papua New Guinea, the Philippines, Thailand and Vietnam.

Each NPPO will develop collaborative arrangements with universities, provincial offices and the private sector (farmers, plantation owners, nursery owners etc.). For example, in Lao the Department of Agriculture will collaborate with provincial, agriculture stations, farmers and the National University of Laos to perform surveillance and collate pest records. In Malaysia, the Department of Agriculture will collaborate with owners of ornamental foliage and aquatic plant nurseries, fruits orchards and rubber plantations to undertake surveillance activities.

II. PROJECT GOAL, OBJECTIVE, OUTPUTS & ACTIVITIES (LOGICAL FRAMEWORK)

7. Project Goal / Impact

The project goal is:

[26] http://www.apppc.org/node/2185793

Reduced likelihood that outbreaks of new pests spread to neighbouring countries and trading partners through commerce

8. Target Beneficiaries

In general the ultimate beneficiaries would be farmers, including both small holders and plantation owners, with interests in internationally traded commodities. Transportation firms and exporters would also benefit. Members of the private sector with interests in the crops and commodities targeted by the demonstration project would be the first to benefit. Women are well represented in these sectors, especially in farming and local sales.

9. Project objective, outputs and activities (including logical framework and work plan)

The project logical framework is given as Annex 1 and is summarised in Figure 1 below.

The immediate objective of this project is:

A regionally harmonised, pest information framework developed, demonstrated and adopted

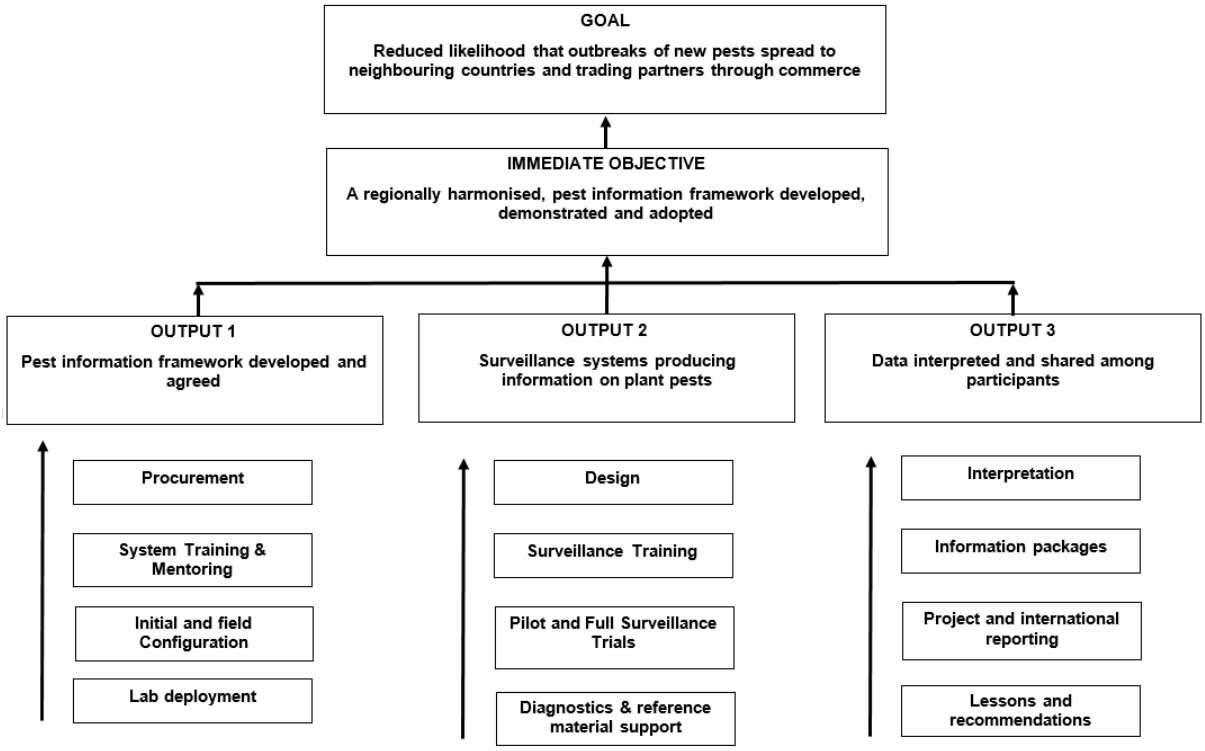
Participating organisations will adopt and utilise a pest information management system and processes consistent with a regional, pest information framework and relevant international phytosanitary standards. The project will demonstrate the use of standardised protocols for digitising pest records via mobile devices; performing surveillance for a diversity of pests and cropping systems; and reporting on pest status to the IPPC or APPPC.

The project is designed around the attainment of three Outputs which can be summarised from a logical perspective in the following:

IF a regionally harmonised pest information framework can be developed and agreed and staff trained in its use (Output 1); and IF surveillance trials can be designed and implemented accordingly to best practice and with support for local surveillance and diagnostic capacity (Output 2); and IF NPPOs can be supported and encouraged to interpret, publicise and report pest information (Output 3); THEN the pest information framework will have been demonstrated and adopted.

Output 1: Pest information framework developed and agreed: Implementing the pest information management system will involve procuring mobile devices and licenses for the *p-tracker* app and SIMS; a multi-country workshop to provide training in use of *p-tracker* for record acquisition, data transfer, SIMS, IPPC/APPPC reporting (using a train-the-trainer approach); configuration of mobile devices and SIMS to suit specific surveillance activities; deployment of SIMS in NPPO laboratories by participants in the training workshop (with the assistance of NPPO IT systems managers); remote mentoring in the use of *p-tracker* and SIMS by the Australian Department of Agriculture; and in-country mentoring by Department of Agriculture specialists and by participants in the training workshop. The effectiveness of the train-the-trainer approach will be assessed by international experts who participate in the country planning and training workshops. The experts will be in a position to take remedial action if required.

Figure 1: Project logic



Output 2: Surveillance systems producing information on plant pests: A series of surveillance trial activities, as shown in table 1 below, will be implemented to demonstrate best practice in surveillance and management of pest information. Each activity will include an in-country design workshop (with technical assistance from the project management team); a pilot study; surveillance over two years; laboratory-based diagnostics; and preservation of reference material. One activity will include training for *Plantwise* officers in the use of *p-tracker* and data transfer; customising *p-tracker* and SIMS for *Plantwise* activities; digitising of pest records during *Plantwise* clinics; and transfer of records obtained from *Plantwise* clinics to NPPO databases. The list of activities in Table 1 is indicative and subject to successful development of detailed activity plans and co-funding arrangements with implementing agencies. Budgets for these field activities are given in Appendix 3a.

Table 1: Surveillance trial activities by country

Countries	**Field surveillance activities**
Cambodia	Banana
Cambodia	Cashew
Lao PDR	Banana
Lao PDR	Water melon
Malaysia	Pests of aquatic plants
Malaysia	Parthenium weed
Malaysia, Indonesia, Thailand	SALB
PNG	Banana phytoplasma & coffee berry borer

Countries	Field surveillance activities
Philippines	Coffee in Central Luzon
Philippines	Cacao in Central Mindanao
Thailand	Seed potatoes
Thailand	*Frankliniella occidentalis*
Vietnam	*Phytophthora litchi* on litchi and longan
Vietnam	*Conopomorpha sinensis* (Lepidoptera: Gracillariidae) on litchi

Output 3: Data interpreted and shared among partners: As result of surveillance activities, a considerable body of data is expected. This will be digitised in standardised format, interpreted according to international standards and incorporating Plantwise records and transferred to NPPO databases. At this stage, resolution of any intellectual property issues surrounding records may be required. NPPOs will be encouraged to develop information packages based on their results, which will be disseminated to in-country stakeholders. They will be assisted to report and share their results among project participants and more widely to publish in standardised formats on IPPC and APPPC websites. The project will conclude with an evaluation that will give an opportunity for participants to reflect on what they have learned and to make recommendations for further follow-up work.

Management tasks to support the project are covered in Section 14.

The project logical framework and its associated work plan are attached as Appendices 1 and 2 respectively. Terms of reference for technical experts required to implement the project are set out in Appendix 7.

10. Risks

Risks to the overall goal and purpose of the project will include:

Pest records may not be interpreted in the same way by trading partners (resulting in the proposal of inappropriate risk mitigation methods) and international commerce may take place through unregulated pathways.

Both can be managed by including a package of SPS awareness, risk mitigation and record interpretation material in planning workshops.

The time frame for the project may not be adequate to obtain scientifically robust, reportable pest data.
This risk has been managed by selecting activities for which effective surveillance methods are available.

Risks to the implementation of the proposed information management framework will include:

In-house IT architectures may be incompatible with SIMS, may not provide adequate connectivity or may offer poor security; there may be insufficient support from local IT systems managers.

These risks will be managed by adhering strictly to a MS Access database within SIMS. This database can be deployed and managed on stand-alone computers if networking becomes problematic. Senior NPPO managers will comprise the project's Steering Committee to ensure organisational support for the activities.

The operating systems of mobile devices and in-house computers may not continue to support the p-tracker app or SIMS.
This is a low risk, largely beyond the control of the project.

Risks to the implementation of surveillance activities will include:

Matching, national resources identified in the project proposal are not provided by the participating NPPOs. Crops and pests targeted by the project cease to be national priorities.
This has been managed by selecting activities which target high value commodities already proposed by NPPOs as an outcome of national priority setting.

Inappropriate officers may be trained or essential expertise may not be retained (e.g. lost through promotion or redeployment).
Trainees will be selected on the basis of CVs and questionnaires. Loss of skilled staff is largely beyond the control of the project. However, training will be provided to multiple individuals from each country to mitigate the risk.

Taxonomic definitions of pest species enable consistent identifications.
It is largely beyond the scope of the project to manage the risk posed by poor underlying concepts; however, problematic groups of pests will be avoided through judicious choice of surveillance activities. Diagnostic requirements will be a key topic in planning workshops. The ASEAN Regional Diagnostic Network will be used to obtain access to specialist, diagnostic expertise.

Pilot activities in each country may indicate that the design of a particular activity is inappropriate or that the surveillance is not feasible.
NPPOs will be allowed to redesign activities (within budget constraints) or propose alternative activities (preferably from the list of activities proposed initially).

Risks to the interpretation and sharing of information will include:

Participating organisations may not be prepared to share information, including access to surveillance records.
This risk will be managed by making payments for surveillance costs contingent on countries sharing records to the extent required to implement the project.

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Risks to project management will include:

Business systems of participating organisations (e.g. financial management and governance) may not enable efficient, transparent transfer and utilisation of project funds.
The project may consider using an appropriate, intermediary organisation to manage financial transfers (e.g. ASEANET).

Senior managers and technical advisors have insufficient time to serve on Steering Committee or Technical Advisory Committee.

Each nominee for these committees should propose an alternate.

Reporting by participating NPPOs may not be comprehensive or timely.
Payment of full project costs to NPPOs will be subject to satisfactory reporting.

11. Sustainability

This project has been incorporated in the APPPC's Work Plan proposed for 2016–17. This Work Plan will be ratified at the 29th Session of the APPPC (September, 2015; Bali, Indonesia)[27]. The Project also complements the APPPC's initiatives to expand the use of smartphone-based apps in surveillance and SIMS.

One of the key features of this project is that it takes a sequenced approach to system development, surveillance implementation and information sharing. A two and half year implementation period should see considerable experience and expertise being attained by NPPOs. Opportunities for participant organisations to reflect on what they have learned and to plan for follow-up in the future will help to ensure sustainability.

All participating agencies are government departments (NPPOs) or non-government organisations of more than 20 years standing. All countries are signatories to the International Plant Protection Convention, which imposes formal reporting obligations on countries. All surveillance activities have been proposed by countries as meeting national quarantine or market access priorities. In-country planning workshops will be encouraged to identify incentives to surveillance and reporting specific to each surveillance activity and country. The digitising app to be provided by the project is widely compatible with smartphone operating systems. The in-house surveillance database to be provided by the project has been created using MS Access and as such is customisable and can be updated without specialist expertise.

III. BUDGET

12. Estimated budget

The project budget is attached as Appendix 3 and is summarised in table 2. The project will be implemented between 1 December 2016 and 31 December 2019. Detailed budgets for field surveillance activities are shown as Appendix 3a.

Table 2: Summary of the Project Budget

OUTPUTS	Total	STDF	In-kind DAWR	In-kind NPPOs *	TOTAL IN KIND
OUTPUT 1 FRAMEWORK	338185	163885	137900	36400	174300
OUTPUT 2 SURVEILLANCE	1036180	601620	16000	418560	434560
OUTPUT 3 INFORMATION	85590	26790	33600	25200	58800
MANAGEMENT SUPPORT COSTS	245500	205300	17800	22400	40200

[27] *Report of the APPPC Working Group Meeting on the Preparation of APPPC's Work Plan for 2016-2017*. 13-15 May 2015, Bangkok, Thailand.

TOTAL	**1705455**	**997595**	**205300**	**502560**	**707860**

* The total for in-kind contributions by NPPOs includes a modest sum of $5000 for in-kind support from CABI.

13. Cost-effectiveness

The approach promises to streamline the current, *ad hoc* ASEAN Sectoral Working Group on Crops process for exchanging pest lists. The approach proposed in this project utilises free, customisable software (p-tracker app, SIMS); minimal software development; and a train-the-trainer approach to minimise costs of IT training. It dovetails with technical training in pest diagnostics and surveillance techniques provided by two concurrent, capacity building projects[28].

IV. PROJECT IMPLEMENTATION & MANAGEMENT

13. Implementing organization

The Department of Agriculture has been responsible for implementation of SPS Capacity Building Project (funded by DFAT), the AANZFTA ASEAN Regional Diagnostic Network Project, numerous Public Sector Linkages Activities, a major quarantine development project in the Solomon Islands, and a Papua New Guinea Australia Twinning Project.

The Department has successfully reported on these activities variously to the ASEAN Secretariat, DFAT, Australia's Department of Foreign Affairs and Trade, ACIAR, and the ASWGC. The Department has ongoing activities under Memoranda of Understanding with Indonesia, Timor Leste and PNG.

The Department implements activities under terms of Australia's Public Governance, Performance and Accountability (PGPA) Act, with oversight by the Department of Finance and the Australian National Audit Office.

14. Project management

Project management will be organised as follows;

- Australian Department of Agriculture and Water Resources (Project Manager).
- ASEANET assisting in project management and implementation.
- High-level Steering Committee comprising senior officers (e.g. Directors) of participating NPPOs providing strategic oversight and an officer of the IPPC subject to availability of a suitable, senior officer.
- Technical Committee comprising technical specialists responsible for each activity and independent scientific/technical advisors.

Decisions will be made by consensus (i.e. consistent with ASEAN practice).

Management tasks to support the project will include arranging annual meetings of a project Steering Committee which will ensure that activities are consistent with the overall project

[28] *ASEAN Regional Diagnostic Network (ARDN) Project*, funded by the ASEAN-Australia-NEW Zealand Free Trade Agreement Economic Cooperation Work Program (AANZFTA ECWP) and *Support to capacity development in implementation of plant pest surveillance and information management in south-east Asian countries*, GCP/RAS/286/ROK, funded by the Republic of Korea.

goal, project objectives and operating plans. The Steering Committee will comprise senior managers of each participating NPPO and an officer of the IPPC subject to availability of a suitable, senior officer.

A Technical Advisory Committee comprising scientific specialists in relevant disciplines will provide advice on the design of activities and on technical aspects of implementation. The Steering and Technical Advisory Committees will meet jointly in years 1 and 2 of the project.

The Project Manager (the Australian Department of Agriculture) will develop operating plans and budgets, incorporating input from Steering and Technical Advisory Committees; develop financial and reporting arrangements with implementing organisations and specialist advisors; source specialist expertise as required; oversee procurement; coordinate the project with related initiatives; monitoring implementation of surveillance activities; report at six-monthly intervals to the STDF; and make arrangements for evaluation of project outcomes and achievements.

V. REPORTING, MONITORING & EVALUATION

15. Project reporting

Six monthly reports to the STDF will be based on indicators specified in Appendix 1 and will include information on training activities delivered (scope, program, location, attendees, training materials), deployment of information management systems, surveillance undertaken (crops, locations, dates, numbers of samples), changes to pest status a result of surveillance, etc.

16. Monitoring and evaluation, including performance indicators

The compiling and presentation of key monitoring and evaluation information will be a six-monthly task of project management. This information will be provided routinely to STDF along with six monthly reports. All NPPOs will contribute to monitoring through their own reports to project management. They will be encouraged to utilise indicators as per the logical framework in Appendix 1.

Key information on progress as measured through project indicators in Appendix 1 will be provided to the two meetings of the Project Steering Committee and as appropriate to the Technical Advisory Committee. The monitoring and evaluation framework will form a basis for project evaluation at the conclusion of activities.

The Project Manager will organise an independent, end-of-project assessment based on the project logframe and indicators identified in Appendix 1. This assessment will be included in the final report of the project submitted by the Project Manager.

17. Dissemination of the projects results

Project results will be disseminated within participating countries by NPPOs and regionally through the ASWGC and APPPC. Globally, project outcomes will be disseminated through IPPC mechanisms.

ATTACHMENTS

Appendix 1: Logical framework (see attached template)

Appendix 2: Work Plan (see attached template)

Appendix 3: Project Budget (see attached template)

Appendix 3a: Detailed budgets for field surveillance activities

Appendix 4: Letters of support from organizations that support the project request

Appendix 5: Written consent from an STDF partner that agrees to implement the project ***OR*** evidence of the technical and professional capacity of another organization proposed to implement the project.

Appendix 6: Terms of Reference for key staff involved in project implementation

Appendix 7: Key specialist expertise

Appendix 8: Acronyms

APPENDIX 1: Logical Framework

	Project description	Measurable indicators / targets	Sources of verification	Assumptions and risks
GOAL	Increase in export performance and market access of plant products originating from beneficiary countries.	A 10% increase in exports of key plant products from the countries within five years from project completion. A 25% decrease in time taken for market access negotiations between NPPO's after five years from project completion. A 20% Reduction in non-compliance notifications relating to pest detections from exports originating from beneficiary countries.	National export statistics of the eight countries participating in the project. Notices of noncompliance by importing countries based on records of NPPOs of countries participating in project. Published records of pest outbreaks (e.g. CABI Crop Compendium, IPPC website). Unpublished records (e.g. Pestnet.	Pest records are interpreted in same way by trading partners and appropriate risk mitigation methods are proposed. International commerce takes place through regulated pathways.
IMMEDIATE OBJECTIVE	A regionally harmonised, pest information framework developed, demonstrated and adopted.	The number and timeliness of reports on pest status and outbreaks to the IPPC, APPPC compared to reporting during preceding years (e.g. 2014 – 15).	APPPC, IPPC websites Published records of pest outbreaks (e.g. CABI Crop Compendium, IPPC website). Unpublished records (e.g. Pestnet).	That countries will adopt the system. Time frame for project may be insufficient to obtain scientifically robust pest data.
Output 1 FRAMEWORK	Pest information framework developed and agreed.	A robust information management system (with input and output abilities) is deployed in the eight participating countries. Participant systems operating in line with accepted standards.	Workshop records Electronic reports on the implementation of the system in beneficiary countries. Comparison with ISPM 6 and 8	No major risks or assumptions for this output.
Activity 1.1 Procurement	Procurement of mobile devices and p-tracker app and SIMS software.	Mobile devices, copies of SIMS and licences procured for each participating organisation.	Procurement records of Project Manager.	Operating systems of mobile devices and in-house computers continue to support *p-tracker* app and SIMS.
Activity 1.2 Information management workshop & follow-up mentoring	Training for trainers and ongoing mentoring (remote and during visits) for technical staff in use of mobile devices and in use of *p-tracker* for record acquisition, data transfer, SIMS, IPPC/APPPC reporting.	Number of technical officers from participating organisations trained as trainers and meeting proficiency standards. At least one officer from each	Report on training workshop by lead trainer. Post training testing. Post-training reports by participating organisations and	Appropriate technical officers nominated for training are retained by participating organisations in role supporting surveillance.

	Project description	Measurable indicators / targets	Sources of verification	Assumptions and risks
		organisation proficient. Proficiency in these functions within NPPOs and capacity to generate reports. Numbers of officers trained by their trainers. System functional (acquiring records, searchable) in each participating organisation.	trainers to Project Manager.	
Activity 1.3 Configuration of mobile devices and SIMS	Initial and field configuration of mobile devices and SIMS to suit specific surveillance activities.	Mobile devices and Plant Health Surveillance Database configured to meet requirements of each surveillance activity.	Reports by participating organisations to Project Manager.	
Activity 1.4 Deployment of in-house pest information management systems	Deployment of SIMS in NPPO laboratories by participants with assistance of NPPO systems managers.	SIMS (or equivalent system) deployed in each participating organisation.	Reports by participating organisations to Project Manager.	In-house architecture compatible with SIMS. Local systems managers available to assist deployment and maintenance of SIMS.
Output 2 SURVEILLANCE	Surveillance systems producing information on plant pests.	Field surveillance activities (including surveillance of 10 key commodities and 2 target pests) implemented according to agreed, prioritised operational plans. Implementation of operational plans indicated by the number of districts or locations surveyed, number of records obtained, number of reference specimens or samples preserved, etc.	Reports to Project Manager showing records of surveillance. Reference specimens/ samples preserved (voucher specimens). Comparison of results with APPPC, IPPC, CABI records. Comparison against ISPM 6	Continued support for capacity development in diagnostics under the ASEAN Regional Network Project (AANZFTA ECWP). Taxonomic definitions of pest species enable consistent identifications.
Activity 2.1 Surveillance design	In-country planning workshops for producing operational plans for individual surveillance activities by participating organisations	Operational plans finalised. Target crops identified. Approaches for surveillance trials established. Roles and responsibilities in surveillance	Reports to Project Manager, including details of design and implementation. Comparison with international best practice (e.g. *Guidelines*	

	Project description	Measurable indicators / targets	Sources of verification	Assumptions and risks
		identified. Locations for pilot and full surveillance trails identified. Existing information on pests for chosen crops collated. Diagnostic resources identified. Design consistent with international, best practice \.	*for surveillance for plant pests in Asia and the Pacific* ACIAR, 2005).	
Activity 2.2 Surveillance training	Training workshops on surveillance methodology and diagnostics.	Number of technical officers (including Plantwise officers) from participating organisations trained and meeting proficiency standards for surveillance methodology and diagnostics.	Report on training workshop by lead trainer. Post training testing. Post-training reports by participating organisations and trainers to Project Manager.	
Activity 2.3 Field surveillance	Pilot and full field surveillance activities undertaken according to operational plans and incorporating surveillance resulting from Plantwise clinics.	Surveillance performed consistent with operational plans (e.g. trips undertaken as specified). Number of locations surveyed and records obtained. Number of reference specimens preserved. Surveillance undertaken in accordance with ISPM 6. Surveillance incorporating Plantwise activities.	Reports to Project Manager, including details of surveillance undertaken (location, dates, crops, number of samples etc). Comparison with ISPM 6 Plantwise records	Pilot activities in each country confirm that design is appropriate and feasible. Matching resources identified in the project proposal not provided by participating NPPOs.
Activity 2.4 Diagnostics and reference material support	Confirmatory diagnostic support by regional specialists and reference material preserved with support provided.	Field and laboratory consumables available. Number of specimens, samples and species identified using regional specialists. Number of voucher specimens or samples preserved according to international standards (see Upton *et al*. 2010 *Methods for Collecting, Preserving and Studying*	Procurement records of Project Manager. Records of ASEAN Regional Diagnostic Network clearing House. Reports from participating NPPOs to Project Manager. Reports to project manager. Evaluation visit confirms quality of preserved, voucher material	Pests and diseases detected can be identified using currently available technical literature

	Project description	Measurable indicators / targets	Sources of verification	Assumptions and risks
		Insects ...; Shivas 2005 *Management of Plant Pathogen Collections*).	and identifications.	
Output 3 INFORMATION	Data interpreted and shared among participants	Data digitised in standardized format and shared according to international standards. Number of entries made by each participating NPPO to international information systems.	Reports to project manager on information results. Workshop records International database entries for APPPC, IPPC Other published records Comparison against IPSM 8	Participating organisations are prepared to share information.
Activity 3.1 Data interpretation	Data digitised in standardised format, interpreted according to international standards and cross-referencing with Plantwise records	Number of surveillance records with standardised data elements digitised in in-house information systems. Pest status in surveyed areas determined in accordance with ISPM 8. Plantwise records incorporated into NPPO systems.	Reports by implementing organisations and contracted experts. Site visits by Project Manager and/or independent experts. Comparison with ISPM 8 Reference to Plantwise records	Participating organisations provide access to surveillance records.
Activity 3.2 Information packages	Information on project goal, purpose and activities provided as required, including assisting implementing organisations to develop and deliver in-country information packages.	Organisations not initially resourced to implement the project and other stakeholders assist with implementation of surveillance.	Information packages for in-country use	
Activity 3.3 Reporting	Pest reports from participating organisations to Project Manager, in-country stakeholders and international pest databases.	Pest reports provided to Project Manager and in-country stakeholders in a timely manner. Pest reports, including information on regulated pests, provided by participating NPPOs to IPPC and APPPC.	Pest reports provided to Project Manager. Pest reports provided to in-country stakeholders. Pest reports published on IPPC and APPPC websites.	
Activity 3.4 Follow-up	Project activities evaluated and recommendations made for follow-up.	Evaluation conducted with collaboration from all	Evaluation workshop records.	

	Project description	**Measurable indicators / targets**	**Sources of verification**	**Assumptions and risks**
		participating organisations. Lessons from project implementation documented. Recommendations formulated and distributed.	Formal recommendations published.	

APPENDIX 2: Work Plan

Activity	Responsibility	Year 1 (2016)	Year 2 (2017)				Year 3 (2018)				Year 4 (2019)			
		Q4 (1 Dec)	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Output 1. Framework														
Activity 1.1. Procurement	Project Manager													
Activity 1.2 Training & Mentoring – Information Management Workshop	Project Manager													
Activity 1.3. Configuration of mobile devices and SIMS	Project Manager													
Activity 1.4. Deployment of in-house information management systems	Participating NPPOs													
Output 2. Surveillance														
Activity 2.1. Surveillance design	Project Manager													
Activity 2.2. Surveillance Training	Project Manager													
Activity 2.3. Field Surveillance	Participating NPPOs													
Activity 2.4. Diagnostics and reference material support	Project Manager													
Output 3. Information														
Activity 3.1, Data interpretation	Participating NPPOs													
Activity 3.2. Information packages	Project Manager													
Activity 3.3. Reporting project, local stakeholders & international	Participating NPPOs													
Activity 3.4. Follow-up, evaluation and recommendations	Project Manager													
Management support														

Activity	Responsibility	Year 1 (2016)	Year 2 (2017)				Year 3 (2018)				Year 4 (2019)			
		Q4 (1 Dec)	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Steering and Technical Advisory Committees	Chair, Steering Committee, in consultation with Project Manager													
Operating plans and budget	Project Manager													
Project delivery and financial management	Project Manager													
Project monitoring	Project Manager													
Reporting to STDF	Project Manager													
Project evaluation	Project Manager (independent Reviewer)													
Project Communication	Project Manager													

APPENDIX 3: Budget (US$)

The following table shows the budget on the basis of outputs identified in the logframe and the activities needed to achieve these outputs.

Item (All costs in US$)	No	Unit Cost	Total	STDF	In-kind DAWR	In-kind NPPOs	Total In-kind
OUTPUT 1 FRAMEWORK							
Activity 1.1 Procurement							
Mobile devices	21	600	12600	12600			
Cases for mobile devices	7	150	1050	1050			
p-tracker licenses	7	400	2800	2800			
MS Access licenses	7	300	2100	2100			
Google Earth Pro licenses	7	800	5600	5600			
Laptop computers	7	1000	7000	7000			
Days procurement support	10	800	8000		8000		
			39150	**31150**	**8000**	**0**	**8000**
Activity 1.2 Information management training and mentoring							
a) Training							
Days workshop logistical coordination	30	500	15000	15000			
Airfares trainers & participants	1	47800	47800	47800			
Accommodation trainers & participants	1	31395	31395	31395			
Workshop costs (venue, equipment hire, course materials, catering)	1	11750	11750	11750			
Days technical contributions training (DAWR Australia)	66	800	52800		52800		
Days administrative support (DAWR Australia)	15	500	7500		7500		
Salaries participants	1	29400	29400			29400	
b) Mentoring from Australia							
Days mentoring from Australia over 2 years	40	800	32000		32000		
c) In-country mentoring							
Airfares	3	6000	18000	18000			
Travel allowance & accommodation	42	195	8190	8190			
Local transportation	3	200	600	600			
Days mentoring in country (DAWR Australia)	42	800	33600		33600		
			288035	**132735**	**125900**	**29400**	**155300**
Activity 1.3 Configuration of mobile devices and SIMS							
Days contributed by DAWR Australia	5	800	4000		4000		
			4000	**0**	**4000**	**0**	**4000**
Activity 1.4 Deployment of in-house pest information management systems							
Days contributed by NPPOs 5 days by 7 NPPOs	35	200	7000				

Item (All costs in US$)	No	Unit Cost	Total	STDF	In-kind DAWR	In-kind NPPOs	Total In-kind
			7000	**0**	**0**	**7000**	**7000**
Total Output 1			**338185**	**163885**	**137900**	**36400**	**174300**
OUTPUT 2 SURVEILLANCE							
Activity 2.1 Surveillance design							
Mentoring visits Airfares travel allowance & accommodation per visit	4	7500	30000	30000			
Days technical assistance, workshop facilitation and preparation, DAWR Australia	20	800	16000		16000		
			46000	**30000**	**16000**	**0**	**16000**
Activity 2.2 Surveillance training							
Days contributed by NPPOs 18 days by 6 NPPOs	108	30	3240			3240	
			3240	**0**	**0**	**3240**	**3240**
Activity 2.3 Field surveillance							
Cambodia: bananas	1	84200	84200	29200		55000	
Cambodia: cashews	1	84200	84200	29200		55000	
Lao PDR: banana	1	52400	52400	44000		8400	
Lao PDR: water melons	1	66120	66120	59400		6720	
Malaysia: pests of aquatic plants	1	91000	91000	58000		33000	
Malaysia: parthenium weed	1	44000	44000	27500		16500	
Malaysia, Indonesia, Thailand: SALB	1	47500	47500	31000		16500	
PNG: banana phytoplasma and coffee berry borer	1	95960	95960	39120		56840	
Philippines: coffee in central Luzon	1	74780	74780	33300		41480	
Philippines: cacao in central Mindanao	1	74780	74780	33300		41480	
Thailand: seed potatoes	1	91400	91400	53400		38000	
Thailand: Frankliniella occidentalis	1	67600	67600	43600		24000	
Vietnam: Phytophthora litchi on litchi and longan	1	31500	31500	22800		8700	
Vietnam: Conopomorpha sinensis (Lepidoptera: Gracillariidae) on litchi	1	31500	31500	22800		8700	
CABI Plantwise (CABI In kind contribution)	1	5000	5000			5000	
			941940	**526620**	**0**	**415320**	**415320**
Activity 2.4 Diagnostics and reference material support							
Diagnostic support	1	45000	45000	45000			
			45000	**45000**	**0**	**0**	**0**
Total Output 2			**1036180**	**601620**	**16000**	**418560**	**434560**
OUTPUT 3 INFORMATION							
Activity 3.1 Data interpretation							
Days for data interpretation 60 days by 6 countries	360	30	10800			10800	
			10800	**0**	**0**	**10800**	**10800**
Activity 3.2 Information packages							

Item (All costs in US$)	No	Unit Cost	Total	STDF	In-kind DAWR	In-kind NPPOs	Total In-kind
Days for working on information packages 40 days by 6 countries	240	30	7200			7200	
			7200	**0**	**0**	**7200**	**7200**
Activity 3.3 Reporting							
Days for reporting 40 days by 6 countries	240	30	7200			7200	
			7200	**0**	**0**	**7200**	**7200**
Activity 3.4 Independent evaluation							
Consultancy fee	1	26790	26790	26790			
Days assistance to technical evaluation by DAWR Australia	42	800	33600		33600		
			60390	**26790**	**33600**	**0**	**33600**
Total Output 3			**85590**	**26790**	**33600**	**25200**	**58800**
Total Outputs 1 to 3			**1459955**	**792295**	**187500**	**480160**	**667660**
MANAGEMENT SUPPORT COSTS							
Steering and Technical Advisory Committees (2 events)							
Days workshop logistical coordination	12	500	6000	6000			
Days technical contributions DAWR Australia	16	800	12800		12800		
Days administrative support	12	500	6000	6000			
Travel costs airfares	2	34000	68000	68000			
Accommodation and allowances	2	11150	22300	22300			
Salaries participants	2	11200	22400			22400	
Workshop costs (venue, equipment hire, course materials, catering)	2	1500	3000	3000			
			140500	**105300**	**12800**	**22400**	**35200**
Overhead costs							
Days support for operating plans & budget	25	800	20000	20000			
Days support for project delivery and financial management	50	800	40000	40000			
Days support for project monitoring	25	800	20000	20000			
Days support for project reporting	25	800	20000	20000			
Communication	1	5000	5000		5000		
			105000	**100000**	**5000**	**0**	**5000**
Total management support costs			**245500**	**205300**	**17800**	**22400**	**40200**
TOTAL PROJECT COSTS			**1705455**	**997595**	**205300**	**502560**	**707860**

APPENDIX 3a: Detailed budgets for field surveillance activities (US$)

Item (All costs in US$)	No	Unit Cost	Total	STDF	In-kind DAWR	In-kind NPPOs	Total In-kind
Activity 2.3 Field surveillance							
Cambodia: bananas							
- Field collection (person days)	280	55	15400	0	0	15400	15400
- Laboratory work (person days)	720	55	39600	0	0	39600	39600
- Accommodation, meal and incidentals	280	40	11200	11200	0	0	0
- Vehicle hire (per day)	70	150	10500	10500	0	0	0
- Fuel costs (per day)	70	50	3500	3500	0	0	0
- Field consumables	1	2000	2000	2000	0	0	0
- Laboratory consumables	1	2000	2000	2000	0	0	0
			84200	**29200**		**55000**	**55000**
Cambodia: Cashews							
- Field collection (person days)	280	55	15400	0	0	15400	15400
- Laboratory work (person days)	720	55	39600	0	0	39600	39600
- Accommodation, meal and incidentals	280	40	11200	11200	0	0	0
- Vehicle hire (per day)	70	150	10500	10500	0	0	0
- Fuel costs (per day)	70	50	3500	3500	0	0	0
- Field consumables	1	2000	2000	2000	0	0	0
- Laboratory consumables	1	2000	2000	2000	0	0	0
			84200	**29200**		**55000**	**55000**
Lao PDR: Banana							
- Field collection (person days)	400	12	4800	0	0	4800	4800
- Laboratory work (person days)	300	12	3600	0	0	3600	3600
- Accommodation, meal and incidentals	400	40	16000	16000	0	0	0
- Vehicle hire (per day)	100	150	15000	15000	0	0	0
- Fuel costs (per day)	100	60	6000	6000	0	0	0
- Field consumables	1	5000	5000	5000	0	0	0
- Laboratory consumables	1	2400	2400	2400	0	0	0
			52400	**44000**	**0**	**8400**	**8400**
Lao PDR: Water melon							
- Field collection (person days)	320	12	3840	0	0	3840	3840
- Laboratory work (person days)	240	12	2880	0	0	2880	2880
- Accommodation, meal and incidentals	320	50	16000	16000	0	0	0
- Vehicle hire (per day)	80	200	16000	16000	0	0	0
- Fuel costs (per day)	80	60	4800	4800	0	0	0
- Field consumables	1	11000	11000	11000	0	0	0
- Laboratory consumables	1	11600	11600	11600	0	0	0
			66120	**59400**	**0**	**6720**	**6720**
Malaysia: pests of aquatic plants							
- Field collection (person days)	300	55	16500	0	0	16500	16500
- Laboratory work (person days)	300	55	16500	0	0	16500	16500
- Accommodation, meal and incidentals	300	130	39000	39000	0	0	0
- Vehicle hire (per day)	60	100	6000	6000	0	0	0
- Fuel costs (per day)	60	50	3000	3000	0	0	0
- Field consumables	1	5000	5000	5000	0	0	0
- Laboratory consumables	1	5000	5000	5000	0	0	0

Item (All costs in US$)	No	Unit Cost	Total	STDF	In-kind DAWR	In-kind NPPOs	Total In-kind
			91000	**58000**	**0**	**33000**	**33000**
Malaysia: parthenium weed							
- Field collection (person days)	150	55	8250	0	0	8250	8250
- Laboratory work (person days)	150	55	8250	0	0	8250	8250
- Accommodation, meal and incidentals	150	130	19500	19500	0	0	0
- Vehicle hire (per day)	30	100	3000	3000	0	0	0
- Fuel costs (per day)	30	50	1500	1500	0	0	0
- Field consumables	1	1500	1500	1500	0	0	0
- Laboratory consumables	1	1500	1500	2000	0	0	0
			44000	**27500**	**0**	**16500**	**16500**
Malaysia, Indonesia, Thailand: SALB							
- Field collection (person days)	150	55	8250	0	0	8250	8250
- Laboratory work (person days)	150	55	8250	0	0	8250	8250
- Accommodation, meal and incidentals	150	130	19500	19500	0	0	0
- Vehicle hire (per day)	30	100	3000	3000	0	0	0
- Fuel costs (per day)	30	50	1500	1500	0	0	0
- Field consumables	1	2000	2000	1500	0	0	0
- Laboratory consumables	1	5000	5000	2000	0	0	0
			44000	**27500**	**0**	**16500**	**16500**
PNG: banana phytoplasma and coffee berry borer							
- Field collection (person days)	280	116	32480	0	0	32480	32480
- Laboratory work (person days)	210	116	24360	0	0	24360	24360
- Accommodation, meal and incidentals	84	180	15120	15120	0	0	0
- Vehicle hire and Fuel costs	2	10000	20000	20000	0	0	0
- Field consumables	1	2000	2000	2000	0	0	0
- Laboratory consumables	1	2000	2000	2000	0	0	0
			95960	**39120**	**0**		**56840**
Philippines: coffee in central Luzon							
- Field collection (person days)	210	68	14280	0	0	14280	14280
- Laboratory work (person days)	400	68	27200	0	0	27200	27200
- Accommodation, meal and incidentals	210	30	6300	6300	0	0	0
- Vehicle hire (per day)	70	250	17500	17500	0	0	0
- Fuel costs (per day)	70	50	3500	3500	0	0	0
- Field consumables	1	3000	3000	3000	0	0	0
- Laboratory consumables	1	3000	3000	3000	0	0	0
			74780	**33300**	**0**	**41480**	**41480**
Philippines: cacao in central Mindanao							
- Field collection (person days)	210	68	14280	0	0	14280	14280
- Laboratory work (person days)	400	68	27200	0	0	27200	27200
- Accommodation, meal and incidentals	210	30	6300	6300	0	0	0
- Vehicle hire (per day)	70	250	17500	17500	0	0	0
- Fuel costs (per day)	70	50	3500	3500	0	0	0
- Field consumables	1	3000	3000	3000	0	0	0
- Laboratory consumables	1	3000	3000	3000	0	0	0
			74780	**33300**	**0**	**41480**	**41480**

Item (All costs in US$)	No	Unit Cost	Total	STDF	In-kind DAWR	In-kind NPPOs	Total In-kind
Thailand: seed potatoes							
- Field collection (person days)	360	50	18000	0	0	18000	18000
- Laboratory work (person days)	400	50	20000	0	0	20000	20000
- Accommodation, meal and incidentals	360	110	39600	39600	0	0	0
- Vehicle hire (per day)	60	100	6000	6000	0	0	0
- Fuel costs (per day)	60	70	4200	4200	0	0	0
- Field consumables	1	1000	1000	1000	0	0	0
- Laboratory consumables	1	2600	2600	2600	0	0	0
			91400	**53400**	**0**	**38000**	**38000**
Thailand: Frankliniella occidentalis							
- Field collection (person days)	240	50	12000	0	0	12000	12000
- Laboratory work (person days)	240	50	12000	0	0	12000	12000
- Accommodation, meal and incidentals	240	110	26400	26400	0	0	0
- Vehicle hire (per day)	60	100	6000	6000	0	0	0
- Fuel costs (per day)	60	70	4200	4200	0	0	0
- Field consumables	1	1000	1000	1000	0	0	0
- Laboratory consumables	1	6000	6000	6000	0	0	0
			67600	**43600**	**0**	**24000**	**24000**
Vietnam: Phytophthora litchi on litchi and longan							
- Field collection (person days)	280	15	4200	0	0	4200	4200
- Laboratory work (person days)	300	15	4500	0	0	4500	4500
- Accommodation, meal and incidentals	280	45	12600	12600	0	0	0
- Vehicle hire (per day)	70	40	2800	2800	0	0	0
- Fuel costs (per day)	70	20	1400	1400	0	0	0
- Field consumables	1	4000	4000	4000	0	0	0
- Laboratory consumables	1	2000	2000	2000	0	0	0
			31500	**22800**	**0**	**8700**	**8700**
Vietnam: Conopomorpha sinensis (Lepidoptera: Gracillariidae) on litchi							
- Field collection (person days)	280	15	4200	0	0	4200	4200
- Laboratory work (person days)	300	15	4500	0	0	4500	4500
- Accommodation, meal and incidentals	280	45	12600	12600	0	0	0
- Vehicle hire (per day)	70	40	2800	2800	0	0	0
- Fuel costs (per day)	70	20	1400	1400	0	0	0
- Field consumables	1	4000	4000	4000	0	0	0
- Laboratory consumables	1	2000	2000	2000	0	0	0
			31500	**22800**	**0**	**8700**	**8700**
CABI Plantwise (CABI In kind contribution)	1	5000	5000			5000	
Total			**941940**	**526620**	**0**	**415320**	**415320**

APPENDIX 4: Letters of support from organizations that support the project request

Provided separately.

APPENDIX 5: Professional capacity of Australian Government Department of Agriculture and Water Resources

The Australian Government Department of Agriculture and Water Resources is the Australian National Plant Protection Organisation. Its responsibilities include:

- Development of national, plant health policy;
- Delivery of national programs relating to pest surveillance, diagnostics and information management;
- Undertaking formal import risk analyses and developing national phytosanitary policies;
- Developing technical market access proposals for Australian agricultural commodities;
- Management of national, plant health emergencies and coordination of national response to incursions by exotic plant pests;
- Management of international capacity building in pest surveillance, diagnostics, information management and risk analysis;
- Management of pre-border pest surveillance in Papua New Guinea, Timor Leste and the Solomon Islands;
- Participation in major international plant health bodies, including IPPC and APPPC.

APPENDIX 6: Terms of reference for key staff involved in project management

Project manager

- Demonstrated experience in design, delivery and reporting for multi-country, plant health related capacity building projects in tropical and sub-tropical regions, including developing countries.
- Demonstrated filed and laboratory experience in entomology, plant pathology, nematology, weed science, surveillance design and/or information management.
- Demonstrated capacity in financial management and accountability.

Steering Committee

- Managerial responsibility for pest surveillance on national or regional scale, including responsibility for activity supported by project
- An employee of the NPPO or nominated by the NPPO as its representative; or an employee of the IPPC Secretariat.
- At least five years experience in plant health or related discipline.

Technical Committee

- At least five years experience in plant health
- Nominated by NPPO to serve on the Technical Committee and to assist with the implementation of the surveillance activity supported by the project
- Technical/scientific skills in entomology, plant pathology, nematology, weed science, information management or surveillance design.

APPENDIX 7: Key specialist expertise

The following specialist expertise will be required for the project. It may be cost effective to source this expertise from within the Australian Government Department of Agriculture and Water Resources.

Experts in pest information management, processes and policy

- Familiarity with p-tracker and SIMS, with capacity to customise these as required.
- Demonstrated ability to provide professional training in ESL situations.
- Capacity to provide remote mentoring in information management.
- Familiarity with relevant international standards, including international phytosanitary standards.
- Understanding of role of SPS issues in global trade.

Pest surveillance experts

- Demonstrated experience in the design and organisation of pest surveillance activities.
- Demonstrated experience in performing pest surveillance in tropical or sub-tropical regions, including in developing countries.
- Demonstrated field and laboratory experience in entomology, plant pathology, nematology or weed science.

Diagnostics

- Demonstrated competency in species-level identification of major groups of plant pests.
- Experience in English as a Second Language situations.
- Experience in dealing with diagnostic challenges in developing countries.
- Access to diagnostic resources such as molecular laboratory, reference collections.
- Good internet access.

APPENDIX 8: Acronyms

Term	Meaning
AADCP	ASEAN Australia Development Cooperation Program
AANZFA ECWP	ASEAN-Australia-New Zealand Free Trade Agreement Economic Cooperation Work Program
ACIAR	Australian Centre for International Agricultural Research
APPPC	Asia & Pacific Plant Protection Commission
ARDN	ASEAN Regional Diagnostic Network
ASEAN	Association of South East Asian Nations
ASEANET	ASEAN Network on Taxonomy
ASWGC	ASEAN Sectoral Working Group on Crops
CSIRO	Commonwealth Scientific & Industrial Research Organisation
DAWR	Department of Agriculture and Water Resources
DFAT	Department of Foreign Affairs and Trade (Australia)
GBIF	Global Biodiversity Information Facility
GDP	Gross domestic product
IPPC	International Plant Protection Convention
IRSS	Implementation Review and Support System
ISPM	International Standards for Phytosanitary Measures
MRL	minimum residue level
MS	Microsoft
NPPO	National Plant Protection Organisation
PHSD	Plant Health Surveillance Database
PIPLD	Pacific Islands Pest List Database
SIMS	Surveillance Information Management System
SPC	South Pacific Community
SPS	Sanitary and Phytosanitary
SPS CBP	Sanitary and Phytosanitary Capacity Building Program
STDF	Standards and Trade Development Facility
WTO	World Trade Organization