Australian Government
Department of Agriculture, Water and the Environment

STDF | STANDARDS and TRADE DEVELOPMENT FACILITY

Promoting IT solutions for surveillance and pest reporting

STDF/PG/432

QRM Quarantine Regulators Meeting
Advancing biosecurity systems through a success-oriented plan

STDF_DAWE/ Ms Carol Quashie-Williams & Ms Roshan Khan

25 June 2021

Introduction

The "*Promoting Information Technology (IT) solutions for surveillance and pest reporting"* project *(aka* Surveillance and Reporting Project*)*

promotes best practice in;

- Surveillance - design, planning and implementation
- Efficient data collection
- Management of surveillance information, and
- Evidence-based reporting on pest status

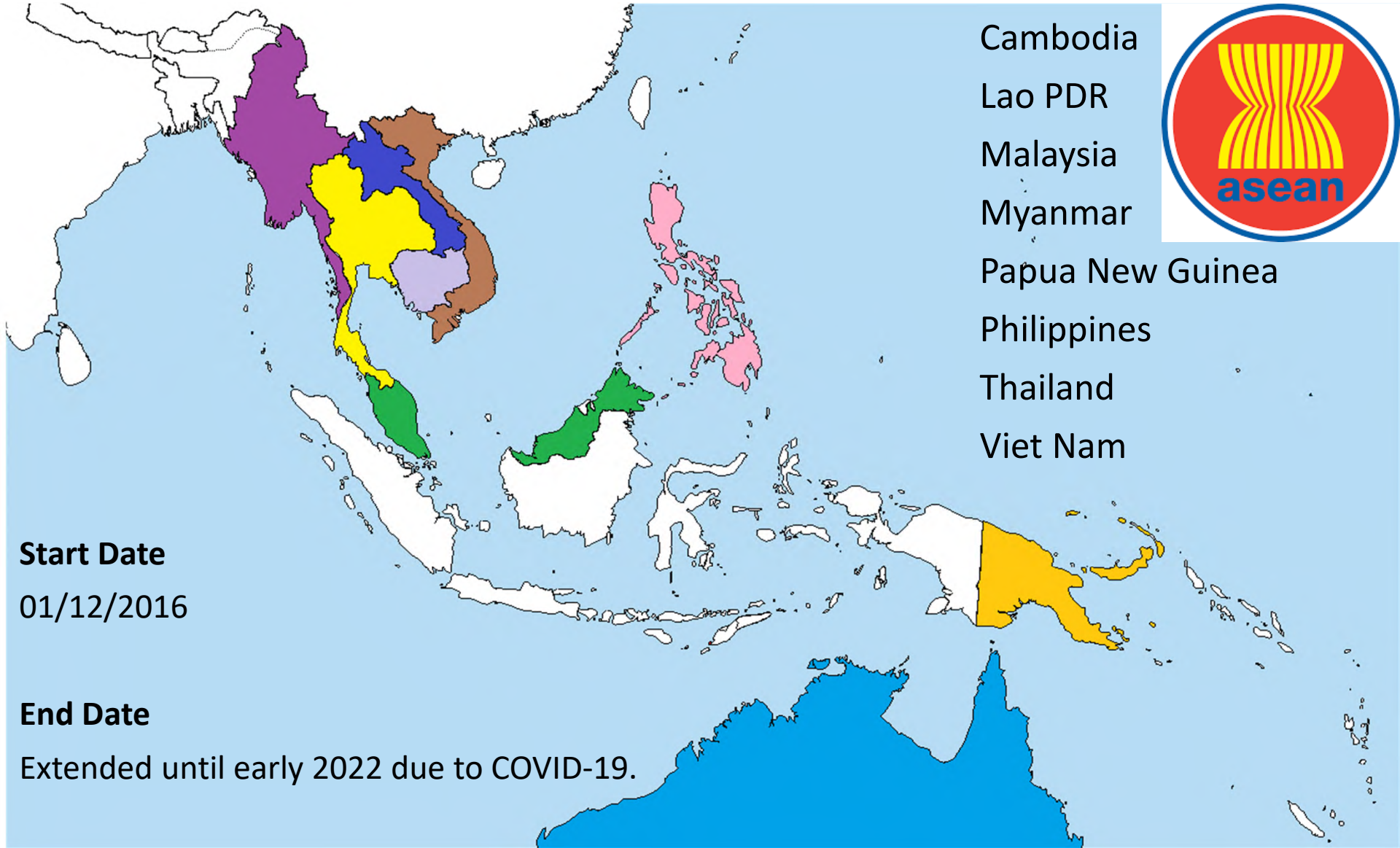
- Funding

STDF | STANDARDS and TRADE DEVELOPMENT FACILITY

- Management

Australian Government
Department of Agriculture, Water and the Environment

Beneficiary countries:



Cambodia

Lao PDR

Malaysia

Myanmar

Papua New Guinea

Philippines

Thailand

Viet Nam

Start Date

01/12/2016

End Date

Extended until early 2022 due to COVID-19.

Theory

Australian Government
Department of Agriculture and Water Resources

STDF

STDF SURVEILLANCE PROGRAM WORKSHOP

Day One	Day Two	Day Three	Day Four	Day Five
STDF Surveillance Program Management and International Surveillance Standards	STDF Surveillance Program Planning, Prioritization and Design	STDF Surveillance Operations and Communication P-tracker Field Data Collection	STDF Field Activity (Surveillance Operations and Delivery)	STDF Surveillance Information Management and Reporting

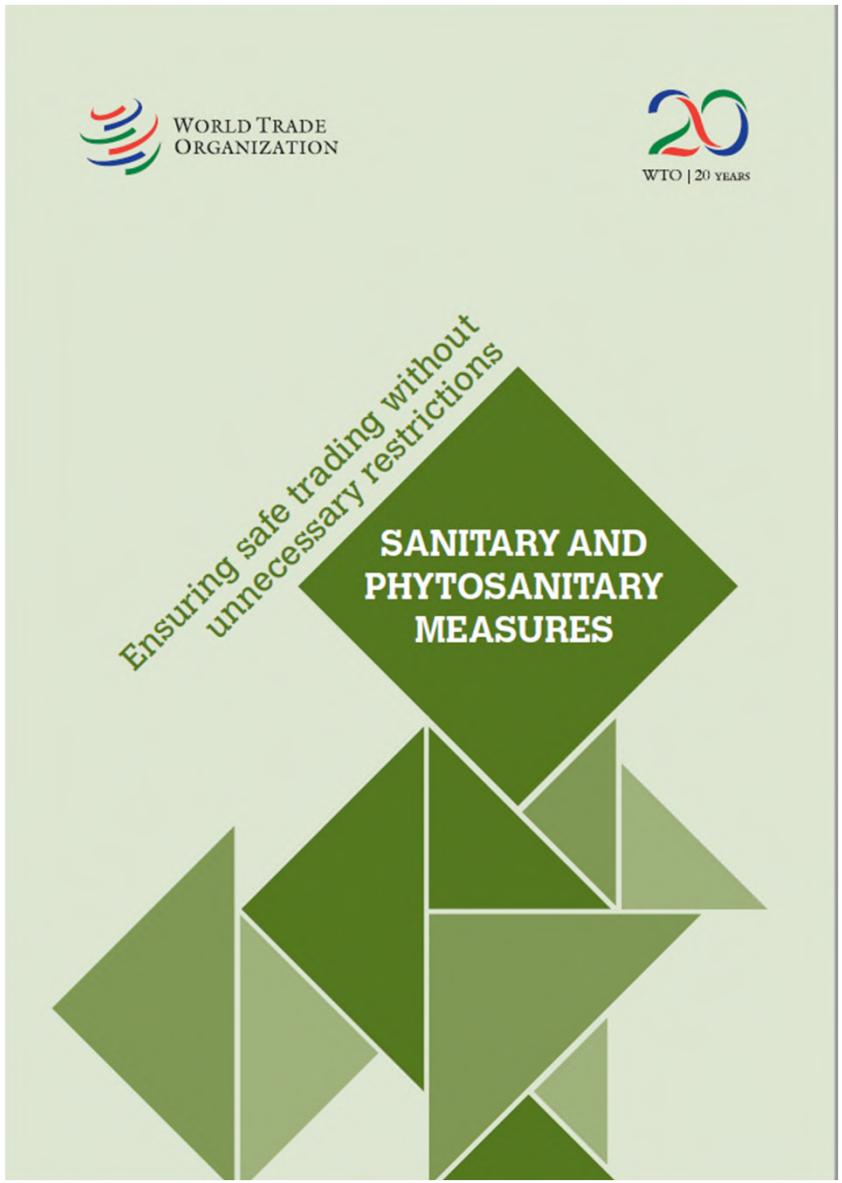
Australian Government
Department of Agriculture and Water Resources

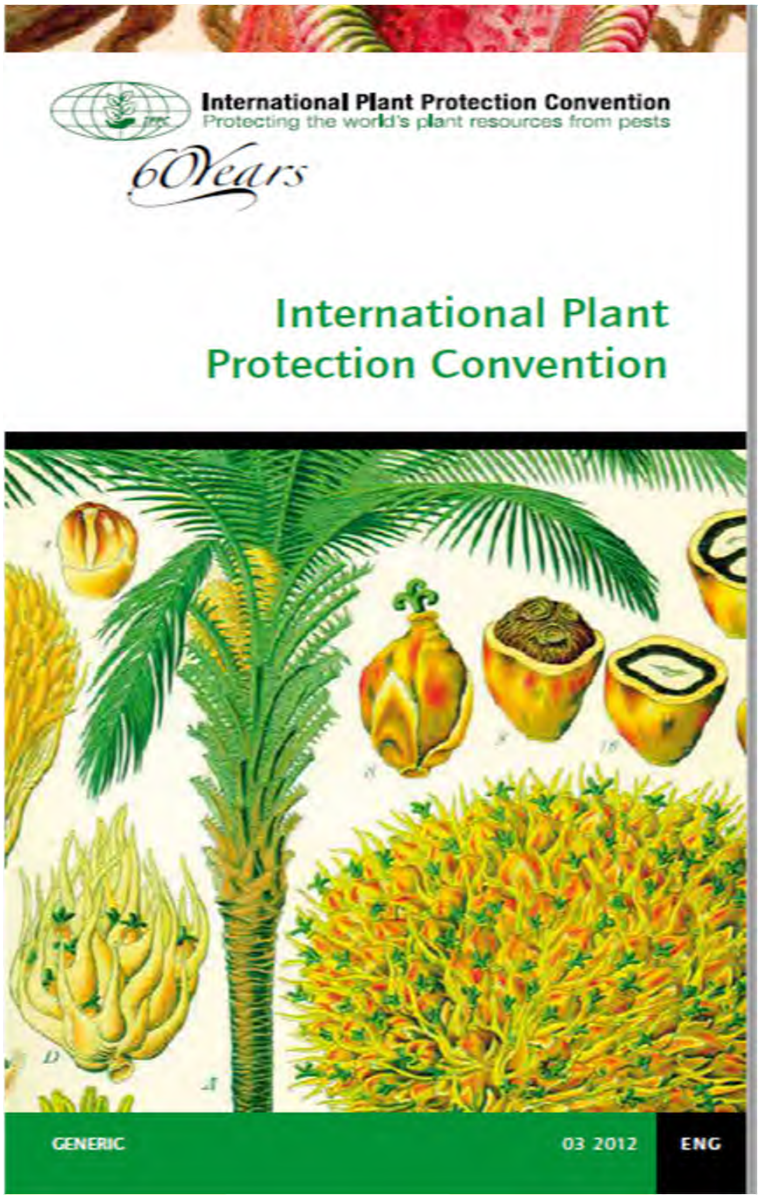
STDF

COMPONENTS OF A NATIONAL SURVEILLANCE SYSTEM

- A national surveillance system is an integral part of a country's plant health strategy and should contribute to the facilitation of trade.
- A national surveillance system should comprise surveillance programmes and the infrastructure and governance to implement them;
  - Official (Pre-border, Border, Post-Border)
  - Pest Specific (fruit flies, CMD, SALB)
  - Commodity Specific (cassava, citrus, rubber)
  - Trade and Market Access Specific (PFA, delimiting)

Training: Why do surveillance?





Skills in planning and implementing pest surveillance for trade and biosecurity objectives.

Surveillance Equipment Provided

Hand-held smartphone devices (iPad or iPhone) to record field surveillance data using a P-tracker GeoJot+ app;

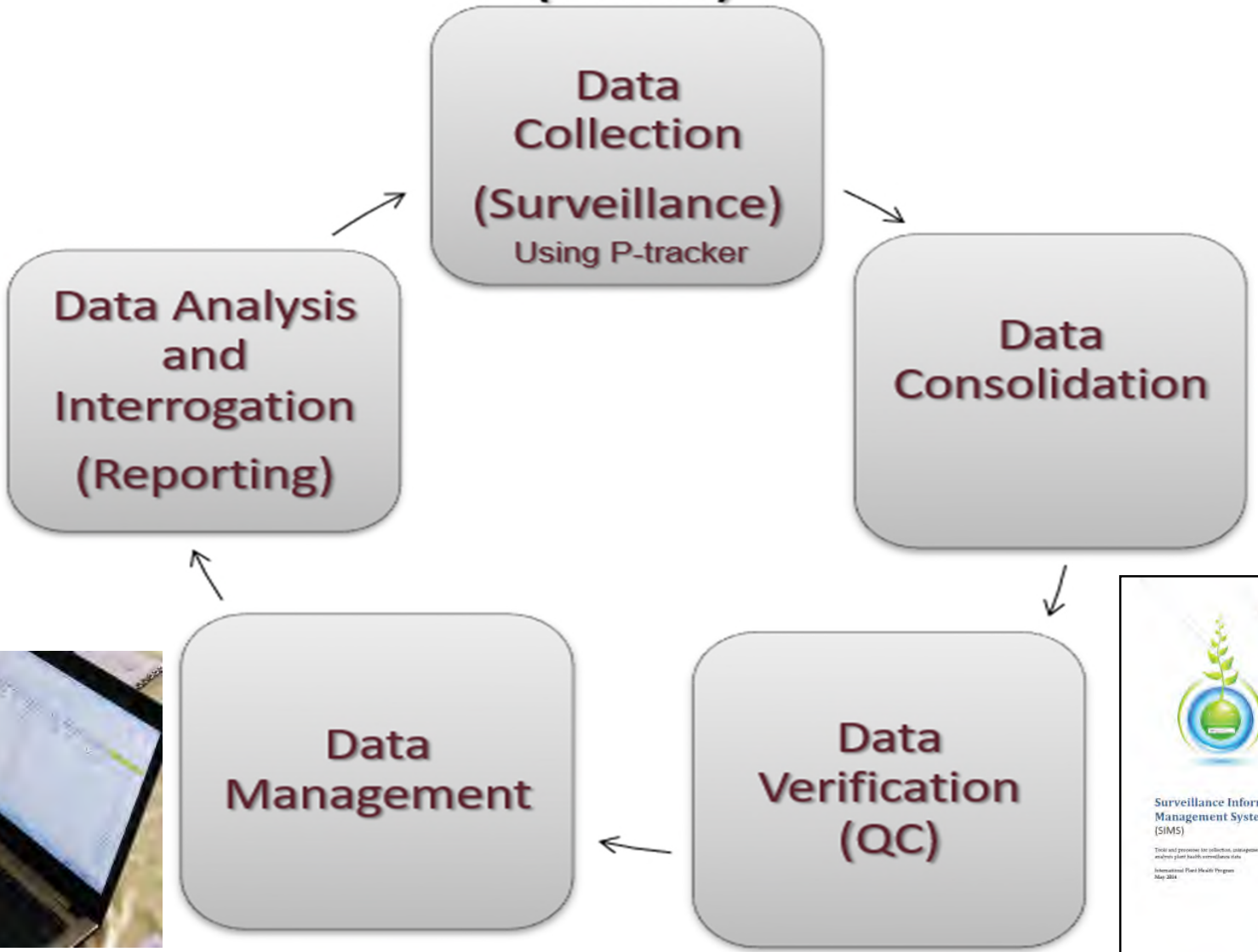
Laptop with Surveillance Information Management System (SIMS) for importing surveillance data

GeoJot+ Field Data Collection App

GeoJot+ license fees provided by project

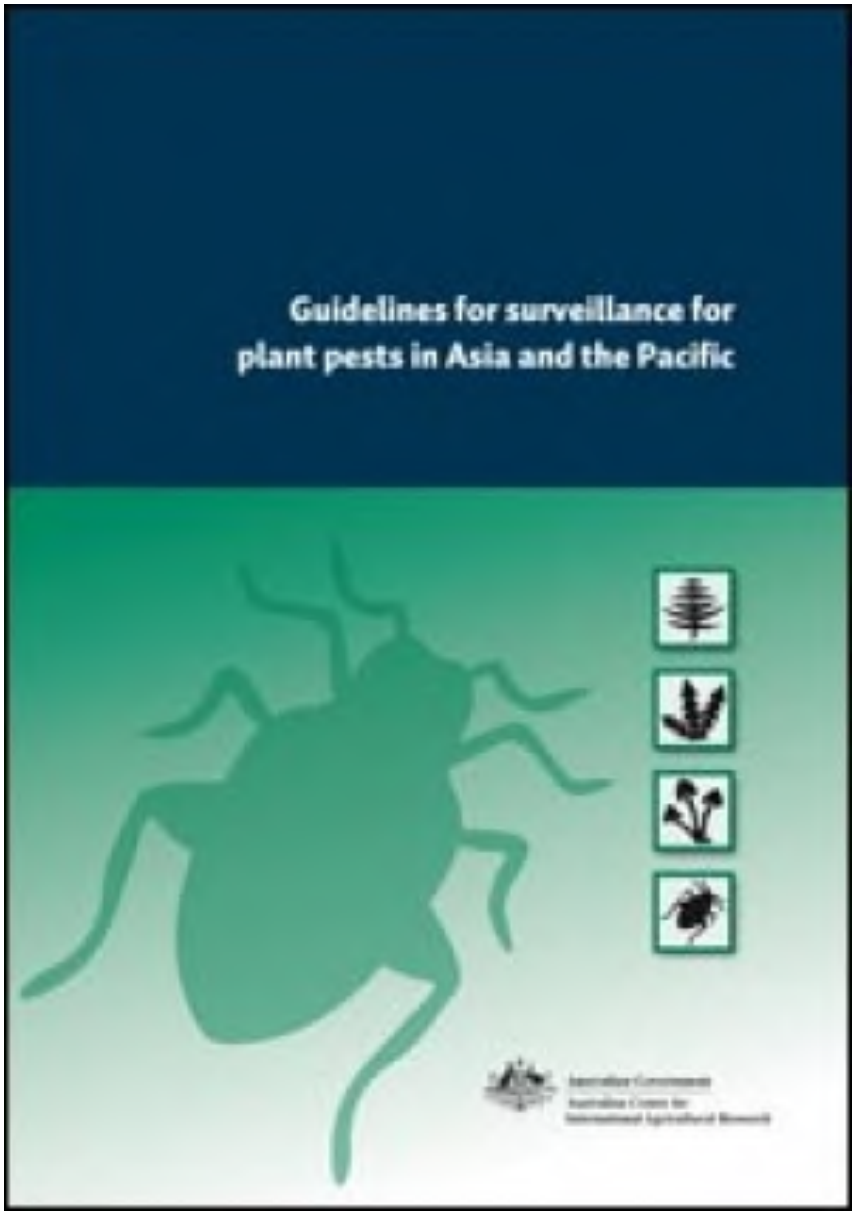
An app that collects GPS, photos and field data and generates reports

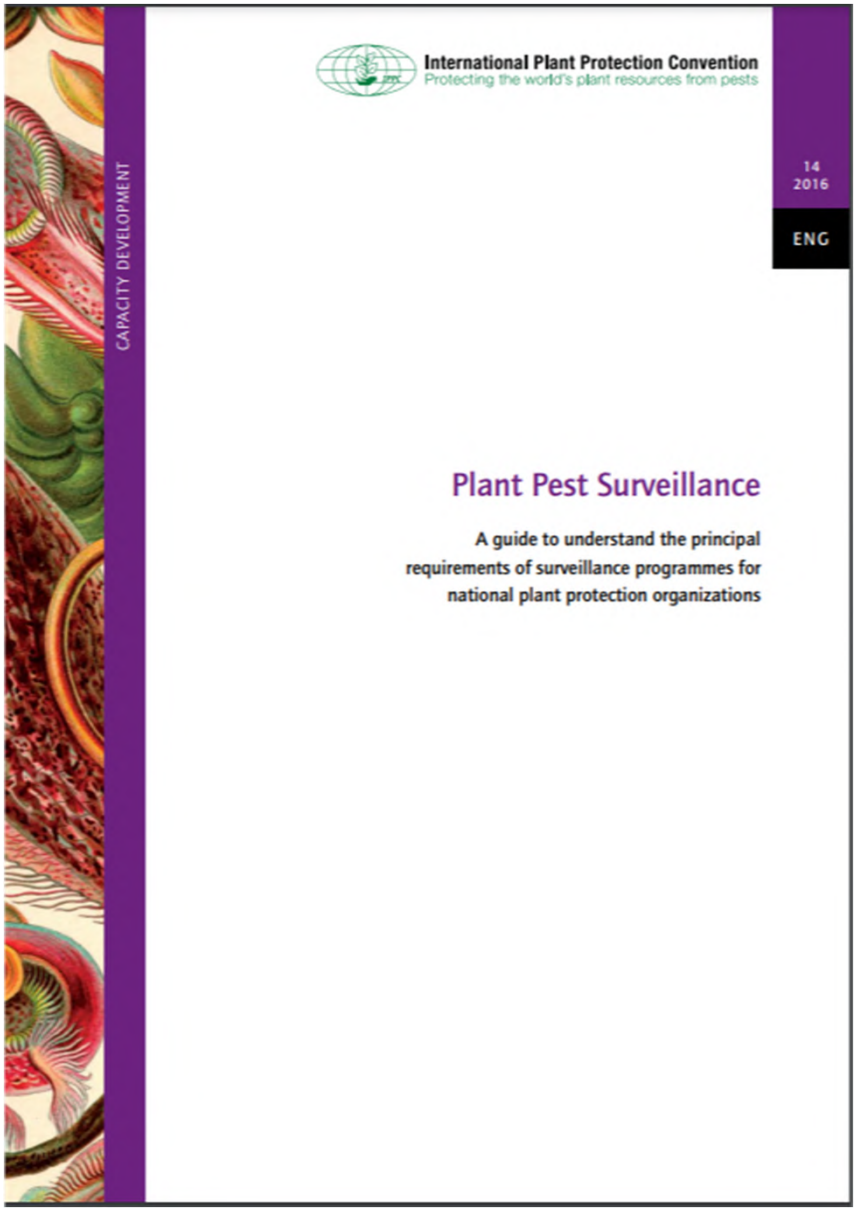
Surveillance Information Management System (SIMS)



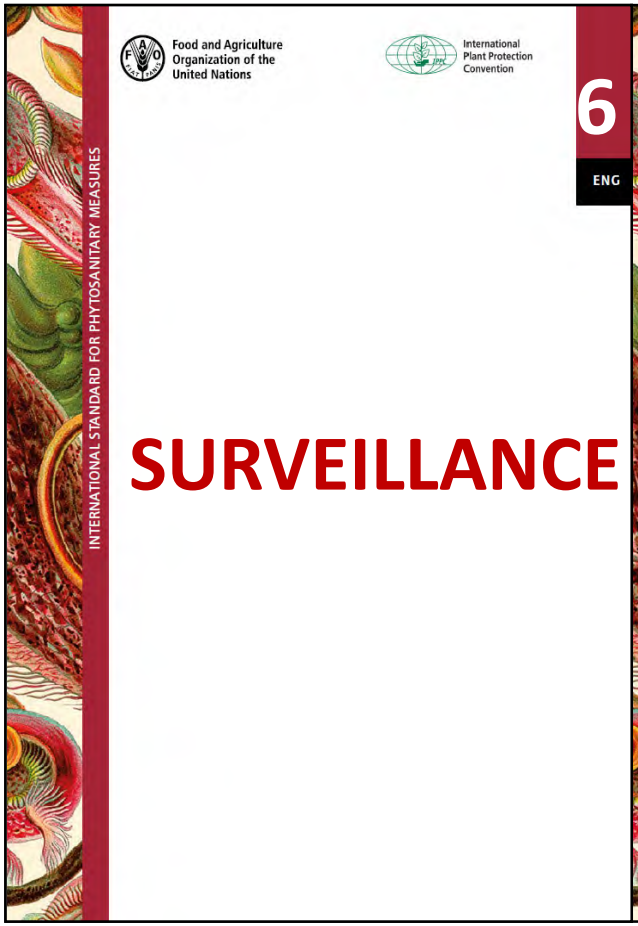
SIMS, a Microsoft Access product

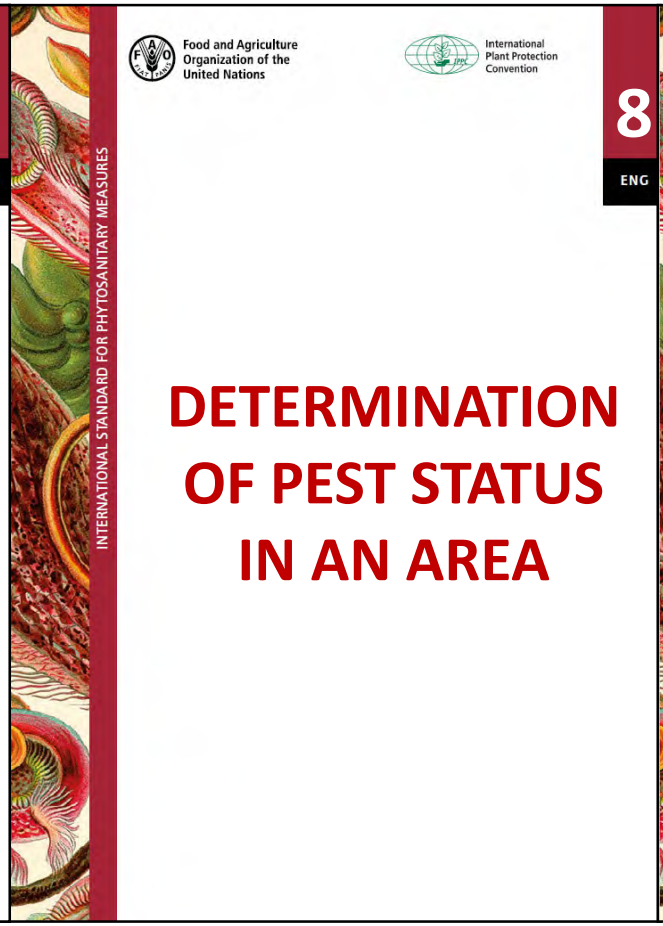
Surveillance Manuals Provided



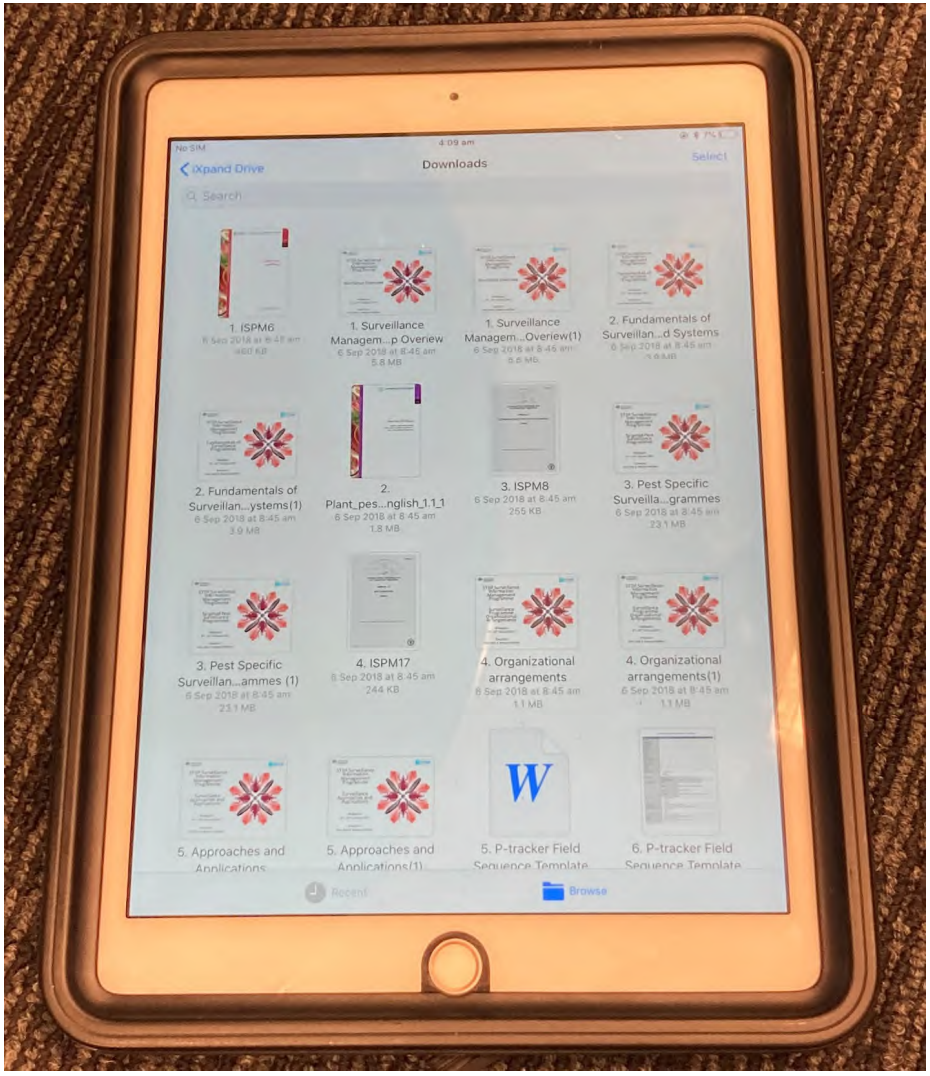


Important ISPMs-Surveillance



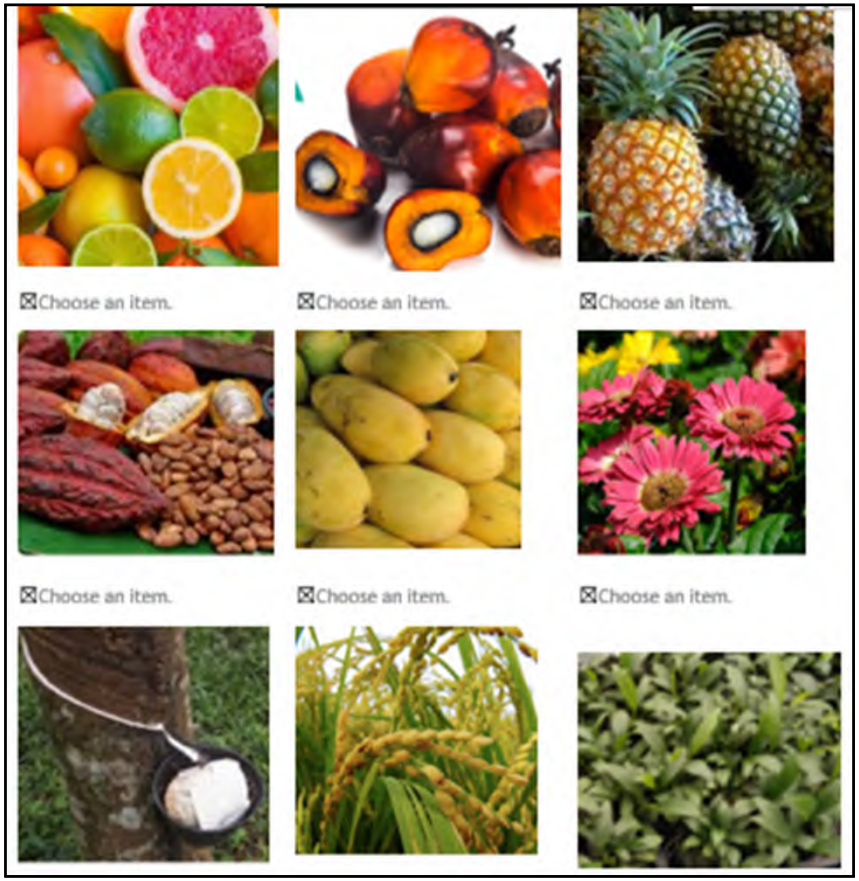


All Resources available on the project iPad



Surveillance Priority Targets Identified

Plant Products



Pests and Diseases

Section Two
Fruit Fly Surveillance Programme Planning and Prioritization

Surveillance Programme Province, District and Plantation Prioritization

Planning and Coordination discussions within NPPPO Plant Protection and provincial operations and with STDF representative are still in progress (regarding funding, resourcing, reporting and stakeholder engagement requirements). It is anticipated that fruit fly monitoring and surveys will be initially prioritized to the following provinces: Kampong Cham, Kampong Speu and Kampot Field surveillance activities will focus on known commercial and large scale plantations. Surveillance activities will focus on monitoring activities, utilizing observational and 'negative' records as the primary surveillance information data source.

Surveillance Prioritization	Surveillance Pre-Survey	Surveillance Survey Delivery	Surveillance Post-Survey	Surveillance Data and Analysis
NPPO Considerations	Kampong Cham, Kampong Speu and Kampot Provinces	Kampong Cham, Kampong Speu and Kampot Provinces	Kampong Cham, Kampong Speu and Kampot Provinces	Kampong Cham, Kampong Speu and Kampot Provinces
STDF Considerations	N/A	N/A	N/A	N/A
OTHER Considerations	N/A	N/A	N/A	N/A
Foreign Donors Considerations	N/A	N/A	N/A	N/A
Industry Considerations	N/A	N/A	N/A	N/A

- **Specific Plant Pest Surveillance Programme Design**

A fruit fly specific field surveillance operational procedure (programme design) has been developed (in collaboration with NPPP plant protection and field officers) to assist surveillance Officers with the field surveillance and inspection for these pests. The operational procedure has been developed based on internationally recognised protocols and field testing by the NPPO and pest surveillance experts during the STDF workshop field activity in February 2017. This operational procedure can be utilised to provide early warning and detection, and monitor changes inpest, severity and spread.

- **Fruit Fly Response, Delimiting and Trace Back Surveillance**

The specific field surveillance operational procedures for these pests have been developed (in collaboration with NPPO plant protection and field officers) to assist NPPO Officers with the field surveillance of plantations and inspections for the two pests. These operational procedures (along with the pest surveillance data collection form information) can be utilised to provide early detection, early warning, response, delimiting and trace back surveillance and assist monitor changes in pest severity and spread.

Fruit fly of mango symptoms:

Adult fruit flies damage the fruit where they lay their eggs causing blemishes and discoloration. The maggots bore into the fruit, develop inside and pave the way for secondary invaders (fungi or bacteria), which cause extensive rotting and dropping of fruit. Damaged fruits are unfit for human consumption. Damage symptoms do not vary on different crops.

Fig.1: Effect of fruit fly to mango fruit

Process – Field Surveillance Methodology:

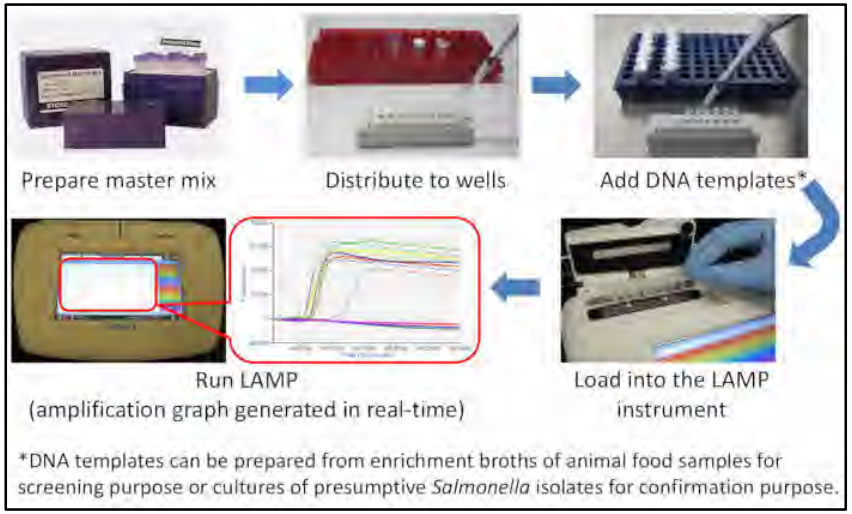
- Surveys should be conducted in known farms and mango fields within commercial and small and large mango planting area.
- To assure coverage of the entire region of interest, sampling of fruit fly will be made thru placing traps with Methyl eugenol and cure lure pheromone at the identified site.
- Traps were placed at the host trees at the sites with distribution of 4 traps/ha, or at non-host trees.
- All fruit fly samples shall be collected in the sampling bottle and sent to the Entomology Unit of Plant Biosecurity Division Kuala Lumpur for further identification.

Fig.2: Fruit fly trap

Labeling Insect Samples

Project Activities

Skills in planning and implementing pest surveillance for trade and biosecurity objectives.


Prepare master mix
Distribute to wells
Add DNA templates*
Load into the LAMP instrument
Run LAMP
(amplification graph generated in real-time)
*DNA templates can be prepared from enrichment broths of animal food samples for screening purpose or cultures of presumptive *Salmonella* isolates for confirmation purpose.


Whitefly diagnostics workshop
MARDI, Malaysia
September 2015


Workshop on the Identification of Pest Fruit Flies (Tephritidae)
SIDF
TROPICAL FRUIT FLIES OF SOUTH-EAST ASIA
CABI


1 mm
STDF (B.correcta vs B.zonata)

Surveillance Reporting

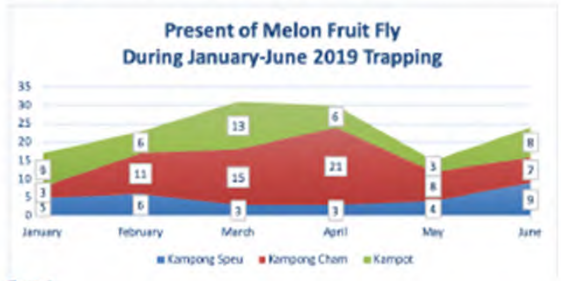


Figure 2:

c. ***Guava Fly***
was rarely but trapped in ME trap. It is shown to present during November and December 2018 in Kampong Cham Province.

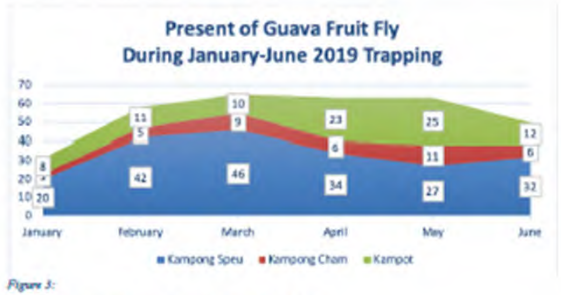


Figure 3:

3. **Summaries surveillance activities in the table**

Surveillance effort	Fruit Fly Trapping						
	Jan	Feb	Mar	Apr	May	Jun	Total
Number of surveillance sites	6	6	6	30	30	30	108
Number of samples preserved	23,442	15,717	8,985	8,625	7,910	3,410	68,089
Number of samples identified	23,381	15,667	8,943	8,588	7,884	3,384	67,847
Number of samples not yet identified	61	50	42	37	26	26	242
Number of provinces visited	3	3	3	3	3	3	3
Number of plantations/ farms visited	6	6	6	30	30	30	108

Table 7: Summaries of Surveillance activities

Australian Government
Department of Agriculture and Water Resources
STDF Standards and Trade Development Facility
Post-Entry Plant Quarantine Center No 1 (PEQ 1)
Plant Protection Department (PPD)
Ministry of Agriculture and Rural Development (MARD)

The presence of *Conopomorpha sinensis* on Lychee has been recorded in Bac Giang, Hai Duong and Quang Ninh province with the incidence of insect is low to moderate (5-10%);

3. Depictall surveillance localities in a map (can be created from Excel data out put from iPad).

- May(Lychee)

- June (Lychee)

Project Challenges 2020-21

Domestic and International

Civil Unrest

Internal Movement Controls

Steering Committee Meeting Postponed

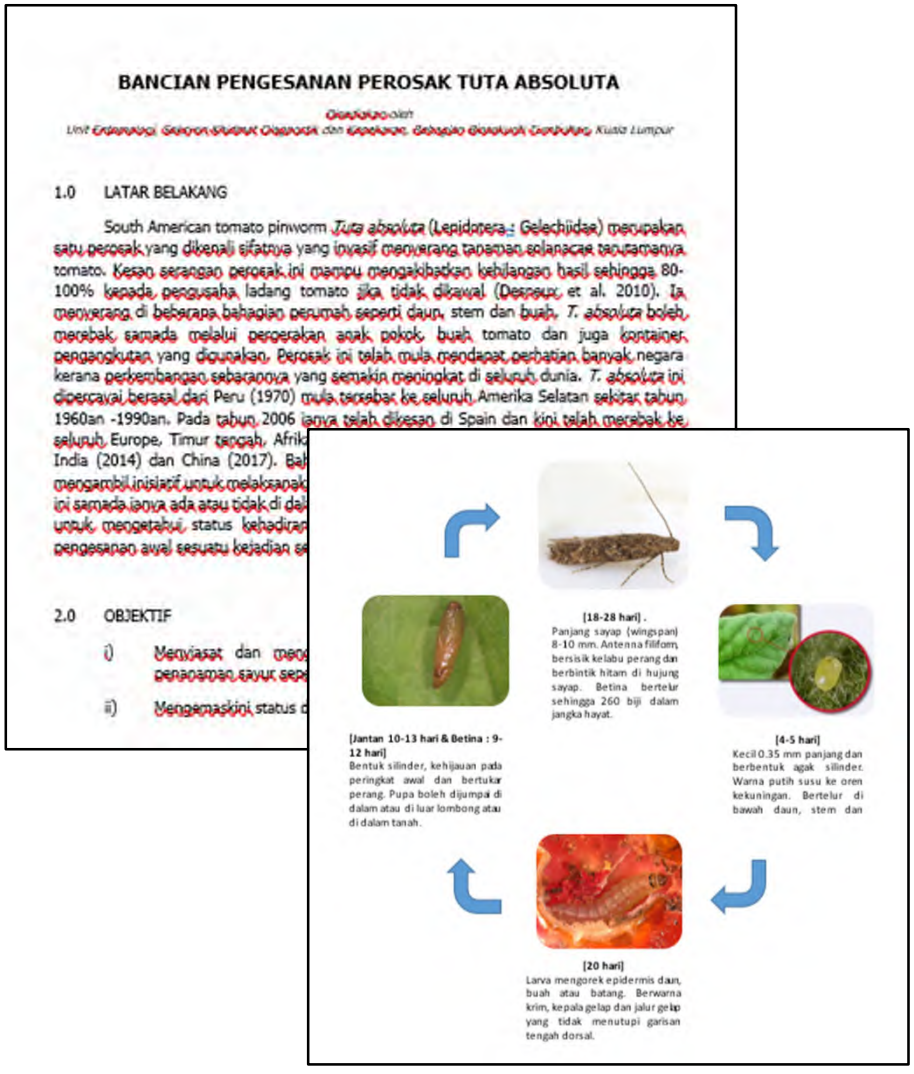
Project Status

COUNTRY	Completed Project Activities	Surveillance Competency	Trainers Competent
Cambodia	✓	Fully	Yes
Lao PDR	Covid affected	Fully	Yes
Malaysia	Covid affected	Partly	Yes
Myanmar	Covid affected	Fully	Yes
PNG	✓	Fully	Yes
Philippines	✓	Fully	Yes
Thailand	Covid affected	Fully	Yes
Viet Nam	✓	Fully	Yes

Malaysia

STDF Aquatic plant surveillance

Ministry of Agriculture
Tuta absoluta pest surveillance



BANCIAN PENGESANAN PEROSAK TUTA ABSOLUTA

Disediakan oleh
Unit Entomologi, Seksyen Sistem Diagnostik dan Kawalan, Bahagian Biosekuriti Tumbuhan, Kuala Lumpur

1.0 LATAR BELAKANG

South American tomato pinworm *Tuta absoluta* (Lepidoptera : Gelechiidae) merupakan satu perosak yang dikenali sifatnya yang invasif menyerang tanaman solanacae terutamanya tomato. Kesan serangan perosak ini mampu mengakibatkan kehilangan hasil sehingga 80-100% kepada pengusaha ladang tomato jika tidak dikawal (Desneux et al. 2010). Ia menyerang di beberapa bahagian pokok seperti daun, stem dan buah. *T. absoluta* boleh merebak samada melalui pergerakan anak pokok, buah tomato dan juga kontainer pengangkutan yang digunakan. Perosak ini telah mula mendapat perhatian banyak negara kerana perkembangan sebarannya yang semakin meningkat di seluruh dunia. *T. absoluta* ini dipercayai berasal dari Peru (1970) mula tersebar ke seluruh Amerika Selatan sekitar tahun 1960an -1990an. Pada tahun 2006 ianya telah dikesan di Spain dan kini telah merebak ke seluruh Europe, Timur tengah, Afrik
India (2014) dan China (2017). Bah
mengambil inisiatif untuk melaksanak
ini samada ianya ada atau tidak di dal
untuk mengetahui status kehadiran
pengesanan awal sesuatu kejadian se

2.0 OBJEKTIF

i) Menyiasat dan meng
penanaman sayur sepe

ii) Mengemaskini status d

Malaysia training
Surveillance Webinars

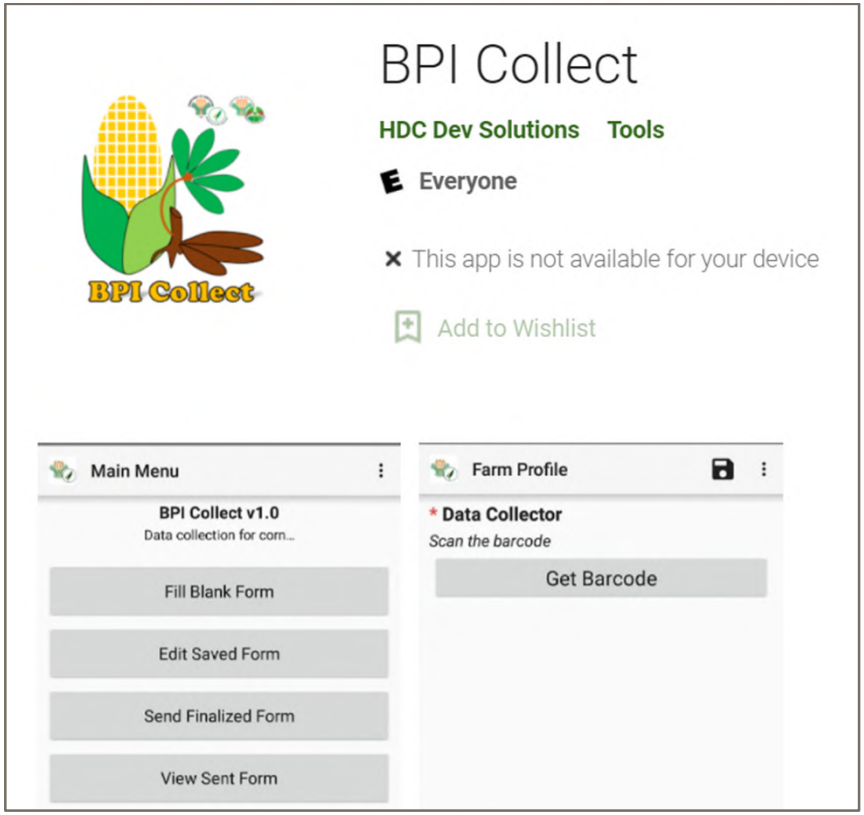
1. Surveillance Basics
2. Surveillance in Malaysia
3. Report Writing

45-60 minutes. Zoom platform. Recorded

Diversified Learning Aids!

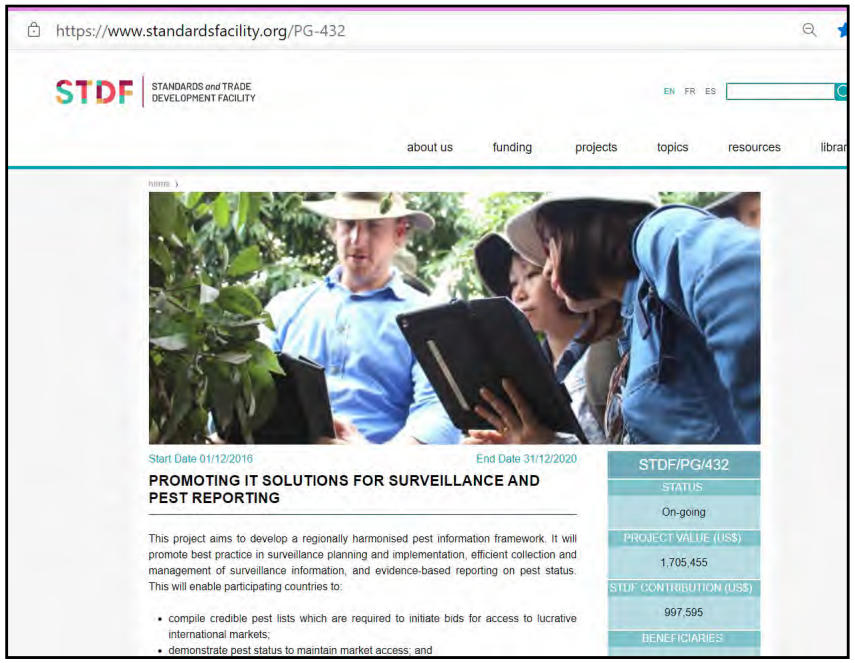
The Philippines

"Proud and Confident Experts in Surveillance"

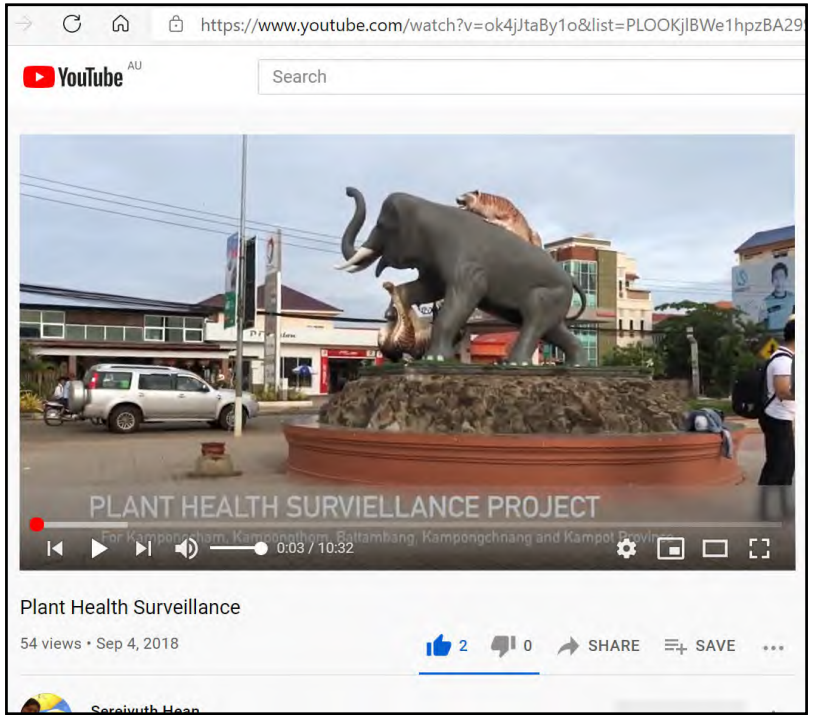


Alternative open-source surveillance apps

Project Updates



https://www.standardsfacility.org/PG-432



https://youtu.be/ok4jJtaBy1o

Thank you for listening

Any questions?