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Authorizing entities to perform phytosanitary actions: an overview of the current use of authorization by national plant protection organizations



Authorizing entities to perform phytosanitary actions: an overview of the current use of authorization by national plant protection organizations

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Executive summary

This report presents the findings of a desk study into the use of authorization by national plant protection organizations (NPPOs). In the context of this report, the term “authorization” is used to refer to those situations where NPPOs give authority to other entities, public or private, to perform phytosanitary actions (official operations such as audit, destruction, inspection, monitoring, post-entry quarantine, sampling, surveillance, testing and treatment) on their behalf. The report does not define an “entity” but relies on the description provided in the draft International Standard for Phytosanitary Measures (ISPM) on *Requirements for national plant protection organizations if authorizing entities to perform phytosanitary actions* (2014-002).

The desk study included a review of the existing legislative framework relating to authorization and of implementation resources developed under the auspices of the International Plant Protection Convention (IPPC) Secretariat that provide guidance to NPPOs on the authorization of entities. The Convention allows for the possibility of authorization, providing clear provisions for NPPOs to authorize other entities to undertake phytosanitary actions, with the exception of the issuance of phytosanitary certificates. Several ISPMs include references to the authorization of entities by NPPOs to perform a range of phytosanitary activities, such as surveillance, pest diagnosis, and treatment. Furthermore, guidance on authorization is available in several IPPC guides. There are also some regional standards related to authorization. However, there is currently a lack of comprehensive guidance available on this topic.

The study also included an Internet search for evidence of the use of authorization by NPPOs. As this was only intended to provide a snapshot of the current situation, the search was restricted in scope and included English-language resources only, but yielded over one hundred examples of authorization programmes. The earliest programmes identified in the study were initiated in the 1990s. Since then, both the number of programmes and the number of countries using authorization have increased, with authorization now appearing to be fairly common. Treatments were found to be the most common phytosanitary activity carried out by authorized entities, followed by diagnostics. Authorization programmes are also being used for audit, destruction, inspection, sampling and surveillance. The study found examples of authorization programmes being used to support import, export, and domestic phytosanitary systems.

A selection of examples of authorization programmes are provided, illustrating some of the approaches taken by NPPOs to address potential implementation issues. Drawing upon the material collected for the study, some thoughts are also offered on the factors that could potentially determine the success of an authorization programme.

Recommendations for further study are provided, to build on the findings from this preliminary study. These recommendations include further searches to extend the geographical scope of the review and exploring additional methods of gathering data, such as conducting structured interviews with NPPOs.

Introduction

What is authorization?

In the context of this report, the term “authorization” is used to refer to those situations where national plant protection organizations (NPPOs) give authority to other entities, public or private, to perform specific phytosanitary actions (official operations such as diagnostics, inspection, surveillance, testing or treatment) on their behalf.¹

A draft International Standard for Phytosanitary Measures (ISPM) on authorization of entities has been under development since 2014 (see Table 1). The draft ISPM aims to provide guidance, for those NPPOs who choose to authorize entities, on how to set up an authorization programme that (i) results in effective phytosanitary actions that are delivered with integrity and transparency, and (ii) ensures that the authorized entities are accountable to the NPPO for these actions and that phytosanitary

security is maintained, consistent with the provisions of the International Plant Protection Convention (IPPC; also referred to herein as the “Convention”) and relevant ISPMs. Under such programmes, the authorized entities perform the phytosanitary actions within the NPPO’s phytosanitary regulatory system, but the NPPO retains oversight and remains responsible for ensuring that the phytosanitary actions have been performed according to the NPPO’s requirements. The draft standard – hereafter referred to as “the draft ISPM on authorization” – has been through two consultations, and has been revised by the IPPC Standards Committee in response to both these consultations.

This report does not define an “entity” but relies on the description provided in the draft ISPM on authorization.

Table 1. Timeline of draft ISPM development through the standard setting process

Year	Progression of the draft standard
2014	CPM-9 added the topic <i>Authorization of non-NPPO entities to perform phytosanitary actions</i> (2014-002) to the standard setting work programme
2014	Consultation on draft specification
2016	Standards Committee approved Specification 65 (<i>Authorization of entities to perform phytosanitary actions</i>)
2017	Meeting of expert working group on <i>Authorization of entities to perform phytosanitary actions</i> , Ottawa, Canada, to draft the standard
2018	Standards Committee revised the draft standard and approved it for consultation
2018	First Consultation, 977 Comments
2019	Second Consultation, 526 comments
2019	Standards Committee revised the draft, entitled <i>Requirements for national plant protection organizations if authorizing entities to perform phytosanitary actions</i>

Background to this study

In the consultation stage of development of the draft ISPM on authorization, it became apparent that some contracting parties had significant reservations about it. At the IPPC Regional Workshop for Central and Eastern Europe and Central Asia in September 2018, some participants expressed their concerns, and during

the first consultation on the draft ISPM (1 July – 30 September 2018), some contracting parties expressed concerns that phytosanitary security could be compromised if private entities undertook functions that were the responsibility of NPPOs.²

¹ Note that diagnostics incorporates elements of inspection and testing

² SC May 2019 meeting report, agenda item 5.3, <https://www.ippc.int/en/publications/87249/>

To help inform discussions within the Commission on Phytosanitary Measures (CPM) about the implementation of the draft standard, in November 2018 the Implementation and Capacity Development Committee approved a *Desk study on the delegation of NPPO functions in the context of third-party authorization* as a topic for the Implementation, Review and Support System (IRSS). In doing so, the Committee said that feedback from consultations on the draft ISPM should be considered and used to outline the scope of the study.

The first consultation on the draft ISPM received 977 comments, ranging from technical issues to conceptual and general comments about implementation.³ The following comment perhaps sums up the implementation challenge: “This is a complex and difficult question and there is a need for international discussion of the risks, costs and benefits of authorization of entities for different actions and [an] exchange of experiences (positive and negative).” The following potential implementation issues were identified:⁴

- **Legal framework.** The alignment of national legislation to facilitate this standard is potentially a significant implementation issue. Some countries may not have the necessary legal framework in place to implement this standard. Others may lack the resources and infrastructure required to establish the necessary national legislation.
- **Implementation resources.** There is a lack of guidance available to NPPOs and contracting parties to support implementation of the standard. The availability of adequate guides and training materials will be critical for development and maintenance of authorization programmes by NPPOs and for maintaining the integrity of such programmes.
- **Capacity development.** There is need to consider the extent of implementation capacity and the availability of resources in developing countries. For example, there may be a lack of entities authorized to conduct audit or a lack of technical capacity within the NPPO for evaluation and audit. In some countries, there may be a lack of entities with the experience

and knowledge required to perform phytosanitary actions or a lack of NPPO capacity to provide training to those entities.

- **Conflict of interest.** It will be important to define and articulate potential conflicts of interest and transparently explain how they are managed when implementing an authorization programme.
- **Other issues.** There may be resistance on the part of users to change and to apply complex processes, meaning they would not accept authorized entities to perform certain actions. Other issues that were raised included the implementation of quality management systems, implementation of complaint and feedback systems, listing of examples for nonconformities, and provision of additional guidance on audit and supervision.

The draft ISPM was discussed at the 2019 IPPC regional workshops, these workshops providing the forum within which to develop regional positions, which were then submitted to the second consultation. While the IPPC Regional Workshop for Europe and Central Asia (2–5 September 2019) included discussions on conflict of interest, the IPPC Regional Workshop for Africa (4 September 2019) was focused on implementation- and capacity-related issues such as inadequate legal capacity and highlighted the need for a monitoring and evaluation system.

The second consultation on the draft ISPM (1 July – 30 September 2019) received 526 comments, a handful of which registered dissent against moving the standard through to the next stage of the standard setting process.⁵ The dissenting comments expressed caution about the underlying relationship between the NPPO and private-sector entities. Some contracting parties commented that the standard should not provide any room for private entities to *force* NPPOs to implement the standard; some indicated that in some countries the NPPOs themselves do not have the capacity to carry out their core activities, and authorizing third parties might “weaken the system and affect the credibility of the NPPO”. However, the majority of the comments merely

³ First consultation compiled comments, <https://www.ippc.int/en/publications/87327/>

⁴ 2019 SC-7 meeting report, agenda item 4.3, <https://www.ippc.int/en/publications/87337/>

⁵ Second consultation compiled comments, <https://www.ippc.int/en/publications/88478/>; SC November

2019 meeting report, agenda item 4.3, <https://www.ippc.int/en/publications/88030/> (report says 515 comments, but this does not include those comments submitted under “Potential implementation issues”)

sought clarifications on various aspects of the draft ISPM.

In response to the concerns raised, the Standards Committee reiterated the reasons for an international standard on this subject, which would provide guidance at the national level and help harmonize phytosanitary measures internationally given that authorization programmes are already widely used by some contracting parties. The Standards Committee

clarified that it is up to each NPPO to decide whether or not to authorize entities to perform phytosanitary actions. It also highlighted that, if the NPPO does decide to authorize entities, the decisions about which entities to authorize, and for which specific phytosanitary actions, are also entirely at the discretion of the NPPO.

The feedback outlined above forms the background to this desk study and has been used to frame its scope.

Scope and objectives of this study

This IRSS desk study is a preliminary study reviewing the global trends in the authorization of entities by NPPOs to perform phytosanitary actions. It is not an exhaustive survey of authorization, but instead aims to provide a snapshot of the authorization programmes in operation around the world. It also includes a review of the legislative framework relating to authorization and of existing implementation resources developed under the auspices of the IPPC Secretariat that are relevant to this topic. Looking ahead, some thoughts are offered about what may determine the success of an authorization programmes and recommendations are given on the possible scope of a follow-on IRSS study. It is therefore intended that this report be useful not only for those involved in making decisions about the draft ISPM, but also to support the potential future development of associated implementation resources.

The report is structured as follows:

Methods

This section describes the approach used to gather information for the study.

Results

This section outlines the findings of the study and is presented in four parts:

- Part I – Legislative framework. This part includes a review of the Convention, ISPMs, CPM Recommendations and regional standards. Some other global standards are also included.
- Part II – Implementation guidance. This part includes a review of existing implementation resources developed

under the auspices of the IPPC Secretariat that are relevant to the authorization of entities.

- Part III – Review of existing NPPO authorization programmes. This part strives to answer the following questions:
 - Is the use of authorization by NPPOs common? How long has it been in use?
 - What types of phytosanitary actions are being carried out by authorized entities (e.g. inspection, testing, surveillance, pest diagnosis, treatment, auditing)? Which are most common?
 - What are the objectives of authorization programmes?
- Part IV – Establishing an authorization programme. This part presents a selection of examples from authorization programmes, illustrating some of the approaches taken by NPPOs to address potential implementation issues.

Discussion

This section explores further some of the potential issues relating to implementation of the draft ISPM, reflecting on the factors that could potentially determine the success or otherwise of an authorization programme.

Recommendations

This section outlines the possible scope for a further IRSS study to build on the findings from this study.

A note about terminology

The terms “accredit”, “authorize” and “certify” are used by different bodies in different ways. The same applies to “nonconformity” and “non-compliance”. In their “General recommendations on use of terms in ISPMs”, the IPPC Technical Panel for the Glossary recommend the following usage:⁶

- accredit – to give authority to a person or body to do something when certain requirements have been met;
- authorize – to give authority to a person or body to do something;
- certify – to state that a product or article meets certain requirements;
- nonconformity – the incorrect application of measures (e.g. regarding

requirements prescribed for an entire place of production);

- non-compliance – [use this term in the context of phytosanitary certification and hence consignments].

Where possible, the use of these terms in this report is consistent with the above definitions, with “authorized” referring to NPPOs giving authority to a person or body to do something on their behalf, and “nonconformity” referring to failure of an authorized entity to meet the requirements set by the NPPO (recognizing that this may also incorporate non-compliance). The exception is when citing examples of authorization programmes where it is necessary to use the terminology of the original programme instead.

Methods

This IRSS study was conducted by the IPPC Secretariat from November 2019 to February 2020, with revision in September 2020.

Legislative framework and global and regional standards

The Convention text was reviewed to identify those articles relevant to the authorization of entities.

An in-depth desk review of all ISPMs and CPM Recommendations was completed to identify those which refer to the authorization of entities to perform phytosanitary actions.

The websites of two regional plant protection organizations (the European and Mediterranean Plant Protection Organization and the North American Plant Protection Organization) were searched to identify any relevant regional standards for those regions. Similarly, the websites of the Grain and Feed Trade Association (an international commodity council) and European Co-operation for Accreditation (a network of nationally recognized accreditation bodies located in the European geographical area) were searched for relevant global or regional standards.

IPPC implementation resources

All the published implementation resources developed under the auspices of the IPPC

Secretariat (manuals and training materials) were reviewed to identify those which include guidance on the authorization of entities to perform phytosanitary actions.

Authorization programmes of NPPOs

Websites in English of several NPPOs were searched for existing authorization programmes, and relevant national policies and legislation. This was an iterative process that resulted in programmes being identified on the NPPO websites of the following countries: Australia,

Canada, India, Malaysia, New Zealand, Pakistan, the Philippines, Singapore, Thailand, the United Kingdom of Britain and Northern Ireland, and the United States of America.

Audit reports from the European Commission, giving results of audits on NPPOs and third-

⁶ General recommendations on use of terms in ISPMs, approved by the IPPC Technical Panel on the Glossary

and included in the IPPC style guide:
<https://www.ippc.int/en/publications/81329/>

parties both within the European Union and in countries trading with the European Union, were also searched. Here, the focus was on identifying any references to the authorization of entities in relation to treatments, diagnostics or control (quality management) systems.

Where a search yielded the existence of an authorization programme or programmes, each such programme was reviewed and the following information was recorded, where possible: year established, responsible organization, country, name of programme, phytosanitary action (e.g. inspection, surveillance, pest diagnosis, treatment, auditing – referred to as “phytosanitary activity”), trigger or objective, and URL. Where it was not possible to determine the year of establishment, the date of the information about the programme was used instead (if available). Each item has been individually numbered for the purposes of cross-referencing in this report.

Limitations of this study

Bias and validation. The desk review of authorization programmes was limited to documents which were available on the Internet, which in turn was dependent on the search terms used. As the study was only intended to provide a snapshot of the current situation, and because of the large number of IPPC contracting parties, the searches were not exhaustive and the desk review was limited to those documents that were available in English. Some regions are therefore under-represented in the study. In addition, the data collected about individual authorization programmes have not been validated by the

Only those programmes that operate within the NPPO’s phytosanitary regulatory system (import, export or domestic), and where the phytosanitary actions pertain directly to the NPPO’s mandate, were included. No distinction was made between national legislation and national authorization programmes, with legislation, policies, schemes and programmes relating to authorization being collectively referred to as “authorization programmes” for the purposes of this report. To ensure that the diversity of approaches taken by NPPOs was captured, the scope of information gathered covered a wide range of relationships between government (the NPPO) and the private sector, including information management agreements, programmes administered through grants, and coordinated unremunerated citizen surveillance.

corresponding NPPOs, and hence there may be errors in describing the nature of the authorization in question. The data presented in this report can therefore only give an indication of the extent to which the authorization of entities has policy direction and is used by contracting parties, rather than being a comprehensive evaluation.

Not legal advice. Although this report includes research on legislative instruments and systems, this paper does not purport to provide legal advice.

Results

Part I: Legislative framework and global and regional standards

The Convention. The Convention (Article IV) sets out the roles and responsibilities of NPPOs, including – among others – surveillance, inspection, disinfestation and the issuance of phytosanitary certificates.

The Convention is clear that the issuance of phytosanitary certificates is carried out by authorized public officers only, but it also allows for other phytosanitary actions to be carried out by public officers and properly authorized third parties:

Inspection and other related activities leading to issuance

of phytosanitary certificates shall be carried out only by or under the authority of the official national plant protection organization. The issuance of phytosanitary certificates shall be carried out by public officers who are technically qualified and duly authorized by the official national plant protection organization to act on its behalf and under its control with such knowledge and information available to those officers that the authorities of importing contracting parties may

accept the phytosanitary certificates with confidence as dependable documents. [Article V.2(a)]

As such, the Convention allows NPPOs to authorize entities to perform other phytosanitary actions such as inspection, testing, surveillance, pest diagnosis, treatment and auditing on their behalf.⁷

CPM Recommendations. There is only one CPM Recommendation that contains elements that are directly relevant to the delegation of NPPO functions to authorized entities: the CPM Recommendation on *Replacement or reduction of the use of methyl bromide as a phytosanitary measure* (R-03). This recommendation encourages NPPOs to ensure that methyl bromide fumigation is used only for quarantine pests and that it is authorized or performed by the NPPO.

International Standards for Phytosanitary Measures. Reference to the use of authorization is made in several ISPMs. ISPM 7 (*Phytosanitary certification system*), for example, states that:

Except for the issuance of phytosanitary certificates, non-governmental personnel may be authorized by the NPPO to perform specified certification functions. To be authorized, such personnel should be qualified and skilled, and responsible to the NPPO. To ensure independence in their exercise of official functions, they should be subject to restrictions and obligations equivalent to those for government officials and have no conflict of interest (e.g. financial or otherwise) that may affect the outcome.

Similarly, ISPM 20 (*Guidelines for a phytosanitary import regulatory system*) elaborates on the systems for authorization of non-NPPO personnel:

NPPOs may authorize, under their control and responsibility, other government services, nongovernmental organizations, agencies or persons to act on their behalf for certain defined functions. In order to ensure that the requirements of the NPPO are met, operational procedures are required. In addition, procedures should be developed for the demonstration of competency and for audits, corrective actions, system review and withdrawal of authorization.

Authorization of entities to perform specific phytosanitary actions such as surveillance, pest diagnosis, and treatment is also mentioned in the corresponding ISPMs: ISPM 6 (*Surveillance*) refers to “NPPO officers, or other personnel authorized to undertake surveillance”; ISPM 27 (*Diagnostic protocols for regulated pests*) allows for laboratories performing pest diagnosis to be established under or authorized by the NPPO “in such manner that the results of the pest diagnosis may be considered as part of a phytosanitary measure of the NPPO”; and ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*) and ISPM 43 (*Requirements for the use of fumigation as a phytosanitary measure*) refer to authorization of entities applying treatments. For further information and other ISPMs, see Appendix 1.

Other global and regional standards. Six standards from regional plant protection organizations were identified: two for North America and four for Europe and the Mediterranean (Appendix 2). In addition, three commodity-council standards were identified and one standard on European accreditation. These ten standards relate to audit, diagnostics, sampling, testing and treatment, with one relating specifically to authorization.

⁷ FAO Legal Division confirmed that activities such as auditing may be authorized: see SC May 2019 meeting

report, agenda item 5.3, <https://www.ippc.int/en/publications/87249/>

Part II: Implementation and capacity development resources

Several existing implementation and capacity development resources developed under the auspices of the IPPC Secretariat provide guidance on the authorization of entities to perform phytosanitary actions on behalf of an NPPO (see Appendix 3).

A key example is the IPPC guide on the [Operation of a National Plant Protection Organization](#). It recognizes that an NPPO may wish or need to use additional service providers for inspection, export certification programmes, verification or treatment, among other things. The guide provides information on the general process for authorizing entities and clarifies that such companies or agencies should be authorized to undertake phytosanitary actions on behalf of the NPPO. It also emphasizes that the NPPO should enter into an agreement with the entity and audit the process to ensure the phytosanitary actions are delivered as agreed.

The IPPC guide to [Managing Relationships with Stakeholders](#) acknowledges that, for certain activities, an NPPO may not have the capacity to carry out all the necessary phytosanitary actions. For example, it may not have an appropriate diagnostic laboratory to undertake the testing and

diagnosis required. In such cases, the NPPO may contract these activities to outside institutions or private entities, which are stakeholders. This guide also recognizes that stakeholder knowledge can assist NPPOs, especially in the development of specific phytosanitary systems or the conduct and review of regular phytosanitary activities. The guide also provides a list of systems and programmes in which stakeholder involvement is important, including pest risk analysis, regionalization (recognition that an exporting region [all or part of a country or a border-straddling zone] is disease-free or pest-free [or has a lower incidence]), surveillance, export certification and inspection systems, contingency plans and eradication programmes, system approaches, education and training, and government–industry agreements.

The IPPC guides on [Phytosanitary Diagnostic Services](#), [Plant Pest Surveillance](#) and [Export Certification](#) affirm that while the NPPO is responsible for these various phytosanitary activities, various models of operation may be considered for fulfilling these obligations, ranging from using in-house services to outsourcing the activities to authorized entities.

Part III: Review of existing NPPO authorization programmes

Result 1: Authorization of entities by NPPOs is fairly common and, for some countries at least, is well-established

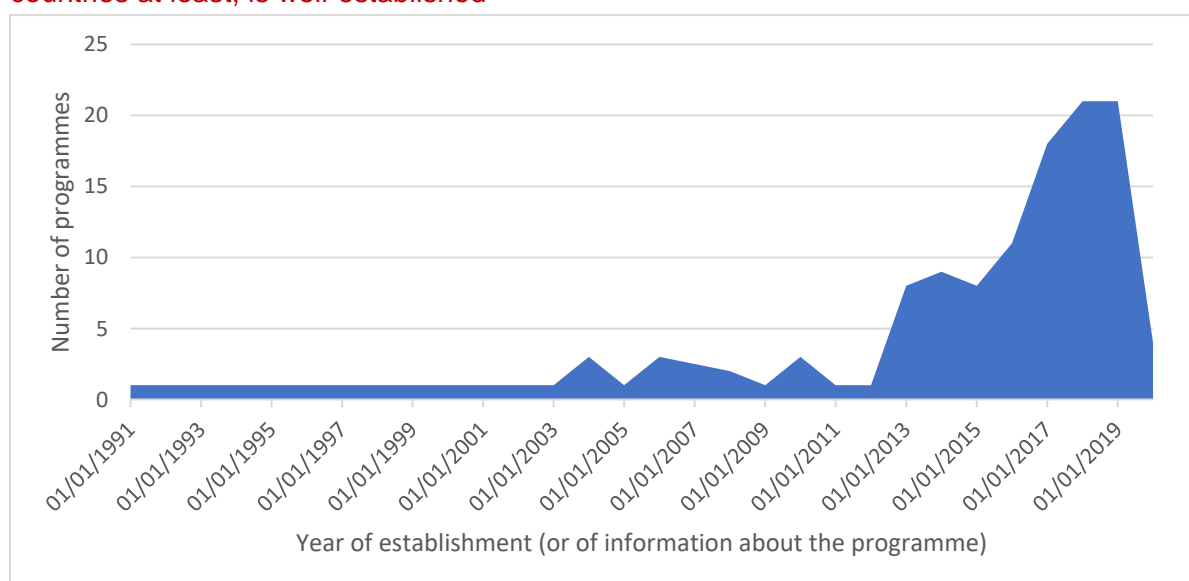


Figure 1. Historical timeline showing the development of authorization programmes identified in this study

A total of 140 authorization programmes were identified in this study, associated with the following 36 countries (see Appendix 4):⁸ Argentina, Australia, Cameroon, Canada, China, Costa Rica, the Dominican Republic, Estonia, France, Ghana, Greece, Guatemala, Honduras, India, Israel, Italy, Kenya, Malaysia, Mali, Montenegro, Morocco, the Netherlands, New Zealand, Pakistan, the Philippines, Portugal, Singapore, South Africa, Spain, Suriname, Sweden, Thailand, the United Kingdom of Britain and Northern Ireland, the United Republic of Tanzania, the United States of America, and Uruguay. Four of these countries – Australia, Canada, New Zealand and the United States of America – account for 55 percent of these programmes. Two of the programmes are decisions of the European Commission, affecting all member states of the European Union.

The authorization programmes identified by this study date back as far as 1991 (Figure 1). The first was the Designated Inspector Sampling Program in Canada (Appendix 4, row 40). This was followed by a set of European Commission decisions in 1993, relating to European Council Directives 93/422/EC, 93/365/EC and 93/360/EC, that allowed alternative measures for wood originating in Canada and exported to the European Union (Appendix 4, row 32). The third programme was the United States–Canada Greenhouse Certification Program, the forerunner of the Greenhouse-Grown Plant Certification Program), which was established jointly by Canada and the United States of America in 1996 (Appendix 4, row 138). The first authorization

programme to be established solely by a country other than Canada was in 1999 by the United States of America for diagnostics (Appendix 4, row 27), with the Netherlands establishing a programme in 2003 for inspection, and Australia, Malaysia and Thailand each establishing a programme in 2004 for treatment (Appendix 4, rows 36, 60, 80 and 100, respectively). Subsequent year saw new programmes established, and although it is not possible to track the rate of increase because some of the dates in the dataset may not be the date of establishment but the date of the information, it can be reasonably assumed that authorization is becoming more prevalent.

In addition to these countries, a further 27 countries were identified as being, at the very least, engaged in authorization in terms of being treatment providers (Appendix 5). These are all participants in the Australian Offshore Brown Marmorated Stink Bug Treatment Providers Scheme or the Australian Fumigation Accreditation Scheme.

Although it is not possible to form a definitive conclusion, based on these data, on how common authorization is at the global scale, the study does point to it being fairly common (at least 37 out of 184 contracting parties, i.e. at least 20 percent). It is clear that certain countries have a well-established suite of authorization programmes and the 140 cases of authorization identified in total represent a considerable body of information about authorization in practice.

Result 2: NPPOs authorize entities to carry out a range of phytosanitary activities

Of the 140 authorization programmes identified in this study, 103 are related to the examples of specific phytosanitary actions identified in the draft ISPM on authorization. These were categorized as follows: audit, destruction, diagnostics, inspection, sampling, surveillance and treatment (Figure 2). Programmes that do not fall into these categories, many of which are broader in scope, are listed under “Other” in Appendix 4.

Of the authorization programmes in Figure 2, the most common (43 percent) relate to treatments. Programmes to support diagnostic services are also fairly common (22 percent). The vast majority of programmes are from high income countries (Figure 3), although with authorization also being used in other countries, particularly for treatments.

⁸ Some programmes are entered more than once in the dataset, either because they involve more than one phytosanitary activity or they have been replaced by a successor programme and both are included; such

“replicates” account for 19 out of the 140 entries in the dataset, but for convenience all entries are referred to as “programmes”

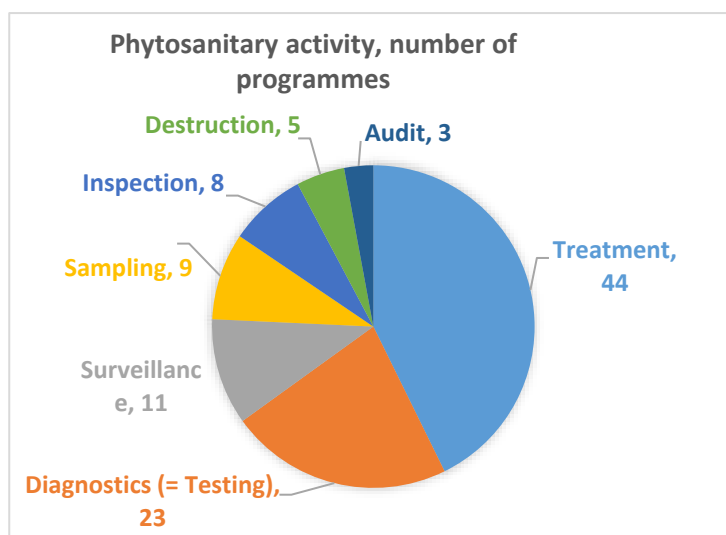


Figure 2. Types of authorization programmes identified in this study

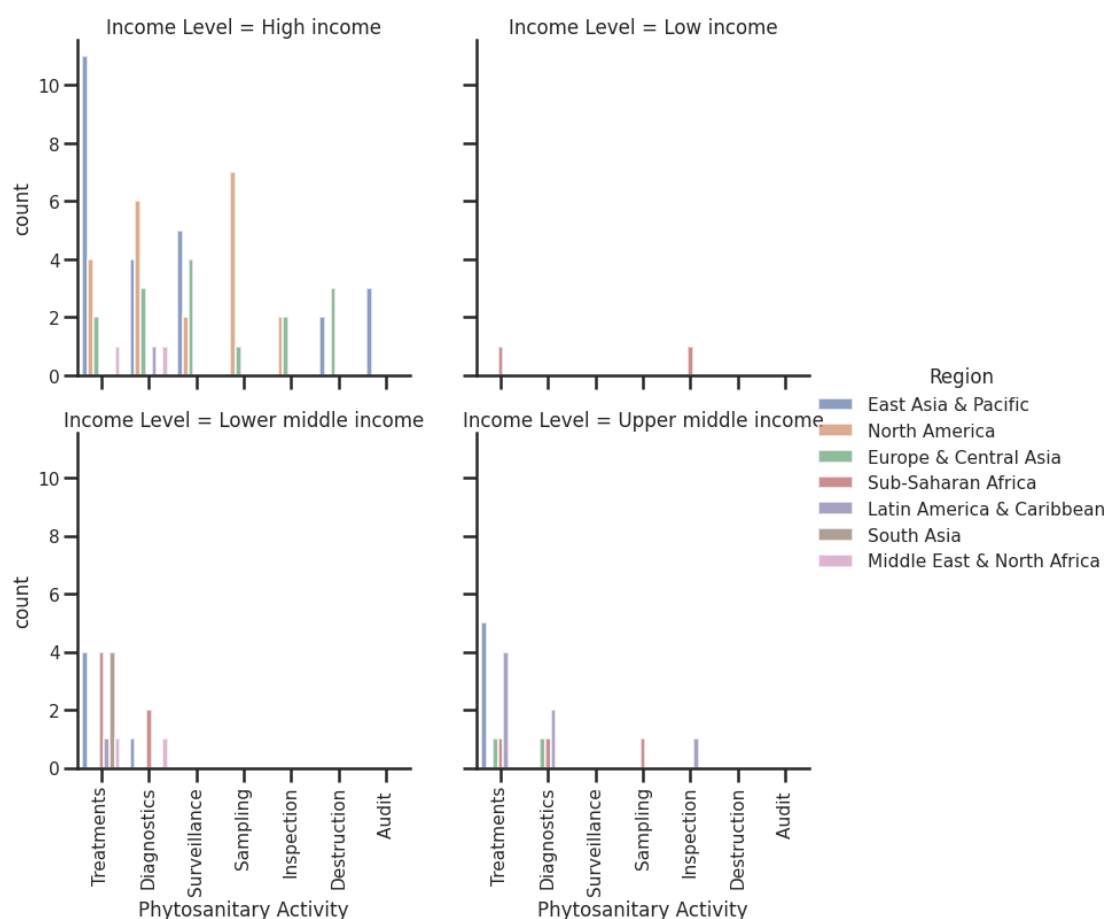


Figure 3. Authorization programmes identified in this study, according to type of activity and income level of country⁹

Only three programmes authorizing audit were identified in the desk review, but this is likely to be an under-representation, given that in all these

three cases, audit is not the primary purpose of the programme. Hence, although a programme may incorporate authorization of entities to

⁹ "Count" is the number of programmes

conduct audits, this may not be immediately obvious.

The authorization programmes identified in the study generally constitute cases of authorization being used to support import (e.g. Australian Fumigation Accreditation Scheme; Appendix 4, row 60) and export (e.g. the Canadian Heat Treated Wood Products Certification Program; Appendix 4, row 67). There are also a few that include domestic movement in their scope (e.g. the BioSecure Hazard Analysis Critical Control

Point [HACCP] programme in Australia; Appendix 4, row 127), but these are broader policies or programmes, which do not fall into the categories shown in Figure 2.

The entities discharging these services include laboratories, universities, treatment providers, associations of facilities, and other industry associations, the latter of which might enjoy established relationships with both industry members and the government.

Result 3: Phytosanitary treatment programmes are the most common type of authorization programme

Table 2. Number of programmes authorizing entities to perform treatment

Country or countries	Number of programmes in each country
Australia	6
Cameroon, China, Costa Rica, Dominican Republic, Ghana, Guatemala, Honduras, Israel, Kenya, Mali, Montenegro, Morocco, Pakistan, Portugal, Singapore, South Africa, Spain, Suriname, Thailand, United Republic of Tanzania	1 in each country
Canada, United States of America	2 in each country
India, Malaysia	3 in each country
New Zealand, Philippines	4 in each country

The phytosanitary activity with the largest number of authorization programmes in this study was treatments. It should be noted, however, that although this may well indicate that treatment is the most common activity to be authorized to third parties, it may also – at least in part – be a reflection of the search methodology used for the desk review.

Not only were treatment authorization programmes the most common in this study, but

they were also associated with the largest number of countries. Twenty-seven countries were found to have authorization programmes pertaining to treatments, these countries representing all FAO regions (Table 2) and representing 75 percent of the 36 countries identified in this study. Eighteen of these programmes are in high-income countries (as defined by the World Bank Country Classification)¹⁰, with only one in a low-income country (Figure 4).

¹⁰ World Bank Country Classification, according to 2019 gross national income per capita: World Bank. 2020. World Bank Country and Lending Groups. In: *The World Bank* [online]. Washington, DC.

[Cited 25 September 2020].
<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>

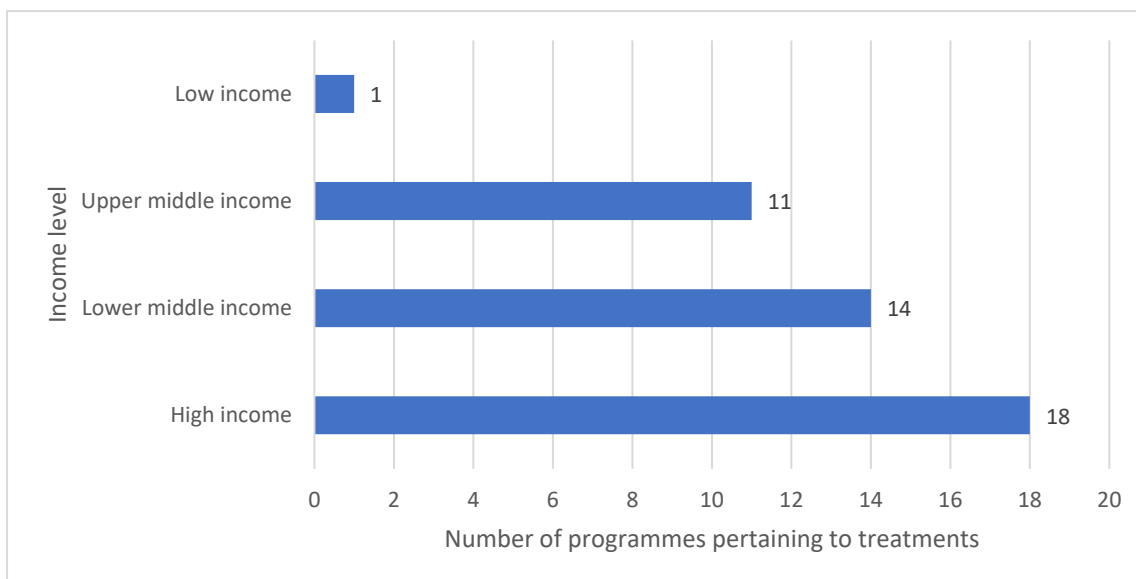


Figure 4. Authorization programmes for treatments, according to income level of the country

Under these programmes, entities are authorized to carry out a range of different types of treatments, including fumigation (e.g. methyl bromide and aluminium phosphine), heat treatments, cold treatments and irradiation. Four of the programmes identified (Appendix 4, rows 60, 62, 64 and 115; in Australia and New Zealand) are offshore programmes.

A number of ISPMs make specific reference to the authorization of treatment providers (see also Appendix 1):

- **Modalities:** ISPM 18 (*Guidelines for the use of irradiation as a phytosanitary measure*) specifies a range of agreements which govern the relationship between NPPOs and the treatment facility, including memoranda of understanding and compliance agreements.
- **Treatment conditions:** ISPM 43 specifies that, when authorizing treatment providers for fumigation, NPPOs should set requirements for authorization, including training of personnel, fumigation procedures, adequate equipment and storage conditions.
- **Temperature mapping:** ISPM 42 indicates that the NPPO is responsible for ensuring that treatment providers maintain records pertaining to the treatment, such as raw data on temperature and humidity recorded during the treatment. Temperature

mapping should be conducted by the NPPO or an authorized entity (person or organization) of the country in which the treatment is initiated or conducted.

- **Audit and supervision:** ISPM 43 indicates that, in relation to authorized providers of fumigation, the NPPO should maintain an audit schedule but that continuous supervision is not necessary, provided treatment procedures are designed, and can be verified, to ensure a high degree of system integrity for the facility, process and commodity in question. The monitoring and auditing should be sufficient to detect and correct deficiencies promptly.
- **Record keeping:** ISPM 42 specifies that the NPPO is responsible for ensuring that treatment providers keep appropriate records, such as raw data on temperature and humidity recorded during the treatment. Record keeping is indicated as being crucial to allow trace-back.
- **Treatment of used vehicles, machinery and equipment:** ISPM 41 (*International movement of used vehicles, machinery and equipment*) indicates that NPPOs can authorize entities for the treatment of used vehicles, machinery and equipment being moved in international trade.¹¹
- **Responsibilities:** Both ISPM 42 and ISPM 43 specify that the NPPO of the country in which the treatment is initiated

¹¹ ISPM 41 also notes that the cleaning of used vehicles, machinery and equipment may be conducted by other entities

or conducted is responsible for the authorization of treatment providers. The NPPO of the country in which the

treatment is conducted is also responsible for the monitoring and auditing of treatments.

Result 4: NPPOs design authorization programmes to meet a variety of objectives

This study found that NPPOs develop and implement authorization programmes for a variety of reasons. Often it is to enhance market-access opportunities, or to mitigate pest risk offshore, or

to support early detection and effective response to new pest situations. Table 3 provides a few examples of objectives for some of the categories of phytosanitary activity shown in Figure 2.

Table 3. Examples of objectives of authorization programmes

Phytosanitary activity	Example of objective (with corresponding programme)
Diagnostics	Accuracy and speed in detections of exotic pathogens to reduce the risk of pest establishment (<i>United States National Plant Diagnostics Network STAR-D Quality Management Program; Appendix 4, row 30</i>)
Inspection	For the detection of plant pests for issuance of phytosanitary certificates (<i>United States, National Seed Health System; Appendix 4, row 104</i>)
Sampling	Efficient processing for exporting companies (<i>Canadian Grain Sampling Program, CGSP; Appendix 4, row 41</i>)
Surveillance	To gather intelligence from a range of new sources including the private sector (<i>Australia, National Biosecurity Surveillance of Exotic Forest Pests 2018–2023; Appendix 4, row 50</i>)
Treatment	Reduce usage of methyl bromide by increasing the effectiveness of the treatment application in the exporting country, thereby reducing the need for re-treatments following import (<i>Australian Fumigation Accreditation Scheme; Appendix 4, row 60</i>)

Brief profiles of two of the examples from Table 3 – those relating to the most common types of activities (diagnostics and treatment) – are provided in Appendix 6.

Where a country has an overarching policy on authorization, the objectives will obviously be more generic. The objectives for Canada's Alternative Service Delivery policy, for example, are as follows:¹²

- a consistent NPPO-wide approach to establishing and overseeing authorization arrangements;
- rigorous analysis of proposed authorization arrangements prior to their establishment;
- effective oversight, review, evaluation and reporting of authorization arrangements.

In this case, the Canadian policy also set outs the guiding principles that underpin the policy:

- The NPPO's reputation, credibility and regulatory independence are maintained.
- Decisions on authorizations are based on assessment of merit.
- Authorizations are developed and maintained in such a way as to efficiently and effectively use government and stakeholder resources.
- Authorizations are consistent with government legislation and policies.
- Authorizations aim to maintain or improve accessibility to services and programmes.
- Authorizations are developed and maintained collaboratively, with an emphasis on effective communication, consultation and information sharing, between government and external parties.
- Authorizations have measurable performance regimes to promote

¹² Canadian Food Inspection Agency. 2020. Alternative service delivery policy. In: *Government of Canada* [online]. [Cited 20 September 2020]. [https://www.inspection.gc.ca/about-](https://www.inspection.gc.ca/about-cfia/transparency/regulatory-transparency-and-openness/sound-agency-management/alternative-service-delivery/policy/eng/1471648506346/1471648730989)

[cia/transparency/regulatory-transparency-and-openness/sound-agency-management/alternative-service-delivery/policy/eng/1471648506346/1471648730989](https://www.inspection.gc.ca/about-cfia/transparency/regulatory-transparency-and-openness/sound-agency-management/alternative-service-delivery/policy/eng/1471648506346/1471648730989)

knowledge exchange, continuous improvement and innovation.

Part IV: Establishing an authorization programme

The authorization programmes identified in this study illustrate some of the implementation issues faced by NPPOs establishing authorization programmes and how these issues have been

addressed. It is not feasible to present a full account of these in this report, but a selection of examples is provided below, to give a flavour of the approaches adopted by contracting parties.

Contractual arrangements

Addressing conflict of interest. The study identified examples of potential conflicts of interest being addressed through provisions in the relevant regulations or at the contract stage. In Canada, for example, the Canadian Grain Commission's requirements for Accredited Service Providers state that:

Auditors shall not audit a company if they have provided consulting services to that company within the previous two years.¹³

[The Accredited Service Provider] shall notify the [Grain Commission] of any changes to their approved auditors and accredited samplers and/or their competencies, management, ownership and managerial structure. If the changes result in a conflict of interest or other issues that would result in loss of integrity, the [Accredited Service Provider] must consult with the [Grain Commission] to decide on appropriate action.¹⁴

In New Zealand, the definition, conditions and repercussions of conflicts of interests are covered in the template contract provided by the NPPO for the authorization of Independent Verification Agencies; a brief outline of the provisions relating to conflict of interest is provided in Appendix 6 of this report.

Managing liabilities. In some contractual arrangements with authorized entities, the NPPO may hold the authorized entity liable for effectively discharging the functions they are authorized to do. In this way, the liability with respect to failed treatments or cross-contamination can potentially be transferred or excluded. For example, the NPPO of Singapore (National Parks Board [Nparks]) includes an "exclusion of liability" clause in its requirements pertaining to treatment providers:

NParks and its authorized officers or agents shall not be liable, under all circumstances, for any loss, claim, action, demand, expense, injury or damage, however caused, arising directly or indirectly from or in any way related to the: (a) treatments conducted; (b) treatment certificate issued; (c) use of TPS certification, mark or endorsement.

The treatment provider shall make necessary arrangements to ensure the treated goods are kept from cross-contamination when the treated products are stored at the owner's premises. The treatment provider will be held accountable for any overseas non-compliance due to pest interception at the importing country if there is reason to believe that such

¹³ Canadian Grain Commission. 2014. *General requirements for accredited providers of sampling program services* [online]. CGC ASP STAN 4.0. Winnipeg, Canada, Canadian Grain Commission. [Cited 10 September 2020]. <https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/asp-fsa-40.pdf>

¹⁴ Canadian Grain Commission. 2014. *Accreditation and monitoring of third party samplers and sampling system auditors* [online]. CGC GSS QSP 4.1.0. [Cited 10 September 2020]. <https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/qsp-psq-410.pdf>

transfer arrangements were not made and recorded accordingly. [National Parks Board (NParks), Singapore]¹⁵

Subcontracting. Contracts with authorized entities may specify the conditions under which an authorized entity may subcontract its obligations, if at all. The template contract for authorized

Quality management

Accreditation. The authorization programmes identified in the study include several that involve formal accreditation of the authorized entities, thereby affording formal recognition that the authorized entities meet the requirements specified by the NPPO. Profiles of three examples are provided in Appendix 6: one for diagnostics (the System for Timely, Accurate & Reliable Diagnostics [STAR-D], in the United States of America), one for a treatment (the Australian Fumigation Accreditation Scheme), and one that involves a hierarchical arrangement of certification and accreditation (the Australian Wood Packaging Certification Scheme) (Appendix 4, rows 30, 60 and 61, respectively).

In plant diagnostics, some authorization programmes accredit to the pertinent ISO standard, while others are *modelled* on it. In Europe, all official control laboratories for plant pest diagnostics within the EU will need to be accredited to ISO/IEC 17025 (*General requirements for the competence of testing and calibration laboratories*) by April 2022, with additional guidance being provided in the relevant regional standard (EPPO Standard PM 7/98, *Specific requirements for laboratories preparing accreditation for a plant pest diagnostic activity*).¹⁷ In the United States of America, the STAR-D programme, run by the National Plant Diagnostic

entities in New Zealand, for example, states that the authorized entity is not permitted to subcontract without the prior written approval of the NPPO. The template contract also makes it clear that subcontracting does not relieve the authorized entity of any of its liabilities or obligations under the contract; furthermore, the entity may only further subcontract with the NPPO's consent.¹⁶

Network, used ISO/IEC 17025 as a model and then customized it for the purposes of plant pest diagnostics.¹⁸

In some countries, NPPOs are exploring accreditation of flexible scopes for their laboratories, to equip them to expand their scope to cover, for example, situations when they need to quickly add or delete tests to answer urgent demands, or to modify an existing test to broaden its applicability.¹⁹ In Europe, European Co-operation for Accreditation has produced guidelines to enable accredited laboratories to manage their scope without needing an evaluation by the national accreditation body for each activity.²⁰

Nonconformities. The authorization programmes identified in the study vary in how they define the various degrees of nonconformity (e.g. critical, major and minor) and in the repercussions for the authorized entity when nonconformities are identified. Some programmes use a "list-based" approach to classify the degrees of nonconformity with a prescriptive list of specific nonconformities for each degree of nonconformity; some use a more "principle-based" approach with a general description of what constitutes the different degrees of nonconformity; and some combine these two

¹⁵ National Parks Board. 2016. *Singapore treatment provider scheme: Requirements for the treatment providers* [online]. [Cited 10 September 2020]. [https://www.nparks.gov.sg/-/media/avs/plant-health-and-science/treatment-provider-scheme-\(tps\)-version3_final_nparks.pdf?la=en&hash=6456C8BBEA506D8B89936570F9132C8A1295BAA3](https://www.nparks.gov.sg/-/media/avs/plant-health-and-science/treatment-provider-scheme-(tps)-version3_final_nparks.pdf?la=en&hash=6456C8BBEA506D8B89936570F9132C8A1295BAA3)

¹⁶ Ministry of Primary Industries. 2015. *Plant export requirement. MPI certification standard: IVA requirements* [online]. Wellington, Ministry of Primary Industries. [Cited 20 September 2020]. <https://www.mpi.govt.nz/dmsdocument/7956/direct>

¹⁷ European Accreditation. 2018. *EA and EPPO continue their cooperation for accreditation of plant pest diagnostic laboratories* [online]. European Cooperation for Accreditation. [Cited 10 September 2020]. <https://www.accredia.it/app/uploads/2018/10/EA-EPPO-communicue.pdf>; also, <https://european-accreditation.org/ea-and-eppo-continue-their-cooperation-for-accreditation-of-plant-pest-diagnostic-laboratories/>

¹⁸ Dailey-O'Brien, D., Snover-Clift, K., Vitoreli, A., Burch, K., Hammerschmidt, R., Harmon, C., Putnam, M., Shiel, P., Meyer, D., Tidwell, T., Gaimari, S., Ruhl, G. & Smith, C. 2011. STAR-D, a System for True, Accurate and Reliable Diagnostics; NPDP's Laboratory Accreditation Program. Poster presentation at the Third National Meeting of the National Plant Diagnostics Network, 6–9 November 2011, Berkeley, California. (available at https://www.npdn.org/2011_national_meeting)

¹⁹ EPPO (European and Mediterranean Plant Protection Organization). 2019. *Specific requirements for laboratories preparing accreditation for a plant pest diagnostic activity*. PM 7/98. *EPPO Bulletin*, 49: 530–563. (also available at <https://onlinelibrary.wiley.com/doi/epdf/10.1111/epp.12629>)

²⁰ European Accreditation. 2019. *EA requirements for the accreditation of flexible scopes* [online]. EA-2/15 M: 2019. Paris, European Accreditation. [Cited 22 September 2020]. <https://european-accreditation.org/wp-content/uploads/2018/10/ea-2-15-m.pdf>

approaches by giving a general description and providing a list of specific nonconformities or a selection of examples. Two programmes that provide both a general description and a list are the NParks Treatment Provider Service in Singapore²¹ and the Canadian Grain Commission's Grain Sampling Program²² (Appendix 4, rows 96 and 41, respectively). A brief profile of the latter is provided in Appendix 6. In terms of the consequences of nonconformity, not only can this depend upon the degree of nonconformity (e.g. Canadian Grain Commission's Grain Sampling Program: see profile in Appendix 6), but it can also vary depending on the level of intent behind the nonconformity. The Australian NPPO's audit

policy for authorized entities, for example, differentiates between entities whose nonconformity is a result of inexperience or new exposure to the regulatory system and those who engage in systematic, intentional nonconformity (see profile in Appendix 6.)

Audit. Although audit is a critical component of many of the authorization programmes identified in this study, implementation issues regarding audit arrangements are not presented in this report as guidance on audit is the subject of another draft standard currently under development – the draft ISPM on *Audit in the phytosanitary context* (2015-014).

Funding and capacity development

A few of the authorization programmes identified in the study provided some insight, albeit small, into funding and capacity-development mechanisms to support authorization programmes.

Funding. Some of the authorization programmes identified in the study are completely user-pay, others are subsidized or completely paid for by the NPPO, and in others the costs are shared among partners. Some draw upon a combination of funding sources. For example, the National Seed Health System in the United States of America (Appendix 4, row 104) has been supported by funding from accreditation fees, a trade association and government grants; a brief profile is provided in Appendix 6.

Where a private-sector entity is unavailable to discharge services for which it has already been delegated by the NPPO, and the NPPO is then required to provide these services, the NPPO might be able to charge for these services. In New Zealand's treatment programme, for example, the NPPO may provide services such as treatment supervision where the authorized entity is not available, and charges for this on a full, cost-recovery basis.²³

Pre-existing control and authorization infrastructure and systems might offer cost-saving opportunities, as may combining activities to serve multiple programmes. The Canadian Grain Commission, for example, allows combined audits that have a scope covering more than one programme (e.g. the Canadian Grain Commission's Hazard Analysis Critical Control Point [HACCP] programme and the Certified Container Sampling Program).²⁴

Capacity development. The Australian Fumigation Accreditation Scheme is an example of an offshore scheme in which training and support for overseas regulatory officers has been built into the authorization programme. A brief profile is provided in Appendix 6, including a reference to a case study analysing the problems encountered and lessons learned.

Mechanisms to support smaller and newer players seeking to provide services may also be accommodated within authorization programmes, to allow for a learning process. For example, the treatment supplier programme in New Zealand (Appendix 4, row 87) states that "While the requirements for a treatment supplier's quality management systems are based upon principles of the ISO 9000 series of quality management

²¹ National Parks Board. 2016. *Singapore treatment provider scheme: Requirements for the treatment providers* [online]. [Cited 10 September 2020]. [https://www.nparks.gov.sg/-/media/avs/plant-health-and-science/treatment-provider-scheme-\(tps\)-version3_final_nparks.pdf?la=en&hash=6456C8BBEA506D8B89936570F9132C8A1295BAA3](https://www.nparks.gov.sg/-/media/avs/plant-health-and-science/treatment-provider-scheme-(tps)-version3_final_nparks.pdf?la=en&hash=6456C8BBEA506D8B89936570F9132C8A1295BAA3)

²² Canadian Grain Commission. 2014. *Conducting an audit of a grain sampling system* [online]. CGC GSS QSP 4.3.1. [Cited 10 September 2020]. <https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/gsp-psq-431.pdf>

²³ Ministry of Primary Industries. 2018. *Treatment requirement. Treatment programme: Overview and general requirements for the supply of official treatments* [online]. Wellington, Ministry of Primary Industries. [Cited 20 September 2020].

<https://www.biosecurity.govt.nz/dmsdocument/110/direct>
²⁴ Canadian Grain Commission. 2014. *Conducting an audit of a grain sampling system* [online]. CGC GSS QSP 4.3.1. Winnipeg, Canada, Canadian Grain Commission. [Cited 10 September 2020]. <https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/gsp-psq-431.pdf>

system standards, it is recognized that small businesses may 'require less formal structures and systems'.²⁵ The STAR-D programme in the United States of America has two types of accreditation – an “accredited laboratory” and a

“provisionally accredited” laboratory – to allow for minor improvements to be made without having to start the application process again (see Appendix 6).

Discussion

This desk study has illustrated some of the global trends in authorization of entities and how some of the corresponding implementation issues are being addressed in practice. This draws on the considerable quantity of information about individual authorization programmes reviewed for this study. Although this detailed information is not presented in this report, it has provided some insights into what factors may determine the success of an authorization programme. These are briefly introduced in this Discussion.

Proponents of authorization of entities may cite the following benefits for the NPPO in authorizing entities to perform phytosanitary actions:

- access to specialized expertise or equipment;
- effective allocation of NPPO resources;
- efficient and timely delivery of phytosanitary activities;
- shared costs and shared responsibilities;
- use of systems approaches to support market access.

The design and delivery of a successful authorization programme, however, could potentially depend on a range of factors, ranging from tangible factors such as the underlying planning instruments to intangible factors such as having a culture of iterative learning.

The existence of supporting national legislation, standards or policies. These could range from instruments with a narrow phytosanitary scope to those pertaining to a wider field of activity, for instance food standards, biosecurity, audit or accreditation in general.

The availability of entities that are both capable of performing the phytosanitary activities and interested in doing so. These entities may include, for example, other government departments, laboratories, universities, treatment providers or industry associations.

The relationship between the NPPO and the authorized entity. Different phytosanitary

activities might call for different approaches within the same country. For example, encouraging innovation in surveillance might invite a project-oriented, co-development approach, whereas diagnostics for emergency response, or the provision of treatment services, might invite stricter regulation because the requirement for precise results might be higher. The modalities through which these entities discharge these functions could include contracts, projects, voluntary arrangements, memoranda of understanding, ad-hoc arrangements, industry certification schemes or offshore schemes.

Whether the authorization programme is cost-effective. As described above, the funding mechanisms may vary from programme to programme, but the key is clearly whether the programme offers a net benefit.

Whether there are specific approaches or beliefs that need encouraging or taking into account. There might be specific approaches, or cultural beliefs (culture of compliance and conformity, culture of learning, etc.), which contribute to the “success” of authorization programmes. Opportunities for learning may occur at different levels, ranging from scrutiny of instances of nonconformity during internal audits, through reviews of authorization arrangements and programmes by NPPOs, to government-level evaluations of overarching authorization policy. In some cases, where the NPPO and a private-sector entity pursue a relationship which is closer to a partnership approach than a highly regulated formal mechanism, feedback could be solicited from the private sector. The concept of continuous improvement is discussed in ISO 17025, and EPPO PM 7/98 says that a continuous improvement programme should be implemented by diagnostics laboratories.

The extent to which the authorization programme is inclusive of smaller or newer players. Over time, this could result in either a market with a large number of players, if the programme is inclusive of smaller and newer players, or a monopoly structure, if it is not. One of the possible ways of accommodating smaller

²⁵ Ministry of Primary Industries. 2018. *Treatment requirement: Treatment supplier requirements* [online]. Wellington, Ministry of Primary Industries. [Cited 10

September 2020]. <https://www.biosecurity.govt.nz/dmsdocument/111/direct>

and newer players could be to explore and allow alternatives to expensive ISO accreditation through tiered accreditation approaches.

Whether an adequate information system is in place and whether information is consistently collected. One example is the EU interception data which trigger audits, through the EUROPHYT Rapid Alert system, in EU member states and contracting parties outside the EU.

How conformity is encouraged and how nonconformities are dealt with. Approaches to nonconformities range from the imposition of punitive sanctions (e.g. suspensions) to more nuanced approaches that allow for differences in the experience of the entity and the intent behind the nonconformity (e.g. Australian NPPO policy on audit, see Appendix 6). The approach chosen by the NPPO could depend on the time and resources available to coach each entity, the ability of the NPPO to communicate the rigour of the control systems, and whether there is a need to encourage a greater diversity of players. The degree of conformity achieved could also be influenced by organizational culture, for instance whether there is a mentality of conformity or a mentality of continuous improvement, and whether conformity assessment is seen as causing significant delays.²⁶

Summary of study findings

This desk study included a thorough review of the existing legislative framework – including the Convention, ISPMs and CPM Recommendations – and existing implementation resources developed under the auspices of the IPPC Secretariat that provide guidance on the authorization of entities by NPPOs to carry out phytosanitary actions. The Convention provides clear provisions for NPPOs to authorize other entities to undertake phytosanitary actions, with the exception of the issuance of phytosanitary certificates. Several ISPMs include references to the authorization of entities by NPPOs to perform a range of phytosanitary activities and guidance on authorization is available in several IPPC guides. There are also some regional standards

Whether the control system seeks to build the capacity of the NPPO, the auditor and the authorized entity. Investing in developing the auditor's judgment, regularly communicating trends of nonconformity to the industry, and receiving feedback on the control system from the industry could result in iterative development of the authorization and control scheme.

Whether NPPOs of exporting countries are able to communicate indicators of trust to NPPOs of importing countries, and whether auditors from the importing country are willing to discern and tolerate differences. A contracting party's trust in the authorization programmes maintained by the NPPO of an exporting country is likely to be based on an assessment of the robustness of the authorization and control regime. However, it can also be important to have an understanding and tolerance of the culture underlying relationships between business and government in the exporting country. In the Australian Fumigation Accreditation Scheme, for example, the audit training programme was modified following the observation that the cultural practice of unquestioningly accepting another individual's word makes effective auditing difficult in some countries.²⁷

related to authorization. However, there is currently a lack of comprehensive guidance available on this topic.

Searching NPPO websites yielded over one hundred examples of phytosanitary authorization programmes. The earliest programmes were initiated in the 1990s. Since then, both the number of programmes and the number of countries using authorization have increased, with authorization now appearing to be fairly common.

Treatments were found to be the most common phytosanitary activity carried out by authorized entities, followed by programmes to support diagnostics. Authorization programmes are also

²⁶ "Smaller organisations particularly see conformity assessments as causing significant delays" "We heard that a compliance mentality rather than a continuous improvement mentality among [conformity assessment bodies] was an issue". Ministry of Business, Innovation and Employment. 2018. *Conformance policy and infrastructure review: Issues and opportunities paper* [online]. New Zealand Government. [Cited 20 September 2020].

<https://www.mbie.govt.nz/assets/8cba220a68/conformance-policy-and-infrastructure-review-issues-and-opportunities-paper.pdf>

²⁷ OECD (Organisation for Economic Co-operation and Development) and World Trade Organization. 2011. *Aid-for-Trade case study: Australia. Australian Fumigation Accreditation Scheme* [online]. [Cited 20 September 2020]. <https://www.oecd.org/aidfortrade/47341463.pdf>

being used for audit, destruction, inspection, sampling and surveillance.

This study found examples of authorization programmes being used to support import, export, and domestic phytosanitary systems.

Recommendations for any further study

The aim of this IRSS study was to complete a preliminary scoping study on the global trends regarding NPPO authorization of entities to perform phytosanitary actions.

The study could be expanded in future to:

1. search for additional authorization programmes in regions that were under represented in this study;
2. carry out interviews with NPPO authorization experts in the different FAO regions to gather more detailed information:
 - key mechanisms used to communicate or enforce the roles and responsibilities of the NPPO and the authorized entity (e.g. conformity agreements, certification, accreditation, training)
 - potential conflicts of interest and how they are managed
 - potential concerns about phytosanitary security being compromised if private entities are

authorized, and how these concerns are addressed

- complaint and feedback systems
 - nonconformities and how they are managed
 - existing guidance and training materials on audit and supervision
 - examples where oversight of an authorization programme is provided by an authorized entity or by a foreign NPPO.
3. consider the implementation capacity and the availability of resources for implementing authorization programmes (e.g. availability of entities with the experience and knowledge required to carry out phytosanitary actions; technical capacity within the NPPO for evaluation and audit);
 4. develop a number of case studies to demonstrate how a delegated system and its elements can be established.

Appendices

Appendix 1: Authorization of entities in ISPMs

Appendix 2: Authorization of entities in other global and regional standards

Appendix 3: Authorization of entities in IPPC guides and training materials

Appendix 4: NPPO/contracting party authorization programmes

Appendix 5: Authorized treatment providers under two Australian offshore schemes

Appendix 6: Selected examples of authorization programmes

Appendix 1: Authorization of entities in ISPMs

The table below provides extracts mentioning authorization of entities in ISPMs.

ISPM	Extracts
ISPM 3. Guidelines for the export, shipment, import and release of biological control agents and other beneficial organisms	<p>7.1 Release The NPPO or other responsible authority should authorize and audit official requirements related to the release of biological control agents or other beneficial organisms, e.g. requirements related to release only in specific areas. This audit may be used to alter the requirements related to import or release of the organism.</p> <p>7.2 Documentation Documentation sufficient to allow trace-back of released biological control agents or other beneficial organisms should be maintained by the NPPO or other responsible authority.</p> <p>7.5 Communication It is recommended that the NPPO or other responsible authority ensures that local users and suppliers of biological control agents or other beneficial organisms, and farmers, farmer organizations and other stakeholders, are kept sufficiently informed and educated on the appropriate measures for their use.</p>
ISPM 5. Glossary of phytosanitary terms	<p>2.7 of Supplement 1, NPPO authority and involvement in official control: Official control should: Be established or recognized by the contracting party or the NPPO under appropriate legislative authority; Be performed, managed, supervised or, at minimum, audited/reviewed by the NPPO Have enforcement assured by the contracting party or the NPPO Be modified, terminated or lose official recognition by the contracting party or the NPPO.</p> <p>Responsibility and accountability for official control programmes rests with the contracting party. Agencies other than the NPPO may be responsible for aspects of official control programmes, and certain aspects of official control programmes may be the responsibility of subnational authorities or the private sector. The NPPO should be fully aware of all aspects of official control programmes in its country.</p>
ISPM 6. Surveillance	<p>2.2.8 Biosecurity and sanitation When developing surveillance protocols, NPPOs should consider procedures to ensure that spread of pests is not facilitated during a survey. NPPO officers, or other personnel authorized to undertake surveillance, should follow any biosecurity procedures that are in place at facilities, place of production or sites being surveyed.</p>

ISPM	Extracts
	<p>3.7 Auditing NPPOs should conduct regular audits of their general and specific surveillance, including activities conducted by authorized entities, to ensure that activities are carried out in accordance with relevant surveillance protocols.</p> <p>3.10 Information management standards It is critical that surveillance data and information are collected in a uniform manner to ensure their integrity from collection to reporting. NPPOs should develop and implement minimum datasets, for use across all surveillance programmes in accordance with section 4 of this standard.</p>
ISPM 7. Phytosanitary certification system	<p>3.1 Personnel Except for the issuance of phytosanitary certificates, non-governmental personnel may be authorized by the NPPO to perform specified certification functions. To be authorized, such personnel should be qualified and skilled, and responsible to the NPPO. To ensure independence in their exercise of official functions, they should be subject to restrictions and obligations equivalent to those of government officials and have no conflict of interest (e.g. financial or otherwise) that may affect the outcome.</p>
ISPM 15. Regulation of wood packaging material in international trade	<p>Section 4.1 NPPOs that authorize use of the mark have the responsibility for ensuring that all systems authorized and approved for implementation of this standard meet all necessary requirements described within the standard, and that wood packaging material (or wood that is to be made into wood packaging material) bearing the mark has been treated and/or manufactured in accordance with this standard.</p> <p>The NPPO should supervise (or, as a minimum, audit or review) the application of the treatments, and authorize use of the mark and its application as appropriate.</p>
ISPM 18, Guidelines for the use of irradiation as a phytosanitary measure	<p>1. Approval of Facilities Treatment facilities should be subject to approval (qualification, certification or accreditation) by the NPPO in the country where the facility is located prior to applying phytosanitary treatments.</p> <p>5. Approval of Facilities Treatment facilities should be approved by relevant nuclear regulatory authorities where appropriate. Treatment facilities should also be subject to approval (qualification, certification or accreditation) by the NPPO in the country where the facility is located prior to applying phytosanitary treatments.</p> <p>6. Phytosanitary System Integrity Confidence in the adequacy of an irradiation treatment is primarily based on assurance that the treatment is effective against the pest(s) of concern under specific conditions and the treatment has been properly applied and the commodity adequately safeguarded. The NPPO of the country where the facility is located is responsible for ensuring system integrity, so that treatments meet the phytosanitary requirements of the importing country.</p>

ISPM	Extracts
	<p>6.3 Verification The adequacy of treatment facilities and processes should be verified through monitoring and audit of facility treatment records that include, as necessary, direct treatment oversight. Direct, continuous supervision of treatments should not be necessary provided treatment programmes are properly designed to ensure a high degree of system integrity for the facility, process and commodity in question.</p> <p>7.2 Facility records and traceability Packers and treatment facility operators should be required to keep records. These records should be available to the NPPO for review, e.g. when a trace-back is necessary.</p> <p>8.5 Administration and documentation by the NPPO The NPPO should have the ability and resources to evaluate, monitor, and authorize irradiation undertaken for phytosanitary purposes. Policies, procedures, and requirements developed for irradiation should be consistent with those associated with other phytosanitary measures, except where the use of irradiation requires a different approach because of unique circumstances.</p> <p>The monitoring, certification, accreditation and approval of facilities for phytosanitary treatments is normally undertaken by the NPPO where the facility is located, but by cooperative agreement may be undertaken by: the NPPO of the importing country the NPPO of the exporting country, or other national authorities</p> <p>Memoranda of understanding (MOUs), compliance agreements or similar documented agreements between the NPPO and the treatment applicator/facility should be used to specify process requirements and to assure that responsibilities, liabilities and the consequences of non-compliance are clearly understood. Such documents also strengthen the enforcement capacity of the NPPO if corrective action may be necessary. The NPPO of the importing country may establish cooperative approval and audit procedures with the NPPO of the exporting country to verify requirements.</p> <p>All NPPO procedures should be appropriately documented and records, including those of monitoring inspections made and phytosanitary certificates issued, should be maintained for at least one year.</p> <p>In case of non-compliance or new or unexpected phytosanitary situations, documentation should be made available as described in ISPM 13.</p> <p>Annex 2: Checklist for facility approval²⁸</p>

²⁸ The checklist for facility approval includes elements related to: premises, personnel, product handling, storage and segregation, irradiation treatment, packaging and labelling and documentation

ISPM	Extracts
ISPM 20. Guidelines for a phytosanitary import regulatory system	<p>2. Structure The NPPO is the official service responsible for the operation or oversight (organization and management) of the phytosanitary import regulatory system. Other government service, such as the Customs service, may have a role (with defined separation of responsibilities and functions) in the control of imported commodities and liaison should be maintained.</p> <p>5.1.7 Systems for authorization of non-NPPO personnel NPPOs may authorize, under their control and responsibility, other government services, nongovernmental organizations, agencies or persons to act on their behalf for certain defined functions. In order to ensure that the requirements of the NPPO are met, operational procedures are required. In addition, procedures should be developed for the demonstration of competency and for audits, corrective actions, system review and withdrawal of authorization.</p> <p>8.1 System review The contracting party should periodically review its phytosanitary import regulatory system. This may involve monitoring the effectiveness of phytosanitary measures, auditing the activities of the NPPO and authorized organisations or persons, and modifying the legislation, regulations and procedures as required.</p>
ISPM 23. Guidelines for inspection	<p>1.3 Responsibility for inspection NPPOs have the responsibility for inspection. Inspections are carried out by NPPOs or under their authority (see also ISPM 7 (Phytosanitary certification system), ISPM 20 (Guidelines for a phytosanitary import regulatory system), and Articles IV.2(a), IV.2(c) and V.2(a) of the IPPC).</p> <p>1.4 Requirements for inspectors As authorized officers or agents by the NPPO, inspectors should have:</p> <ul style="list-style-type: none"> • authority to discharge their duties and accountability for their actions • technical qualifications and competencies, especially in pest detection • knowledge of, or access to capability in, identification of pests, plants and plant products and other regulated articles • access to appropriate inspection facilities, tools and equipment • written guidelines (such as regulations, manuals, pest data sheets) • knowledge of the operation of other regulatory agencies where appropriate • objectivity and impartiality.
ISPM 27. Diagnostic protocols for regulated pests	<p>PURPOSE AND USE OF DIAGNOSTIC PROTOCOLS Diagnostic protocols are intended to be used by laboratories performing pest diagnosis. Such laboratories may be established under or may be authorized by the NPPO to perform these activities in such manner that the results of the pest diagnosis may be considered as part of a phytosanitary measure of the NPPO.</p>
ISPM 31. Methodologies for sampling of consignments	3, Statistical and Non-statistical sampling

ISPM	Extracts
	<p>The sampling method is the process approved by the NPPO to select units for inspection and/or testing. Sampling for phytosanitary inspection of consignments or lots is done by taking units from the consignment or lot without replacement of the units selected. NPPOs may choose either a statistically based or non-statistical sampling methodology.</p>
ISPM 38. International Movement of Seeds	<p>1.5.1 Seed certification schemes Seed certification schemes should ensure seed traceability. Information on international seed certification schemes is provided in some of the sources in Appendix 3.</p>
ISPM 39. International movement of wood	<p>2.2 Treatments Treatments should be applied under the supervision or with the authorization of the NPPO of the exporting country to meet the phytosanitary import requirements. The NPPO of the exporting country should make arrangements to ensure that treatments are applied as prescribed and, where appropriate, should verify that wood is free of target pests by inspection or testing prior to phytosanitary certification.</p>
ISPM 41. International Movement of Used Vehicles, Machinery and Equipment	<p>3. Verification Procedures The NPPO of the exporting country may authorize entities for the treatment of used VME. The cleaning of used VME may also be conducted by entities other than the NPPO.</p>
ISPM 42. Requirements for the use of temperature treatments as phytosanitary measures	<p>4.1 Temperature mapping Temperature mapping should be conducted by the NPPO or an authorized entity (person or organization) of the country in which the treatment is initiated or conducted.</p> <p>8. Responsibilities The NPPO of the country in which the temperature treatment is initiated or conducted is responsible for the evaluation, approval and monitoring of the application of temperature treatments as phytosanitary measures, including those performed by other authorized entities. However, when treatments are conducted or completed during transport, the NPPO of the exporting country is usually responsible for authorizing the entity applying the treatment during transport, and the NPPO of the importing country is responsible for verifying if the treatment requirements have been met.</p>
ISPM 43. Requirements for the use of fumigation as a phytosanitary measure	<p>5.1 Authorization of treatment providers The NPPO of the country in which the phytosanitary treatment is conducted or initiated (the latter when fumigation takes place during transport) is responsible for the authorization of treatment providers. This authorization normally includes approval of both treatment facilities and treatment providers. The NPPO should set requirements for treatment provider authorization, including training of personnel, fumigation procedures, adequate equipment and storage conditions. Specific procedures appropriate for each facility, provider and commodity treatment should also be approved by the NPPO. NPPOs should maintain a list of authorized treatment providers capable of undertaking fumigation, including, where appropriate, approved facilities.</p> <p>5.2 Monitoring and auditing</p>

ISPM	Extracts
	<p>The NPPO of the country in which the fumigation is conducted or initiated is responsible for the monitoring and auditing of treatment facilities and providers. The NPPO should maintain an audit schedule and ensure that such audits are performed by appropriately trained personnel. Continuous supervision of fumigations should not be necessary, provided treatment procedures are properly designed and can be verified to ensure a high degree of system integrity for the facility, process and commodity in question. The monitoring and auditing should be sufficient to detect and correct deficiencies promptly.</p> <p>6. Documentation The NPPO of the country in which the fumigation is conducted or initiated is responsible for ensuring that treatment providers use approved fumigants, document procedures and keep appropriate records, such as raw data on fumigant concentration and temperature recorded during treatments. Accurate record keeping is essential to allow for trace-back capability.</p> <p>8. Responsibilities The NPPO of the country in which the fumigation is conducted or initiated is responsible for the evaluation, approval and auditing of the application of fumigation as a phytosanitary measure, including fumigation performed by the NPPO itself and by other authorized treatment providers. However, when fumigation is conducted or completed during transport, the NPPO of the exporting country is usually responsible for authorizing the treatment provider applying the fumigation during transport and the NPPO of the importing country is responsible for verifying if the fumigation schedule has been met.</p>

Appendix 2: Authorization of entities in other global and regional standards

Programme	Institution	Year	Activity type
European Co-operation for Accreditation (EA)			
EA requirements for the accreditation of flexible scope	EA	2019	Diagnostics
Grain and Feed Trade Association (GAFTA)			
GAFTA standard for fumigation	GAFTA	2018	Treatment
GAFTA Standard for analysis and testing	GAFTA	2019	Testing
GAFTA Standard for supervision, sampling and weighing	GAFTA		Sampling
North American Plant Protection Organization (NAPPO) and European and Mediterranean Plant Protection Organization (EPPO) standards			
RSPM No. 28: Authorization of entities to perform phytosanitary services	NAPPO	2009	Authorization; Audit
RSPM No. 9: The authorization of laboratories for phytosanitary testing	NAPPO	2009	Diagnostics
PM7/98: Specific requirements for laboratories preparing accreditation for a plant pest diagnostic activity	EPPO	First approved in 2009, 2018	Diagnostics
PM 7/77: Documentation and reporting on a diagnosis	EPPO	2006, revised in 2016	Diagnostics
PM7/84: Basic requirements for quality management in plant pest diagnostic laboratories	EPPO	2007, revised in 2018	Diagnostics
PM 7/130 (1): Guidelines on the authorization of laboratories to perform diagnostic activities for regulated pests	EPPO	2016	Diagnostics

Appendix 3: Authorization of entities in IPPC guides and training materials

Guide	Extracts
<p>Operation of a NPPO: A guide to understanding the principal requirements for operating an organization to protect national plant resources from pests</p>	<p>Section 3.5. Resource mobilization Note that the NPPO might not possess all the required competencies and facilities, but it certainly needs to have access to them. Collaborating institutions and service providers should be identified for all phytosanitary programmes, including surveillance, diagnosis, treatment and import–export procedures. External services can be engaged through authorization systems where services are provided, but the ultimate responsibility remains with the NPPO.</p> <p>Section 5.3. Stakeholder engagement <i>Third party service providers</i> The NPPO may wish or need to use additional service providers for inspection, phytosanitary certification, verification or treatment, among other things. Such companies or agencies should be authorized to undertake phytosanitary actions on behalf of the NPPO and to become the legal entities. It is important that the NPPO ensures the quality of the services and audits the process as per the agreement (Figure 3). The following steps are involved in authorization of service providers.</p> <ol style="list-style-type: none"> 1. The NPPO identifies a potential service provider (laboratory, company, institution or individual) with the specific competencies required, and conducts a site audit to evaluate the facility for suitability, and evaluates competencies of personnel and procedures and documentation on compliance with the relevant requirements. 2. Discussions are held to determine the conditions for performing certain functions on behalf of and under supervision of the NPPO. 3. The improvements or adjustments to the procedures or physical changes to the facility that the potential service provider must make are determined. Standards, protocols or guidelines with which the potential service provider must comply are discussed and decided. Training is conducted where appropriate to ensure the necessary competencies. 4. The NPPO conducts periodic audits following the training or adjustments to ensure it complies with the required standards, guidelines and protocols. 5. The NPPO authorizes the service provider for a prescribed time and notifies this in writing. Monitoring, audit and review procedures are then finalized and maintenance of authorization is subject to on-going audits by the NPPO.
<p>Managing relationships with stakeholders: A guide to stakeholder relations for national plant protection organizations</p>	<p>Section 4. Stakeholder Input on Phytosanitary Operations For certain activities, an NPPO may not have the capacity to carry out all the necessary actions. For example, it may not have an appropriate diagnostic laboratory to undertake required testing and diagnosis. In such cases, the NPPO may be obliged to contract these activities to outside institutions or private entities, which are stakeholders.</p> <p>Stakeholder knowledge can assist NPPOs, especially in the development of specific phytosanitary systems or the conduct and review of regular phytosanitary activities. Stakeholders can be involved in the planning and conception phase of a specific phytosanitary programme or in its implementation. Systems and programmes in which stakeholder involvement are important include PRA, regionalization, pest surveillance, export certification and inspection systems, contingency plans and eradication programmes, system approaches, education and training, and government–industry agreements.</p>

Guide	Extracts
Guide to delivering phytosanitary diagnostic services	<p>Section 1. Diagnostic Laboratory</p> <p>Introduction - The NPPO, as required by ISPM 27 (<i>Diagnostic protocols for regulated pests</i>), is responsible to “perform” or otherwise “authorize” plant pest identification services that support national plant pest surveillance or surveys. In fulfilling this obligation various models of operation can be envisaged, from in-house services to out-sourcing to authorized independent entities, with any combination between these operational models.</p>
Export certification: A guide to export certification for national plant protection organizations	<p>Section 10. NPPO and Stakeholder Relationships in Promoting Compliance in Phytosanitary Export Certification</p> <p>Third-party providers (e.g. disinfestation/disinfection companies) are used in consignment disinfestation or other activities on behalf of the NPPO. In this regard, these companies or agencies should be authorized to undertake responsible action on behalf of the NPPO. Authorization may be given to an institution, company or laboratory. Specific procedures may also be approved within an institution, for example, plant inspection procedures, certification procedures to which quality control is rigorously applied.</p> <p>The process of authorization by the NPPO is described in the manual Establishing a national plant protection organization (IPPC, 2015). Authorized providers are vital, especially where the NPPO lacks the expertise or facilities necessary.</p> <p>The NPPO should foster a good working relationship with authorized service providers and:</p> <ul style="list-style-type: none"> • keep them informed on national requirements under international standards or bilateral agreements and provide updates or changes in requirements • monitor their performance to ensure compliance with the relevant ISPMs • inform them of non-compliance reports of cases in which they provided treatment • periodically audit for compliance within the framework agreement with the NPPO • encourage their prompt reporting of cases in which the certification process may have been compromised (e.g. equipment failure or improper procedure).
Plant pest surveillance	<p>Section 1.2. Semi-autonomous and autonomous NPPOs</p> <p>Semi-autonomous and autonomous NPPOs are usually well-defined institutions with competencies and capabilities for fulfilling the functions of the NPPO and are able to manage their surveillance programmes both onshore and offshore. They are characterized by:</p> <ul style="list-style-type: none"> • independence and flexibility to establish necessary systems and policies to effectively implement their functions • power to choose to contract surveillance to a third party while maintaining responsibility <p>[etc.]</p> <p>Section 2. Organizational Arrangements</p> <p>Where appropriate, there may be a relationship established between the NPPO and third party providers and industry where they are required to provide services on behalf of the NPPO.</p> <p>[also Figure 2]</p>

Guide	Extracts
	<p>Section 3. National Legislation</p> <p>Appropriate national phytosanitary legislation is a basic requirement for supporting activities of a surveillance programme. National legislation should have clear provisions related to powers, authority and responsibilities regarding surveillance. Legislation should ensure the following.</p> <ul style="list-style-type: none"> • It provides authority and responsibility to the NPPO and authorized entities for all surveillance activities (e.g. the right to enter premises, inspect, take samples) in support of the IPPC Article IV.2(b), which requires NPPOs to be responsible for the surveillance of plants to report the occurrence, outbreak and spread of pests. Authority and responsibility should be supported by formal pest exclusion mechanisms to prevent the introduction of pests of phytosanitary concern entering the country, as well as to prevent pest movement into endangered areas such as pest free areas (PFAs), areas of low pest prevalence (ALPPs) and areas that are under official control. <p>[...]</p> <ul style="list-style-type: none"> • Provisions are made for third party institutions and personnel acting on behalf of the NPPO, for example: <ul style="list-style-type: none"> — mechanisms of engagement (e.g. letter of agreement (LoA), memorandum of understanding (MoU), contracts) — mechanisms for recognizing and dealing with conflicts of interest — level of accountability to the NPPO — redress in cases of breach of trust or contract. <p>[...]</p> <p>5.2 Authority</p> <p>The NPPO assumes all responsibilities for the plant pest surveillance programme. Clearly defined lines of command and delegation of different levels of authority must be addressed for a successful programme. In a decentralized system, levels of authority may be delegated to national, state, province, county and district levels so that there is a well-coordinated programme throughout the target areas.</p> <p>The NPPO may authorize relevant institutions and personnel to work under its authority, but the NPPO in all cases maintains responsibility for all actions taken on its behalf.</p> <p>8.1.2 NPPO external communication</p> <p>External communications are also necessary to ensure that all parties directly engaged in the programme are kept informed. NPPOs should be prepared to communicate with:</p> <ul style="list-style-type: none"> • industry groups, especially those directly involved in surveillance activities and those directly affected by outcomes, timely and effective communication regarding ongoing issues that may arise from strategies, and procedures and implications of findings • third party providers acting on behalf of the NPPO regarding progress, implementation issues, ongoing monitoring and review activities <p>[...]</p>

Appendix 4: NPPO/contracting party authorization programmes

Listed in order of phytosanitary activity type, then country, then year

No.	Programme	Country	Year	Activity type	Source
	Audit				
1	Canadian Heat Treatment Wood Products Certification Program (HT Program)	Canada	2015	Audit	https://www.inspection.gc.ca/plant-health/forestry/exports/ht-program/eng/1319462565070/1319462677967
2	Certified Container Sampling Program (CCSP)	Canada	2019?	Audit	https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/accredited-third-party.html
3	Green Sawn Wood Certification Program	Canada	2019	Audit	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/date/d-17-04/eng/1546882362007/1546882362522
	Destruction				
4	Biosecurity Risk Treatment Guide	Australia	2017	Destruction	https://www.agriculture.gov.au/import/arrival/treatments/biosecurity-risk-treatment-guide
5	EC Audit, Estonia 2018-6479	Estonia	2018	Destruction	EC Audit Greece 2017-6145, <i>Final report of an audit carried out in Greece from 20 June 2017 to 29 June 2017 in order to evaluate the system of import controls for plant health</i>
6	EC Audit, Greece 2017-6145	Greece	2017	Destruction	
7	EC Audit, Netherlands 2018-6481	Netherlands	2018	Destruction	
8	Post Entry Quarantine for Plants	New Zealand	2019	Destruction	https://www.mpi.govt.nz/dmsdocument/11368/direct
	Diagnostics				
9	EC Audit, Argentina 2016-8809	Argentina	2016	Diagnostics	EC Audit Argentina 2016-8809, <i>Final report of an audit carried out in Argentina from 15 February 2016 to 25 February 2016 in order to evaluate the system of official controls and the certification of citrus fruits for export to the European Union</i>
10	Emergency Plant Pest Response Deed (note: modality is a project connecting the private sector to the government)	Australia	2019	Diagnostics	https://www.planthealthaustralia.com.au/biosecurity/emergency-plant-pest-response-deed/
11	Canada Seed Laboratory Accreditation and Audit Protocol (LAAP)	Canada	2017	Diagnostics	https://seedanalysts.ca/assets/csaac_files/pdf/members_only/cfia/en/2017/CFIA_ACIA-9622142-v1-2017_Seed_LAAP_(version_6).pdf
12	Recognition of Export Grain Analysis by Authorized Laboratories (REGAL)	Canada	2018	Diagnostics	https://www.inspection.gc.ca/plant-health/grains-and-field-crops/exports/recognition-of-export-grain-analysis/eng/1516725808194/1516725808990
13	EC Audit, Dominican Republic 2019-6739	Dominican Republic	2019	Diagnostics	

No.	Programme	Country	Year	Activity type	Source
14	EC Audit, Estonia 2018-6479	Estonia	2018	Diagnostics	EC Audit Estonia 2018-6479, <i>Final report of an audit carried out in Estonia from 22 January 2018 to 26 January 2018 in order to evaluate the system of import controls for plant health</i>
15	EC Audit, Ghana 2017-6262	Ghana	2017	Diagnostics	
16	EC Audit, Israel 2018-6493	Israel	2018	Diagnostics	
17	EC Audit, Italy 2014-7260	Italy	2014	Diagnostics	
18	EC Audit, Montenegro 2019-6741	Montenegro	2019	Diagnostics	EC Audit Montenegro 2019-6741, <i>Final report of an audit carried out in Montenegro from 05 November 2019 to 13 November 2019 in order to evaluate the plant health controls applied in the potato sector</i>
19	EC Audit, Morocco 2020-7057	Morocco	2020	Diagnostics	
20	Requirements for the Recognition of Independent Third Party Suppliers of Plant Pests Identification Services	New Zealand	2013	Diagnostics	https://www.mpi.govt.nz/dmsdocument/113-Export-Certification-Standard-Pest-Identifier-Requirements-Requirements-for-the-recognition-of-third-party-suppliers-of-plant-pest-identification-services
21	Standard for Transitional Facilities for the Identification of Organisms	New Zealand	2018	Diagnostics	https://www.biosecurity.govt.nz/dmsdocument/1637/send
22	Register of Ministry for Primary Industries approved suppliers of pest identification services	New Zealand	2019 updated	Diagnostics	https://www.mpi.govt.nz/dmsdocument/1047
23	Laboratory Accreditation Certification	Philippines	2018?	Diagnostics	
24	EC Audit, South Africa 2015-7633	South Africa	2015	Diagnostics	EC Audit South Africa 2015-7633, <i>Final report of an audit carried out in South Africa from 24 February 2015 to 06 March 2015 in order to evaluate the system of official controls and the certification of citrus fruit for export to the European Union</i>
25	EC Audit, Sweden 2018-6482	Sweden	2018	Diagnostics	EC Audit Sweden 2018-6482, <i>Final report of an audit carried out in Sweden from 17 April 2018 to 25 April 2018 in order to evaluate the system of import controls for plant health</i>
26	EC Audit, Tanzania 2017-6175	United Republic of Tanzania	2017	Diagnostics	
27	APHIS 7 CFRR 353.8, Accreditation of non-governmental bodies to perform laboratory testing or phytosanitary inspection	United States of America	1999	Diagnostics	https://www.law.cornell.edu/cfr/text/7/353.8
28	7 CFR 300 and 353, Accreditation Standards for Laboratory Seed Health Testing and Seed Crop Phytosanitary Inspection	United States of America	2001	Diagnostics	https://www.govinfo.gov/app/details/CFR-2012-title7-vol5/CFR-2012-title7-vol5-part353
29	National Plant Protection Laboratory Accreditation Program (NPPLAP)	United States of America	2018	Diagnostics	https://www.aphis.usda.gov/aphis/ourfocus/planthealth/ppq-program-overview/cphst/ct_npplap

No.	Programme	Country	Year	Activity type	Source
30	National Plant Diagnostic Network (NPDN) System for Timely, Accurate & Reliable Diagnostics (STAR-D) Quality Management Program	United States of America	n/a	Diagnostics	http://star-d.npdn.org/home
31	EC Audit, Uruguay 2016-8811	Uruguay	2016	Diagnostics	EC Audit Uruguay 2016-8811, <i>Final report of an audit carried out in Uruguay from 18 April 2016 to 28 April 2016 in order to evaluate the system of official controls and the certification of citrus fruits for export to the European Union</i>
	Inspection				
32	Commission Implementing Decisions 93/422/EC, 93/365/EC and 93/360/EC, stipulating alternative measures for sawn coniferous wood originating in Canada and exported to the EU	EU	1993	Inspection	Referred to in <i>Final report of an audit carried out in Canada from 04 June 2018 to 18 June 2018 in order to evaluate the system of official controls of wood intended for export to the European Union</i>
33	Commission Decision of Bark-Free sawn wood with USDA-APHIS	EU	2013	Inspection	COMMISSION IMPLEMENTING DECISION of 18 December 2013 providing for a derogation from Article 13(1)(ii) of Council Directive 2000/29/EC in respect of bark-free sawn wood of <i>Quercus</i> L., <i>Platanus</i> L. and <i>Acer saccharum</i> Marsh. originating in the United States of America (notified under document C(2013) 9166); https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D0780&from=en
34	EC Audit, Guatemala 2016-8808	Guatemala	2016	Inspection	
35	EC Audit, Mali 2017-6171	Mali	2017	Inspection	EC Audit Mali 2017-6171, <i>Final report of an audit carried out in Mali from 13 June 2017 to 22 June 2017 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
36	Stichting Markering Houten Verpakkingen (SMHV) inspection and audits of certifying agencies (CGD BV, SGS Nederland BV, SKH)	Netherlands	2003	Inspection	https://www.nappo.org/files/2514/8517/2137/27._Thu_2_-_Horn_-_ASD_symposium.pdf
37	EC Audit, Netherlands 2018-6481	Netherlands	2018	Inspection	EC Audit Netherlands 2018-6481, <i>Final report of an audit carried out in the Netherlands from 11 September 2018 to 18 September 2018 in order to evaluate the system of import controls for plant health</i>
38	National Seed Health System, Phytosanitary Field Inspection Procedures	United States of America	2019	Inspection	https://seedhealth.org/phytosanitary-field-inspection/
39	National Seed Health System, Seed Crop Phytosanitary Visual Inspection Procedures	United States of America	2019	Inspection	https://seedhealth.org/visual-inspection/
	Sampling				

No.	Programme	Country	Year	Activity type	Source
40	Designated Inspector Sampling Program (replaced by the Canadian Grain Sampling Program)	Canada	1991	Sampling	Referenced in https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/grains-and-field-crops/d-10-02/eng/1346452941328/1346454120294
41	Canadian Grain Sampling Program (CGSP), Canadian Food Inspection Agency	Canada	2012	Sampling	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/grains-and-field-crops/d-10-02/eng/1346452941328/1346454120294
42	Accreditation and Monitoring of Third Party Samplers and Sampling System Auditors	Canada	2014	Sampling	https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/qsp-psq-410.pdf
43	Accredited Container Sampler Program (ACSP)	Canada	2019?	Sampling	https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/accredited-container-sampler-program.html
44	Certified Container Sampling Program (CCSP)	Canada	2019?	Sampling	https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/certified-container-sampling-program.html
45	Licensed Seed Sampler Program	Canada	n/a	Sampling	Referenced in Sampling Methods and Procedures Guide: https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/proc3-0-1.pdf
46	EC Audit, South Africa 2016-8810	South Africa	2016	Sampling	EC Audit South Africa 2016-8810, <i>Final report of an audit carried out in South Africa from 13 June 2016 to 24 June 2016 in order to evaluate the system of official controls and the certification of citrus fruit for export to the European Union</i>
47	Instructions to Licensed and Official Seed samplers in England and Wales	United Kingdom	2017	Sampling	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/645457/seed-samplers-instructions.pdf
48	NSHS, refers to AASCO [Association of American Seed Control Officials] Handbook on Seed Sampling, ISTA [International Seed Testing Association] Handbook on Seed Sampling	United States of America	n/a	Sampling	
Surveillance					
49	National Plant Biosecurity Strategy	Australia	2016	Surveillance	https://www.planthealthaustralia.com.au/wp-content/uploads/2012/12/National-Plant-Biosecurity-Strategy1.pdf
50	National Biosecurity Surveillance of Exotic Forest Pests 2018–2023 (strategy document)	Australia	2018	Surveillance	https://www.planthealthaustralia.com.au/wp-content/uploads/2018/03/National-Forest-Biosecurity-Surveillance-Strategy.pdf
51	Queensland Biosecurity Strategy 2018-2023	Australia	2018	Surveillance	https://www.publications.qld.gov.au/dataset/queensland-biosecurity-strategy-2018-2023/resource/408b8459-dfd5-4785-913c-a9b3d23a0ee2
52	MyPestGuide (broader example of engagement with the private sector: collects images)	Australia	n/a	Surveillance	https://www.agric.wa.gov.au/pests-weeds-diseases/mypestguide

No.	Programme	Country	Year	Activity type	Source
53	IMapPests: Sentinel Surveillance for Agriculture, National Trapping Network to monitor distribution, MyPest Guide	Australia	2017	Surveillance	https://www.imappests.com.au/
54	Canadian Agricultural Partnership (call for projects/grants)	Canada	n/a	Surveillance	https://cap.alberta.ca/CAP/
55	EC Audit, France 2017-6141	France	2017	Surveillance	EC Audit France 2017-6141, <i>Final report of an audit carried out in France from 20 March 2017 to 31 March 2017 in order to evaluate the situation and official controls for Xylella fastidiosa</i>
56	EC Audit, Italy 2014-7260	Italy	2014	Surveillance	EC Audit Italy 2014-7260, <i>Final report of an audit carried out in Italy from 10 to 14 February 2014 in order to evaluate the situation and official controls for Xylella fastidiosa</i>
57	EC Audit, Spain 2014-7195	Spain	2014	Surveillance	
58	OPAL Tree Survey (voluntary, unremunerated project run by Imperial College London)	United Kingdom	n/a	Surveillance	https://www.forestresearch.gov.uk/tools-and-resources/opal/
59	North Carolina State University, National Science Foundation (NSF) Center for Integrated Pest Management	United States of America	2019?	Surveillance	https://cipm.ncsu.edu/
Treatment					
60	Australian Fumigation Accreditation Scheme (AFAS)	Australia	2004	Treatment	https://www.agriculture.gov.au/import/before/prepare/treatment-outside-australia/afas
61	Australia Wood Packaging Certification Scheme (AWPCS)	Australia	Not sure, dates back as far as 2006 2015, updated in 2019	Treatment	https://www.agriculture.gov.au/export/from-australia/wood-packaging/awpcs-register
62	Offshore Irradiation Treatment Providers Scheme	Australia	2016	Treatment	https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/biosecurity/import/offshore-irradiation.pdf
63	Australian phytosanitary treatment application standard for irradiation treatment	Australia	2018	Treatment	https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/biosecurity/export/plants-plant-products/plant-exports-manual/resources/phytosanitary-treatment-irradiation.pdf
64	Offshore Brown Marmorated Stink Bug Treatment Providers Scheme	Australia	2019	Treatment	https://www.agriculture.gov.au/sites/default/files/documents/2020-21-offshore-bmsb-tp-scheme.pdf
65	Sea container hygiene third party service providers	Australia		Treatment	https://www.clsab.ca/wp-content/uploads/2019/11/CLSAB_Regulations_2019_10_23_Schedule_C.pdf
66	EC Audit, Cameroon 2017-6170	Cameroon	2017	Treatment	EC Audit Cameroon 2017-6170, <i>Final report of an audit carried out in Cameroon from 08 May 2017 to 18 May 2017 in order to evaluate</i>

No.	Programme	Country	Year	Activity type	Source
					<i>the system of official controls for the export of plants and plant products to the European Union</i>
67	Canadian Heat Treatment Wood Products Certification Program (HT Program)	Canada	2015	Treatment	https://www.inspection.gc.ca/plant-health/forestry/exports/ht-program/eng/1319462565070/1319462677967
68	Canadian Lumber Standards Accreditation Board (CLSAB) Policy for Grading Agency Verification of Heat Chambers	Canada		Treatment	https://www.clsab.ca/about-us/clsab-roles/control-the-identification-and-certification-of-lumber/lumber-grade-identification-system/ ; https://www.clsab.ca/wp-content/uploads/2019/11/CLSAB_Regulations_2019_10_23_Schedule_C.pdf
69	EC Audit, China 2013-6813	China	2013	Treatment	EC Audit China 2013-6813, <i>Final report of an audit carried out in China from 18 to 28 June 2013 in order to evaluate the measures taken by China to ensure that wood packaging material exported to the European Union meets EU requirements</i>
70	EC Audit, Costa Rica 2015-7644	Costa Rica	2015	Treatment	EC Audit Costa Rica 2015-7644, <i>Final report of an audit carried out in Costa Rica from 21 September 2015 to 01 October 2015 in order to evaluate the system of official controls for the export of plants for planting to the European Union</i>
71	EC Audit, Dominican Republic 2019-6739	Dominican Republic	2019	Treatment	EC Audit Dominican Republic 2019-6739, <i>Final report of an audit carried out in the Dominican Republic from 04 March 2019 to 15 March 2019 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
72	EC Audit, Ghana 2017-6262	Ghana	2017	Treatment	EC Audit Ghana 2017-6262, <i>Final report of an audit carried out in Ghana from 12 September 2017 to 21 September 2017 order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
73	EC Audit, Guatemala 2016-8808	Guatemala	2016	Treatment	EC Audit Guatemala 2016-8808, <i>Final report of an audit carried out in Guatemala from 12 April 2016 to 21 April 2016 in order to evaluate the system of official controls for the export of seeds and plants for planting to the European Union</i>
74	EC Audit, Honduras 2015-7935	Honduras	2015	Treatment	EC Audit Honduras 2015-7935, <i>Final report of an audit carried out in Honduras from 12 May 2015 to 20 May 2015 in order to evaluate the system of official controls for the export of plants for planting to the European Union</i>
75	NSPM 11: Quarantine Treatments and Application Procedures: Methyl Bromide Fumigation	India	2005	Treatment	http://plantquarantineindia.nic.in/PQISPub/pdf/files/NSPM_11_Quarantine_Treatment_(MB)_Standard.pdf
76	NSPM 21: Guidelines for Certification of Irradiation Treatment Facilities to meet the Phytosanitary Requirements	India	2006	Treatment	https://plantquarantineindia.nic.in/PQISPub/pdf/files/NSPM_21_Irradiation.pdf

No.	Programme	Country	Year	Activity type	Source
77	Standard Operating Procedures for Phytosanitary Inspection and Plant Quarantine Clearance of Plants/Plant Products & Other Regulated Articles	India	2015	Treatment	https://plantquarantineindia.nic.in/PQISPub/pdf/SOPimpfinal25.pdf
78	EC Audit, Israel 2018-6493	Israel	2018	Treatment	EC Audit Israel 2018-6493, <i>Final report of an audit carried out in Israel from 06 March 2018 to 15 March 2018 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
79	EC Audit, Kenya 2017-6174	Kenya	2017	Treatment	EC Audit Kenya 2017-6174, <i>Final report of an audit carried out in Kenya from 21 November 2017 to 01 December 2017 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
80	Malaysian Heat Treatment Accreditation Scheme 2004	Malaysia	2004	Treatment	Referred to in <i>Final report of an audit carried out in Malaysia from 08 to 17 October 2013 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
81	Malaysian Fumigation and Accreditation Scheme, 2006	Malaysia	2006	Treatment	http://www.maqis.gov.my/en_US/rawatan-pewasapan-mafas
82	Skim Akreditasi Makmal Malaysia (SAMM), Laboratory Accreditation Scheme	Malaysia	n/a	Treatment	http://www.jsm.gov.my/skim-akreditasi-makmal-malaysia-samm-#.X1nzFHkzblU
83	EC Audit, Mali 2017-6171	Mali	2017	Treatment	EC Audit Mali 2017-6171, <i>Final report of an audit carried out in Mali from 13 June 2017 to 22 June 2017 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
84	EC Audit, Montenegro 2019-6741	Montenegro	2019	Treatment	EC Audit Montenegro 2019-6741, <i>Final report of an audit carried out in Montenegro from 05 November 2019 to 13 November 2019 in order to evaluate the plant health controls applied in the potato sector</i>
85	EC Audit, Morocco 2020-7057	Morocco	2020	Treatment	EC Audit Morocco 2020-7057, <i>Final report of an audit carried out in Morocco from 14 January 2020 to 22 January 2020 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
86	Export Certification Standard Treatment Supplier Programme	New Zealand	2018	Treatment	https://www.mpi.govt.nz/dmsdocument/111-Export-Certification-Standard-Treatment-Supplier-Programme
87	Treatment Programme: Overview and General Requirements for the Supply of Official Treatments	New Zealand	2018	Treatment	https://www.biosecurity.govt.nz/dmsdocument/110/direct
88	Treatment Requirements: Approved Biosecurity Treatments	New Zealand	2019	Treatment	

No.	Programme	Country	Year	Activity type	Source
89	Sea Container Hygiene System	New Zealand	n/a	Treatment	<i>Department of Agriculture and Water Resources, Ministry for Primary Industries, New Zealand, and the [Insert Shipping Line] Sea Container Hygiene System: An equivalence system information pack,</i> https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/cargo-containers/seacontainerhygienesystem/sea-container-infopack.pdf
90	List of DPP Registered Hot Water Immersion plants	Pakistan	2020	Treatment	Government of Pakistan, Ministry of National Food Security & Research, Department of Plant Protection, Notification No. DDQ(H)-27-2020, <i>List of DPP registered hot water immersion treatment plants for fresh mango export from Pakistan to sensitive countries</i> , available at http://plantprotection.gov.pk/downloads/list/hotwaterplant.pdf
91	Guidelines for the Implementation of the Australian Fumigation Accreditation Scheme in the Philippines	Philippines	2008	Treatment	
92	BPI Administrative Order No 1, Series of 2010 known as the Revised Regulation for Wood Packaging Material in International Trade	Philippines	2010	Treatment	
93	Revised Regulation for Wood Packaging Material in International Trade, BPI Quarantine Administrative Order	Philippines	2010	Treatment	https://www.rentokil.com.ph/assets/content/files/bpi_-accreditation-for-quarantine-service_fumigation-mb_2018-1-.pdf (makes references to BPI Administrative Order No 1, Series of 2010 known as the Revised Regulation for Wood Packaging Material in International Trade)
94	Application for Accreditation as Quarantine Treatment Provider	Philippines	2018?	Treatment	http://bpi.da.gov.ph/bpi/index.php/sample-levels/national-plant-quarantine-services-division/certificate-of-accreditation-as-quarantine-treatment-provider/4099-certificate-of-accreditation-as-quarantine-treatment-provider-rentokil
95	EC Audit, Portugal 2013-6798	Portugal	2013	Treatment	EC Audit Portugal 2013-6798, <i>Final report of an audit carried out in Portugal from 08 to 18 April 2013 in order to evaluate the situation and control for Bursaphelenchus xylophilus</i>
96	Singapore NParks Treatment Provider Scheme	Singapore	2009	Treatment	https://www.nparks.gov.sg/-/media/avs/plant-health-and-science/treatment-provider-scheme-(tps)-version3_final_nparks.pdf?la=en&hash=6456C8BBEA506D8B89936570F9132C8A1295BAA3
97	EC Audit, South Africa 2016-8810	South Africa	2016	Treatment	
98	EC Audit, Spain 2014-7195	Spain	2014	Treatment	EC Audit Spain 2014-7195, <i>Final report of an audit carried out in Spain from 13 to 23 May 2014 in order to evaluate the situation and control for Bursaphelenchus xylophilus</i>
99	EC Audit, Suriname 2019-6740	Suriname	2019	Treatment	EC Audit Suriname 2019-6740, <i>Final report of an audit carried out in Suriname from 01 October 2019 to 11 October 2019 in order to</i>

No.	Programme	Country	Year	Activity type	Source
					<i>evaluate the system of official controls for the export of plants and plant products to the European Union</i>
100	Thai Agricultural Standard TAS 9535-2004]	Thailand	2004	Treatment	https://www.acfs.go.th/standard/download/eng/Wood-eng.pdf
101	EC Audit, Tanzania 2017-6175	United Republic of Tanzania	2017	Treatment	EC Audit, Tanzania 2017-6175, <i>Final report of an audit carried out in Tanzania from 11 September 2017 to 22 September 2017 in order to evaluate the system of official controls for the export of plants and plant products to the European Union</i>
102	United States Heat Treatment Program	United States of America	n/a	Treatment	https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa_export/sa_wood_packaging/ct_wpm-heat-treatments
103	United States Fumigation Program	United States of America	n/a	Treatment	https://www.aphis.usda.gov/aphis/ourfocus/planthealth/sa_export/sa_wood_packaging/ct_wpm-heat-treatments
	Other				
104	National Seed Health System (NSHS)	United States of America	n/a	Accreditation	https://seedhealth.org/
105	NSW, Biosecurity – Accreditation of Biosecurity Certifiers Procedure	Australia	2017	Control	http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/723681/Accreditation-of-Biosecurity-Certifiers.pdf
106	NSW, Biosecurity – Audit Frequency 2017	Australia	2017	Control	https://www.industry.nsw.gov.au/__data/assets/pdf_file/0016/108520/IND-O-215-Biosecurity-Audit-Frequency-Policy.pdf
107	NSW, Biosecurity – Audits Procedure, 2017 (NSW, Department of Primary Industries)	Australia	2017	Control	https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/723653/Biosecurity-audits-procedure.pdf
108	D-13-02, Requirements for the Evaluation and Recognition of Authorization Programme Auditors	Canada	2015	Control	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/date/d-13-02/eng/1422060900536/1438793051902
109	Requirements for the Audit of Sea Containers	New Zealand	2008	Control	https://www.biosecurity.govt.nz/dmsdocument/1619/direct
110	Biosecurity Risk Treatment Guide	Australia	2017	Destruction	https://www.agriculture.gov.au/import/arrival/treatments/biosecurity-risk-treatment-guide
111	EC Audit, Argentina 2020-7059	Argentina	2020	Export Certification	EC Audit Argentina 2020-7059, <i>Final report of an audit carried out in Argentina from 09 March 2020 to 13 March 2020 in order to evaluate the system of official controls and certification of citrus fruits for export to the European Union</i>
112	Export Certification Scheme for Mango	Cameroon	n/a	Export certification scheme	EC audit report
113	Guidance Document for the standard for Places of First Arrival (Airports and Seaports)	New Zealand	2011	Facility	https://www.mpi.govt.nz/public/importing/border-clearance/places-of-first-arrival/operating-a-place-of-first-arrival/

No.	Programme	Country	Year	Activity type	Source
114	MPI Standard, Place of First Arrival	New Zealand	2018	Facility	https://www.mpi.govt.nz/dmsdocument/1350-places-of-first-arrival-standard .
115	Standard for Offshore Facilities Holding and Testing Plants for Planting	New Zealand	2019	Facility	https://www.biosecurity.govt.nz/dmsdocument/1638-Standard-for-Offshore-Facilities-Holding-and-Testing-Plants-for-Planting
116	Manual for the approval and operation of Plant Health Inspection Facilities at Place of First Arrival (PoFA) EU Exit no-deal scenario	United Kingdom	2019?	Facility	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/772755/Manual_for_the_approval_and_operation_of_plant_health_inspection_facility_at_PoFA.pdf
117	Exporting Canary Seed to Mexico (Bilateral)	Canada	2015	Facility	https://www.inspection.gc.ca/plant-health/grains-and-field-crops/exports/2015-06-18/mexico/eng/1434555839452/1434555865768
118	Emerald Ash Borer Approved Facility Compliance Program	Canada	2014	Facility compliance	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/forest-products/d-03-08/compliance-program/eng/1349100647331/1355880297595 (see also QSM-07: Quality Management System Manual for Facilities Registered in the Emerald Ash Borer Approved Facility Compliance Program)
119	QSM-07: Quality Management System Manual for Facilities Registered in the Emerald Ash Borer Approved Facility Compliance Program (EABAFCP)	Canada	2014	Facility compliance	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/forest-products/d-03-08/qsm-07/eng/1347553733814/1355879699357
120	Western Australian Biosecurity Strategy 2016-2025	Australia	2016	Pest Management	https://www.agric.wa.gov.au/sites/gateway/files/WA%20Biosecurity%20Strategy%20%28A1756933%29.pdf
121	Interstate Certification Assurance	Australia	2013	Policy	https://www.interstatequarantine.org.au/producers/interstate-certification-assurance/
122	NSW Biosecurity Strategy 2013-2021	Australia	2013	Policy	dpi.nsw.gov.au/__data/assets/pdf_file/0005/838661/NSW-biosecurity-strategy-2013-2021.pdf
123	Biosecurity Compliance Plan 2016–17, Our plan for managing compliance	Australia	2016?	Policy	https://www.agriculture.gov.au/biosecurity/legislation/compliance/biosecurity-compliance-plan
124	Biosecurity and Food Safety Enforcement Policy, 2017	Australia	2017	Policy	https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/838664/Biosecurity-and-Food-Safety-Enforcement-Policy.pdf
125	Alternative Service Delivery Policy	Canada	2016	Policy	https://www.inspection.gc.ca/about-cfia/transparency/regulatory-transparency-and-openness/sound-agency-management/alternative-service-delivery/policy/eng/1471648506346/1471648730989
126	Policy, Management of Plant Health certification systems for NSW producers]	Australia	2017	Programme	https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/722832/Management-of-plant-health-certification-systems-for-NSW-producers.pdf
127	BioSecure HACCP, Nursery & Garden Industry Australia (with funding from Horticulture Innovation Australia)	Australia	2018	Programme	https://ausveg.com.au/app/uploads/2017/12/McDonald.pdf ; also, https://www.greenlifeindustry.com.au/Category?Action=View&Category_id=127

No.	Programme	Country	Year	Activity type	Source
128	Biosecurity-Management of Plant Health Certification Schemes	Australia	2018	Programme	https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/722832/Management-of-plant-health-certification-systems-for-NSW-producers.pdf
129	Phytosanitary/Quality Certification Program Pilot Project	Canada	1997	Programme	
130	Canadian Debarking and Grub Hole Control Program (CDGHCP)	Canada	2010	Programme	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/forest-products/d-07-02/eng/1320000158117/1320000311611
131	D-04-01 Canadian Nursery Certification Program	Canada	2013	Programme	https://www.inspection.gc.ca/plant-health/plant-pests-invasive-species/directives/horticulture/d-04-01/eng/1323820371646/1331759449153 , effective date July 2013
132	D-14-02: Certification Program for the Export of Hardwood Species Regulated for <i>Agrilus</i> spp. to the European Union (EU)	Canada	2018	Programme	
133	Canadian Untreated Sawn Wood Certification Program	Canada	2019	Programme	https://www.canada.ca/en/food-inspection-agency/news/2016/05/backgrounder-science-behind-canadian-untreated-sawn-wood-certification-program.htm
134	Canada Kiln Dried Hardwood Lumber Certification Program	Canada	n/a	Programme	
135	Canadian Lumber Standards Accreditation Board (CLSAB), Softwood Grade Identification System	Canada	n/a	Programme	https://www.clsab.ca/about-us/clsab-roles/control-the-identification-and-certification-of-lumber/lumber-grade-identification-system/
136	Phytosanitary Certification Requirements for Pre-Fabricated Buildings and Log Houses Made of Coniferous Wood to the European Union Contracting Parties	Canada	(superseded)	Programme	
137	Bio-security Assurance Arrangement Scheme	Singapore	2019	Programme	https://www.nparks.gov.sg/-/media/avs/plant-health-and-science/biosecurity-assurance-arrangement-(bsaa)-april-2019.pdf?la=en&hash=FD378C61426EC425EA2A714543C56D75CE6C7C62
138	United States–Canada Greenhouse-Grown Plant Certification Program	United States of America	1996	Programme	https://www.aphis.usda.gov/aphis/ourfocus/planthealth/import-information/accreditation-certification/gcp ; https://www.inspection.gc.ca/plant-health/horticulture/exports/gcp-technical-requirements/eng/1474666508713/1474666604536
139	State National Harmonisation Program for Seed Potatoes (Memorandum of understanding between Cooperator and USDA-APHIS Plant Protection and Quarantine)	United States of America	2013	Programme	https://www.aphis.usda.gov/plant_health/acns/downloads/SeedHealthProgram/snhp-mou-generic-template.pdf

No.	Programme	Country	Year	Activity type	Source
140	State Level Model Standard: Systems Approach to Nursery Certification (SANC)	United States of America	2014	Programme	https://sanc.nationalplantboard.org/wp-content/uploads/2014/05/SANC-Standard-4-14-14.pdf

EC, European Commission; HACCP, Hazard Analysis Critical Control Point; MPI, Ministry of Primary Industries; NSHS, National Seed Health System; NSW, New South Wales; USDA-APHIS, United States Department of Agriculture, Animal and Plant Health Inspection Service

Appendix 5: Authorized treatment providers under two Australian offshore schemes

Year	Country	Source	
Offshore BMSB Treatment Providers Scheme			
2020	Austria	Source for all: Department of Agriculture, Water and the Environment. 2020. List of offshore BMSB treatment providers. In: <i>Department of Agriculture, Water and the Environment</i> [online]. Australian Government. https://www.agriculture.gov.au/import/before/brown-marmorated-stink-bugs/offshore-bmsb-treatment-providers-scheme/approved-list	
2020	Belgium		
2020	Bulgaria		
2020	Finland		
2020	France		
2020	Germany		
2020	Greece		
2020	Indonesia		
2020	Italy		
2020	Japan		
2020	Malaysia		
2020	Netherlands		
2020	Republic of Korea		
2020	Romania		
2020	Russian Federation		
2020	Slovenia		
2020	Spain		
2020	Sri Lanka		
2020	Switzerland		
2020	Turkey		
2020	United Arab Emirates		
2020	United Kingdom		
2020	United States of America		
2020	Viet Nam		
Australian Fumigation Accreditation Scheme			
Generic source: Department of Agriculture, Water and the Environment. 2020. Offshore methyl bromide treatment providers list. In: <i>Department of Agriculture, Water and the Environment</i> [online]. Australian Government. https://www.agriculture.gov.au/import/before/prepare/treatment-outside-australia/afas/providers			
2017	Brazil	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/tpl-brazil.pdf	
2018	China	05 September 2018, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-china.pdf	
2017	China, Hong Kong SAR	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-hong-kong.pdf	
2017	Ethiopia	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-ethiopia.pdf	
2020	Fiji	22 July 2020, https://www.agriculture.gov.au/sites/default/files/documents/offshore-treatment-providers-list-fiji_0.pdf	
2017	Iran (Islamic Republic of)	04 December 2017, agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-iran.pdf	
2017	Lebanon	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-lebanon.pdf	
2017	Mexico	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-mexico.pdf	
2017	Myanmar	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/tpl-myanmar.pdf	

2019	Peru	18 April 2019, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/biosecurity/import/general-info/pre-border/afas/peru.pdf
2017	Solomon Islands	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-soloman-islands.pdf
2017	Tunisia	04 December 2017, https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/importing/general/pre-border-schemes/afas/non-afas/offshore-treatment-providers-list-tunesia.pdf

Appendix 6: Selected examples of authorization programmes

Diagnostics: STAR-D Laboratory Accreditation Program, United States of America

The System for Timely, Accurate & Reliable Diagnostics (STAR-D) is the laboratory accreditation programme of the National Plant Diagnostic Network (NPDN) in the United States of America. It was developed using an ISO standard as a model, which was then customized. It will typically take a laboratory at least three to four years of preparation and use of their quality system to become STAR-D accredited. There are two types of accreditation: an “accredited laboratory” is one that is capable of providing a full range of diagnostic services as defined by the laboratory scope and meets the requirement and guidelines of the NPDN STAR-D programme; a “provisionally accredited” laboratory has been found to not fully meet the requirements of the laboratory policies and procedures outlined in their quality manual and system documents or the NPDN STAR-D Requirements and Standards but shows intent to do so, and the noncompliance issue or issues are not serious enough to affect test results or diagnostic identifications. A provisionally accredited laboratory is given a period of time, not to exceed one year, to correct the deficiencies noted.

Further information:

NPDN (National Plant Diagnostic Network). 2020. *NPDN STAR-D Laboratory Accreditation Program* [online]. [Cited 20 September 2020]. <http://star-d.npdn.org/home>

Treatment: Australian Fumigation Accreditation Scheme

The Australian Fumigation Accreditation Scheme accredits treatment providers in countries exporting to Australia. One of the objectives of the scheme is to reduce the use of methyl bromide treatments by increasing the effectiveness of the treatment application in the exporting country, thereby reducing the need for re-treatments following import. The scheme includes a strong monitoring and compliance component to track failure rates and conduct audits, but also provides capacity-building assistance and training to overseas regulatory officers. The programme was set up in 2004 and as at 2011 the Australian NPPO estimated that USD 4.6 million has been saved in avoided re-treatment costs alone.

Further information:

General information: Department of Agriculture, Water and the Environment. 2020. Australian Fumigation Accreditation Scheme. In: *Department of Agriculture, Water and the Environment* [online]. Australian Government. [Cited 20 September 2020]. <https://www.agriculture.gov.au/import/before/prepare/treatment-outside-australia/afas>

Case study, including analysis of the problems encountered, lessons learned, etc.: OECD (Organisation for Economic Co-operation and Development) and WTO (World Trade Organization). 2011. *Aid-for-trade case study: Australia. Australian Fumigation Accreditation Scheme* [online]. [Cited 20 September 2020]. <https://www.oecd.org/aidfortrade/47341463.pdf>

Addressing conflict of interest: New Zealand's template contract for authorized entities

In New Zealand, the definition, conditions and repercussions of conflicts of interests are covered in the template contract provided by the NPPO – the Ministry of Primary Industries – for the authorization of Independent Verification Agencies (IVAs). The definition of “conflict of interest” is wide ranging and includes not only situations where a conflict of interest *actually exists*, but also situations where there is the *potential* for conflict of interest and situations where a third person might *reasonably believe* that a conflict of interest exists. As part of the contract conditions, the IVA is required to warrant that a conflict of interest situation does not exist (except in accordance with the NPPO IVA standard), and must do its best to avoid situations that may result in a new conflict of interest. The IVA is further required to immediately notify the NPPO if a new conflict of interest arises, after which the IVA must discuss the matter with the NPPO and endeavour to agree and record in writing how the conflict of interest will be managed. The contract makes it clear that each party pays its own costs in managing a conflict of interest. The template contract also sets out some of the repercussions of conflicts of interest, with the NPPO being able to terminate immediately the contract with the IVA if a conflict of interest adversely impacts service delivery, the NPPO or the New Zealand government, or if the IVA has failed to notify the NPPO of a conflict of interest, or if the IVA is unable or unwilling to resolve or deal with the situation to the satisfaction of the NPPO.

Further information:

Ministry of Primary Industries. 2015. *Plant export requirement. MPI certification standard: IVA requirements* [online]. Wellington, Ministry of Primary Industries. [Cited 20 September 2020] <https://www.mpi.govt.nz/dmsdocument/7956/direct>

Accreditation and certification: Australian Wood Packaging Certification Scheme

The Australian Wood Packaging Certification Scheme is a scheme that ensures Australian treatment providers and wood packaging manufacturers produce wood packaging material that meet the requirements set out in ISPM 15. Under the scheme, facilities (wood packaging manufacturers and treatment providers) who meet the requirements of ISPM 15 are authorized by the NPPO to apply the internationally recognized ISPM 15 mark to wood packaging material produced for export. The suitability of individual facilities for authorization under the scheme is assessed by "certification bodies", who review the facility's application to the scheme and its quality manual, and conduct a site audit or audits. The certification bodies are, in turn, accredited by the "accreditation body" for the scheme – the Joint Accreditation System of Australia and New Zealand – which is approved by the NPPO. So, in summary, the accreditation body (which could be the NPPO, but in this case is a body approved by the NPPO) accredits certification bodies, who authorize facilities to certify the wood packaging material.

Further information:

Department of Agriculture, Water and the Environment. 2019. *Australian wood packaging certification scheme for export* [online]. Version 4.0. Canberra. [Cited 20 September 2020].

<https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/aqis/exporting/wood-packaging/awpcs-scheme-v4.0.pdf>

Classifying nonconformities: Canadian Grain Sampling Program

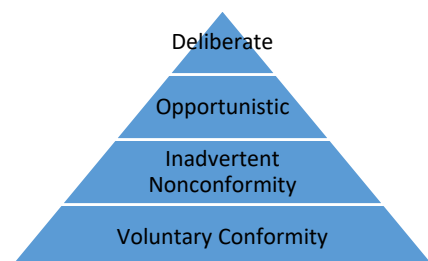
The Canadian Grain Sampling Program relies on a principle-based system for identifying and handling nonconformities ("non-conformances" being the term used in the programme). Classification of nonconformities as major or minor is based on a general description together with illustrative examples, thereby encompassing cases beyond the list of instances listed in the regulation. The general description of a major nonconformity is "absence of system failure against a requirement of the standard that is likely to impact the sample integrity or traceability of the sample to the lot of grain from which it was taken". Examples include the following: sampling processes are not documented; sampling processes not occurring as documented. If a major nonconformity is found, the facility is required to provide a corrective action plan within five days, and implement the changes specified within 20 days, after which a verification audit is conducted. A minor nonconformity, on the other hand, is when "a requirement is only partially implemented, but there is minimal risk to the loss of sample integrity or traceability". Examples include incomplete records and not retaining samples when stipulated in the sampling manual or the standard operating procedure. If a minor nonconformity is found, the facility is required to provide a corrective action plan within ten days and implement the corrective actions before the next system audit, which will include verification.

Further information:

Canadian Grain Commission. 2014. *Conducting an audit of a grain sampling system* [online]. CGC GSS QSP 4.3.1. [Cited 10 September 2020]. <https://www.grainscanada.gc.ca/en/industry/grain-safety/accredited-certified-programs/pdf/gsp-psq-431.pdf>

Consequences of nonconformity: Australian NPPO policy on audit

The audit policy of the Australian NPPO – the Department of Agriculture and Water Resources – provides a framework for monitoring nonconformities (“non-compliance” being the term used in the policy) of authorized entities. It recognizes that not all nonconformity is the same, and differentiates between those entities, on the one hand, whose nonconformity is a result of inexperience or new exposure to the regulatory system, and on the other hand those who engage in systematic, intentional nonconformity (see diagram below). In the case of the former, the NPPO works with the entity to reduce, and eliminate nonconformity, while in the case of the latter, civil and even criminal enforcement options might be considered. In terms of consequences, the responses range from reduced regulation and provision of guidance and advice for voluntary conformity; through risk-treatment costs, increased intervention rates, provision of guidance and advice, and requirement for corrective actions for inadvertent nonconformity; to criminal and civil prosecution, injunctions, fines, refusal, revocation, suspension or amendment, increased intervention rates, and risk-treatment costs for opportunistic and deliberate nonconformity. In this way, it both incentivizes conformity and penalizes nonconformity.



(continued overleaf ...)

Consequences of nonconformity: Australian NPPO policy on audit (... continued)**Further information:**

Department of Agriculture, Water and the Environment. 2016. *Biosecurity compliance plan 2016–2017: Our plan for managing compliance* [online]. [Cited 20 September 2020].

<https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/biosecurity-compliance-plan.pdf>

Department of Agriculture, Water and the Environment. 2020. Plant export operations manual, volume 17 – audit policy. In: *Department of Agriculture, Water and the Environment* [online]. Australian Government. [Cited 20 September 2020]. <https://www.agriculture.gov.au/export/controlled-goods/plants-plant-products/plantexportsmannual/volume-17>

Funding: National Seed Health System, United States of America

The National Seed Health System is a programme authorized by the NPPO of the United States of America (the United States Department of Agriculture) and is currently administered by the Iowa State University Seed Science Center. Under the programme, both public and private entities may be accredited to perform certain activities needed to support the issuance of phytosanitary certificates for the export of seed (e.g. laboratory seed testing, phytosanitary field inspections, seed sampling and seed visual inspections). The programme has been funded through a combination of sources. It was initially conceived to be funded through accreditation fees paid by the entities participating in the programme. However, this income was found to be insufficient to cover method development as well as the direct costs of the accreditation process. The American Seed Trade Association, who had already provided some funding for method development in the early years of the programme, therefore helped the National Seed Health System to apply for grants from the NPPO’s Technical Assistance for Speciality Crops programme, to supplement its budget.

Further information:

American Seed Trade Association. 2011. The U.S. National Seed Health System: What it is, and how it helps and benefits the seed industry. In: *SeedQuest* [online]. Alexandria, United States of America. [Cited 20 September 2020].

https://www.seedquest.com/news.php?type=news&id_article=19424&id_region=&id_category=&id_crop

National Seed Health System. 2020. *National Seed Health System* [online]. [Cited 20 September 2020].

<https://seedhealth.org/>

IPPC

The International Plant Protection Convention (IPPC) is an international plant health agreement that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. International travel and trade are greater than ever before. As people and commodities move around the world, organisms that present risks to plants travel with them.

Organization

- The number of contracting party signatories to the Convention exceeds 181.
- Each contracting party has a National Plant Protection Organization (NPPO) and an Official IPPC contact point.
- 10 Regional Plant Protection Organizations (RPPOs) have been established to coordinate NPPOs in various regions of the world.
- IPPC liaises with relevant international organizations to help build regional and national capacities.
- The Secretariat is provided by the Food and Agriculture Organization of the United Nations (FAO-UN).

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