

## FINAL REPORT OF THE SEA CONTAINERS TASK FORCE

December 2021



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## Acronyms and abbreviations

AEO	Authorized Economic Operators
AGM	Asian gypsy moth
AUD	Australian dollar
BIC	Bureau International des Containers
BMSB	Brown marmorated stink bug
CCC	IMO Sub-Committee on Carriage of Cargoes and Containers
CG	Correspondence Group
COA	Container Owners Association
COVID-19	Coronavirus disease 2019
CPM	Commission on Phytosanitary Measures
CSC	Convention for Safe Containers
CTU	Cargo Transport Units
CTU Code	IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units Code
DM	Data Model
DNA	Deoxyribonucleic acid
FAO	Food and Agriculture Organization of the United Nations
FG	Focus group
GSF	Global Shippers Forum
IC	Implementation and Capacity Development Committee
ICHCA	International Cargo Handling Coordination Association
IICL	Institute of International Container Lessors
ILO	International Labour Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IPP	International Phytosanitary Portal
IPPC	International Plant Protection Convention
ISPM	International Standard for Phytosanitary Measures
MSC	Maritime Safety Committee
NPPO	National plant protection organization
NZD	New Zealand dollar
PRA	Pest risk analysis
RIFA	Red imported fire ant
RNA	Ribonucleic acid
RPPO	Regional plant protection organization
SC	Standards Committee
SCTF	Sea Container Task Force
TEU	Twenty-foot equivalent unit
TOR	Terms of reference
UNECE	United Nations Economic Commission for Europe
USD	United States dollar
WBG	World Bank Group
WCO	World Customs Organization
WSC	World Shipping Council
WTO	World Trade Organization

## Executive Summary

The Sea Container Task Force (SCTF), a subgroup of the Implementation and Capacity Development Committee (IC), was established in 2017 to guide IPPC work with sea containers and associated phytosanitary risks. The task force's four-year mandate was extended in 2020 in response to the COVID-19 pandemic, which precluded many planned activities, and concluded in December 2021.

The Commission on Phytosanitary Measures (CPM), its committees and subgroups have actively considered the subject of pest spread through contamination of sea containers since 2008. The inherent complexity of sea container logistics operations posed a challenge to efforts to move forward with the work. In 2016, work on a draft International Standard for Phytosanitary Measures (ISPM) was paused, and the SCTF was established to consider the issue.

The original tasks of SCTF included: measuring the impact of the IMO (International Maritime Organization)/ILO (International Labour Organization)/UNECE (United Nations Economic Commission for Europe) Code of Practice for Packing of Cargo Transport Units Code (CTU Code); facilitating the efficient implementation of the Complementary Action Plan for Assessing and Managing the Pest Threats Associated with Sea Containers; exploring the use of the Authorized Economic Operators (AEOs) concept within the World Customs Organization (WCO)'s SAFE Framework of Standards and the WCO Data Model for sea container cleanliness purposes; and increasing the awareness of pest risks in the sea container pathway.

National economies depend on the efficient and uninterrupted movement of trade, which is facilitated by the efficient movement of sea containers through a complex and time-sensitive logistical system. With over 220 million containers shipped each year, the scale of sea container operations is monumental. As a consequence, any changes to the system are likely to have substantive knock-on effects. As the SCTF worked through its mandate and explored various challenges, opportunities and considerations, its members felt that it would be important to present CPM with these considerations to ensure that any decisions be taken in light of detailed information.

Key considerations include: the fact that the type of commodity and the handling and storage of commodities prior to and during packing could influence and result in the contamination of containers; that there was no way to track all stakeholders involved and therefore full accountability or custodianship was missing; that contracting parties may lack the capacity to carry out inspections, given the large volume of container movements involved; and that the costs associated with container inspections would be very high.

SCTF considered possible ways forward to address the issue of pest contamination of sea containers and the advantages and disadvantages of each (section 6.2). Possible courses of action include: voluntary measures developed and implemented by industry sectors; developing an IPPC Recommendation; developing an IPPC recommendation and an ISPM, with the revision of the Recommendation being a first and transitional step towards adoption of ISPM; and developing a new ISPM without updating the existing recommendation. SCTF did not recommend any one course of action over the others.

SCTF also considered a number of targeted measures to address the issue of pest contamination of sea containers and the advantages and disadvantages of each (section 6.2). Possibilities include: pesticide treatment of containers; heat treatment or fumigation of empty containers; and modifying the design of containers. Again, SCTF did not recommend any one measure over the others.

When considering possible courses of action and potential targeted measures, SCTF noted that the key principle should be to achieve a reasonable level of risk reduction with minimal impact

on container logistics. Any guideline, recommendation or specific solution to reduce phytosanitary risk in the sea container pathway must be practical, feasible and effective in order to achieve this aim.

In section 7, the SCTF puts forward a number of recommendations for action to reduce phytosanitary risk in the sea container pathway.

## 1. Introduction and background

- [1] This report provides a summary of the activities undertaken by the Sea Container Task Force (SCTF), a subgroup of the Implementation and Capacity Development Committee (IC), and, as appropriate, related activities of the IPPC Secretariat from 2017. It describes the work of the SCTF over the past five years and makes recommendations for further activities, and identifies observations and considerations that should be taken into account by the Commission on Phytosanitary Measures (CPM).
- [2] The SCTF<sup>1</sup> was established by the twelfth session of the Commission on Phytosanitary Measures (CPM-12) in 2017 to guide the work of the Sea Containers programme, facilitate the efficient implementation of the Complementary Action Plan for Assessing and Managing the Pest Threats Associated with Sea Containers<sup>2</sup> and report outcomes to CPM. At its July 2020 virtual meeting, the CPM Bureau agreed on the necessity of extending the mandate of the SCTF until the end of 2021 to compensate for the COVID-19 restrictions that had prevented the SCTF from proceeding with many of its activities.
- [3] The CPM, its committees and subgroups have been working on the subject of pest spread through contamination of sea containers for a number of years. In this regard, SCTF members note that the recommendations contained below are the result of not only the SCTF's discussions but also took into consideration and provided input into discussions of other committees and groups over a long period. A short summary of early work is provided to inform CPM members of the background to the present conclusions and recommendations.
- [4] The IPPC commenced active engagement on sea container risk management in 2008 when the topic was first suggested for development of an International Standard for Phytosanitary Measures (ISPM); the Standards Committee (SC) discussed the first draft of the specification for an ISPM entitled "Minimizing pest movement by sea containers and conveyances".
- [5] At the SC meeting in July 2009, the specification for "Minimizing pest movement by sea containers and conveyances in international trade" was recommended for CPM approval as well as a draft specification for an associated ISPM on "Minimizing pest movement by air containers and aircraft".
- [6] At CPM-5 (2010), Specification 51 "Minimizing pest movement by sea containers and conveyances in international trade" was approved. An Expert Working Group (EWG) was established and a draft ISPM prepared at an EWG meeting in Malaysia in 2012. CPM-8 (2013) held a special session which found the issue to be very complex. The meeting decided to pursue the idea of sea container pest contamination surveys and suggested that work on audit and verification mechanisms be continued. In 2014 the SC discussed the consultation comments on the draft ISPM that were not supportive for a number of reasons. At around the same time, the IMO (International Maritime Organization)/ILO (International Labour Organization)/UNECE (United Nations Economic Commission for Europe) Code of Practice for Packing of Cargo Transport Units Code (CTU Code) was finalized and included some phytosanitary information intended to minimize pest contamination of containers and their cargoes. At CPM-10 (2015),

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<sup>1</sup> Terms of Reference of the Sea Containers Task Force (SCTF). Available at: [https://assets.ippc.int/static/media/files/publication/en/2020/05/SCTF\\_IC\\_Subgroup\\_Terms\\_of\\_Reference\\_2018-12-10.pdf](https://assets.ippc.int/static/media/files/publication/en/2020/05/SCTF_IC_Subgroup_Terms_of_Reference_2018-12-10.pdf)

<sup>2</sup> Complementary Action Plan for Assessing and Managing the Pest Threats Associated with Sea Containers. Available at: [https://assets.ippc.int/static/media/files/publication/en/2017/07/Complementary\\_Action\\_Plan\\_CPM12.pdf](https://assets.ippc.int/static/media/files/publication/en/2017/07/Complementary_Action_Plan_CPM12.pdf)

CPM agreed to hold a special session on sea containers at CPM-11 (2016) and adopted a CPM Recommendation on sea containers.<sup>3</sup>

- [7] In 2015 and 2016, special presentations were made to the SC detailing the survey results that were available, and presentations were made to the Japanese ministry of agriculture and the agriculture department of the China Hong Kong Special Administrative Region.
- [8] CPM could not reach an agreement on how to proceed with the draft ISPM. The concerns raised included: auditing of container depots by national plant protection organizations (NPPOs) would require considerable resources; it would be difficult to harmonize worldwide; the subject of empty containers that are repositioned was not adequately addressed; and the risk of contamination of the container after leaving the depot and before vessel loading (e.g. during packing) was not addressed in a realistic way as the vessel carrier would singularly be responsible for the cleanliness of the container even when the container was not in its custody.
- [9] The CPM special session in 2016 discussed the sea container issue and decided to move the draft ISPM to a pending state for five years during which countries could consider if the application of the CTU Code affected the rate of sea container pest contamination. This led to the establishment of the Sea Container Task Force (SCTF) in 2017.

## 2. Scope

- [10] This report refers to “sea containers” throughout. In general, this means multimodal steel containers that are set out in the definition of “freight container” in the CTU Code (which in turn aligns with the definition in the International Maritime Dangerous Goods (IMDG) Code):
- “An article of transport equipment that is of a permanent character and accordingly strong enough to be suitable for repeated use; specially designed to facilitate the transport of goods, by one or other modes of transport, without intermediate reloading; designed to be secured and/or readily handled, having fittings for these purposes, and approved in accordance with the International Convention for Safe Containers (CSC), 1972, as amended.”
- [11] The use of the term “sea container” does not include the carrying vehicles, carrying conveyances or packaging. Sea containers as presented in this report include all containers transported internationally, including by sea, road and rail. Air-freight containers were not considered as part the scope of the work of the SCTF. The focus is on the international operations that include maritime transport, as this represents the most commonly identified pathway for pest risks, and the most complex form of logistics operations. The scope of the work of the SCTF and of this report includes empty and packed containers.

## 3. Overview of sea container logistics operations

National economies depend on the efficient and uninterrupted movement of trade, which is facilitated by the efficient movement of sea containers through an extremely complex and time-sensitive logistical system. An infographic summary of such logistics can be accessed [here](#).

## 4. Original mandate and progress made

- [12] The original tasks of the SCTF were to facilitate the efficient implementation of the Complementary Action Plan for Assessing and Managing the Pest Threats Associated with Sea Containers through:
- **Section 1: Measuring the impact of the IMO/ILO/UNECE (Code of Practice for Packing of Cargo Transport Units Code (CTU Code<sup>4</sup>);**

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<sup>3</sup> Commission on Phytosanitary Measures Recommendation R-06, Recommendation on: Sea containers. Available at: <https://www.ippc.int/en/publications/84233/>

<sup>4</sup> CTU Code, available at: <https://www.imo.org/en/OurWork/Safety/Pages/CTU-Code.aspx>.



- **Section 2:** Increasing awareness of the pest risks of the sea containers pathway.

- [13] In order to implement section 1 of the Complementary Action Plan and measure the impact of the CTU Code, and to gain an understanding of the existing NPPO practices, the Sea Container Questionnaire for Monitoring Sea Container Cleanliness was developed and issued to contracting parties in March 2019 to help assess:
- (a) NPPOs' current level of monitoring of sea containers;
  - (b) implementation of existing industry guidelines for container cleanliness;
  - (c) the type of data concerning container cleanliness being collected by NPPOs.
- [14] This questionnaire was open for five months; however, the response level was low, with only 36 percent of contracting parties (n=66) fully or partially completing the questionnaire (2 non-contracting parties also participated). As a consequence, the results do not fully reflect the situation for all NPPOs and they should be interpreted with care. The SCTF has not been able to accurately measure the uptake of the CTU Code due to the paucity of relevant data. Even though information was received from some NPPOs, the small amount of data, and the inability to compare the data to a baseline, limits the statistical validity of the results. The complete report on the questionnaire findings is available on the International Phytosanitary Portal (IPP).<sup>5</sup> Annex 1 to this report contains the executive summary of the Questionnaire on Monitoring of Sea Container Cleanliness.
- [15] In addition, to assist countries to carry out Sea Container National Surveys, the SCTF developed Guidelines on Sea Container Surveys for NPPOs<sup>6</sup> to help ensure that NPPOs inspect and record contamination data in a harmonized way. The Guidelines were developed to establish the baseline data and to provide guidance to NPPOs on how to conduct surveys and collect data – to assess the impact of the CTU Code. The Guidelines also include useful information on how to undertake container inspections in a safe manner.
- [16] Over the last five years, the SCTF has discussed how else to measure the uptake of the CTU Code. The SCTF concluded that currently they would not be able to assess the uptake of the CTU Code due to the lack of relevant data from national surveys, even though data was collected by a few NPPOs. It was agreed that additional data would be needed to conduct a statistically valid analysis. However, it is a challenging task to measure the impact of the uptake of the CTU Code, as only a few NPPOs are in a position to conduct surveys, industry reports on survey results are not available to NPPOs and because statistically valid baseline data to measure the impact of the uptake of the CTU Code was not available.
- [17] It was also noted that industry stakeholders were not then able to undertake industry surveys. However, it was identified that the recently agreed inclusion of pest contamination among the criteria in the IMO CTU inspection programmes should assist in collecting data, which could help measure the pest contamination of containers and their cargoes and thus – indirectly – the uptake of the CTU Code.
- [18] UNECE and IMO, two of the CTU Code's co-sponsoring organizations, have decided to informally open the CTU Code for revision, pending agreement by ILO, the CTU Code's third co-sponsor, to launch a formal revision process.
- [19] The SCTF discussed different approaches on providing comments for the improvement of the pest-related information in the CTU Code. It was thought that pest risk associated issues could be consolidated in one section. The text of the whole CTU Code should be reviewed with the

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<sup>5</sup> Findings from the 2019 sea container questionnaire on monitoring of sea container cleanliness - [https://assets.ippc.int/static/media/files/publication/en/2019/11/Sea\\_container\\_questionnaire\\_on\\_monitoring\\_of\\_sea\\_container\\_cleanliness\\_final\\_191111.pdf](https://assets.ippc.int/static/media/files/publication/en/2019/11/Sea_container_questionnaire_on_monitoring_of_sea_container_cleanliness_final_191111.pdf)

<sup>6</sup> Guidelines on Sea Container Surveys for NPPOs - <https://www.ippc.int/en/publications/87069/>

view of making responsibilities and relevant actions clearer and better described along the CTU chain of custody. The language of the proposed amendments should take into account the status of the revised CTU Code: mandatory versus voluntary. The scope of the revision should result in a version of the CTU Code that could be used as an independent document for the management of pest risks. However, the SCTF felt that the submission of comments and recommendations was the purview of the IPPC Secretariat.

- [20] In 2021 at the request of the UNECE Working Party on Intermodal Transport and Logistics, an informal group of experts on the CTU Code was established and tasked with considering the deficiencies of the CTU Code and providing proposals for its improvement. As per previous agreement with UNECE and IMO, the IPPC Secretariat and some SCTF members representing industry have participated in the work of this informal group of experts. The IPPC Secretariat and the World Shipping Council (WSC) were able to secure agreement to revise the sections of the CTU Code on pest contamination including fumigation of timber products and general fumigation. This work is ongoing.
- [21] In addition, the IPPC Secretariat together with industry representatives in the SCTF contributed extensively to the revision of the IMO Guidelines on CTU Inspection Programmes. The sixth session of the IMO Sub-Committee on Carriage of Cargoes and Containers (CCC-6) established a Correspondence Group (CG) which, among other things, was tasked with considering contamination and pest control matters with regard to IMO CTU inspection programmes, taking into account the CTU Code. The SCTF and the IPPC Secretariat have been working to include sea container cleanliness criteria into the IMO inspection programmes through the participation of the IPPC Secretariat and SCTF industry representatives in the CG and through advice provided by several NPPOs through their representatives to the CG. The primary driver for this work is that inclusion of pest contamination related issues in the IMO CTU inspection programmes may assist the IPPC Community in determining the number of instances of pest contamination of CTUs and their cargoes and complement the data collected by NPPOs, and thus support the identification of ways to manage pest risks associated with the movement of CTUs and their cargoes at the global level.
- [22] In 2021, after long negotiations and considerable contribution from the IPPC Secretariat and members of the SCTF, the CCC-7 approved proposals from the CG and included pest contamination in the revised draft IMO inspection guidelines, subject for adoption by the Maritime Safety Committee (MSC) at its 105th session in April 2022. The IPPC Secretariat may also make a statement on this matter during MSC 105. This marks an important development and confirms a willingness by the maritime community and stakeholders to actively participate in reducing pest contamination of containers and their cargoes.
- [23] For the implementation of Section 2 of the Complementary Action Plan, namely “Increasing awareness of pest risks of sea containers”, a number of materials were developed, which are included in appendix to this report. These include:

- ***Sea Container Supply Chains and Cleanliness: An IPPC Best Practice Guidance on Measures to Minimize Pest Contamination***
- ***IPPC leaflet entitled “Reducing the Spread of Invasive Pests by Sea Containers”***
- ***The IPPC factsheet on Sea Container Cleanliness***
- ***Quick Guide to the CTU Code and the associated Container Packing List***

In addition to these materials, SCTF members developed several articles on pest risks in the sea container pathway for publication on the IPP and to be shared with NPPOs, regional plant protection organizations (RPPOs), industry and a variety of magazines.

- [24] Another aspect of the original mandate of the SCTF was to explore the use of the Authorized Economic Operators (AEOs) concept within the World Customs Organization (WCO)’s SAFE

Framework of Standards and the WCO Data Model (DM) for sea container cleanliness purposes.

- [25] The SCTF discussed the potential and the feasibility of using SAFE AEO programmes to help ensure sea container cleanliness (currently there are around 100 operational AEO programmes worldwide) and to use the WCO Data Model to standardize the format of data elements to track information on sea container cleanliness.
- [26] The existing SAFE Framework of Standards define general customs compliance and security requirements and are not tailored for phytosanitary aspects. The SCTF felt that consideration should be given to expanding the AEO criteria to help ensure phytosanitary requirements are met. Possibilities to develop a phytosanitary framework analogous to the SAFE Framework of Standards should be investigated. The SCTF considered that if an NPPO was involved in the validation of the AEO applications and if the criteria were mutually recognized by all national agencies involved, then the AEOs would be deemed to meet applicable phytosanitary requirements. However, while welcoming further consideration be given to this possibility, the industry representatives of the SCTF cautioned against developing separate independent authorization schemes, as that would impose significant burdens on companies.
- [27] With regard to the use of the WCO DM to track sea container cleanliness, consideration could be given to conducting a feasibility study to understand the process and clarify who, how and when stakeholders along the sea containers pathway could be involved in data collection and submission. However, a determination must first be made on what data would specifically be of use to NPPOs. In this regard, the SCTF agreed at its 2019 meeting in Baltimore, United States of America, that the import customs declaration could be used as a means to obtain container cleanliness information. Two NPPOs (New Zealand and Australia) volunteered to test this; however due to the coronavirus pandemic, this did not occur.
- [28] Exploratory work on the use of the AEO concept and the WCO DM was being considered on two levels. SCTF members who were NPPO representatives would work with their national counterparts, while the IPPC Secretariat approached the work from the global point of view through collaboration with the WCO Secretariat. The IPPC and WCO Secretariats held a virtual meeting to discuss possible ways to include phytosanitary aspects/criteria into the global AEO framework. Finally, the IPPC Secretariat delivered a presentation during the Fifth WCO Global AEO Conference in 2021 as a breakout session entitled “Can SAFE/AEO/MRA implementation help enhance agricultural security?” Other panellists for the breakout session were the representatives from United States Customs and Border Protection and the World Business Alliance for Secure Commerce Organization, who shared their best practices in this area.

#### **4.1 Evolving role and activities of the SCTF**

- [29] As the SCTF worked through its mandate and explored various challenges, opportunities and considerations, its members have had numerous, in-depth discussions on important and sensitive considerations that CPM should take into account when deciding on the next steps for the IPPC and the development of any guidance. Therefore, in addition to pursuing the objectives of the Complementary Action Plan, the SCTF felt it was essential to present CPM with these considerations, and to make related recommendations where appropriate. The intent was to ensure that CPM, and any related subsidiary bodies, could take full account of these considerations and ensure that any decisions were taken in the light of detailed information. National economies depend on the efficient and uninterrupted trade of goods facilitated by the efficient movement of sea containers through an extremely complex and time-sensitive logistical system. Therefore, any decisions taken by the CPM must be made in the context of carefully weighing the potential costs and benefits of any IPPC activities, as well as the broader societal scale and scope.

## 5. Complexity in regulating the sea container pathway

### 5.1 Cargo

[30] The SCTF recognizes that risks of contaminating pests related to specific types of cargoes can contribute to the risks of pest contamination of sea containers. In addition, the type of commodity and the handling and storage of commodities prior to and during packing can influence and result in the contamination of containers. Packing and time spent in the area where packing occurs is a common stage for primary contamination of sea containers, although contamination can occur subsequently to packing. Essentially, with respect to the work of the SCTF, risks related to specific cargo types should be considered only up to and including the packing stage in that the cargo and/or its method of handling/storage may itself be a source of potential contamination of containers, i.e. once the container is packed and in transit, the potential contamination of the container itself, irrespective of the source of the contamination, is the risk pathway being considered and not the contents of the container, which may be subject to commodity-specific plant health import requirements. In this regard, it is understood that, for risks directly related to agricultural cargo (and some non-agricultural cargo), individual country import requirements and IPPC standards already exist.

[31] The Sea Container Recommendation and the IPPC Guidance on Sea Container Supply Chain and Cleanliness both stress that “the packing and unpacking of sea containers with cargo is the most likely stage in the sea container supply chain at which pest contamination can occur”. It is not, however, the only point at which contamination can occur.

[32] SCTF members agreed that understanding of the responsibilities along the entire logistical chain is the key to developing effective mechanisms to address cleanliness. The challenge with containers is that there is no way to track all stakeholders involved (especially packers and unpackers) and therefore full accountability or custodianship is missing. In addition, questions were raised on the cost of container inspections for industry.

### 5.2 NPPO capacity to implement an ISPM

[33] Without clarity on what would be required under an ISPM, it is very difficult to assess the capacity of NPPOs to implement a standard. Therefore the points made below are made on the assumption that some level of border intervention would be required of NPPOs to manage the risk of pests.

[34] Many low- and perhaps even some middle- and upper-income country contracting parties are unlikely to have sufficient capacities to inspect or monitor the large volumes of container flows in most ports. For example, the World Shipping Council reports that a number of South and South-east Asian ports receive about 5 million twenty-foot equivalents (TEU) annually. In some cases, significantly more than 5 million TEUs move through a port (e.g. Ho Chi Minh City, Viet Nam, 7.2 million). For example, if inspection of the six sides of a container were to be required, this would mean that these ports would be required to obtain the necessary infrastructure, space and capacities to inspect at least some portion of the volume. It is highly unlikely that low-income countries would have the capacities to undertake such operations. Furthermore, if interventions are required both at the point of export and import, it would increase the number of inspections. If some form of attestation or additional documentary clearances were also required, this would add a significant burden to many countries to allow trade to move seamlessly. Delays associated with perishable products would likely increase the volumes of current food waste. Overall, inspections in ports and terminals would create bottlenecks for already overstressed processes and infrastructure, and the costs involved would be very significant. Such a requirement would also significantly delay the containerized supply chain, as export containers would need to arrive earlier in order to allow them to be inspected and still make it to the scheduled ship. In addition, contamination can continue to occur after inspection by, for example, contaminating pests attracted to port lighting or pests from surrounding habitats entering through container vents.

- [35] An ISPM, if pursued, would also need to take into account how shipments to landlocked countries would be managed by receiving/exporting countries and what attestations would be needed to communicate that controls had not been applied at the receiving/export point for transit shipments to landlocked countries. Many landlocked countries pay the highest costs for traded goods (United Nations, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 2021). The cost of goods subjected to additional controls would therefore be further increased.
- [36] If CPM were to consider guidance that might propose third-party approaches audited by or on behalf of NPPOs, the role of NPPOs and their legislative authority would also need to be considered. It would be critical to determine if any IPPC guidance that was developed could be applied in a harmonized and effective way. It would further need to be determined if all countries would be willing to authorize private-sector entities within the supply chain to undertake activities related to the cleanliness of containers, with NPPOs auditing globally in a consistent way. Stakeholders would struggle with differing national approaches, as the same company could face different requirements in different countries. Therefore, it is not only a question of capacity. The concept of NPPOs authorizing, checking and auditing packing companies, which is also a place of contamination, would seem unmanageable for most NPPOs because there are many more packers and some are small or located remotely.
- [37] NPPOs could be required to check all containers prior to departure from their country. However, the resource implications of this, as well as the overall impact on the logistics operations of container supply chains would be prohibitive. This would also require checking, authorizing and auditing unpackers of containers, especially to also address the risk of empty sea containers being repositioned.
- [38] As the SCTF questionnaire demonstrated, in many cases, there is no national legislation and/or data management systems in place that could support NPPO efforts — NPPOs only have the authority to act in cases when pests covered by the IPPC definition are found, and cannot act in cases when other organisms, such as spiders and snails, are found.
- [39] As the SCTF questionnaire also demonstrates, many if not most contracting parties might lack the capacity (human resources, funding, legislation, etc.) to implement an ISPM. A misaligned approach to implementation would result and – given the universal movement containers – actions taken by a few jurisdictions would not be sufficient to reduce pest risks.

### 5.3 Risk reduction

- [40] Much like ISPM 15, *Regulation of wood packaging material in international trade*, the intent of providing guidance related to pest risks presented by the sea container pathway is to bring about an effective level of risk reduction with application to a broad range of pests.
- [41] Container logistics operations are extremely complex and are sensitive to impacts on movements, positioning and delays. The global economy is dependent on the predictable and uninterrupted flow of empty and packed containers. Current supply chain delays caused by the COVID-19 pandemic demonstrate this clearly. This implies that the concept of necessity and minimal impact, as contained in the International Plant Protection Convention itself and further elaborated on in ISPM 1, *Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*, must be carefully respected in developing approaches to reduce pest risks related to the sea container pathway.
- [42] A fundamental approach to addressing the risks presented by the sea container pathway is that the concept of managed risk must be applied, i.e. recognition that complete elimination of risk is not feasible and that a significant, but practicable, level of risk reduction should be the objective. ISPM 15, for example, clearly states in its scope that it is intended to reduce the risk of introduction and spread of quarantine pests associated with the movement in international trade of wood packaging material rather than eliminate them. Therefore, whatever form any

IPPC guidance on sea containers may take, it must be recognized that risk reduction is the goal, and that the resultant societal costs and benefits of any approach must be carefully considered.

[43] ISPM 2, *Framework for Pest Risk Analysis*, states that in preparing a pest risk analysis (PRA) for a pathway,

“a list of organisms likely to be associated with the pathway should be assembled, including organisms that have not yet been clearly identified as pests. When a PRA is carried out for a commodity for which trade already exists, records of actual pest interceptions should be used as the basis for the listing of associated pests.”

[44] However, with respect to sea containers, the premise under which the SCTF has been working, under the direction of the IC, was that developing pest- or territory-specific PRAs would not be pursued in relation to the development, adoption and implementation of broad-based measures. ISPM 15 was again held up as an example or precedent for how measures that would be effective against a broad spectrum of pest types that may be found in association with containers may be applied without NPPOs conducting PRAs. In this regard, contracting parties are expected to implement ISPM 15 based on the concept of necessity being established by the presence of an adopted standard. The current version of ISPM 15 does not include a list of target pests, although earlier versions did. However, conveying to the IPPC community the types of pests that may be managed by the broad adoption of measures could assist with developing consensus on the types of measures and their consistent implementation. It may be useful to prepare a list of commonly detected contaminating pests regulated by several countries that are found in or on sea containers and, perhaps, in or on non-plant-based cargoes.

#### **5.4 Importance of pursuing a harmonized approach to plant pest risk reduction in the sea container pathway**

[45] The preceding information on the broad pest risks presented by the sea container pathway, the frequency of international movement and the longevity of sea containers, coupled with the complexity and sensitivity of sea container logistics operations, reinforces the need for a harmonized approach to risk reduction. This emphasizes the need for the development of practicable IPPC guidance that is widely supported internationally by government and industry stakeholders.

[46] The plant health risks presented by sea containers have been well noted by several NPPOs. In this regard, it is also apparent that some contracting parties are proceeding to implement independent measures on a unilateral basis. For example, one contracting party has recently adopted a new biosecurity law that includes specific reference to the broad pest risks presented by sea containers. Under this law, the contracting party has issued three national standards with specific provisions regarding container cleanliness, inspection and risk-mitigation measures. Other contracting parties have implemented pest-specific import requirements (for khapra beetle and brown marmorated stink bug) that include measures for the treatment of containers prior to their entry.

[47] The implementation of such unilateral approaches is not surprising, given the pest risks presented and the lack of harmonized guidance on the use of effective, practicable measures. Without harmonized guidance, the number of independent, potentially differing approaches can be expected to proliferate with compounding impacts on logistics operations, costs, and supply chain efficiency. CPM should therefore strongly consider developing some form of guidance to harmonize measures to the extent possible, as this may eliminate or limit the need for unilateral measures. Equally, however, CPM must strike the right balance and find a way to reduce risks without causing unacceptable impacts in doing so. Further information is required to achieve this.

## 6. Revised mandate in 2021 due to CPM direction and SCTF responses to core strategic questions

[48] At its Fifteenth Session in 2021, CPM decided to adjust the work of the SCTF for the remaining months of its mandate, which concluded in December 2021. The new work focus included the suggestion that the SCTF address some core strategic questions and consider the possibility of an international workshop, or an open-ended technical consultation, in late 2022. It was agreed that after the report and recommendations of the SCTF were presented to CPM-16 (2022), CPM would then consider how to move forward on this topic, including the establishment of a CPM focus group to drive the delivery of the agreed approach, the revision of CPM Recommendation R-06 and/or resuming the development of a draft ISPM on sea container cleanliness. In this regard, under the direction of the IC, the SCTF was asked, as feasible in the remaining time available, to:

- consider and prepare responses to the core strategic questions laid out in CPM 2021/INF/13, “Update from the Sea Containers Task Force – Proposal for a Path Forward for the Sea Container Task Force”. The SCTF may also review additional sources of information of potential value in this regard, such as information gathered by the earlier IPPC working group that developed the recommendation on contaminating pests;
- outline potential core aspects that the SCTF would consider important for inclusion in (a) a potential revision of CPM Recommendation No. 6 on Sea Containers, and (b) a potential ISPM on sea containers, recognizing that the CPM has yet to determine whether to proceed with either approach;
- consider and communicate viewpoints on the potential value of an international workshop (or open-ended technical consultation) that could be held in late 2022, subject to CPM-16 approval, to be arranged by a CPM focus group as described below, which would allow for: (a) the discussion of the SCTF’s final report and any related recommendations; (b) exchange of relevant lessons learned, views, experiences and recommendations; and (c) identification of critical elements which should be considered in conjunction with any future related activities or development of related IPPC guidance. The outcomes of the workshop would be expected to be presented to CPM-17 in 2023;
- develop any other considerations, recommendations or options that CPM-16 may wish to take into account during related decision-taking in 2022;
- develop a draft Terms of Reference for a prospective CPM focus group that would be charged with arranging a possible 2022 workshop or consultation or any other tasks which CPM-16 (2022) decides upon and assembling related information or recommendations for subsequent communication to CPM-17 (2023). The draft Terms of Reference for this focus group would be presented to the Strategic Planning Group in 2021 for review and subsequently presented to CPM-16 (2022) for consideration and decision on holding the workshop or consultation.

### 6.1 SCTF reply to CPM questions

[49] Summary of Responses to Questions Posed by CPM to the Sea Container Task Force.

[50] The questions were meant to guide the SCTF’s work and contribute to what is expected from the SCTF report. Detailed responses contributed by various SCTF participants are provided in the appendix. The main themes throughout the responses are awareness-raising, engagement of contracting parties and industry, and understanding and considering constraints for both NPPOs and industry.

[51] The SCTF made good progress in awareness raising, developing and distributing outreach material, recognizing the importance of government and industry working together, better understanding of the scale and complexity of sea container logistics and how mandatory measures can result in disruptions to international trade and additional costs, identifying key

parties that can contribute to the reduction of the risk of pest contamination of sea containers globally. It is important that this collective experience and insight not be lost in the handover to the anticipated CPM Focus Group.

- [52] The most common theme raised in responses to several questions was that awareness, communication and outreach activities are paramount to developing appropriate solutions to achieve the sea container cleanliness objective globally. The same can be said for the importance of continuous engagement of all regions, contracting parties and industry.
- [53] This is evident from the outcomes of webinars hosted by some SCTF participants to provide education and receive feedback from other contracting parties and industry as to their successes, obstacles and constraints in managing the risk from the sea container pathway. Many of the contracting parties attending the webinars were not aware of the phytosanitary risks, of the work of the SCTF, of the CTU Code or of the available tools on the IPPC website, such as education and outreach materials.
- [54] Apart from lack of legislative authority and resources for developing and implementing risk mitigation programmes for this pathway, ongoing need for information and technical knowledge to better understand the supply chain logistics and phytosanitary risks and to develop training programmes were the main points raised during the feedback session of those webinars.
- [55] That this pathway represents a phytosanitary risk is clear, although the magnitude of the problem remains unknown.
- [56] There are many parties involved and many touchpoints to be considered. Some of the parties are well informed of the importance of container cleanliness, but others are less aware and equipped. The various parties in the supply chain who are aware of the issue recognize that they have an important role, and some industry groups have been very active in developing initiatives and creating awareness and outreach materials that support the IPPC objective of minimizing phytosanitary risk in the sea container pathway.
- [57] While there had initially been a focus in the SCTF on the CTU Code, there seems to be low awareness among contracting parties of the CTU Code and its application for reducing pest and contaminant risks in the container pathway. However, and although the SCTF decided not to participate with input, there is interest in adding to the cleanliness aspects of the CTU Code. Some work is currently underway, and the Code should continue to be considered as one of the tools to reduce phytosanitary risk.
- [58] Reporting and communication mechanisms among contracting parties, other organizations such as border agencies, and industry should be considered so that there is awareness of contamination issues and opportunities to apply corrective measures.
- [59] An international workshop would be a valuable forum to determine needs for outreach and training materials and ideas for risk reduction options commensurate with practices, regulatory authorities and resources among contracting parties and their industry. However, the workshop should have clear questions and objectives, focus on ideas and experiences from different regions, encourage participation from countries not represented on the SCTF, and not be a rehash of previous special topics and side sessions. Such a workshop should be held, and its conclusions and recommendations obtained, *before* decisions are made in regard to specific, future IPPC action.
- [60] Overall, although there are certain key intervention points for phytosanitary checks and cleaning, everyone in the containerized supply chain, including governments, plays a role in reducing the risk of moving pests around the world. Therefore, all of those parties need to be continuously engaged, informed and given the opportunity to share viewpoints and ideas. SCTF work on sea containers is a model that can be used for other conveyances and cargo where there is risk of the movement of pests.



- [61] Any guidelines, recommendations or specific solutions to reducing phytosanitary risk in the sea container pathway must be practical, feasible and effective in order to achieve the common outcome of reducing phytosanitary risk in the sea container pathway. There must be acknowledgement that a combination of action and independent but complementary measures is needed both from industry and NPPOs to achieve a common goal of risk reduction.
- [62] The SCTF advocates for the proposed international workshop to proceed, as it will help identify and describe the roles and responsibilities of different stakeholders involved with the container and cargo supply chain and identify ways to reduce the risk of pest contamination of containers and their cargoes. In addition, this large group of stakeholders will be able to review outcomes from the SCTF and CPM, and provide further important considerations.

## 6.2 Options and consideration for guidance (ISPM, recommendation, industry voluntary guidance/programme, new initiatives), including approaches that should not be taken

- [63] As previously stated, the global economy depends on the efficient and uninterrupted movement of sea containers, and their movement occurs via an extremely complex and time-sensitive logistical system. The supply-chain impacts evident during the COVID-19 pandemic demonstrate this clearly. There is therefore a risk that if IPPC guidance has a damaging effect on container logistics, the global economic impacts could far outweigh any pest risk reduction benefits. This would not only damage the global economy, but would tarnish the reputation and credibility of the IPPC. A general test of any reasonable policy approach pursued by governments is that the benefit of any policy must verifiably exceed the costs of any measures and their impact. CPM must tread very carefully in taking decisions on guidance on sea containers.
- [64] It is not possible to emulate the approach used with ISPM 15 or Asian *Lymantria* moth complex (AGM) programmes. Wood packaging material is a commodity that is easily treatable at the point of manufacture or repair, with treatment conferring long-term pest reduction. The AGM programme involves only four regulated countries and one pest, which poses a high risk for only a part of the year.
- [65] It cannot be assumed that all countries can take the same actions; national capacity (legislative and resource-related) is an important consideration.
- [66] Measures may be focused on the exterior or interior of containers, or both, as well as the cargoes to be packed into the containers. There may be differences in responsible parties and measures taken by each of the parties along the supply chain. For example, would the packer/exporter/last person to see or touch the interior of the container before it is closed and sealed be responsible for ensuring that the interior is clean and that only clean cargo is packed? Would the shipper/loader/exporter/shipping line then be responsible for ensuring that the exterior (all six sides) is clean and that the containers are stored/staged such as to reduce soil, plant debris and pest contamination?
- [67] In order to be effective and widely supported, combined and collaborative government and industry involvement will be essential. The goal of reasonable risk reduction (section 5.3) with minimal impact on container logistics should be a key principle

[68] **Table 1: Potential options and their advantages and disadvantages for CPM to consider**

Option	Advantages	Disadvantages
<b>Voluntary measures developed and implemented by industry sectors</b>	- Minimizes resource impacts for NPPOs - May be implemented more rapidly and	- Might not lead to pathways being regulated on a harmonized basis by NPPOs

	<p>efficiently than through the development of IPPC guidance</p> <ul style="list-style-type: none"> <li>- Would be supported by the majority of industry associations</li> <li>- Would avoid unacceptable impacts on trade</li> </ul>	<ul style="list-style-type: none"> <li>- May result in individual NPPOs in some importing countries implementing a range of different requirements if they are not satisfied with the voluntary measures being undertaken</li> <li>- The IPPC would not be able to adjust approaches promptly if needed</li> </ul>
<b>Proceeding with IPPC Recommendation only</b>	<ul style="list-style-type: none"> <li>- Can be achieved in time frame shorter than an ISPM</li> <li>- Allows for harmonization of efforts to an extent defined in the Recommendation</li> <li>- More flexibility in scope of content and type of guidance than is the case for an ISPM</li> <li>- More flexibility for revisions to be made as necessary</li> <li>- Allows for encouragement of activities not directly under the IPPC's mandate, e.g. encouraging review of container design, activities for bodies other than NPPOs, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- May not have the full force of an ISPM, nor the same recognition under WTO-SPS obligations</li> <li>- May therefore limit the scope of what measures could be implemented through the IPPC if guidance is limited to a Recommendation</li> </ul>
<b>Proceeding with IPPC Recommendation and an ISPM, with the revision of the Recommendation being a first and transitional step towards adopting an ISPM</b>	<ul style="list-style-type: none"> <li>- Rapid provision of IPPC guidance can be achieved by using an IPPC Recommendation</li> <li>- Ensures that early actions can be encouraged by having a Recommendation published while working on an ISPM</li> <li>- Allows for certain approaches to be validated or "tested" through practical experience prior to formalizing an ISPM</li> <li>- Allows for encouragement of activities not directly</li> </ul>	<ul style="list-style-type: none"> <li>- The potential practicable guidelines that could be presented in an ISPM remain elusive and unclear</li> <li>- Risk of not achieving agreement on the scope and contents of an ISPM in a reasonable time.</li> </ul>

	<p>under the IPPC's mandate, as above</p> <ul style="list-style-type: none"> <li>- Would signal clear intent for the IPPC to regulate the pathway</li> <li>- Industry sectors may be more supportive of an ISPM if the experience with interim guidance can be reviewed and fed into the ISPM development process</li> </ul>	
<p><b>Proceeding with a new ISPM without updating the existing Recommendation, or perhaps without retaining it</b></p>	<ul style="list-style-type: none"> <li>- Demonstrates clear intent for the IPPC to regulate the pathway if a decision is taken to develop an ISPM</li> </ul>	<ul style="list-style-type: none"> <li>- Development of an ISPM is an extremely lengthy undertaking and without interim guidance provided by an IPPC Recommendation, there would be several years with no IPPC guidance</li> <li>- The potential practicable guidelines that could be presented in an ISPM remain elusive and unclear</li> <li>- A revised IPPC Recommendation may serve as independent guidance or as an interim step towards an ISPM</li> <li>- Risk of not achieving agreement on the scope and contents of an ISPM in a reasonable time</li> <li>- Difficulties in implementation (including national legislative challenges, increased costs to trade and governments, etc.)</li> </ul>

[69]

**Table 2: Targeted measures that have been considered and their advantages and disadvantages**

Option	Advantages	Disadvantages
- Pesticide treatment of containers	- Residual pesticide activity could ensue, limiting further contamination	<ul style="list-style-type: none"> <li>- It is unlikely that a product or suite of products would receive uniform approvals among all contracting parties.</li> <li>- Strong reactions from consumer groups in regard to pesticide residues in foods, and from unions in regard to worker safety, could be expected</li> <li>- Realities and concerns associated with using pesticides as a routine, blanket treatment include issues of: availability, registration, labelling, residues, resistance, cost, volume and more NB: further details of the challenges presented by potential pesticide are provided in the appendix</li> </ul>
Modified container design (more details provided in the appendix)	<ul style="list-style-type: none"> <li>- Surveys show that containers with steel floors, or composite containers, have less contamination than containers with wooden floors</li> <li>- Seems likely to bring about a significant level of risk reduction on a broad scale, over time</li> <li>- Could be encouraged through an IPPC Recommendation, and an IPPC Recommendation could include transitional measures, which could be discontinued once a specified proportion of new containers was in circulation</li> <li>- Although slow to implement (or costly if accelerated), there would be no impact on logistics</li> </ul>	<ul style="list-style-type: none"> <li>- Slow to be implemented (containers have an average 16-year lifespan). However, since an ISPM takes at least seven years to proceed to adoption, this may not be as long as it seems.</li> <li>- Not within the direct sphere of IPPC work, so the IPPC can only encourage, at best</li> <li>- Would not be effective against all forms of contamination; some guidance would still be required</li> <li>- There are approximately 25 million containers in global deployment owned and operated by many different parties. Obtaining consensus to change design (e.g. use of steel floors) would require significant effort. Any</li> </ul>

	<ul style="list-style-type: none"> <li>- Cost neutral, if normal container replacement cycles are followed</li> <li>- An industry association consortium<sup>7</sup> has, in principle, agreed to establish a core working group to facilitate consideration of possible improvements to container designs. They could be encouraged to take pest contamination into consideration.</li> </ul>	<p>discussion about future container design must include container manufacturers.</p> <ul style="list-style-type: none"> <li>- Impact on costs is a critical element that needs to be studied further</li> <li>- Decision to modify container design is not in the hands of CPM but of other stakeholders, and therefore the outcome of the decision is uncertain</li> </ul>
<p>Heat treatment or fumigation of empty containers</p>		<ul style="list-style-type: none"> <li>- Unlike wood packaging, a single treatment does not reduce all subsequent risks of contamination</li> <li>- Recontamination, especially at points of packing, is a major source of container contamination</li> <li>- Infrastructure for broad scale application does not exist, and would be enormously expensive to build</li> <li>- Either treatment option raises numerous environmental and emissions concerns and issues similar to those regarding widespread use of pesticides</li> </ul>

## 7. Recommendations

### A: To CPM:

1. The SCTF recommends the establishment of a **CPM Sea Container Focus Group** based on the drafted ToR. Participation of current SCTF members should be considered to ensure continuity of the work, which is critical.
2. The SCTF recommends to organize a **global workshop in 2022** to discuss the outcomes of the SCTF with representatives of all stakeholders involved and to discuss the best way

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<sup>7</sup> Bureau International des Containers (BIC), Container Owners Association (COA), Institute of International Container Lessors (IICL) and the World Shipping Council WSC).

forward. It further recommends to collect additional elements to be included in the programme of the proposed international workshop.

3. The SCTF recommends that **CPM decisions** on guidance and/or other next steps should be deferred until **after the 2022 workshop**. Such decision should be based on further analysis of the workshop discussions by the new CPM Sea Container Focus Group, if established. The SCTF expects that this will result in the best-informed decisions being taken.
4. Any guidance developed by the IPPC should include in its scope both **empty and packed sea containers**, as both types move internationally and both types may be contaminated. When developing guidance, the capacity of NPPOs and all other entities that may be impacted by such guidance should be carefully considered.
5. The SCTF suggests that **IPPC Recommendation R-06: Sea containers**, originally adopted in 2017, should be retained and revised, either as an interim approach prior to the development of an ISPM, or as a final approach.
6. **Modern technology**: CPM should remain alert that advances in modern technology may be made rapidly and that opportunities to apply advanced technological approaches, including new detection methods and artificial intelligence, may exist in the near or mid-term future.

**B: To the Focus Group (if established):**

1. The CPM Focus Group should ensure that its decisions fully take into account the **outcomes of the SCTF's work**, and the expected international workshop tentatively scheduled for 2022.
2. The CPM Focus Group should explore the potential value in the use of **Authorized Economic Operators (AEO)** programmes and adding data elements to assist in tracking the cleanliness status of container units under the Data Model (DM) of the World Customs Organization (WCO).

**C: To contracting parties and their NPPOs:**

1. Contracting parties are encouraged to **collect data** to better define the pest risk and to help measure the **uptake of the CTU Code**. Contracting parties are also encouraged to establish/execute sea container surveys according to the IPPC Guidelines on Sea Container Surveys for NPPOs and to submit the survey results to the IPPC Secretariat.
2. Contracting parties are encouraged to **contact their national customs counterparts** with the aim to explore what ongoing activities and experience are available at national level so that a consolidated approach could be proposed on the ways for potential collaboration between WCO and the IPPC Secretariat on this topic.
3. Contracting parties should engage with their **national contact points for the International Maritime Organization (IMO)** to support the inclusion of sea container cleanliness among criteria in the IMO inspection programmes for cargo transport units.
4. **Collaboration and coordination between all border agencies** should be undertaken to avoid duplicative and redundant activities, including inspections, compliance and enforcement systems. Border management activities should be risk-based and driven by

data. This is in line with the World Trade Organization (WTO) Trade Facilitation Agreement.

5. **WCO Data Model:** Contracting parties are encouraged to conduct a national feasibility study with their national customs counterparts, in order to identify the way forward on how the WCO Data Model could be used for exchanging information on the cleanliness status of sea containers.
6. **CTU Code:** Contracting parties are called on to provide input during the process of revising the CTU Code.

**D: To all stakeholders:**

1. **Raising awareness** should continue and effective communication will be essential. All players within the chain of custody should be engaged so that the reason and the purpose of the approach applied can be easily understood. Large-scale importers should be engaged in discussions. The most significant challenge for future dissemination programmes will be ensuring that the advice and material developed reaches the many **small- and medium-sized** entities throughout the containerized supply chain, including those that are responsible for the packing and unpacking of sea containers
2. The entire text of the **CTU Code** could be reviewed to make responsibilities and relevant actions clearer and better described along the CTU chain of custody. The language of the proposed amendments should take into account the status of the revised CTU Code: mandatory versus voluntary. This should result in a version of the CTU Code that could be used as an independent document for the management of pest risks. The SCTF recommends that the IPPC Secretariat submits comments and recommendations to this revision.
3. **Container manufacturing technologies:** Phasing out of containers with wooden floors and replacing them with either composite containers or steel-floor containers is expected to reduce the risk of contamination and facilitate effective cleaning, and should be explored further.
4. Industry organizations represented on the SCTF recognized the role their respective memberships could play in helping reduce the risk of pest contamination of sea containers. As the work of the SCTF drew to a close, a number of ideas and proposals were identified by each of the organizations, and it is understood that joint discussions to assess and develop these are expected to take place after the Final Report of the SCTF is submitted. These various ideas addressed the roles and responsibilities of different parties in the supply chain, the extent to which container cleanliness could be “verified”, and methods for raising awareness of the risks of contamination and the means of reducing them. The SCTF encourages the organizations concerned to keep the CPM informed of developments.

## 8. References and materials reviewed by the SCTF

[70] Various materials, guidance and references were developed and/or used during the work of the SCTF. These include communication materials, material developed by NPPOs and industry that was discussed and/or agreed to by the SCTF (e.g. IMO voluntary protocol on cleanliness), and considerations of key plant health risks presented by the sea container pathway (Annex 4). Documents relating to these materials are provide in the appendix to this report. These demonstrate the intensive and effective collaboration between industry (the Cargo Integrity

Group comprising the Global Shippers Forum, the World Shipping Council and the Container Owners Association, together with the International Cargo Handling Coordination Association (ICHCA) International and the TT Club), international organizations (IMO, WCO) and NPPOs.



## **Annexes**

### **Annex 1. Executive summary on the Questionnaire on Monitoring of Sea Container Cleanliness**

[71] In 2019, the SCTF initiated a survey (*Questionnaire on the Monitoring of Sea Container Cleanliness*) amongst national plant protection organizations (NPPOs). The questionnaire covered the perceived threat level of sea containers and their cargoes, existing legislation, inspections, measures, the type of pests found, and the data collected by NPPOs.

[72] The questionnaire was circulated to all 183 contracting parties to the IPPC and approximately 40 non-contracting parties. Of the contracting parties, 68 (36 percent) provided responses. As such, it was noted that the results are unlikely to reflect the perceptions and activities of all NPPOs.

#### ***Overview of survey results***

##### ***Risk perception and existing regulations***

[73] It was concluded that almost all responding NPPOs perceived containers and their cargoes as a risk, however for a number this is only when the containers are carrying regulated articles.

[74] Approximately half of the responding parties indicated that they currently have regulations in place to deal with risks associated with sea containers, with a third stating they do not have regulations in place. The remainder of participants noted that regulations were being developed. It was also noted by some respondents that while specific regulations around sea containers did not exist, it would be possible to have risk-based controls.

[75] Reasons provided for not having regulations included no perceived risk (or not seen as relevant), or that regulations would be too difficult to implement.

##### ***Inspections***

[76] The questionnaire sought to identify if countries undertake, or authorize, inspections of empty and/or packed containers and their cargoes. The responses showed that most countries do conduct container inspections, however containers are also controlled as part of other targeted inspections.

[77] The results showed that those countries with regulations in place were more likely to undertake container inspections, however the majority of countries where regulations were in the planning phase reported conducting container inspections. All NPPOs that undertake inspections do so for packed containers, while about half also inspect empty containers.

[78] A quarter of responding countries indicated containers are not inspected, with reasons including containers are not considered a risk, regulations only allow the inspection of regulated articles, there is no capacity to inspect large amounts of containers (logistical restrictions) and inspections are only carried out when there is suspicion of a quarantine pest.

[79] The majority of countries that inspect containers noted that official written procedures are followed, with a number noting that the IPPC Guidelines on Sea Container Surveys is used.

##### ***Measures***

[80] All NPPOs, regardless of whether they conduct container inspections, were asked whether they apply or authorize phytosanitary measures in cases where risks had been identified.

[81] Of the 62 countries that answered this question, 51 said they apply or authorize measures on imported containers, and 43 also do so on ready-to-export containers. Two countries indicated that measures are applied on ready-to-export containers, but not on imported ones.

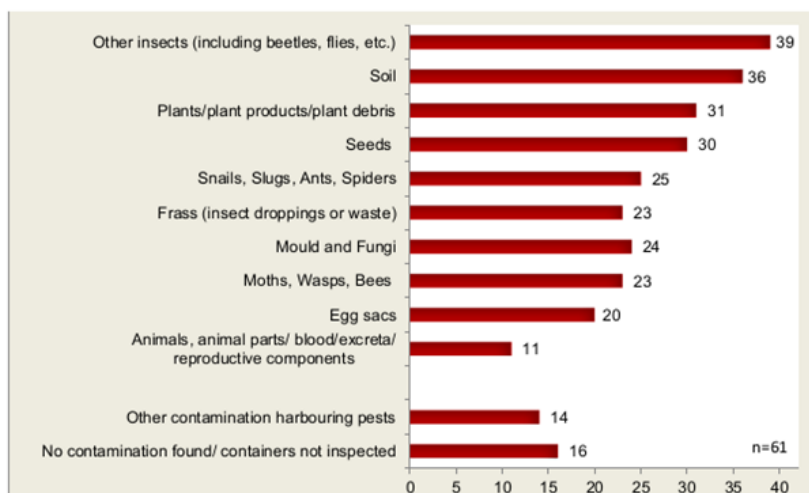
[82] A small number of countries advised that they do not apply measures, with reasons including only regulated articles inside the containers are inspected, laws not allowing for measures to be implemented on imported containers, and no perceived phytosanitary risk of sea containers. It was noted that where there was no perceived risk, phytosanitary measures may be applied if there was a known risk.

### *Pests, organisms or contamination encountered on containers and their cargo*

[83] Pests and organisms were encountered by almost three quarters of the participating NPPOs with insects, soil, plant and plant material, and seeds making up the majority of detections.

[84] Table 3 reflects the pests, organisms or contamination encountered on/in containers and their cargoes reported in this survey:

**Table 3.**



### *Information management systems for container information*

[85] Over half of the responding parties advised that they did not have an information management system in place to record information of containers and their cargoes.

[86] The results reflected that those countries where a system is in place most commonly record data regarding the presence of pests and the type of pest/contamination. The location of the pest/contamination is recorded by more than half the countries with an information management system, with the actual level of contamination less commonly recorded. A minority of countries store information on the absence of contamination; that the majority of countries do not record and store information on the absence of contamination makes it difficult to determine the proportion of containers which arrive contaminated, or where contamination is detected.

## [87] Main results of the survey:

**Table 4.**

Questions	# countries
<b>Are containers and their cargo seen as a risk for spreading pests?</b>	<b>68</b>
Yes, regardless of the type of cargo	47
Yes, but only if carrying regulated articles	18
No	3
<b>Are regulations in place to deal with the risk of containers and cargo?</b>	<b>68</b>
Yes	32
Future plans	15
No	21
<b>Are there inspections of containers and cargo?</b>	<b>66</b>
Yes, focussed specifically on containers and their cargo	32
Yes, but not as separate inspections focussed on containers	22
No	17
<b>Are measures taken if risks on containers and cargo are discovered?</b>	<b>62</b>
Yes, on imported containers	51
Yes, on ready-to-export containers	43
No	8
<b>Are pests, other organisms or contamination found on containers and cargo?</b>	<b>61</b>
Yes, including quarantine pests	32
Yes, including non-quarantine pests	35
No, not found or containers and cargo not inspected	16
<b>Is there an information management system for container-related information?</b>	<b>58</b>
No	36
Yes (to varying degrees)	22

## **Annex 2. Draft Terms of Reference for CPM Focus Group on Sea Containers**

### **1. Background**

[88] CPM-15 (2021)<sup>8</sup> discussed how best to move forward on the work related to the Sea Container Task Force (SCTF), whose mandate was ending at the end of 2021. CPM requested the SCTF to develop a draft Terms of Reference for a prospective CPM focus group on sea containers<sup>9</sup> that would be charged with arranging a possible 2022 workshop or consultation, or any other tasks which CPM-16 (2022) decides upon, and assembling related information or recommendations for subsequent communication to CPM-17 (2023). The draft Terms of Reference for this focus group would be presented to the Strategic Planning Group in 2021 for review, and subsequently presented to CPM-16 (2022) for consideration and decision on holding the workshop or consultation.

[89] As preliminary work to start arranging for a possible 2022 workshop or consultation is needed to begin immediately. Upon request of the SCTF, and agreed by the Implementation and Capacity Development Committee, the Bureau was requested to remove this task for the CPM FG and the Bureau agreed<sup>10</sup>.

### **2. Process**

[90] A CPM Focus Group (FG) on Sea Containers would meet and complete the tasks outlined as follows. The final report of these meetings will provide advice on how to address the pest risks associated with the movement of Sea Containers and would be presented to the CPM. A call for experts will be made by the IPPC Secretariat and nominations will be reviewed against the stated criteria. Experts will be recommended to the Bureau who will review and select the experts for this FG. The FG will consider the outcome of international workshop and report back to CPM-17 (2023).

### **3. Composition of the FG and criteria for selection of experts**

[91] The proposed composition attempts to take into account the differences between developing and developed countries with respect to any regulatory approach and its potential impacts on trade, legislative and regulatory capacities, human resource capacities, etc.

[92] The FG members will be selected based on their skills and knowledge. The FG should be composed of:

- Four experts from contracting parties;
- Two experts representing international organizations involved in the movement of sea containers such as the IMO, WCO, etc.;
- Three experts representing industry that may be impacted by any proposed requirements and who are involved in the ownership, packing, handling, transport, unloading, etc. of sea containers such as the Container Owners Association (COA), the World Shipping Council (WSC), the Global Shippers Forum (GSF), etc.;
- One representative from each of the Bureau, IC and SC;
- noting experts may represent more than one role and that the final group should have diverse geographical representation from most FAO regions.

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<sup>8</sup> CPM-15 (2021) Report. Available at:

[https://assets.ippc.int/static/media/files/publication/en/2021/04/CPM-15\\_Final\\_Report\\_with\\_ISPMs\\_Appendices-2021-04-30.pdf](https://assets.ippc.int/static/media/files/publication/en/2021/04/CPM-15_Final_Report_with_ISPMs_Appendices-2021-04-30.pdf).

<sup>9</sup> Risks of contamination of sea containers related to cargo should be considered up to and including the packing stage.

<sup>10</sup> CPM Bureau August 2021 meeting report. Available at:

[https://assets.ippc.int/static/media/files/publication/en/2021/09/2021\\_08\\_Bureau\\_Report.pdf](https://assets.ippc.int/static/media/files/publication/en/2021/09/2021_08_Bureau_Report.pdf)

[93] Criteria for experts, the FG should have combined expertise and knowledge in:

- working with phytosanitary issues related to sea container movement;
- logistics of sea container movement;
- phytosanitary systems related to the pest risk assessment and management of regulated articles;
- existing global and/or regional frameworks for the management of phytosanitary risks; and
- addressing issues related to invasive species.

#### **4. Tasks**

[94] The CPM FG will:

- 1) *review and consider* the various reports of the SCTF and review the recommendations of the of the SCTF final report;
- 2) *consider and review* the recommendations and conclusions arising from the 2022 workshop and their potential impact in container logistics and supply chains, including cost and resource implications for the various parties in those supply chains;
- 3) *identify and review* existing material and experiences on the topic;
- 4) *taking into account the conclusions from the review mentioned under item 2, discuss and agree* on the components necessary for an efficient and effective management of the risks associated with the movement of sea containers;
- 5) *examine* the practicalities needed for such a system including legal frameworks and liability issues for the IPPC Secretariat and FAO and consider how legal risk can be managed;
- 6) *review and clarify* the roles of the FAO, the IPPC Secretariat, RPPOs, NPPOs and other stakeholders;
- 7) *identify and prioritize* the systems and tools that may be most useful to RPPOs and NPPOs who might be involved in the management of pest risks associated with the movement of sea containers;
- 8) *consider* what tools are needed for the management of pest risks associated with the movement of sea containers, and propose a way to present them and, if needed, develop them;
- 9) *review and refine* the action plan to manage pest risks associated with the movement of sea containers, considering the focus group discussions and inputs from the CPM Bureau, the technical consultation among RPPOs, the Strategic Planning Group, the IC, SC and industry stakeholders;
- 10) *consider and estimate* the resources required by regulators and industry as well as all the parties in the international containerized supply chains to establish and then operate a system to manage the pest risks associated with the movement of sea containers, to include the time frame and practicality of implementing such a system.

#### **5. Organization of the Focus Group meetings**

[95] The IPPC Secretariat will organize the CPM FG meetings. The meetings shall be held in English.

### **Annex 3. International Workshop on reducing the introduction of pests through the Sea Container Pathway**

#### **[96] Working assumptions**

- a) In compiling these recommendations, we made the following working assumptions:
  1. We assumed the workshop would be a face-to-face event, at a location yet to be determined, but recognized that COVID-19 restrictions and policies relating to international travel could make this unviable, possibly at short notice.
  2. Alternative formats include a purely virtual meeting or a hybrid format where face-to-face proceedings are transmitted live via the Internet to virtual participants.
  3. The programme should therefore be modular to allow it to take place in each format, depending on how the global health emergency develops.
  4. We assumed the SCTF Report and recommendations to the CPM will be made available to stakeholders, in early 2022 (i.e. prior to its consideration by CPM-16). This would allow its distribution to stakeholders we want to fully contribute, allowing them time for appropriate consideration of the recommendations, and sufficient time to develop their positions and commit to speaking at the Workshop. (Waiting until after CPM-16 in April to begin preparations for a Workshop in September leaves an impractically short timeframe).
  5. The focus of this workshop will be on pests as defined in the *Glossary of phytosanitary terms*,<sup>11</sup> noting that other contaminating pest or organisms may also be mitigated through these discussion
  6. The working language was assumed to be English but the importance of inclusion and engagement with non-English speaking audiences is recognized, so presentations should also be available in written or video format and may justify the cost of live interpretation.
  7. The conclusions and recommendations of CPM are critical to developing the final agenda. The final detailed programme will need to be adjusted based upon the outcome of the CPM-16 (2022) discussions regarding the SCTF Report and recommendations.

#### **[97] Purpose of the Workshop**

1. To **present** the conclusions and recommendations of the SCTF Report as well as the CPM report to the target audiences and **discuss** their practical effects on:
  - a) practical solutions to reducing risks of transfer of plant pests and contaminants by the sea container pathway;<sup>12</sup>
  - b) the containers logistics and operations of the global container shipping and international trade by sea;
  - c) what the SCTF has learned regarding risks, logistics, etc.;
  - d) what issues regarding risks remain unanswered and require further clarification.
2. To **gather feedback**, ideas and opinion on the Report's conclusions and recommendations for further consideration by CPM.

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<sup>11</sup> ISPM 5: *Glossary of phytosanitary terms*. Available at: <https://www.ippc.int/en/publications/622/>.

<sup>12</sup> Including issues of CTU movement across land border, e.g. in landlocked countries.

3. To **raise awareness** of the risks of transfer, via sea containers, pest (including invasive alien species) that are harmful to plants and **promote the importance** of avoiding contamination of containers and their cargoes by all parties in the global supply chains.
4. To **conclude** with some practical recommendations on the path forward to globally address the pest risks associated with the movement of sea containers and their cargoes in a practical and sustainable way.

#### [98] **Target Audiences/participants**

1. Contracting parties and CPM, including other relevant national government agencies, e.g. customs, state or provincial governments, military.
2. Industry stakeholders:
  - b) container depot operators;
  - c) container manufacturers;
  - a) container owners;
  - d) container packers;
  - e) container shipping lines;
  - f) freight forwarders and consolidators;
  - g) port authorities;
  - b) shippers (manufacturers, producers, wholesalers, and retailers);
  - h) warehouse operators;
  - i) terminal operators.
3. International organizations/agencies responsible for international trade, e.g. IMO, WTO, WCO, ITC, WBG.
4. Relevant environmental organizations.

#### [99] **Workshop Formats**

The Workshop would include a mix of formats to provide for presentation of positions and supporting evidence, and to encourage the involvement of all participants in the discussions and providing feedback:

1. **Keynote presentations** by single speakers. These should start the Workshop by covering:
  - a) Message of welcome and purpose of the Workshop, from CPM;
  - b) Presentation on the conclusions and recommendations by the SCTF, (by the Chairperson);
  - c) Presentation on what is currently understood and what information is lacking about the risks of pests and contaminants associated with the sea container pathway (by an NPPO and industry speakers);
  - d) Presentation to explain complexity of CTU movement logistics and geographical differences;
  - e) Assessment of the consequences of moving forward with the SCTF conclusions and recommendations and how these could impact on the international movement of sea containers and international trade (by an economist);
  - f) Present and consider any new industry lead proposals.
2. **Panel discussions** between groups of 3–4 stakeholders (led by professional moderators?) examining and discussing specific topics, e.g.:
  - a) practical regulatory and operational considerations of SCTF recommendations on NPPOs/industry;
  - b) Options analysis of various models for managing risk;

- c) Impacts on specific trades or flows of goods;
- d) Legal aspects of any recommended mandatory measures;
- e) Technological applications to detect and treat contamination;
- f) Use of communications data management tools to validate container cleanliness;
- g) How to improve the design and manufacture of CTUs to help reduce pest risk

These could be held as parallel sessions in separate rooms at the venue. The points and conclusions of each session will need to be captured and reported on at a plenary session by a rapporteur. Moderators/rapporteurs could be provided with structured questions developed to guide and focus the discussion of each panel discussion.

**3. Case studies** of the impacts and effectiveness of existing programmes and actions to address the sea container pathway.

### [100] Report of the Workshop

It is envisaged that the presentations made at the Workshop, together with the main points of discussion, feedback and other outcomes from the proceedings, would be provided to CPM in a “Report of the Workshop”. This could also be distributed through different media channels (including social media) more widely as a source reference on the subject.

Possible Timeline Date	Activity
December 2021	SCTF Report completed and sent to CPM (including workshop recommendations)
January 2022	SCTF report made publicly available
January–March 2022	Briefing of trade media on SCTF Report recommendations Stakeholder groups identified and invited to participate in the Workshop, subject to CPM go/no-go decision
March–April 2022	CPM-16 considers SCTF Report, including recommendations for an International Workshop, CPM makes go/no-go decision, including decision as to face-to-face or virtual event.
May–June 2022	International Workshop announced, including main sessions Speakers approached and briefed Venue confirmed; or virtual event confirmed
July 2022	Speakers confirmed Full programme published Presentations prepared and submitted
August 2022	Hosting and technical preparations
September -November 2022	International Workshop held

### [101] Logistical considerations

1. Face-to-face meeting should be a location that is accessible to all (few to no visa requirements).
2. Venue needs to have a room large enough for plenary, as well as enough rooms for breakout sessions.
3. Possibly have the option for a hybrid meeting (face-to-face and virtual). Venue should have capabilities for virtual participants. Will probably be hard with breakout sessions. Could have virtual breakout rooms.
4. Consider using effective facilitation and moderating plenary and breakout sessions. And to create a report for meeting.



5. Not all NPPOs will have the funds to send representatives to a face-to-face workshop. Consider having webinars leading up to the face-to-face meeting to share conclusions and recommendations from SCTF and get feedback.
6. Have prerecorded presentations that can be viewed before meeting. These presentations would be “background information”.
7. Translation into the six IPPC languages needs to be provided.

#### **Annex 4. Key plant health risks presented by the sea container pathway**

[102] Prior to making recommendations for the CPM to consider, it is worthwhile to examine all the factors that affect the sea container pathway to remind us of the difficult and complex situation we are dealing with. It is only by doing this that we can construct feasible and acceptable elements for a protocol for consideration by CPM.

##### ***Number of sea containers/movements in a year***

[103] It is noted that there are some 25 million containers in use and some 225 million sea container movements undertaken each year.

##### ***Pest risk***

[104] While the majority of sea containers are pest free, there is international consensus among competent authorities that containers and their cargoes can potentially carry and facilitate the introduction and spread of pests that might pose a serious risk to agriculture, forestry and natural resources. The stage of packing of sea containers with cargo is the most likely stage in the sea container supply chain at which primary pest contamination can occur.

##### ***Risk perception by NPPOs***

[105] Most NPPOs recognize the potential risk of pest contamination of sea containers, but relatively few do actively manage the risks. This would seem to be related to a number of factors: there are so many sea containers being transported – too many to inspect or deal with; there are usually no facilities available at ports to safely inspect sea containers; and requiring containers to be inspected before vessel loading would gum up already overstressed ports and terminals. Some NPPOs do not have the authority to inspect containers for pest other than those defined under the IPPC (e.g. spiders, snails) and take action on these findings.

##### ***Issues regarding inspection for sea container pest contamination***

[106] *Place* – In general, to determine or confirm pest freedom, sea containers would have to be physically inspected, which would be only realistically be achievable at low frequencies and depending on intervals between inspections. It would need to be determined if and where this could be done and how to avoid re-contamination prior to export. Most ports do not have facilities for inspection immediately prior to export – so the inspection would have to occur elsewhere. Inspection at terminals, depots or packing stations would also be difficult.

[107] *Responsibility* – Likewise, discussions have centred on who should conduct the inspections and with what authority. With the number of packing stations, terminals, depots it was recognized that industry personnel would have to be utilized. This then would require training procedures to achieve the required level of assurance. The use of conformance assessment bodies and certification associations would need to be considered.

[108] *Information that a container has been handled up to export under an approved pest freedom assurance system* – It has been suggested to develop a pest free assurance system, but the methodology to achieve this has not been able to be developed at this stage. A Pest Prevention Certificate has been proposed by the shipping industry, and this concept could be further considered. The risk posed by empty containers being repositioned could be mitigated pursuant to arrangements between container operators, terminals and NPPOs – something the shipping industry has also proposed.

[109] *Sea container cleaning or treatment* – Cleaning methods have been described in a number of manuals. The application of pesticide treatments for all sea containers has been suggested. But the widespread use of a pesticide, or a number of pesticides as a routine treatment of sea containers is not supported. Pesticide use may be appropriate for the treatment of sea container storage area such as packing locations, depots or terminals, and are included in certain hygiene systems.

### ***The repositioning of empty sea containers***

[110] It has been noted by the SCTF that the risk of contamination is as prevalent in empty containers as it is with packed containers.

### ***Information on pests on the sea container pathway***

[111] Sources of information on pests on the sea container pathway are numerous and disparate. Probably the most useful is that presented to CPM-12 (2016) at the Sea Container session by Eckehard G. Brockerhoff, “Role of sea containers in unintentional movement of invasive contaminating pests (so-called “hitchhikers”), and opportunities for mitigation measures”. Prepared by Eckehard G. Brockerhoff, Lindsay S. Bulman, Andrew M. Liebhold and Juan J. Monge. Toy and Newfield (2010) have also provided much useful information:

- [https://assets.ippc.int/static/media/files/publication/en/2016/03/INF\\_12\\_CPM\\_April\\_2016\\_Rev.1\\_Specialtopicsession\\_SeaContainersComb\\_2016-03-21.pdf](https://assets.ippc.int/static/media/files/publication/en/2016/03/INF_12_CPM_April_2016_Rev.1_Specialtopicsession_SeaContainersComb_2016-03-21.pdf)
- Toy, S.J. and Newfield, M.J. 2010. The accidental introduction of invasive animals as hitchhikers through inanimate pathways: a New Zealand perspective. *Revue Scientifique et Technique* (International Office of Epizootics) 29:123-133

[112] Much of the information that follows comes from these papers.

[113] The sea container pathway is a risk in that the pathway can lead to the introduction of plant pests, some of the more important of which are known as invasive pests. This is achieved by the pests hitchhiking on the inside or outside of a sea container, and/or its cargo, either on their own (egg masses or nests), or within soil or other organic matter. Pests can hitchhike from country to country by a number of pathways and it is often difficult to identify which pathway is responsible for the introduction of a pest and therefore the degree to which the sea container pathway is responsible. However, there is a wealth of information on pest interceptions from sea containers which implicate sea containers as sources of pest introduction.

[114] Well-known hitchhiking pests include snails (e.g. giant African snail, important in China and the United States of America), ants (e.g. red imported fire ant (RIFA)), brown marmorated stink bug (BMSB), painted apple moth and gypsy moths. These pests can cause considerable economic impacts or environmental damage.

[115] Interceptions of seeds from inspections of sea containers can be common, as shown by survey work in the United States of America. Plant material constituted 71 percent of all interceptions on sea containers, with *Saccharum* species being found frequently along with species of the Asteraceae family. These contaminants can be inside a sea container or stuck to the bottom, often with soil, of a sea container. Snails are often found on the outside, particularly the underside, of sea containers – and may remain viable for long periods. BMSB is a high-risk hitchhiker pest having now spread through the United States of America and Europe. Although the pest is associated with many crops, its spread is linked to its association with inanimate structures.

[116] It has been estimated that sea containers were responsible for at least 16 percent of interceptions in New Zealand. A number of Lepidopteran moths are also a frequent contaminant of sea containers – especially those that pupate or oviposit on inanimate objects such as sea containers. The most well-known of these is the Asian gypsy moth (AGM). While Argentina, Canada, Chile, New Zealand and the United States of America have stringent measures for this pest’s egg masses on ships, there have also been sea containers contaminated with AGM egg masses. The apple painted moth was probably introduced from Australia into New Zealand as eggs on sea containers.

[117] The behaviour patterns of some invasive ants, using ephemeral nest sites and relocating nests, associates well with sea container movement. Interceptions of ants at ports in the United States

of America over the period 1912–2012 amounted to 8 821. A later survey indicated that some of the ant interceptions were related to sea containers.

- [118] Further analysis has shown the wide variety of species that can contaminate sea containers. Eckehard *et al.* looked at some New Zealand data over the period 2010–2015 on 116 701 consignments of empty sea containers (approximately 21 containers per consignment) and found 15 percent to have hitchhiker pest contamination – 9.7 percent exterior contamination and 5.0 percent interior. One survey of 11 265 sea containers published in 2003 in New Zealand showed that sea containers have an average contamination rate of 4.5 percent.
- [119] Soil was the most common contaminant followed by plant products, insects, seeds, spiders and snails. Australian data over a similar period of 11 699 488 full sea containers and 816,854 empty containers where 270 919 were from high-risk origins and had six-sided inspections and 16.5 percent were found to have relatively high levels of contamination. Over two million of the sea containers from non-high-risk origin underwent wharf gate inspections, and only 0.45 percent were found to have high level contamination. Information from China has shown insects to be the most commonly intercepted group, followed by weed species.
- [120] The costs associated with the introduction of invasive species can be large. The cost of the emerald ash borer in the United States of America has been published as costing the government some USD 890M per annum with an associated USD 380M loss of residential property value. Gypsy moth expenditure in the United States of America for forest spraying is over USD 200M per annum. Eradication and incursion response costs in New Zealand for several invasive insects over the period 1996–2015 has amounted to NZD 342M. The apple painted moth and other moths have caused substantial damage and eradication costs have been over NZD 200 million. It has been estimated that if RIFA established in New Zealand, the expected damages would be up to NZD 318 million per annum. Other ants, such as yellow crazy ant, are sea container contaminants coming from some Pacific countries.
- [121] Pest incursions result in losses in agricultural production, increased production costs due to mitigation measures and losses to export markets. The following table provides estimates of the long-term consequence (over 20 years) for some high priority plant pests that are identified as hitchhikers if they were to establish in Australia. The models consider spread of pests and diseases over time and an estimation of the present value of economic consequences. These figures do not consider any eradication efforts as it is difficult to predict the success of such programmes and associated costs.

**Table 5: Long-term consequence over 20 years**

Pest/pest group	Economic consequence/over 20 years Adjusted for inflation (2020)
Khapra beetle ( <i>Trogoderma granarium</i> )	AUD 17 billion
Exotic invasive ants	AUD 9.3 billion
Gypsy moth ( <i>Lymantria</i> sp.)	AUD 1.9 billion
Giant African snail	AUD 1.65 billion
Asian honey bees	AUD 0.76 billion

#### ***Increased khapra detections in sea containers***

- [122] Khapra beetle (*Trogoderma granarium* Everts) is a serious pest of stored grain, nuts and dry foodstuffs worldwide. Considered native to India, khapra beetle is found throughout the Middle East, Asia, Africa and a few countries in Europe.

- [123] Australia and many other countries have been reporting an increase in khapra beetle interceptions (at their borders) as a hitchhiker pest in imported empty sea containers, sea containers of consignments that khapra beetle previously had no association with, and from countries not known to have khapra beetle.
- [124] Khapra beetle exhibits refuge seeking behaviour; it hides in cracks and crevices, and under floorboards inside a sea container and can remain in diapause for several years, without food, until suitable conditions for development occur, making its detection through visual inspection extremely difficult.
- [125] Understanding previous movements and cargoes of sea containers is essential to identify potentially contaminated sea containers and to manage the risk of khapra beetle in contaminated sea containers. However, there is no single, comprehensive and reliable source of sea container data available that provides global information about past cargoes and movements.
- [126] To understand the extent of potentially contaminated sea containers in the global supply chain, the Australian Government conducted a survey, from April to August 2021, of approximately 2 000 randomly selected sea containers imported from both countries where khapra beetle is known to exist and others. The survey involved collecting and testing vacuum dust samples from the interior and exterior of sea containers to determine the potential presence of khapra beetle using molecular technology. Environmental DNA (eDNA) was used to identify whether khapra beetle had been present in a container and environmental RNA (eRNA) was used to indicate whether there were live khapra or recently live khapra in the container.
- [127] Preliminary analysis of samples from the survey indicate that approximately 1 percent of sea containers entering Australia may be a khapra beetle risk (eRNA), and 11 percent of containers have evidence of previous presence of khapra beetle (eDNA).
- [128] The preliminary results do not provide sufficient evidence of where and when khapra contamination occurred and reinforce the need to obtain longer-term historical data about previous movements and cargoes of sea containers.

## Annex 5. Sea Container Task Force membership

The following table consists of members and observers.

Representing	Name, Organization, Address, Telephone	Email address
<i>Members</i>		
Implementation and Capacity Development Committee (IC)  <b>IC Lead for the SCTF</b>	<b>Mr Dominique PELLETIER</b> National Manager – Plant Research and Strategies Unit Canadian Food Inspection Agency 1400, Merivale Rd, Tower 1, Room 307 Ottawa, ON, K1A 0Y9 CANADA Tel: +1 613-773-6492	<a href="mailto:dominique.pelletier2@canada.ca">dominique.pelletier2@canada.ca</a>
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Representing	Name, Organization, Address, Telephone	Email address
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<b>Representing</b>	<b>Name, Organization, Address, Telephone</b>	<b>Email address</b>
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Representing	Name, Organization, Address, Telephone	Email address
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## Appendix

List of Appendices to the SCFT final report (in alphabetical order)

No.	Title	Link to IPP
1.	CTU Code	<a href="https://www.ippc.int/en/publications/90570/">https://www.ippc.int/en/publications/90570/</a>
2.	CTU Code - a quick guide	<a href="https://www.ippc.int/en/publications/90574/">https://www.ippc.int/en/publications/90574/</a>
3.	CTU Code - container packing checklist	<a href="https://www.ippc.int/en/publications/90575/">https://www.ippc.int/en/publications/90575/</a>
4.	Emerging technologies, new research and development	<a href="https://www.ippc.int/en/publications/90582/">https://www.ippc.int/en/publications/90582/</a>
5.	IPPC Guidance on Sea Container Cleanliness (factsheet)	<a href="https://www.ippc.int/en/publications/90571/">https://www.ippc.int/en/publications/90571/</a>
6.	Joint statement by partners in the Cargo Integrity Group on the avoidance of visible pest contamination of freight containers and their cargoes	<a href="https://www.ippc.int/en/publications/90589/">https://www.ippc.int/en/publications/90589/</a>
7.	Khapra beetle issue in Australia as an example of containers as a pathway for movement of pests worldwide	<a href="https://www.ippc.int/en/publications/90586/">https://www.ippc.int/en/publications/90586/</a>
	7.a Poster 1: Look out for khapra beetle	<a href="https://www.ippc.int/en/publications/90587/">https://www.ippc.int/en/publications/90587/</a>
	7.b Poster 2: Seven tips for keeping containers clean	<a href="https://www.ippc.int/en/publications/90588/">https://www.ippc.int/en/publications/90588/</a>
8.	National Standard of China: Code of practice for the plant quarantine of exit freight containers	<a href="https://www.ippc.int/en/publications/90576/">https://www.ippc.int/en/publications/90576/</a>
9.	National Standard of China: Code of practice for the plant quarantine of import freight containers	<a href="https://www.ippc.int/en/publications/90577/">https://www.ippc.int/en/publications/90577/</a>
10.	National Standard of China: Guidelines for the establishment of plant quarantine system in entry and exit container depot	<a href="https://www.ippc.int/en/publications/90578/">https://www.ippc.int/en/publications/90578/</a>
11.	Pesticides prescribed as blanket risk reduction measure in/on containers	<a href="https://www.ippc.int/en/publications/90583/">https://www.ippc.int/en/publications/90583/</a>
12.	Reducing the spread of invasive pests by sea containers (leaflet)	<a href="https://www.ippc.int/en/publications/90572/">https://www.ippc.int/en/publications/90572/</a>
13.	Responses to Questions Posed by CPM-15 to the Sea Container Task Force	<a href="https://www.ippc.int/en/publications/90604/">https://www.ippc.int/en/publications/90604/</a>
14.	Sea container supply chains and cleanliness (guide)	<a href="https://www.ippc.int/en/publications/90573/">https://www.ippc.int/en/publications/90573/</a>
15.	WCO AEO Implementation and Validation Guidance	<a href="https://www.ippc.int/en/publications/90581/">https://www.ippc.int/en/publications/90581/</a>
16.	WCO Data Model Leaflet	<a href="https://www.ippc.int/en/publications/90580/">https://www.ippc.int/en/publications/90580/</a>
17.	WCO SAFE Framework of Standards to Secure and Facilitate Global Trade	<a href="https://www.ippc.int/en/publications/90579/">https://www.ippc.int/en/publications/90579/</a>