STDF | STANDARDS *and* TRADE DEVELOPMENT FACILITY

EXTERNAL LEARNING ASSESSMENT

ENVIRONMENT BIODIVERSITY & CLIMATE CHANGE

July 2024

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Abbreviations and Acronyms

ABD	Asian Development Bank
APAARI	Asia-Pacific Association of Agricultural Research Institutions
CABI	Centre for Agriculture and Bioscience International
CBD	Convention on Biological Diversity
CEBRA	Centre of Excellence in Biosecurity Risk Analysis
COLEAD	Comité de Liaison Entrepreneuriat-Agriculture-Développement
FAO	Food and Agriculture Organization of the United Nations
GAP	Good Agricultural Practices
GAqP	Good Aquaculture Practices
GEF	Global Environment Facility
GMP	Good Management Practices
IAS	Invasive Alien Species
IPPC	International Plant Protection Convention
ITC	International Trade Centre
KII	Key Informant Interview
MEL	Monitoring, Evaluation and Learning
MRL	Maximum Residue Level
NTM	Non-Tarif Measures
OECD	Organisation for Economic Co-operation and Development
PPGs	Project Preparation Grants
PGs	Project Grants
SDG	Sustainable Development Goal
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility
TBT	Technical Barriers to Trade
ToR	Terms of Reference
UNCTAD	United Nations Trade and Development
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change

WOAH	World Organisation for Animal Health
WBG	World Bank Group
WHO	World Health Organization
WTO	World Trade Organization

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1. Executive Summary

The Standards and Trade Development Facility (STDF) is a global partnership to facilitate safe trade. The STDF promotes improved food safety and animal and plant health capacity in developing countries, based on international standards, so that imports and exports can meet sanitary and phytosanitary (SPS) requirements for trade.[1]

This assessment considers how environment, biodiversity and climate change (henceforth referred to as "environment" for ease of reference) have been mainstreamed into the STDF's work on SPS capacity building and safe trade facilitation. It also includes recommendations to further integrate and mainstream this cross-cutting topic into STDF projects and knowledge work in the future to strengthen results and impacts, while considering emerging challenges.

The two key objectives of the assessment are to:

1. Assess and learn how (and to what effect) environment has been integrated across work carried out by the STDF, based on the STDF Monitoring, Evaluation and Learning (MEL) Framework, and SPS capacity development work led by STDF partners; and
2. Draw key findings, conclusions, and recommendations to improve mainstreaming of environment into STDF's SPS capacity development work in the future. This includes learning how to consistently integrate environment, biodiversity, and climate change considerations into all stages of the STDF project cycle and knowledge products.

The following six OECD criteria were used as a basis for the assessment:

- **Relevance:** How relevant is the STDF's approach to environment mainstreaming in meeting the identified needs of stakeholders (including Working Group members, STDF project-implementing partners, and others involved in SPS capacity development)?
- **Coherence:** How coherent is the STDF's approach to environment mainstreaming in relation to the STDF's overall mandate?
- **Effectiveness:** To what extent has the STDF's environment mainstreaming approach been effective in producing results that are useful to stakeholders?
- **Efficiency:** Does the STDF's environment mainstreaming approach employ time and resources efficiently to meet the needs of stakeholders?
- **Impact:** Has the STDF's approach to cross-cutting themes of environment had impact?
- **Sustainability:** Are the STDF's efforts and approach towards environment mainstreaming likely to be sustainable and meet emerging SPS demands?

[1] The STDF supports: SDG 1 (No Poverty); SDG 2 (Zero Hunger); SDG 3 (Good Health and Well-Being); SDG 8 (Decent Work and Economic Growth); and SDG 17 (Partnerships for the Goals). In addition, the Strategy contributes to SDG 5 (Gender Equality), SDG 10 (Reduced Inequalities), SDG 12 (Responsible Consumption and Production), SDG 14 (Life below Water), and SDG 15 (Life on Land).

Summary of Findings and Conclusions

Relevance	STDF knowledge products focused on environment are relevant and useful because they focus directly on SPS issues and safe trade facilitation. It was recognised that the STDF's global partnership (with a relatively small Secretariat) is a trusted source of information with the ability to bring together diverse members working on SPS-related topics including environment. Working in developing countries and regions likely to be further affected by emerging challenges related to climate change and on sectors impacted by environmental stresses, the work of the STDF is relevant in contributing to global efforts in relation to environmental protection, biodiversity conservation, and climate change mitigation. This is further evidenced by the linkages made in the STDF's 2020-2024 Strategy and the need to facilitate safe trade while protecting the environment, in alignment with the provisions in the SPS agreement and the UN's 2030 Agenda.
Coherence	The STDF Secretariat has been coherent and consistent in its approach to mainstreaming environment into its work since 2012 through its knowledge products, events, funding mechanism, and global outreach events. The work done has remained focused on SPS issues and safe trade connections to the environment and climate change, and the STDF is considered a pioneer in this area. Greater depth and reach for environment and safe trade knowledge and projects could be developed through further collaboration and partnerships with Working Group members, environmental organizations (like the CBD, GEF, UNEP, or Bioversity International), and others working at the nexus of environment and safe trade.
Effectiveness	The STDF's 2020 MEL framework encourages the linkages of STDF workstreams with cross-cutting issues, with the establishment of five measurable programme indicators paying attention to environment and gender. In 2015, the STDF added a section requesting grant applicants to provide details on ways in which their proposed projects or PPGs would address cross-cutting issues linked to environment and gender. Following the Gender Assessment and Gender Action Plan in 2023, the application forms were further revised to clearly distinguish issues related to environment and gender. This is encouraging more environment mainstreaming, as indicated by key informants interviewed. This assessment highlights that 67% of projects and 40% of PPGs reviewed have included aspects linked to environment to a significant or moderate extent. In relation to its other two workstreams, STDF knowledge products and events have been recognised by partners and members to be highly informative and innovative in showcasing how environment intersects with SPS and safe trade.
Efficiency	The STDF Secretariat provides useful research and viewpoints on SPS and where environment is intertwined with safe trade. The STDF has been efficient at using limited resources and staff to consider environment in project development and reporting. The STDF's efficiency in mainstreaming environment could be increased through further collaboration among Working Group members and other environment and/or trade organizations. Resources and STDF Secretariat staff time will be needed to address emerging SPS and environmental issues identified, such as antimicrobial resistance, SPS issues within food systems, and changes in pest and disease ranges. The STDF Secretariat may consider developing some sort of environment markers or project-specific environment indicators to track the environment aspects of a project and report on these.
Impact	The STDF has had an impact in mainstreaming environment through its workstreams while remaining focused on SPS capacity and safe trade. Consideration of environment has been mainstreamed into the funding mechanism, with two-thirds of applications explicitly considering environment in project development. STDF regional pilot projects on biopesticides in Africa, Latin America and South-East Asia provide examples of how these impacts can be achieved, for instance, by engaging with environment stakeholders at the country level and by demonstrating how the use of biopesticides contributes to nature-positive solutions. In Latin America an STDF project (*STDF/PG/502*) resulted in "fruitful and durable relations between SENASA and the Ministry of Environment in Argentina", which led

	to synergies and improved pest risk analysis.[2] In Africa, an STDF project (STDF/PG/460) that promoted use of heat treatment to control pests present on wood packaging materials (ISPM 15) helped Cameroon and Kenya to phase out use of methyl bromide, which is also known to deplete the ozone layer and contribute to climate change. Key informant interviews also highlighted the impact of the STDF's knowledge work and events. Some noted that the STDF Secretariat's work on environment was their first exposure to the linkages with SPS risks and safe trade and was influencing more attention to environment mainstreaming in SPS capacity development. Although the STDF has five indicators in its programme log frame that pay attention to environment, improvement is needed to better mainstream this cross-cutting issue and better track results linked to these indicators.
Sustainability	The STDF Secretariat has been mainstreaming environment consistently into its work by fostering dialogue around the topic, producing knowledge and encouraging projects to pay attention to it despite the lack of dedicated resources for environment. The participation and support of the STDF Working Group (including founding partners, donors and other partners) has contributed to the continued integration of environment as a cross-cutting issue in the STDF. The STDF could further build on these collaborations and its convening power to support collective efforts in facilitating safe trade that is cognisant of environment. This is likely to require additional and ongoing support and resources for implementing organizations to make these linkages more explicit in STDF projects, and to support improved results and sustainability on mainstreaming. STDF project impact evaluations may explore if environment considerations have continued after project completion and have also been mainstreamed into the partners' work.

Forward-looking recommendations from the assessment that the STDF Secretariat and partnership may consider to further integrate environment are listed below:

Recommendation 1: The STDF should continue to build on its convening power and status in SPS and safe trade community to further mainstream environment in its work. The collaboration on emerging issues related to food safety and animal and plant health with Working Group members and partners can provide a diversity of knowledge and a stronger collective response to these issues. Taking forward work on environment mainstreaming would be enabled through more targeted attention in the STDF Working Group, for instance, by including a dedicated agenda item on environment mainstreaming in meetings.

Recommendation 2: The STDF should consider making environment more explicit in STDF projects where possible and relevant. Some STDF projects may be eligible to take a more in-depth look into environment through the definition of specific activities (e.g. activities to reduce the environmental footprint such as use of biopesticides or integrated pest management to reduce chemical inputs and embedded carbon in crop production). Consideration could be given to adding a criterion assessing how projects and PPG proposals have taken environment mainstreaming into account during projects' review by the STDF's Secretariat and Working Group. Those proposals that have mutual benefits for safe trade and environment could be ranked higher. The STDF could develop simple guidance materials and conduct outreach and awareness-raising activities to support project applicants and implementors to effectively mainstream environment in project delivery, monitoring, reporting and learning.

Recommendation 3: The STDF may improve tracking of current STDF environment indicators through better data collection and story gathering from project partners. The STDF could strengthen existing indicators to include the number of partnerships and collaborations with environment stakeholders or government environment agencies to support environment considerations of the project, or the number of projects developed that have both environment and safe trade benefits based on criteria established by the Secretariat. The STDF may consider developing some sort of environment markers, or project-specific environment indicators, to track the environment aspects of a project and report on these.

[2] Andrea Spear, Independent Evaluator, EX-POST EVALUATION OF THE STDF PROJECT: "Rolling Out Phytosanitary Measures to Expand Market Access in the Southern Cone Plant Health Committee Region" (STDF/PG/502), May 2023.

Recommendation 4: The STDF should consider further developing the cross-cutting environment issue within the next STDF Strategy post 2024, including within the updated MEL Framework and Communication Plan. Improved MEL and communication with regard to the environment will help to show and convey in a more tangible (quantitative or qualitative) way the benefits of SPS compliance for environment protection and the difference and value-added that projects can make. This will give more visibility to STDF's work on this topic to broader audiences, and may also help to promote more environment mainstreaming in SPS capacity development work led by other organizations globally. Related to STDF knowledge and communications, there would be value in reviewing the existing STDF Invasive Alien Species (IAS) publication (in co-operation with WOAH and IPPC, the original partners) and publishing an updated version.

Recommendation 5: Subject to resources, set up a Practitioner Group on environment (of interested STDF partners, implementors, donors, and other relevant stakeholders) to exchange experiences, learning and guidance on environment mainstreaming in SPS capacity development. The STDF may consider inviting environment-focused organizations (like the UNEP, CBD, GEF or Bioversity International) as members or advisors to benefit from their knowledge to strengthen the response to the environment cross-cutting issue.

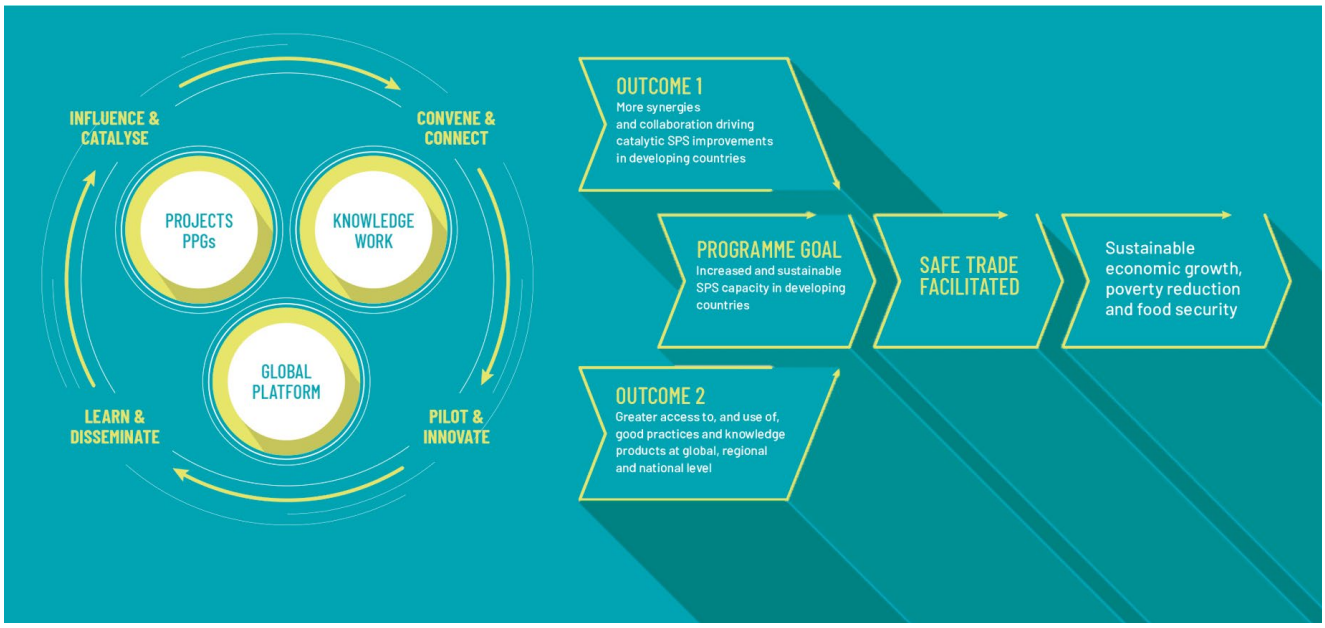
2. Introduction

The Standards and Trade Development Facility (STDF) is a global partnership to facilitate safe trade. The STDF promotes improved food safety and animal and plant health capacity in developing countries, based on international standards, so that imports and exports can meet sanitary and phytosanitary (SPS) requirements for trade. The international standards recognised in the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) provide the technical foundations of the STDF's work.[3]

The STDF brings together diverse stakeholders from agriculture, health, trade, and development. It was formally established in 2004 by the Food and Agriculture Organization (FAO) of the United Nations, the World Organisation for Animal Health (WOAH), the World Bank Group (WBG), the World Health Organization (WHO), and the World Trade Organization (WTO), and includes the Secretariats of the Codex Alimentarius Commission and the International Plant Protection Convention (IPPC). Donors, developing country experts and other diverse international and regional organizations (including regional development banks as well as private sector bodies and non-profit organizations) involved in SPS capacity development also participate.

The STDF Strategy for 2020-2024, *Safe and Inclusive Trade Horizons for Developing Countries,* outlines how the STDF aims to drive catalytic SPS improvements in developing countries and to facilitate safe trade which contributes to sustainable economic growth, poverty reduction and food security.[4] Safe trade means trade that is in line with the WTO SPS Agreement, which sets out the basic rules for food safety and animal and plant health standards and requires regulations to be based on scientific evidence. The STDF's Theory of Change (Figure 1) illustrates its approach to achieve the expected outcomes and programme goals and contribute to higher level impacts.

Figure 1: STDF's Theory of Change



[3] These comprise the standards set by the Codex Alimentarius Commission, the International Plant Protection Convention and the World Organisation for Animal Health (formerly OIE).

[4] The STDF supports: SDG 1 (No Poverty); SDG 2 (Zero Hunger); SDG 3 (Good Health and Well-Being); SDG 8 (Decent Work and Economic Growth); and SDG 17 (Partnerships for the Goals). In addition, the Strategy contributes to SDG 5 (Gender Equality), SDG 10 (Reduced Inequalities), SDG 12 (Responsible Consumption and Production), SDG 14 (Life below Water) and SDG 15 (Life on Land).

Attention to cross-cutting issues related to the environment in STDF's work

STDF's attention to the cross-cutting topic of environment has grown since 2009. The STDF first addressed the topic of climate change and SPS risks in a seminar organised jointly with the World Bank in 2009. A follow-up Briefing Note and joint STDF/World Bank publication entitled "*Climate Change and Trade: The Link to Sanitary and Phytosanitary Standards" was* published in 2011. In July 2012, the STDF organised an international seminar on the topic of invasive alien species (IAS) and international trade, in cooperation with IPPC and WOAH, and subsequently issued a related Briefing Note (2012) and publication (2013).

Environmental protection was incorporated into the 2015-2019 STDF Strategy at the request of the IPPC Secretariat, recognizing that improved SPS capacity and implementation of international standards (IPPC, WOAH) can contribute towards enhanced environmental protection, for instance by reducing negative consequences associated with the entry and spread of plant pests or animal diseases, including invasive alien species (IAS). In follow-up, the STDF grant application forms were amended in 2015 to require information on environment as a cross-cutting topic, and progress reports were subsequently revised to encourage reporting on environment considerations.

An STDF Briefing Note "Promoting safe trade, protecting the environment" was published in 2018. Also, in 2018 the STDF was invited by the CBD Secretariat to share the experiences and lessons of STDF's work on climate change, IAS and the environment with experts participating in a series of Regional CBD Bio-Bridges workshops.

The STDF meta-evaluation *Beyond Results* recommended further integrating cross-cutting issues (including environment) into project design and implementation. The 2019 external evaluation of the STDF concluded that "climate and the environment seem to be much more aligned to STDF activities and SPS in general, particularly regarding the use of chemicals and their effects on the environment and the effects of climate change on disease and pests."[5]

The STDF has also sought to explore the linkages between the STDF's work and One Health, food systems[6] and climate change. The STDF external mid-term review published in 2014 recommended that "the STDF should liaise more closely with One Health initiatives to improve coordination and collaboration on food safety and public health issues and to improve design and sustainability of its own coordination activities".[7] In response, in October 2016 the STDF Working Group meeting included a session on the topic of "One Health", with presentations by an international expert, as well as interventions by FAO, WOAH and WHO on practical examples of One Health related to food safety, animal and plant health.[8]

The 2020-2024 Strategy recognised how the STDF's work contributes to cross-cutting issues, notably SDG 5 (Gender Equality), SDG 14 (Life Below Water) and SDG 15 (Life on Land). The Strategy and accompanying MEL Framework sought to make the linkages to cross-cutting issues more explicit and to measure and communicate the STDF's efforts on cross-cutting issues more clearly and systematically. The MEL Framework notes that: "STDF work will also pay attention to how the implementation of SPS measures contributes to a healthy planet, for instance by reducing contamination of drinking water, farm soils or fish stocks by heavy metals, enhancing biodiversity, supporting agricultural systems that are more resilient to climate change, improving environmental public health, or mitigating the impacts of climate change". The MEL Framework includes selected indicators to track performance on environment mainstreaming at the programme level.

Under the current Strategy, the STDF has engaged on the topic of food systems including through organization of an independent STDF dialogue event for the United Nations Food Systems Summit (June 2021) and a virtual UN Food Systems Summit Pre-Summit side session, jointly with Codex, WOAH and IPPC (July 2021). More recently, STDF's Climate Change Week in 2022 included a series of online events with STDF partners and others to raise awareness about the issues and how strengthening SPS capacity can contribute to climate resilience. An

[5] Nathan Associates. Final Evaluation Report. July 2019. See: https://standardsfacility.org/sites/default/files/STDF_Final_Evaluation_Report_Nathan_Associates.pdf

[6] A food system is an interconnected web of human activities that links food production, processing, distribution, and consumption. All aspects of food systems are shaped by their cultural, socioeconomic, political, and environmental contexts. See: The Food System | Food Systems | Washington State University (wsu.edu)

[7] SAANA Consulting. Final Report. January 2014. See: https://standardsfacility.org/sites/default/files/STDF_MTR_Jan-14.pdf

[8] The presentations can be accessed on the STDF website.

STDF Briefing Note was published in 2023, prior to an STDF panel discussion with selected STDF founding partners, donors and other partners at the Trade House during COP-28 in Dubai.

Purpose of the Assessment

This assessment was commissioned by the STDF Working Group and carried out in 2024. The Terms of Reference (TOR) identify two key objectives for the assessment:

1. Assess and learn how (and to what effect) environment has been integrated across work carried out by the STDF Secretariat, based on the MEL Framework, as well as SPS capacity development work led by STDF partners and other members; and
2. Draw key findings, conclusions, and recommendations to improve mainstreaming of environment into SPS capacity development work in the future. This includes learning how to consistently integrate environment, biodiversity, and climate change considerations into all stages of the STDF project cycle and knowledge products.

The conclusions and recommendations in the assessment therefore form the basis to better understand how environment relates to, impacts, and/or benefits SPS systems, safe trade, and emerging areas of this nexus with a focus to further mainstream environment into the STDF's workstreams (global platform, projects/PPGs, and knowledge work) and SPS capacity building more broadly.

Audience & Scope

The main audience for the assessment is the STDF Secretariat and STDF Working Group members. The assessment proposes targeted recommendations and lessons (addressed at the Working Group and Secretariat) to improve mainstreaming of environment to strengthen the STDF's results and impact.

3. Background and Context

This section outlines the relationship between environment, SPS measures and safe trade facilitation to frame the assessment. It draws on technical work on the topic by STDF founding partners and others.

Box 1: Definitions used in the assessment

Environment: "The complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival. Biodiversity is a component of environment. Climate change effects the environmental systems and biodiversity."[1]

Biodiversity: "The variety of life found in a place on Earth or, often, the total variety of life on Earth." "A common measure of this variety, called species richness, is the count of species in an area." [2]

Climate Change: "Climate change refers to long-term shifts in temperatures and weather patterns. Such shifts can be natural, due to changes in the sun's activity or large volcanic eruptions. But since the 1800s, human activities have been the main driver of climate change, primarily due to the burning of fossil fuels like coal, oil and gas."[3]

Source: [1] https://www.britannica.com/science/environment
[2] https://www.amnh.org/research/center-for-biodiversity-conservation/what-is-biodiversity; Biodiversity | Definition & Facts | Britannica
[3] https://www.un.org/en/climatechange/what-is-climate-change

Both the WTO Agreement on the Application of SPS Measures (SPS Agreement) and the WTO Agreement on Technical Barriers to Trade (TBT Agreement) are of relevance to the protection of the environment, SPS measures and safe trade facilitation (see Box 2). They seek to ensure that any requirements that must be fulfilled for environmental purposes do not create unnecessary obstacles to international trade.

Box 2: WTO SPS and TBT Agreements

The SPS Agreement focuses on the relationship between international trade and measures related to food safety, animal and plant life, and health. It aims to strike a balance between the rights or obligations of governments to protect the health of consumers by ensuring food is safe and to protect plant and animal health, while ensuring that such measures are not disguised restrictions on trade. SPS measures include all relevant regulations, requirements, and procedures used to ensure the safety of agricultural products for people, plants, and animals. They can take many forms, such as requiring products to come from a disease-free area, inspection of products, specific treatment or processing of products, setting of allowable maximum levels of pesticide residues or veterinary drugs.

The SPS Agreement allows members to adopt SPS measures for environmental purposes (e.g. to protect against the entry or spread of invasive alien species or other plant pests or animal diseases that could harm their natural environment or biodiversity). The SPS Agreement stipulates, inter alia, that such measures should: be transparent; based on a risk assessment; not create unnecessary obstacles to trade (should be applied only to the extent necessary to protect human, animal or plant life, or health); and non-discriminatory (should not arbitrarily or unjustifiably discriminate between members where similar conditions prevail). [9]

The TBT Agreement complements the SPS Agreement. It aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade. At the same time, it recognises WTO members' right to implement measures to achieve legitimate policy objectives, such as the protection of human health and safety, or protection of the environment. [10] TBT measures can take the form of product standards, testing requirements, and other technical requirements. The TBT Agreement seeks to ensure that product specifications, whether mandatory or voluntary, as well as procedures to assess compliance with those specifications, do not create unnecessary obstacles to trade.[11]

[9] https://www.wto.org/english/tratop_e/envir_e/edis00_e.htm
[10] https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm
[11] WTO | Understanding the Sanitary and Phytosanitary Measures Agreement

Sanitary and phytosanitary measures may be taken to protect the health of fish and wild fauna, as well as of forests and wild flora. Measures for environmental protection (other than as defined above) to protect consumer interests or for the welfare of animals are not covered by the SPS Agreement. These concerns, however, are addressed by other WTO agreements (i.e. the TBT Agreement or Article XX of GATT 1994).

The global agricultural landscape has evolved since the adoption of the SPS Agreement in 1995. The SPS Declaration for the 12th WTO Ministerial Conference "Responding to Modern SPS Challenges" recognised these changes, as well as new opportunities and emerging challenges for international trade in food, animals, and plants. These include climate change, increasing environmental challenges and associated stresses on food production, including shifting pressures due to the spread of pests, diseases, disease-carrying organisms, or disease-causing organisms.[12] In follow-up, Members of the SPS Committee have initiated work to identify challenges in the implementation of the SPS Agreement and the mechanisms available to address them, as well as the impacts of emerging challenges on the application of the SPS Agreement.

WTO trade rules on food safety and animal and plant health can be used to control risks of environmental damage caused by species crossing borders into new habitats. This includes Invasive Alien Species (IAS). Under Annex A, Article 1 (d) of the SPS Agreement, SPS measures include measures "to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests". Other international instruments and agreements – including the UN Convention on Biological Diversity (CBD) – are also relevant to biodiversity and IAS.

The CBD considers IAS as a cross-cutting issue applicable to all aspects of the Convention and requires countries, as far as possible and appropriate, to prevent the introduction of IAS, or to control or eradicate them if they are introduced. The CBD's coverage of IAS corresponds to the work of the IPPC and the WOAH, two of the three standard-setting bodies recognised in the SPS Agreement.[13] In particular, the IPPC considers the threat that IAS can pose to plants, while WOAH has issued guidelines related to the risk of non-native animals becoming invasive. The CBD recognizes certain WOAH-listed diseases as IAS that threaten biodiversity. As the CBD does not set standards on how to regulate IAS, IPPC and WOAH standards can be used for this purpose.[14] Recognizing the complementarities inherent in the SPS Agreement and the CBD, the Secretariats responsible for the CBD, the SPS Agreement, IPPC, WOAH and other relevant organizations make ongoing efforts to promote collaboration in their work, which is important to ensure synergies and avoid gaps.

Climate change, desertification and loss of biodiversity pose existential challenges to humanity and the planet, as recognised in the three sister Rio Conventions[15] and ongoing work since the 1992 Earth Summit. Increasingly, they are also recognised as critical for human rights. Climate change, increased deterioration of ecosystems (including water, farm soil, and fish stocks), and biodiversity all affect the sustainability of food systems, agricultural productivity, and supply chains, threatening economic growth and prosperity in developing countries. Climate change is affecting food safety risks and the spread of animal and plant pests and diseases, which has implications for SPS systems and the facilitation of safe trade.

For instance, plant disease outbreaks pose significant risks to global food security and environmental sustainability worldwide, and result in the loss of primary productivity and biodiversity that negatively impact the environmental and socio-economic conditions of affected regions. FAO estimates that annually up to 40% of global crop production is lost to pests. Each year, plant pests and diseases are responsible for losses of around 10-16% of global harvests, at an estimated cost of over US$220 billion. This also has a huge impact on the environment. In this context, some have called for a science-policy interface that works closely with relevant intergovernmental organizations to provide effective monitoring and management of plant diseases under future climate scenarios, in order to ensure long-term food and nutrient security and sustainability of natural ecosystems.[16]

[12] https://www.wto.org/english/tratop_e/sps_e/sps_declaration_mc12_e.htm

[13] https://standardsfacility.org/sites/default/files/STDF_IAS_EN_0.pdf

[14] Ralf Lopian and Craig Stephen "Desk Study" on "International Trade and Invasive Alien Species" WTO, Sanitary and Phytosanitary Measures: Alien Invasive Species Seminar, Defending Biodiversity from Alien Species, the role of trade rules. Examined, July 2012.

[15] The three Rio conventions – the convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), and the United Nations Framework Convention on Climate Change (UNFCCC)

[16] Singh, B.K., Delgado-Baquerizo, M., Egidi, E.et al. Climate change impacts on plant pathogens, food security and paths forward. Nat Rev Microbiol 21, 640–656 (2023). https://www.nature.com/articles/s41579-023-00900-7#Abs1; https://doi.org/10.1038/s41579-023-00900-7

The Centre of Excellence for Biosecurity Risk Analysis (CEBRA), supported by the Australian and New Zealand Governments, is developing a model to predict how biosecurity threats, such as spread of pests, will impact international trade under climate change, including attention to the costs and benefits of robust biosecurity systems. Predictions from this work will help agencies better anticipate biosecurity risks and design interventions to mitigate them, and make the business case for increased investments in biosecurity systems. In an Australian context, the study found: "The total flow of benefits arising from assets vulnerable to biosecurity hazards was calculated to be A$251.52 billion per annum, or A$5.696 trillion over 50 years (discounted at 3-5%). In the absence of a biosecurity system, we forecast that approximately A$671.94 billion in damages attributable to newly introduced pests and diseases would be incurred by these assets over the next 50 years. Instead, we estimate that these damages would decline by approximately A$325.26 billion (the benefit) to A$346.67 billion in response to the system's operation (at a cost of A$10.45 billion)."[17]

STDF founding partners have carried out extensive work on the topic of the environment with regard to food safety, animal and plant health and trade (see Box 3).

BOX 3: Selected publications by STDF founding partners relevant to this assessment

FAO. 2020. Climate change: Unpacking the burden on food safety. This report discusses the direct implications of climate change on food systems, with attention to the adverse impacts on food safety. It identifies and quantifies some current and anticipated food safety issues (including foodborne pathogens and parasites, harmful algal blooms, pesticides, mycotoxins and heavy metals) associated with climate change. It also discusses the benefits of forward-looking approaches such as horizon scanning and foresight to anticipate future challenges in a shifting global food safety landscape, and also help build resilient food systems that can be continually updated as more knowledge is assimilated. By building a more widespread and better understanding of the consequences climate change has on food safety, the document aims to help foster stronger international cooperation to improve food safety by reducing the global burden of the concerns faced.

IPPC/FAO. 2021. Scientific review of the impact of climate change on plant pests: A global challenge to prevent and mitigate plant-pest risks in agriculture, forestry and ecosystems

The review shows that the impact of climate change is one of the greatest challenges facing the plant health community. Climate change will increase the risk of pests spreading in agricultural and forestry ecosystems, especially in cooler Arctic, boreal, temperate, and subtropical regions. The evidence strongly indicates that, in many cases, climate change will result in increasing problems related to plant health in managed (e.g. agriculture, horticulture, forestry), semi-managed (e.g. national parks), and presumably also unmanaged ecosystems. The review analyses 15 plant pests that have spread or may spread due to climate change. Some pests, like Fall Armyworm and Tephritid fruit flies, have already spread due to warmer climate. Others, such as the Desert Locust (the world's most destructive migratory pest), are expected to change their migratory routes and geographical distribution because of climate change. Adjustments in plant-protection protocols are already necessary because of recent climatic changes, but further adjustments will become increasingly crucial in the future, assuming the projected climate-change scenarios come true. Maintaining managed and unmanaged ecosystem services and produce, including food, under climate-change conditions is of paramount importance. Preventive and curative plant protection is one of the key components needed to maintain and preserve current and future food security.

WOAH. 2021. Scientific and Technical Review. The review aims to assist Members and the international community to promote better preparedness and response to the global threat of climate change, which affects animal health in different ways. For instance, by triggering fluctuations in animal disease epidemiology, enabling dangerous bacteria, viruses, fungi and disease-transmitting vectors to spread to new areas and by increasing the incidence of animal diseases.[18]

WOAH. 2023. *Guide to implementing the One Health Joint Plan of Action at national level.* This Guide seeks to inspire greater and more targeted One Health action at every level, enhancing capacities and capabilities

[17] Aaron Dodd, Natalie Stoeckl, John Baumgartner and Tom Kompas School of BioSciences, The University of Melbourne College of Business and Economics, The University of Tasmania, Key Results Summary: Valuing Australia's Biosecurity System, CEBRA, August 2020. CEBRA_Value_Docs_KeyResultSummary_v0.6_Endorsed.pdf (unimelb.edu.au)

[18] https://woah-report2021.org/en/engaging-for-climate/

to prevent and mitigate risks and threats, with the ultimate aim of promoting well-being and health more sustainably for a thriving planet.

World Bank. 2021. The Trade and Climate Change Nexus. The Urgency and Opportunities for Developing Countries. Paul Brenton and Vicky Chemutais. This report highlights how, in a world increasingly shaped by climate change, trade will be a crucial mechanism to address food insecurity, support adaptation, and enable recovery from natural disasters. It shows how, in the context of climate change, developing countries need to address their high costs of trade to stay competitive and resilient in the long-term. It also explains that nontariff barriers "limit access to key products that will drive adaptation, such as seeds and fertilizers. Delays at the border and in ports indirectly exacerbate the huge waste of food products, with the resulting cost of higher emissions for a given level of food consumption." Based on the findings, the authors argue for increased attention to reduce tariff and nontariff barriers on imports, pointing to the role the global community can play in helping developing countries adopt climate-smart agriculture and build capacity for trade-facilitation reforms.

WHO. *COP28 UAE Declaration on climate and health.* Emphasising the critical role of the UNFCCC and the Paris Agreement, the declaration underscores the urgent need to confront the connections between climate change and health. At the inaugural Health Day at the 28th UN Climate Change Conference (COP28), global leaders united in endorsing the health and climate change declaration, sounding the alarm on the severe health implications of climate change.

FAO, UNEP, WHO, and WOAH. 2022. *One Health Joint Plan of Action (2022-2026). Working together for the health of humans, animals, plants and the environment*. Responding to international requests to prevent future pandemics and to promote health sustainably through the One Health approach, the Quadripartite has developed the One Health Joint Plan of Action (2022–2026) (OH JPA). The OH JPA outlines the commitment of the four organizations to collectively advocate and support the implementation of One Health. It builds on, complements and adds value to existing global and regional One Health and coordination initiatives aimed at strengthening capacity to address complex multidimensional health risks with more resilient health systems at global, regional and national level.

Climate change is having a major impact on global food systems, which is also affecting food safety, animal and plant health and trade facilitation. The global food system, including all of the various industries involved in sustainable and conventional food systems, provides employment for one billion people.[19] This global food system is facing a number of challenges as a result of impeding global food security issues created by climate change and non-climate-change stresses on the system. About 34% of total greenhouse gas emissions are attributable to the global food system.[20] SPS issues and safe trade facilitation are connected to food systems approaches from "field to fork". Climate change will expand the range for many plant and animal diseases, causing potential SPS impacts at field level. Changes in processing and shipping may also require increased attention to address SPS requirements and capacity gaps in value chains in food systems.

One Health is also gaining increased attention as an integrative, cross-disciplinary approach to designing and implementing actions and policies at the human-animal-environment health interface, with the aim of sustainably balancing and optimizing the health of people, animals, and ecosystems.[21] The One Health approach is particularly important with regard to the increasing threat of antimicrobial resistance for human and animal health, as well as emerging infectious diseases linked with the human-animal-environment interface given the potential for resistant organisms to quickly spread via animals, food and the environment. For instance, farming, livestock rearing and trade in agricultural products can create the emergence or transference of plant pathogens, pests and zoonotic diseases detrimental to human health. SPS systems and safe trade facilitation need to be part of an integrative cross-disciplinary approach to One Health. Implemented by countries to protect human, animal and plant life or health from risks arising from the introduction, establishment, or spread of pests and diseases,

[19] Intergovernmental Panel on Climate Change (IPCC), Food system - Wikipedia

[20] Mbow, C., C. Rosenzweig, L.G. Barioni, T.G. Benton, M. Herrero, M. Krishnapillai, E. Liwenga, P. Pradhan, M.G. Rivera-Ferre, T. Sapkota, F.N. Tubiello, Y. Xu, 2019: Food Security. In: Climate Change and Land: an IPCC special report on climate change, Desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O.Pörtner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. https://doi.org/10.1017/9781009157988.007

[21] EU Commission, One Health, One Health - European Commission (europa.eu)

SPS measures can help to reduce human health risks, and control and/or reduce the spread of pathogens, pests, and diseases that can cause a health emergency.

The role of the environment in One Health has generally received less attention.[22] One Health has traditionally focused on communicable diseases, such as zoonoses and diseases caused by antimicrobial-resistant pathogens and unsafe food.[23] The effects of plant health practices on human health are important but often excluded from intersectoral co-ordination under the banner of One Health, according to conclusions from the September 2022 CABI opinion piece *A one health approach to plant health*. The article concludes that incorporating plant health into One Health discussions brings greater emphasis on ecological health through the trade-off between food security and planetary boundaries: "One Health's value for plant health is to create more inclusive approaches to evaluating plant protection interventions that address agricultural needs, but also realize co-benefits with ecosystem, animal, and human health".[24] During the Commission on Phytosanitary Measures (CPM) in April 2024, IPPC contracting parties discussed consideration of plant health issues within the One Health context and opportunities for IPPC's work to contribute to One Health.[25]

The *One Health Joint Action Plan (2022-2026)* *Action track 6: Integrating the environment into One Health* seeks to "protect and restore biodiversity, prevent the degradation of ecosystems and the wider environment to jointly support the health of people, animals, plants and ecosystems, underpinning sustainable development". WHO has further explored environment in One Health in a report that clarifies the role of environment from a health perspective, noting "In animal zoonosis the environment plays a threefold role: (i) a reservoir where substances are accumulated and transported, (ii) a focal point for ecological and chemical processes, and (iii) a health mediator where disease agents from the environment are transferred to and affect animals and humans."[26] It concludes that the role of environment, as related to health, plays a substantial role in human physical and mental well-being, and that anthropogenic stressors (including land use change, biodiversity loss, climate change, and pollution) further affect the role played by the environment in the human-animal-plant health interface.

Climate change and its connection to One Health has also been explored in the article "*From concept to action: a united, holistic and One Health approach to respond to the climate change crisis*". This article recognizes the urgent need to tackle the risk connection between climate change and One Health. They provide four key messages and recommendations with the intent to guide further research and to promote international co-operation to achieve a more climate-resilient world: (i) Incorporate One Health into the wider public health approaches; (ii) Facilitate digital risk interconnectivity on climate; (iii) Promote open science and international co-operation; and (iv) Enhance multi-stakeholder partnerships. It concludes that a One Health approach is required to tackle climate change by implementing a united, holistic action and a shift from crisis response to prevention. Regional alliances and co-operation are required to support surveillance and investigate wildlife reservoirs of potential pathogens (human, animal, and plants), their environments and human interfaces, and possible emerging diseases and health risks. It recommends establishing a Climate Change and One Health network at the national level to promote science-based governance and multi-sector collaboration and multi-stakeholder partnership.[27]

[22] WHO, New report highlights the impact of changes in environment on One Health (who.int), 2022

[23] WHO, New report highlights the impact of changes in environment on One Health (who.int), 2022

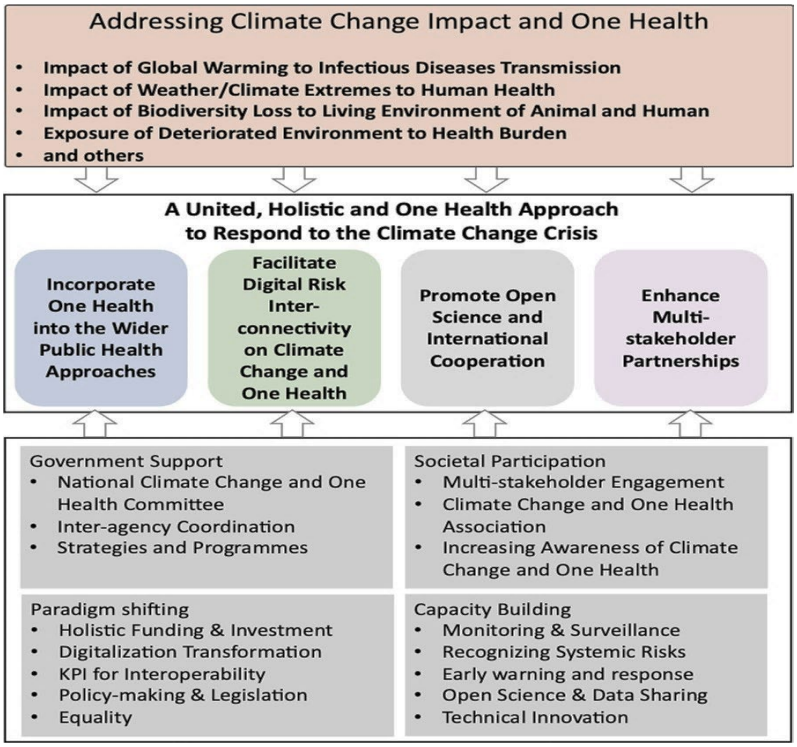
[24] Hoffmann, V., Paul, B., Falade, T. *et al.* A one health approach to plant health. *CABI Agric Biosci* **3**, 62 (2022). https://doi.org/10.1186/s43170-022-00118-2

[25] International Plant Protection Convention (IPPC) Role and Contributions to One Health – How to Position IPPC in this Space? Paper submitted to the CPM, 2024. https://assets.ippc.int/static/media/files/publication/en/2024/03/31_CPM_2024_One_Health_2024-03-11.pdf

[26] World Health Organization, Regional Office for Europe. 2022. A health perspective on the role of the environment in One Health

[27] Zhang R, Tang X, Liu J, Visbeck M, Guo H, Murray V, Mcgillycuddy C, Ke B, Kalonji G, Zhai P, Shi X, Lu J, Zhou X, Kan H, Han Q, Ye Q, Luo Y, Chen J, Cai W, Ouyang H, Djalante R, Baklanov A, Ren L, Brasseur G, Gao GF, Zhou L. From concept to action: a united, Wholistic and One Health approach to respond to the climate change crisis. Infect Dis Poverty. 2022 Feb 10;11(1):17. doi: 10.1186/s40249-022-00941-9. PMID: 35144694; PMCID: PMC8830086.

Figure 2 One Health recommendations for tackling climate change crisis and One Health



Source: From Concept to Action: A united, holistic and One Health approach to respond to the climate change crisis. [28]

[28] Zhang R, Tang X, Liu J, Visbeck M, Guo H, Murray V, Mcgillycuddy C, Ke B, Kalonji G, Zhai P, Shi X, Lu J, Zhou X, Kan H, Han Q, Ye Q, Luo Y, Chen J, Cai W, Ouyang H, Djalante R, Baklanov A, Ren L, Brasseur G, Gao GF, Zhou L. From concept to action: a united, holistic and One Health approach to respond to the climate change crisis. Infect Dis Poverty. 2022 Feb 10;11(1):17. doi: 10.1186/s40249-022-00941-9. PMID: 35144694; PMCID: PMC8830086.

4. Methodology

The assessment was guided by the OECD Development Assistance Committee (DAC) evaluation principles of independence, impartiality, credibility, and stakeholder participation in the evaluation process, including the principle of utility. The assessment considered existing, relevant guidelines and tools for addressing cross-cutting objectives in evaluations and international norms and standards for evaluations. The assessment was a desk-based study (carried out from February to May 2024) with no mission travel. The draft findings, conclusions and recommendations were presented to the STDF Working Group in June 2024 for feedback and discussion, prior to finalization of the report.

Environment, like gender, is a common cross-cutting theme for international development policy, programmes, resource allocation, and projects in many agencies and organizations. While organizations with clear environmental mandates already monitor and track the results and impacts of their work on the environment (including through evaluations), this is not always true for interventions where environment, climate change or (environmental) sustainability are not a stated goal in projects, capacity-strengthening activities or knowledge products.

One critical factor for evaluation of environment mainstreaming is the growing attention to and uptake of complexity and "systems thinking"[29] in areas that often intersect with environment.[30] These may not always be explicit in programme/project approaches or implementation, but often provide environmental benefits or impacts. In the context of SPS capacity development and safe trade facilitation, "systems thinking" approaches related to One Health, Food Systems and impacts from climate change are relevant for and influence SPS outcomes as discussed above.

The approach for this assessment took systems approaches and interdependencies into account where possible. It did this by: 1) reviewing relevant literature and work by STDF Working Group members; 2) considering SPS issues within food systems, One Health and climate change across STDF events, knowledge products, and projects; and 3) asking Key Informants questions related to One Health, food systems, and impacts from climate change that influence SPS outcomes.

Understanding SPS capacity building and safe trade facilitation in relation to environment is not always explicit in SPS-related work done by the STDF and its members, but is often implicit, with SPS measures both impacting and benefiting environment, biodiversity, and changes in climate that affect these systems. The assessment builds on previous STDF knowledge work and projects that have addressed aspects of environment (either explicitly or implicitly) resulting in recommendations for strengthening attention to environment in the STDF's work.

The assessment used key questions for each of the six OECD criteria to assess how environment is considered as part of the STDF's overall SPS capacity-building mandate:

- **Relevance:** How relevant is the STDF's approach to environment mainstreaming in meeting stakeholders' identified needs (including Working Group members, STDF project-implementing partners, and others involved in SPS capacity development)?
- **Coherence:** How coherent is the STDF's approach to environment mainstreaming in relation to the STDF's overall mandate?
- **Effectiveness:** To what extent has the STDF's environment mainstreaming approach been effective in producing results that are useful to stakeholders?
- **Efficiency:** Does the STDF's environment mainstreaming approach employ time and resources efficiently to meet the needs of stakeholders?
- **Impact:** Has the STDF's approach to cross-cutting themes of environment had impact?
- **Sustainability:** Are the STDF's efforts and approach towards environment mainstreaming likely to

[29] Systems thinking is a method of analysis using frameworks that are based upon a theory of systems. The goal of systems thinking is to facilitate a better understanding of problems and complex situations by enabling the conceptualization and analysis of the structures, dynamics, and perspectives within and by which they are contexted. (Systems Thinking | SpringerLink)

[30] EI-EVALSDGs - Env Mainstreaming -Publication v2.pdf (betterevaluation.org)

be sustainable and meet emerging SPS demands?

To answer the evaluation questions, the assessment used the following methodology:

1. **In-depth desk review and analysis of documents and literature:** This included STDF and non-STDF documents or reports relevant to the subject published by STDF Working Group members and other relevant organizations not actively engaged in the STDF partnership. The analysis included a review of work by STDF founding partners (including Codex and IPPC) of relevance to environment. It also included attention to: STDF key documents, including the STDF Strategy and MEL documents, annual reports, project applications, review templates, monitoring reports, end-of-project assessments and evaluations, STDF Briefings, and other externally-targeted publications (see Annex 2 for bibliography).
2. **Assessment of mainstreaming of environment in STDF projects through review and analysis:** The assessor considered a list (provided by the STDF Secretariat) of 65 Project Grants (PGs) and 64 Project Preparation Grants (PPGs) that were approved, ongoing, and/or completed in the period from 2011 to end 2023. This list was used as the basis to select 15 projects and 10 PPGs to be considered in more detail as part of the assessment. The projects were selected based on specific criteria and using purposive rather than random sampling to ensure that the data collected is rich and pertinent to the objectives of the assessment, leading to more meaningful and focused findings.

Criteria for selection of these projects for review included:

- A mix of projects with environment linkages that were rather explicit or implicit
- Completed and ongoing
- Geographic diversity
- Range of organizations involved
- Diversity of financing scale
- Different STDF categories among General SPS, Food Safety, Plant Health and Animal Health

For the 15 projects undergoing an in-depth review (see Table 1 below), the assessment process included desk review of available project documents as well as virtual group interviews with relevant project implementers. In total, 25 people were interviewed as part of the PPGs and PGs review.

Table 1: STDF projects selected for in-depth review as part of the assessment

Project No.	Project Title	Region	STDF category	Implementing Organization	Dates
STDF/PG/337, PG/359, & PG/436	Strengthening capacity to meet pesticide export requirements in Africa, ASEAN and Latin America	Global	Food safety	ASEAN Secretariat, AU-IBAR, IICA	2012-16
STDF/PG/375	Strategy for strengthening Togo's SPS system	Africa	General SPS	Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP)	2018 -22
STDF/PG/447	Improving food safety in honey and apricots to boost exports in Tajikistan	Asia and Pacific	Food Safety	International Trade Centre (ITC)	2018 - 22
STDF/PG/489	Improving market access for small scale fisheries in West Africa	Africa	Food Safety	United Nations Industrial Development Organization (UNIDO)	2015 - 18
STDF/PG/502	Rolling out phytosanitary measures to expand market access	Latin America and Caribbean	Plant Health	Inter-American Institute for Cooperation on Agriculture (IICA)	2015 - 19
STDF/PG/504	e-Phyto	Global	Plant Health	IPPC / FAO	2016- 2020
STDF/PG/534	Piloting an improved animal identification and registration system in Mongolia	Asia and Pacific	Animal Health	Food and Agriculture Organization of the United Nations (FAO)	2019 - 21
STDF/PG/543	Enhancing the capacity of Uganda's fruit and vegetable sector to comply with EU Phytosanitary requirements	Africa	Plant Health	CAB International (CABI)	2019 - 22
STDF/PG/634	Asia Pesticide Residue Mitigation through the Promotion of Biopesticides and Enhancement of Trade Opportunities	Asia and Pacific	Food Safety	Asia-Pacific Association of Agricultural Research Institutions (APAARI)	2020 - 23
STDF/PG/672	Meeting sanitary standards to improve the safety of shellfish in Senegal and boost market access	Africa	Food Safety	Food and Agriculture Organization of the United Nations (FAO)	2022 - 25
STDF/PG/694	Enhancing Trade Through Regulatory Harmonisation and	Africa	Food safety	International Centre for	2021 - 24

Project No.	Project Title	Region	STDF category	Implementing Organization	Dates
	Biopesticide-Based Residue Mitigation in the SADC Region			Genetic Engineering and Biotechnology (ICGEB)	
STDF/PG/751	Strengthening the phytosanitary and food safety system in key value chains	Latin America and Caribbean	General SPS	Junta Agroempresarial Dominicana (JAD)	2022 - 25
STDF/PG/798	Improving pig biosecurity and African Swine Fever (ASF) control in 4 ASEAN countries	Asia and Pacific	Animal Health	Ecole Nationale des Services Vétérinaires - France Vétérinaire International (ENSV-FVI)	2022 - 25

Figures 3 and 4 illustrate the distribution by region and sector of the projects selected for review.

Figure 3:

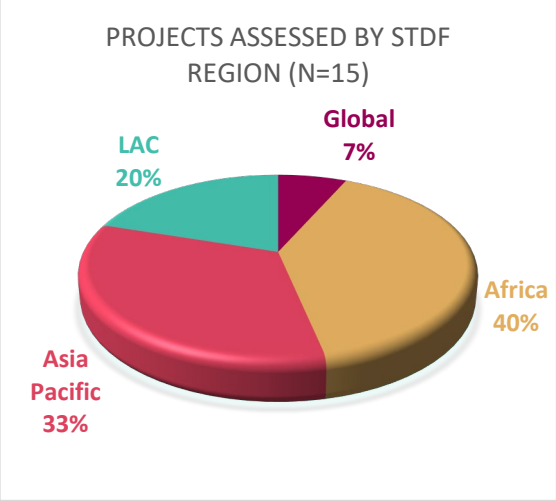
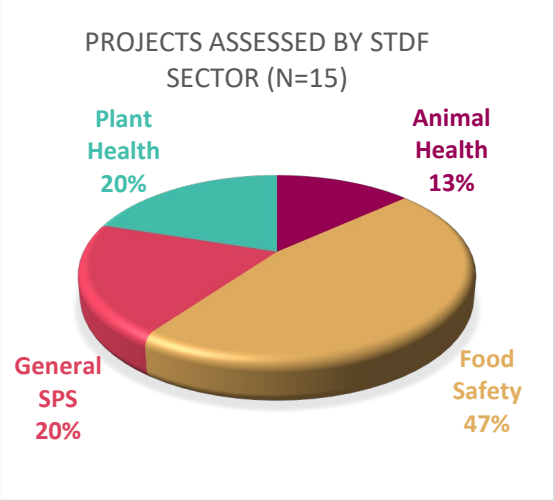


Figure 4:



Ten PPGs funded between 2015 and 2023 were also selected for in-depth review (see Table below). These PPGs were selected based on the following criteria: innovative approaches, geographic diversity, and explicit or implicit links to environment. In total, nine people were interviewed as part of the in-depth review of four PPGs that had explicit environment considerations, time zone availability, and language capability of the consultant. The other six PPGs were assessed based on desk review of available project documents.

Table 2: STDF PPGs selected for in-depth review as part of the assessment PPG

PPG No.	PPG Title	Region	Category	PPG Implementing Organization	Dates
STDF/PPG/534	Livestock identification and registration	Asia and Pacific	Animal Health	Hans Schild	2015 – 16
STDF/PPG/576	Feasibility study for value addition in the fruit and vegetable sector	Asia and Pacific	General SPS	International Trade Centre (ITC)	2017 – 19
STDF/PPG/616	Supporting the establishment of a bee sanctuary in Niue	Asia and Pacific	Animal Health	AsureQuality	2018 – 21
STDF/PPG/709	Applying the P-IMA tool in Ecuador	Latin America and Caribbean	General SPS	Inter-American Institute for Cooperation on Agriculture (IICA)	2019 – 23
STDF/PPG/722	Piloting the use of Regulatory Impact Assessment in the agriculture and fisheries sector	Asia and Pacific	General SPS	Bureau of Agriculture and Fisheries Standards (BAFS)	2019 – 22
STDF/PPG/768	Harmonizing the phytosanitary legislation framework in Central Africa	Africa	Plant Health	Sylvestre Yamthieu & Pôle Régional de Recherche Appliquée au Développement des Systèmes Agricoles d'Afrique Centrale (PRASAC)	2021
STDF/PPG/809	Regional approach towards addressing invasive quarantine pests of potato in East and Southern Africa	Africa	Plant Health	International Institute of Tropical Agriculture (IITA)	2021 – 23
STDF/PPG/831	P-IMA framework to address SPS challenges of fishery products	Asia and Pacific	Animal Health	Swisscontact	2022 -23
STDF/PPG/858	Piloting one health to manage aflatoxins in Asia	Asia and Pacific	General SPS	Asia-Pacific Association of Agricultural Research Institutions (APAARI)	2023 – 24
STDF/PPG/935	Advancing apiculture for economic development in the Pacific Islands	Asia and Pacific	Food Safety	AsureQuality	2023 – 25

Figures 5 and 6 below show the distribution of STDF PPGs selected for review by region and sector.

Figure 5:

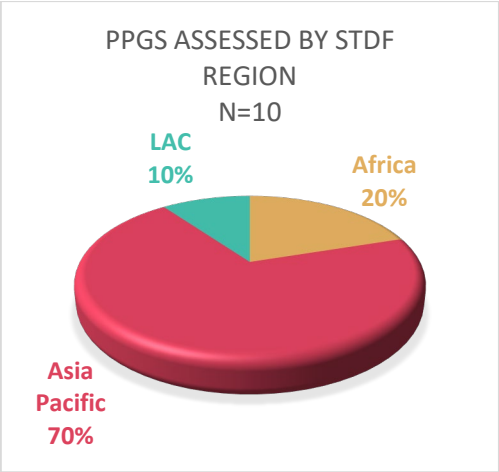
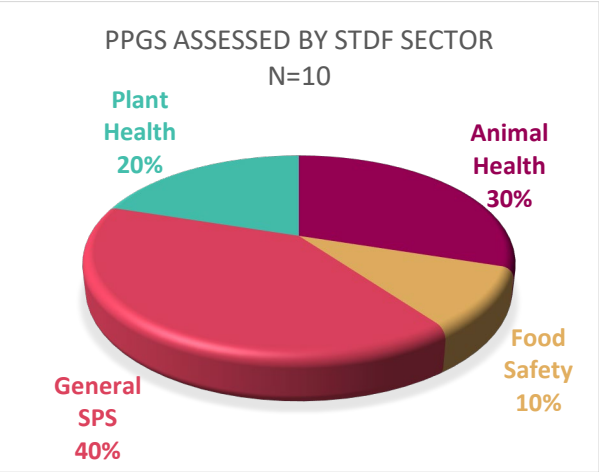


Figure 6:



As part of the assessment, project and PPG applications, reports and evaluations (where available) were examined to understand whether the linkage to environment was explicit or implicit. Attention was also given to assessing whether learning resulted in further actions beyond the project and if these projects were innovative in mainstreaming environment. The criteria used for this analysis are explained below:

Criteria / Elements for Analysis	Definitions
Explicit	Environment stated in project/PPG as an objective, activity, or the SPS benefits/impacts to environment are identified. Partner has its own environment policy or process.
Implicit	Environment may be mentioned or may not be a focus but SPS benefits/impacts environment.
Learning	Result of project/PPG identified further actions related to SPS linkage to environment. Project identified environment linkages.
Innovative	Project/PPG takes new approach for SPS with relationship to environment. Environment stakeholders included or consulted.

Projects selected for review were subsequently ranked based on the extent to which environment was considered using the following scale:

Scale Score	Definition: Extent of Environment Included in Project
Not at all:	Applies when none of the elements under the criteria are met.
To a limited extent:	Applies when some minimal elements are met, but further progress is needed and remedial actions to meet the standard are required.
To a moderate extent:	Applies when a satisfactory level has been reached and many of the elements are met, but still improvement could be made.
To a significant extent:	Applies when all the elements under the criteria are met, used and fully integrated in the project, and no remedial actions are required.

Stakeholder interviews and consultations:

The assessment was carried out in a consultative and participatory way, involving key informant interviews (KIIs) with representatives of STDF founding partners, donors, other partners, representatives of STDF project-implementing organizations and beneficiaries, the STDF Secretariat, and other relevant stakeholders.

Names of 80 relevant stakeholders from the STDF's global partnership (comprising founding partners, donors, developing country experts and other partners including implementing organizations) were provided by the STDF Secretariat. The assessor identified 32 of these for key informant interviews (KIIs), with attention to ensuring diversity (including of gender, geography, type of organization, etc.). Interviews took place with 30 of these 32 persons. A list of KIIs is in Annex 1. These contacts were interviewed virtually, guided by the questions in Annex 3 through semi-structured interviews and the assessment framework.

The STDF Secretariat convened an online (Zoom) meeting in January 2024 to introduce the assessor to interested STDF Working Group members. During this meeting, the assessor presented the inception report approach to the assessment and carried out informal polling to obtain initial views and inputs for the assessment.

Limitations

Mitigation measures were taken to address possible limitations that could potentially affect the assessment delivery and quality of the findings (see below).

Limitations	Mitigation Measure
Broad scope of assessment: *The assessment sets out a broad scope of analysis, including the review of all STDF's workstreams.*	Priority-setting exercises involving intended users, and systematic progress reviews.
Time Constraints: *Practical issues derived from stakeholders' availability.*	Early identification and setting of interview schedules.
Reporting bias: *Some topics, such as environment, are susceptible to reporting bias, rather than lack of knowledge and/or opinions formed.*	Complement or triangulate findings across questions; formulate questions in hypothetical manner.
Non (low) responses: *Elusive responders, resulting in low response rates.*	Pre-notifications, reminders, and shorter questionnaires.
Comparability: *Difficulty comparing across contexts due to varied nature of projects, lack of specific environment objectives.*	The application of a common evaluation framework; validation.
Lack of empirical evidence: *Limited and/or absence of empirical data due to new area of study or lack of understanding of environment.*	Include grey literature and secondary data, when necessary.
Purposive sampling bias: *Due to its subjective nature, prone to selection bias and error.*	Define a clear selection criterion aligned with the main objectives of the assessment.

Time constraints due to holidays and availability/travel of KIIs proved to be a limitation for interviewing stakeholder for the assessment within the period planned. This was mitigated by expanding the interview period to match KII availability. Comparability between projects with the inclusion of environment was challenging due to the wide range of STDF projects. This was compensated by looking for clusters of similar projects to compare, such as the regional biopesticide projects. Lastly, the lack of empirical evidence within STDF projects due to these not having specific environment objectives or outcomes was a limitation that was overcome by using desk research to explore how environment connects to SPS and safe trade projects.

5. Findings

The assessment is based on a desk review of STDF and related documents on environment related to safe trade, and an in-depth review of selected projects with interviews with project implementors and key informant interviews with the STDF Working Group members and other relevant stakeholders. The following sections outline the key findings based on the six OECD criteria.

Relevance: How relevant is the STDF's approach to environment mainstreaming in meeting stakeholders' identified needs?

The following key questions were used to assess relevance:

1.0 To what extent and how is the STDF's work aligned with the cross-cutting issues, needs, and priorities on environment identified by the STDF Working Group members and beneficiaries?

- 1.1 How relevant is environment for the implementation of SPS measures and safe trade facilitation?
- 1.2 To which SDGs is the STDF's work relevant in the context of SPS capacity building and projects?
- 1.3 To what extent has work in the SPS Community (the STDF & members) responded to emerging priorities and contextual changes in plant, animal, and food safety related to environment?

Key findings on relevance: ***Overall, the STDF's work – especially knowledge work, publications and events – has been aligned with the cross-cutting issues, needs and priorities on environment identified by STDF Working Group members, particularly founding partners. There are also examples of where STDF's grants have aligned and responded to cross-cutting needs and priorities on emerging environment issues*****.**

> "Environment must be integrated into the approach to safe trade and part of a systems approach to trade"
>
> *KII*

The STDF has shown consistent leadership by being innovative in looking at the environment and climate change from its focused SPS capacity development and safe trade mission. KIIs consistently noted the STDF's contribution to raise awareness and develop knowledge around environment that is specific to SPS capacity and outcomes. The STDF work on environment in relation to SPS risks has raised the profile of the relevance of environment for SPS risks and capacity development (and vice versa) and is informing and/or influencing work carried out by some organizations involved in the STDF's global partnership.

The STDF Strategy for 2020-2024 identified selected Sustainable Development Goals (SDGs) that STDF work supports or contributes to in some way, notably SDG 14 (Life Below Water) and SDG 15 (Life on Land) linked to the environment. The Strategy did seek to align to SDGs. Whether implementation of the Strategy has fully lived up to this would be a different question to those explored in this assessment.

Reflecting the relevance and importance of the environment and climate change for food safety, plant and animal health, STDF founding partners have done extensive work to consider these interlinkages and impacts, also with attention to One Health and food systems (see above). While this work goes beyond STDF's focus on SPS measures and safe trade facilitation, it underscores the relevance of the topic for STDF's global partnership, and frame key issues and trends that are likely to be increasingly important for SPS capacity development and STDF's work.

Building on the work of the STDF founding partners and others, the STDF's work on environment has focused on the linkages to SPS risks, outcomes and safe trade facilitation. For instance, through its documents, knowledge products and events with founding partners, the STDF was a pioneer in investigating how climate change could affect SPS and trade. This work started over a decade ago and included publication of a Briefing Note in October 2009 (*Climate Change and SPS Risks and Responses"),* as well as a joint STDF/World Bank seminar in 2009 and publication in 2011 (*Climate Change and Trade: The Link to Sanitary and Phytosanitary Standards).*

Interviewees noted that the 2012 STDF publication on *Alien Invasive Species* was an early recognition of the linkages between SPS issues, biodiversity, and environment. These early knowledge products helped initiate a stronger focus on the linkages of environment, biodiversity and climate change as it relates to SPS capacity, animal and plant health, and the relationship to safe trade. STDF knowledge products and events were relevant and focused on how environment can affect SPS requirements, and this focus continues today, making the STDF one of the few initiatives that looks at environment from an SPS lens.

> "The STDF should stress local ownership and have broader stakeholder engagement, including relevant environmental ministries or organizations. Increase consultations to better understand country and regional needs and adapt STDF offerings to these needs"
>
> *Multiple KIIs*

To remain relevant in the context of increased global attention to climate change and address new and emerging issues, the STDF updated its previous work on climate change and also sought to facilitate dialogue and awareness raising on the links with new and emerging issues (see above). In May 2022, STDF's climate change webinars helped to show the continued relevance and importance of climate change challenges for food safety, animal and plant health, and identified opportunities to respond to emerging risks and facilitate safe trade.[31]

KIIs and STDF project implementing organizations had a broad understanding of the potential impacts of climate change regarding plant disease and pests expanding their range and impact. Likewise, those in animal health also expressed concerns over spread of zoonosis because of climate change. KIIs were aligned in their view that STDF environment knowledge products are most relevant and useful when they link directly to SPS and safe trade. They acknowledged that the STDF provides a trusted source of information on topics like climate change, by bringing together diverse members working in the SPS area together with a specific focus on SPS risks and issues related to environment, biodiversity and climate change, unlike broader organizations working in trade.

Key findings: The assessment found evidence that the STDF Working Group and Secretariat are responding to emerging priorities and contextual changes in plant, animal, and food safety related to environment and associated emerging issues like One Health and food systems.

One Health: SPS capacity development and safe trade facilitation are of relevance to One Health. The STDF brings together some of the elements of One Health through its global partnership linking diverse stakeholders from across agriculture, plant/animal/human health and development who share an interest in safe trade facilitation. The STDF's global partnership can enhance multi-stakeholder collaboration related to One Health, climate change, and environment as it relates to safe trade facilitation, in line with the recommendations emerging from recent research and publications on the importance of multi-stakeholder partnerships to effectively address the complexity inherent in issues related to the environment.

There is some evidence of attention to One Health in the STDF Working Group in 2016, as well as in a more recent STDF PPG in Asia (see Box 3) which applied a One Health approach to respond to the challenge of aflatoxin control related to safe trade facilitation. This PPG provided a practical way to profile and examine the relevance of One Health for aflatoxin management, which has been considered helpful to increase knowledge and understanding about the topic in Asia. This knowledge and learning are relevant for work in other regions.

[31] See: Exploring the Impact of Climate Change on the Global Food System

Box 3: Managing aflatoxin contamination in Asia using One Health (STDF/PPG/858)

This PPG applied a One Health approach to the challenge of aflatoxin control. It was the first ever STDF funded PPG to integrate the concept of One-Health on aflatoxin management in Asia. It raised awareness in selected Asian countries and enhanced understanding about the needs to identify, prevent, predict, detect and respond to the health threats presented by aflatoxin contamination along key value chains.

Global experts on One Health worked together to develop a regional project proposal for the Asia-Pacific region for consideration by the STDF and/or other donors. The project (not yet considered by the Working Group) will seek to overcome challenges related to aflatoxin contamination and identify mitigation action approaches for management considering environmental, plant, animal and human health aspects.

See: www.standardsfacility.org/PPG-858

An STDF PPG in Bhutan provides another illustration of how STDF grants can generate knowledge that clarifies linkages between safe trade facilitation and One Health on the ground. While this PPG was not designed to address One Health, stakeholders involved spotted connections with One Health and were able to use the work carried out under the PPG to inform and leverage further support for a One Health approach in the country (see Box 4).

Box 4: Links between STDF PPG and broader work on One Health in Bhutan (STDF/PG/734)

This PPG developed a proposal for a new border management project in Bhutan to build capacity for border inspection and control of plant and animal products. The project, approved for STDF funding in 2023 and to be implemented by ITC from 2024 to 2027, will promote and strengthen border agency co-ordination and trade facilitation reforms.

The survey and field reports prepared under the PPG also fed into the country's development plan and leveraged wider support for a One Health approach to build national health system resilience. This includes a new US$5 million grant under the World Bank Pandemic Fund, where FAO and WHO will develop infrastructure, laboratories and longer-term training programmes.

See:
https://standardsfacility.org/PPG-734
https://www.thepandemicfund.org/projects/BHUTAN-strengthening-pandemic-prevention-preparedness-and-response-through-one-health-approach

All KIIs were familiar with One Health as a unified framework that recognizes the interconnection between people, animals, plants, and their shared environment. About a third of respondents were actively working with One Health, mainly those in the animal health area. Some persons interviewed noted that their organizations were identifying where their work connected to One Health. Others indicated that their organizations did not have the resources or expertise to address One Health in SPS capacity development. Some raised questions about the increased prevalence of One Health, not knowing exactly what it would mean for their work (e.g. in plant health). This concern was mainly due to a lack of expertise within the organization in One Health, particularly the human health aspects. All agreed that One Health was a useful integrated approach, but complex as it required coordination and collaboration with a wide range of institutions. Some mentioned that this may require engagement with organizations that they did not normally collaborate with, which may create more bureaucracy or challenges to achieving their work objectives.

With the exception of the World Bank and STDF's founding partners involved in the quadripartite partnership on the *One Health Joint Action Plan (2022-2026)* *Action track 6: Integrating the environment into One Health,* most of the KIIs had less knowledge of the environment linkages to One Health, beyond aspects linked to the spread of zoonotic and plant pests and disease.

One Health will continue to grow in importance within the human, animal /plant health and environment nexus. The STDF may focus on the specific SPS capacity and safe trade niche, while considering the interconnectedness of environment within One Health. The STDF does not necessarily need to cover the specific environment and climate change relationship to One Health, as other organizations are already focusing on this aspect. The STDF could rather use the knowledge, resources and expertise of these other organizations to communicate this cross-cutting issue to STDF Working Group members and other stakeholders involved in SPS systems in developing countries.

Antimicrobial Resistance: Antimicrobial resistance (AMR) has been identified by the WHO as one of the top 10 issues for global public health. FAO and others have recognised AMR as a major global threat of increasing concern which poses a serious risk to the safety and quality of feed and food, food security and livelihoods.[32] The issue of antimicrobial resistance was mentioned by several respondents as an emerging issue of concern and strongly connected to One Health. The direct connection to environment is not well known, and the role of environmental factors in antimicrobial contamination and the spread of antimicrobial resistance is often overlooked.[33]

There may be limited evidence of AMR affecting trade at present, though this is something that may evolve. Improving veterinary capacity for safe trade facilitation including through the use of good practices may help reduce risks related to AMR, however, these linkages are not well established in STDF projects.

The topic of AMR was considered during Working Group discussions on the topic of One Health in 2016. The STDF Secretariat has since had preliminary discussions with the International Centre for Antimicrobial Resistance Solutions (ICARS), which partners with Low- and Middle-income Countries in an effort to reduce drug-resistant infections, which shows an effort to stay current with emerging issues related to SPS and safe trade. In the future, there are opportunities to learn more about synergies between SPS capacity development and AMR that could produce win-win opportunities in developing countries.

Food Systems: Food systems are relevant to the STDF's programme goal of safe trade facilitation because they embrace the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution/trade, consumption, and disposal (loss or waste) of agri-food products and the broader socio-economic and natural environments in which they are embedded.[34]

Taking advantage of the United Nations Food Systems Summit in 2021, the STDF organized two outreach events with partners to show how facilitating safe trade enables developing countries to participate in and benefit from export-oriented agri-food value chains that generate employment and protect the health of consumers, animals, and plants, which contributes to food systems transformation.

KIIs suggested that SPS issues are embedded within food systems given the role that trade plays within global, regional or national food systems. For instance, trade helps to connect producers to markets, moves food from surplus to deficit regions and promotes food security. While this was seen as an emerging issue that should be considered by the STDF, most felt that it was not the STDF's role to lead this. Rather the STDF should seek to influence greater understanding and attention to SPS capacity development and safe trade facilitation in other programmes and initiatives addressing food systems.

Several KIIs suggested that the STDF could help better underline relevance by increasing their knowledge products and capacity building to include local authorities, farmers/producers, country level processors and private sector who are directly coping with meeting SPS requirements and the environmental issues around SPS and safe trade. They felt the STDF should reach out to these groups to understand what their needs are related to SPS capacity and the environment, and what the STDF could contribute to their better understanding of these issues.

> "Food security is part of food systems: SPS capacity and animal and plant health are part of ensuring food security, particularly for countries which import much of their food."
>
> *Multiple KIIs*

[32] https://www.fao.org/antimicrobial-resistance/key-sectors/animal-production/en/

[33] Wang W, Weng Y, Luo T, Wang Q, Yang G, Jin Y. Antimicrobial and the Resistances in the Environment: Ecological and Health Risks, Influencing Factors, and Mitigation Strategies. Toxics. 2023 Feb 16;11(2):185. doi: 10.3390/toxics11020185. PMID: 36851059; PMCID: PMC9965714.

[34] Food Systems Concepts and Definitions for Science and Polital Action, https://www.nature.com/articles/s43016-021-00361-2

Coherence: How coherent is the STDF's approach to environment mainstreaming in relation to the overall STDF mandate?

The following key questions were used to assess coherence:

2.0 How coherent is the STDF's work at integrating environment as a crosscutting topic for SPS capacity development (including about One Health and food systems transformation)?

2.1 To what extent is the STDF's project cycle and knowledge work clear and actionable on environment?

2.2 To what extent, and how, are indicators used to measure progress and results on environment?

2.3 To what extent, and how, are issues and results related to environment explicitly identified and communicated as part of the STDF's knowledge and project work?

Key findings on coherence: ***The STDF's work has been coherent at integrating environment as a crosscutting topic for SPS capacity development including aspects related to One Health and food systems transformation, drawing on the in-depth technical work of STDF partners.***

The STDF has been coherent in addressing those environment issues that specifically affect SPS and safe trade and has avoided veering into other non-related environment topics. Increased coherence of STDF's knowledge work has been achieved by clear and practical linkages to the technical work of different STDF partners. For instance, the STDF climate change seminar in 2009 was organized jointly with the World Bank and drew heavily on the work of other STDF founding partners. The STDF event and publication on IAS was carried out in close collaboration with IPPC and WOAH. Several KIIs spoke about the IAS work as their first introduction to how trade could impact the environment, and credited the STDF for initially making them aware of the environment aspects related to safe trade.

Over the last decade, the STDF's work has become clearer and more actionable on environment as a cross-cutting issue. Since the 2015 requirement to include some information on environment as a cross-cutting topic in STDF project applications, the consideration of environment has become more mainstreamed in relevant projects, and partners have considered the topics of environment, biodiversity and climate change in project design. Inclusion of a section on the environment in the project application form, and a dedicated space for reporting in progress reports has helped increase consistency in environment considerations in STDF project development, design and delivery.

As shown in Figure 7, of the 10 PPGs selected for in-depth review, seven explicitly included environment, by either stating it as part of the project's objective, by addressing it through project activities or by clearly identifying the SPS benefits/impacts to environment. The linkage with the remaining three was implicit, where environment was either briefly mentioned or was not a focus. In comparison, out of the 15 PGs selected for in-depth review (Figure 8), 44% had an explicit and 56% implicit link to environment.

Figure 7

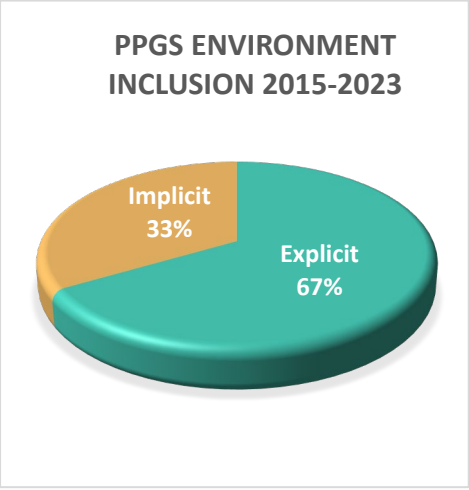
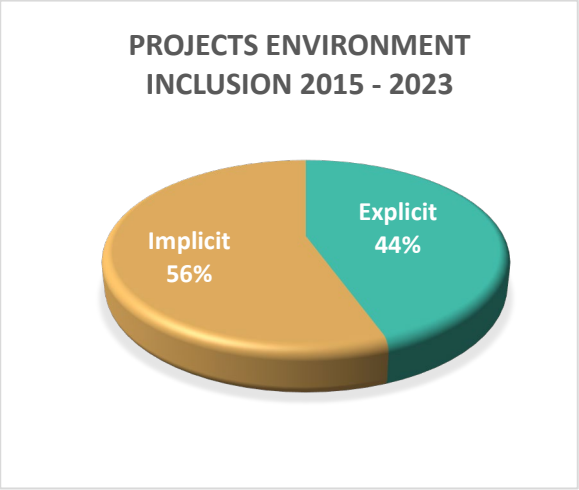


Figure 8



Environment considerations was limited in projects prior to 2015. In reviewing the portfolios of PPGs and PGs from 2015 (when the STDF included sections for environment and gender in the funding application) to 2023, there has been a significant and continued increase in explicit inclusion or mention of environment. This can be explained by more attention to environment and gender in applications and partners increasing their focus on environment within their own organizations.

For the projects examined in more detail, only those projects approved before 2016 had little inclusion of environment. Starting in 2017, environment was examined in projects primarily through an impact approach to ensure "no harm". Projects starting after 2018 tended to be broader in their consideration of environment with a more integrated approach to environment from both an impact and benefits perspective, as evidenced by project applications and reports as well as interviews with project implementors.

Some of this is explained by many partner organizations adopting environment reviews, partnerships with other organizations, or the addition of environment stakeholders within the projects. While there has been uptake of consideration of environment in many of the organizations interviewed, there is still a lack of specific project indicators for most environment considerations in STDF projects. Some of this is a result of projects not having specific environment objectives.

According to KIIs, the focus of the STDF on environment and safe trade continues to be important in meeting challenges in food safety. Some KIIs referred to the private sector's evolving in-house standards addressing environmental considerations; buyer requirements matching environmental system requirements; food and beverage companies making climate goals to reach Net Zero production; and meeting these requirements for producers to enter new and higher-end markets. Public and private sector stakeholders in developing countries require capacity building and knowledge to address these issues with regard to trade.

On the STDF knowledge workstream, specific attention to the environment is found in the STDF's *Evidence-Based Approach to Prioritize SPS Investments for Market Access (P-IMA)*, which has been tested and used in multiple countries and regions. The STDF *P-IMA Guide* encourages P-IMA users to consider the possible environmental impacts of SPS investments in different areas (see Box 5).

Box 5: Prioritizing SPS Investments for Market Access (P-IMA)

Using the P-IMA framework encourages public and private sector stakeholders to explore and understand the expected impacts of SPS investments on the environment:

- Environment can be included as a specific decision criterion so that the impacts (positive, negative or neutral) on different environmental aspects (including biodiversity and climate change) are estimated for the prioritizations generated.
- Representatives of government authorities working on the environment linked to SPS measures are engaged to help ensure that environmental aspects are considered, and to benefit from their knowledge and information.
- Where available, environmental-related data can be included.

Asking the following key questions during the P-IMA process can help to tease out and better understand the expected impacts of SPS investments on the environment (including biodiversity and climate change):

1. What assumptions, constraints and/or opportunities exist with respect to with compliance with SPS measures and the environment?
2. How is the environment likely to be impacted (positively and/or negatively) by the SPS investments being prioritised? For instance, to what extent, and how, do the investment options under consideration have implications for the use of pesticides, crop protection products or veterinary drugs?
3. How could environmental aspects be addressed as part of the identified SPS investments? For instance, what are the links (if any) to climate-smart agriculture?
4. Have relevant stakeholders (e.g. Ministry of Environment) been included and/or consulted in the P-IMA process?
5. What environment-related data and information may be collected and used to inform the P-IMA analysis?

Source : https://standardsfacility.org/sites/default/files/STDF_P-IMA_Guide_EN.pdf

An external evaluation of the use of P-IMA (2023) found that the integration of cross-cutting issues was demonstrated by indicators used to answer questions on the potential impact of SPS investment options on gender and the environment generated by the P-IMA frameworks.[35]

In knowledge products and approved projects, the STDF has been coherent and consistent in its approach to mainstreaming environment into project applications and reports. However, evidence from both KIIs and a review of STDF communications on projects generally show that environment mainstreaming is generally not communicated through the STDF website or in its project descriptions or outcomes. KIIs suggested that the STDF could do more on communication by providing narratives and stories about environment benefits of projects or how environment issues like reduction of MRLs contribute to market access.

Effectiveness: To what extent has the STDF's environment mainstreaming approach been effective in producing results that are useful to stakeholders?

The following key questions were used to assess effectiveness:

3.0 How effectively have the STDF workstreams (global platform, knowledge work, projects and PPGs) addressed environment as a cross-cutting topic for safe trade facilitation?

3.1 How effectively do the STDF Strategy, processes and documents (including the MEL Framework, Communications Plan, and grant application and approval process) support environment mainstreaming in practice?

3.2 How does attention to environment in the STDF's work align to work on environment led by organizations involved in the STDF's global partnership? How does it take advantage of opportunities for synergies (if any)?

Key Finding on Effectiveness: ***The STDF has been effective looking at environment from its focused SPS and safe trade mission lens, within the existing overall budget and without a specific strategy or plan on environment mainstreaming. The STDF has integrated environment into knowledge work and projects without increasing application preparation or review time significantly. The environment section in application forms and reporting templates could be strengthened for effectiveness by adding specific environment activities and indicators, if appropriate for the project focus.***

As noted above, the STDF MEL Framework notes the importance of environment as a cross-cutting issue: "STDF work will also pay attention to how the implementation of SPS measures contributes to a healthy planet, for instance by reducing contamination of drinking water, farm soils or fish stocks by heavy metals, enhancing biodiversity, supporting agricultural systems that are more resilient to climate change, improving environmental public health, or mitigating the impacts of climate change. Linkages between climate change and the environment will be identified at the level of individual projects and PPGs, with environment-related indicators included in the menu of standard indicators for STDF projects."

Under the current Strategy, STDF workstreams have delivered at least four knowledge products related to the environment. These include: (i) STDF/PG/521: An environmental monitoring procedural manual; (ii) the short film "Shaping a safer world"; (iii) a background note for STDF climate change week; and (iv) a Briefing Note on climate change. The STDF also refreshed its knowledge and outreach work on the environment. This included a series of four webinars during the STDF's climate change week in May 2022, attended by approximately 820 participants in 2022. It also included an STDF organized and moderated panel discussion on linkages between safe trade facilitation and climate change at the WTO Trade House during COP28 in Dubai. This panel brought together representatives of selected STDF founding partners, donors and other partners attending other COP28 events. While having a small (approximately 20) in-person audience, some 209 people have watched the STDF session online. This indicates good reach for an STDF environment event with STDF Working Group members and other stakeholders. This format of knowledge delivery seemed to be an effective way to reach core audiences, raise awareness of the linkages between climate change and SPS risks, and draw attention to the work of STDF partners and others.

[35] https://standardsfacility.org/sites/default/files/Evaluation_of_the_P-IMA_framework.pdf

While the STDF Communication Plan does not explicitly mention the environment, there is a dedicated website tab to climate change, as well as webpages with content related to environment covered through STDF work including events.

Effectiveness of the use and reach of knowledge products on the environment can be gauged by the number of downloads and unique views of documents on the STDF website (see Box 6).

Box 6: Use of information on environment on the STDF website

Unique web page visits

- STDF Climate change page: 919 unique page visits
- STDF Webinar page for STDF climate change week in 2022 (Exploring the impact of climate change on the global food system): 2,796 unique page visits
- Invasive alien species webpage: 1,275 unique page visits

Document downloads

- International Trade and Invasive Alien Species - Unique download events 219
- Le commerce international et les espèces exotiques envahissantes - Unique download events 19
- El comercio internacional y las especies exóticas invasoras - Unique download events 14
- Climate Change Week at STDF Background Note - Unique download events 113
- STDF Briefing note Climate Change (standardsfacility.org) - Unique download events 87
- Climate Change and Trade: The Link to Sanitary and Phytosanitary Standards - Unique download events 223
- El cambio climático y el comercio: La relación con las normas sanitarias y fitosanitarias - Unique download events 9
- Changement climatique et commerce: Relation avec les normes sanitaires et phytosanitaires - Unique download events 18

Based on data from 1 July 2014 - 1 July 2023

KIIs and project implementors commented that the knowledge products and events developed by the STDF for environment were useful and increased their understanding of SPS and safe trade relationship to environmental issues. References were also made to the *Climate Background Note* presented at the 2022 STDF Climate Change Week as another example of the STDF being at the forefront of highlighting SPS connections to climate change.

As part of this evaluation, 15 projects and 10 PPGs were reviewed to assess how effectively environment was mainstreamed during design, implementation, and sustainability strategies. These grants were ranking based on the degree of inclusion of environment in the project application document and reports. The ranking was further fine-tuned based on additional information gathered through interviews with project implementors.

This ranking exercise found that 67% of the projects and 40% of PPGs reviewed included aspects linked to the environment to a significant or moderate extent (Figures 7 and 8). The mainstreaming of environment in STDF grants was supported to some extent by the inclusion in 2015 of a dedicated section in application forms requesting grant applicants to provide details on how projects would consider cross-cutting issues.

Key Informants from project partners and implementors supported the finding of this ranking exercise. They indicated that the sections on environment and gender in the project application forms were useful to make them think about how these cross-cutting issues connect to the core focus of their projects. Many recognised that without this requirement, projects may not have considered environment linkages, impacts or benefits. Inclusion of environment increases in projects approved after 2015. Those projects approved from 2020-2023 showed improved integration of environment considerations, more inclusion of environment stakeholders and more actual and/or expected environment benefits of the project.

While projects do not always include their own specific environment indicators, environmental considerations within projects are captured as far as possible within the following STDF programme indicators that pay attention to climate change and the environment:

- Evidence of market access and exports/imports directly facilitated through STDF support, with particular attention to climate change, environment, gender and inclusion

- # of STDF initiatives and PPGs/PGs contributing to changes in SPS legislation, regulation, policies, strategies, structures and/or processes, including attention to cross-cutting issues (climate change, environment, gender, inclusion)
- Evidence of improved implementation and enforcement of food safety, animal and/or plant health measures for trade, with attention to climate change, environment, gender and inclusion
- #, type of collaborative networks, relationships, initiatives at global, regional and/or national level that support the delivery of change in SPS systems, including attention to partnerships addressing climate change, environment, gender and inclusion
- # knowledge products that address climate change, environment, inclusion or gender equality

The PPG which had the highest ranking (*STDF/PPG/616: Supporting the establishment of a bee sanctuary in Niue, Asia-Pacific*) identified intentional environment benefits in developing a "win-win" project for safe trade and biodiversity (see Box 7). The disease status of honeybees in Niue is one of the most favourable in the region and possibly globally. Bees in Niue are unencumbered by the Varroa mite (*Varroa destructor)*, present in New Zealand, and the bacterial disease European Foulbrood (*Melissococcus plutonius),* present in Australia.

Box 7: Establishment of a bee sanctuary in Niue (STDF/PPG/616)

The PPG in Niue provided funds for a study to assess the feasibility of a honeybee sanctuary in Niue and export of live bees. The Niue Honey Company Ltd, the Australian Department of Agriculture, Forestry & Fisheries (DAFF), and the Department of Economics, Planning, and Trade of Niue (DEPT) supported the implementation of this PPG.

The PPG helped to establish a source of honeybee stock with favourable disease status for commercial exports of live bees. It enabled the Niue Honey Company (an SME) to develop and promote its honey and increase sales to tourists and new consumer markets in New Zealand and Australia. In recent years there has been an increase in hive numbers on the island resulting in more smallholder income and benefits to island plant biodiversity. In addition, regional partners are exploring the option of using Niue bees to re-populate other Pacific Islands where pests and diseases have impacted local bees.

Stakeholders expect the follow-up work deriving from this PPG to contribute to longer-term environment outcomes, including:

- Protection of honeybee biodiversity and the genetic purity of the Italian honeybee.
- Developing an alternative and sustainable source of bee imports for the Pacific Islands.
- Augmenting regional agricultural productivity.
- Establishing the foundations for a potential Pacific Research Centre to further research and development into bee health.
- Contributing to native bush regeneration, thereby mitigating the effects of global warming and soil degradation.

See: www.standardsfacility.org/PPG-616

It is difficult to measure the biodiversity impact of increasing disease-free bee production, but bees are important pollinators to both crops and native flora, providing important ecosystem services. This PPG is a "win-win" for animal health, biodiversity, and multi-stakeholder collaboration for an investment of under USD$37,000. Through public private partnership, it was effective in bringing together issues related to animal health, environment, and biodiversity, and developed a scalable project to provide disease-free bee brood and stock that can positively affect island biodiversity.

Despite not having a detailed approach to mainstreaming environment at the design phase, other projects and PPGs have incorporated the environment during the implementation phase. This has happened when environment stakeholders were included, or when the connections to environment became evident during implementation. An example of this is *STDF/PG/502: Rolling out phytosanitary measures to expand market access.* The project ex-post evaluation noted that the environment and climate change became more relevant during the project implementation. Results Area/Component 2 on pest risk analysis included an evaluation of environmental risks, which was quite timely. For example, in Argentina it led to a new strategic relationship between SENASA and the Ministry of Environment.

Figure 9 :

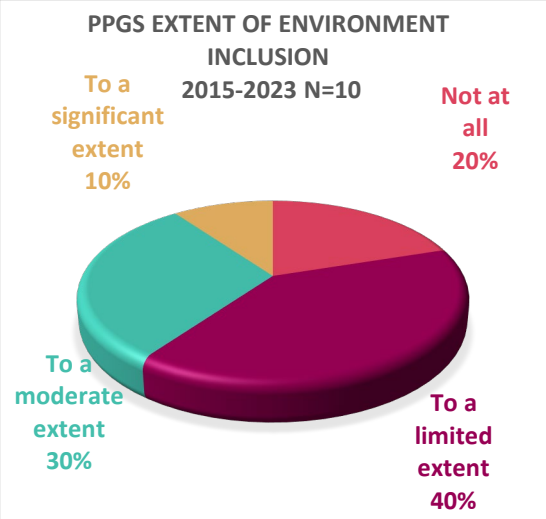
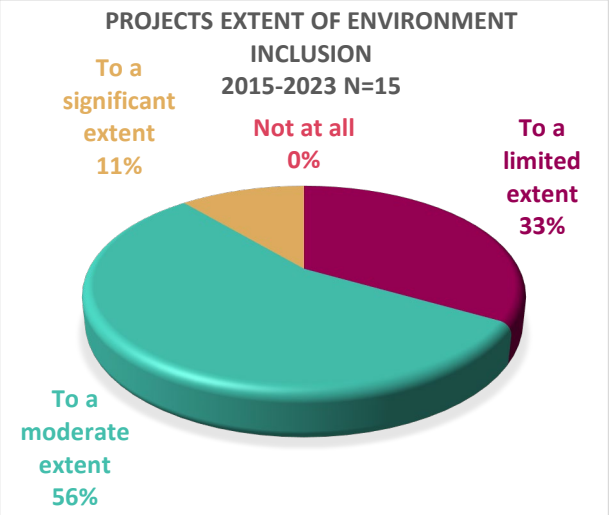


Figure 10:



> "The STDF having regional projects can help promote cross-regional learning, like clusters of project topics such as biopesticides, which can lead to better policies, regulations and practice."
>
> *KII*

Innovation can also go beyond technology to look at innovative partnerships to ensure inclusion of environment. A good example of such an approach is *STDF/PG/694: Enhancing Trade Through Regulatory Harmonisation and Biopesticide-Based Residue Mitigation in the SADC Region*. This regional project benefitting the Southern African Development Community (SADC) region sought to address issues related to non-compliance with pesticide MRL trade standards. The project complements two other regional STDF projects in the Asia-Pacific region (*STDF/PG/634*) and Latin America (*STDF/PG/753*). Through the strategic combined use of microbial-based biopesticides after applying conventional pesticides, the project put forward an innovative approach to reducing pesticide residue levels in the three regions. The approach offers a way to mainstream environment at policy level, which could be replicated and scaled elsewhere.

> "Regional networks on trade and SPS, in partnership with the STDF, can act as knowledge centres to work on evolving SPS and environment related requirements, involve regional environment organizations, and translate information to appropriate languages for use in the regions."
>
> *KII*

At the start of the STDF biopesticide project in Africa (PG/694), there were no environment stakeholders or partners involved. It was only later that the project implementing organization saw an opportunity to engage with the South Africa Department of Environmental Affairs which has regulatory oversight for agricultural pest control. This strengthened project delivery and results since the Department of Environment had a staff member specifically working on non-chemical pesticides. It increased linkages to the Convention on Biological Diversity (CBD) and the Nagoya Protocol, a legally binding global agreement that implements the access and benefit-sharing obligations of the CBD. These connections to biopesticides development and regulations were not apparent until the involvement of the environment stakeholder due to overlapping department interest and

jurisdictions. In this project, the environment stakeholder brought knowledge and resources that complemented those of the STDF implementing partners, and led to a more holistic approach to harmonising biopesticides in the region.

The Latin America biopesticide project (PG/753) also found these connections with environment departments where reduction of MRLs was the entry point and regional regulation harmonisation required the inclusion of environment departments. These experiences highlight that early stakeholder identification of relevant government environment departments can bring environment expertise and resource to STDF projects and help ensure policy and practice harmonisation.

In the past, some STDF projects have expected and/or assumed potential environmental linkages and benefits (e.g. *STDF/PG/504: ePhyto*). The external evaluation of the ePhyto project notes some limited environmental benefits such as reduced use of paper and need for travel, which are more implicit environment benefits (see Box 8). However, the evaluation was unable to more clearly identify or assess the environment benefits given the lack of attention to mainstreaming, environment indicators and monitoring in the project (which was developed before the STDF required attention to environment mainstreaming).

Box 8: ePhyto: Enhancing safe trade in plants and plant products through Innovation (STDF/PG/504)

This project set up an ePhyto Solution consisting of:

- A global framework for plants (GeNS) for the production, sending and receipt of electronic phytosanitary certificates for countries which do not have such a system, and
- A hub which facilitates the transfer of electronic certificates between national plant protection organization (NPPO, easily accessible and free of costly bilateral agreements required for point-to-point systems will make electronic phytosanitary certification feasible for many developing countries.

An external evaluation found that: "The ease of movement of ePhytos, relative to traditional paper phytosanitary certificates, has facilitated ease of trade for those countries using them, including those NPPOs in least developed country contexts, and reduced trade transaction costs. It has also reduced the use of paper and need for travel, which has delivered some limited environmental benefits."

The evaluation highlighted the project "did not result in clear evidence of quantified environmental effects, but the balance of information suggests that there are positive environmental impacts, though these may be less at this point than in the future, when fuller acceptance of ePhyto results in greater trust of the system and reduced printing. There are clear reductions in trips, and therefore carbon reductions, but there are also additional environmental costs resulting from added equipment and electricity use."

Source: https://standardsfacility.org/sites/default/files/STDF_PG_504_Evaluation.pdf

Some other (non-STDF) trade facilitation projects have sought to measure the environment benefits of paperless trade, which can offer relevant insights and experiences for future projects on e-SPS certification. For instance, UNESCAP has studied the positive impacts on the environment from the implementation of the Vanuatu Electronic Single Window System and other trade facilitation measures.[36] The study estimates a minimum of 65% reduction of paper used and 65% saved on trips for cargo clearance through digitising trade procedures.[37] UNESCAP has made a first attempt at quantifying the CO2 emissions that could be saved through trade digitalisation[38], noting that fully digitising regulatory procedures around trade could save between 32-86 kg of CO2 equivalents per end-to-end transaction, even based on conservative assumptions whenever data was lacking. Scaled to trading volumes in Asia and the Pacific, this implies potential savings of 13 million tons, equivalent to planting 439 million trees.[39]

[36] *Leveraging the Environmental Benefits of Trade Facilitation*

[37] APTFF NTFC 2022 2-1 Jayvee Santos.pdf (unescap.org)

[38] *Quantifying the environmental benefits from paperless trade facilitation*

[39] Yann Duval, Celine Bacrot and Simon Hardy, Article No. 79 [UNCTAD Transport and Trade Facilitation Newsletter N92 - Fourth Quarter 2021

> “Environment and trade have often been put as opposite sides of the coin. Environment groups need more information on the benefits of SPS capacity for the environment, the impacts of noncompliance for consumers, and the contribution to food security”
>
> *KII*

The environment benefits of STDF projects can be monitored and measured in different ways. What was not considered in the ePhyto project design and evaluation was the role of ePhyto in reducing waste as fresh products wait for paper certification. For example, the application for *ePhyto: Enhancing safe trade in plants and plant products* referenced Union Fleur's 2014 *Europhyt Interception Report* (Union Fleur, 2015) that documented that 60% of rejections of imported consignments of cut flowers and foliage to the European Union resulted from improper documentation. This may point to opportunities to better measure agri-food loss and waste in SPS capacity development projects. Thirteen percent of food, horticulture and floriculture produced is lost between harvest and retail. A total of 38% of total energy usage in the global food system is due to food that is lost and wasted.[40] Food waste accounts for around one-quarter of greenhouse gas emissions from food, making up 6% of total global emissions.[41]

Over the last decade, some STDF projects have better illustrated the opportunities in jointly addressing SPS capacity development, safe trade and environment. Some STDF projects have explicitly identified the connections to environment at the design phase, while others have discovered connections to environment during implementation. For instance, following the completion of the STDF regional biopesticides project in Asia, the project implementing partners published a policy brief[42] that highlights how the use of biopesticides promotes environment benefits, as well as safe trade. Most of the stakeholders interviewed thought the STDF's environment mainstreaming had improved, as well as their understanding of the issues of environment related to safe trade.

In future, STDF projects should continue to focus on core SPS and safe trade needs and results, while considering potential benefits and impacts related to environment, where relevant and feasible. A focus on such opportunities will add value to projects, and may also enable potential new funding flows (e.g. complementary funds from environment-focused initiatives and programmes like the GEF) to scale projects. At the same time, there is a recognition among STDF stakeholders that environment mainstreaming requires time and resources, that STDF projects are relatively small in scale, and that there is a need to balance the expectations and costs of environment mainstreaming in projects, and not to create many onerous additional requirements for project implementors.

More attention could be encouraged in future to include more STDF outputs focused on the environment, or environment-specific indictors, explicitly in project development and implementation. However, many Working Group members and KIIs considered that project applications should not become longer or more complicated by including too many requirements for environment, and felt the STDF Secretariat had met the right balance. Some others proposed amendments to the project application form, for instance to identify environment stakeholders where there may be shared interests, or to include specific environment indicators. A majority indicated a specific project partner session on environment linkages, as part of project development, could enhance consideration and specific outcome for environment within safe trade projects.

[40] Food Loss and Waste Reduction | United Nations

[41] Food waste is responsible for 6% of global greenhouse gas emissions - Our World in Data

[42] https://standardsfacility.org/sites/default/files/2024-06/policy_brief_biopesticides_final.pdf

Efficiency: Does the STDF's environment mainstreaming approach employ time and resources efficiently to meet needs of stakeholders?

The following key questions were used to assess efficiency:

4.0 To what extent are resources (human, financial) dedicated to environment mainstreaming in STDF workstreams?

4.1 How efficiently does the STDF's work on environment deliver (or is likely to deliver) results in an economic and timely way?

4.2 Are there opportunities to leverage resource for environment through co-operative and collaborative work with other organizations?

Key findings on efficiency: ***Overall, this assessment found that the STDF has produced results on environment mainstreaming and awareness raising in a way that is broadly efficient. This has been achieved despite the STDF having a small Secretariat (with relatively limited staffing and modest funding) and with no dedicated staff or funding for environment mainstreaming.*** **This finding is broadly supported by the recent STDF external programme evaluation which found that "the STDF's governance and operational structures are broadly efficient" (PEC, 2024).**

> "The STDF is fit for purpose even with overall budget constraints. The STDF brings value for money, cost effectiveness and is outcome oriented"
>
> *KII*

Since the STDF's early work on alien invasive species, environment, and climate change risks, there is a clear trend of the growing awareness of the interconnections between SPS capacity, safe trade, climate change and environment. KIIs have given credit to the STDF for raising awareness of these issues. Many consider that the STDF efficient in integrating these issues into its workstreams. It was noted in interviews with Working Group members that STDF environment-related knowledge, while not always covering diverse topics, contributed valuable environment information specific to the needs and interests of Working Group members.

KIIs also spoke of knowledge products on the environment that have been developed by STDF founding partners and other members and noted that these often complemented those produced by the STDF. Using knowledge resources and expertise of Working Group members in their specific SPS areas can increase the efficiency and reach of knowledge on SPS-environment intersections. This is the approach that the STDF has taken to date. For instance, the STDF's climate change week in 2022 provided a platform for STDF founding partners and other members to share their expertise and technical knowledge. The STDF Secretariat also issued a background paper on its website that provided an overview of (and links to) in-depth technical work on relevant topics by STDF partners. The STDF Briefing note published in 2023 made further reference to these resources.

With regard to STDF grants, the majority of KIIs interviewed also pointed to their own internal processes or procedures, often with environment as one of their cross-cutting issues. Donors interviewed stated that if an STDF project application submitted to the STDF Working Group for review seemed to pose a potential environmental risk (e.g. if a zoonic risk could jump to wildlife, or if the activity could pose a biosecurity risk), these applications were shared with their environment colleagues/departments for comments. This illustrates how environment has not only been mainstreamed in the STDF, but also highlights its relevance to Working Group members for mainstreaming, although attribution to the STDF is not direct.

The organizations implementing STDF projects also often have their own internal processes for review of environment in all the projects they implement. For instance, depending on the project objectives (as well as scope and risks), some STDF project implementing organizations (e.g. FAO, UNIDO, ITC) carry out an environmental review at the inception stage. It is unclear whether these reviews are always communicated to the STDF. This leads the assessor to conclude that the STDF **does not** need its own environmental impact review process for grant funding. Instead, the STDF Secretariat may consider developing some sort of environment markers or project-specific environment indicators to track the environment aspects of a project and report on

these without needing a full environment assessment or review at project inception stage.

Most of the stakeholders interviewed noted that organizations involved in SPS capacity development and safe trade are aware of climate change impacts and/or have developed knowledge products on climate change since 2020. This shows the increasing importance of, and interest in, this topic by SPS stakeholders. It also points to opportunities for dialogue, knowledge exchange and/or collaboration with Working Group members and other stakeholders, which would complement available STDF knowledge on the topic of environment.

There are also opportunities (and potential benefits) to expand dialogue and collaboration on the topic of environment and climate change with other relevant organizations that are not part of the STDF. These could include, for instance, the CBD Secretariat, GEF or Bioversity International. Such collaboration would provide a way to draw on available existing knowledge to strengthen cross-cutting environment issues, further increase outreach and awareness among SPS stakeholder, and deepen the STDF's own knowledge base. An example related to projecting the impacts of climate change on international trade is the CEBRA Webinar series, which brings useful research and an accessible YouTube series such as *Using damage functions to estimate consequences from pests, diseases and climate change* and *Damages from climate change and changes in trade and pest pathways*. This could also open up opportunities to help SPS authorities secure more resources for SPS capacity development and/or scaling of good practices.

Impact: Has the STDF's approach to the cross-cutting theme of environment had impact?

The following key questions were used to assess impact:

5.0 To what extent, and how, are indicators used to measure progress and results on environment?

- 5.1 What have been the intended or unintended, positive, or negative, effects and higher-level results of STDF workstreams on environment?
- 5.2 To what extent has the STDF influenced and/or scaled up good practices and/or results related to environment?
- 5.3 How could mainstreaming at the level of the STDF programme and workstreams (projects, knowledge work) be improved for greater impact?

Key findings on impact: ***Since the STDF's early work on climate change risks there is a clear trend of growing awareness of the interconnections between SPS issues, safe trade, climate change and environment. Many of the stakeholders consulted for this assessment highlighted the STDF's role in contributing towards this increased awareness, including through events and knowledge products. Some projects have contributed to longer-term positive impacts on the environment (e.g. phasing out of methyl bromide, use of safer new-generation pesticides).***

KIIs (including STDF project implementors) noted that the STDF is highly respected in the SPS community, and their innovative work has increased capacity on SPS and safe trade in their organizations.

> "How STDF grantees have included environment into project consideration and design prepares them to meet the environment requirement of donors for funding to scale projects."
> *KII*

KIIs consistently noted the STDF's contribution to raising awareness and knowledge around climate change that is specific to SPS capacity and their work. Importantly, they also reported that the STDF's work had influenced information used in their organizations. For instance, several KIIs spoke of the 2012 Invasive Alien Species as their first introduction to how their work in trade could impact the environment. This provides a clear example of how STDFs work has positively influenced the work of members of STDF's global

partnership, even if it is difficult to measure the impacts of this influence, and to link it to outcomes of work by other organizations.

There is also some evidence of how the STDF's work is contributing to new knowledge and understanding of more recent trends and topics including the role that SPS capacity plays in a systems approach, such as One Health and Food Systems, and how these have strong connections to environment. Some KIIs shared examples of how STDF work (such as the One Health PPG led by APAARI in Asia) are contributing to new knowledge and influencing awareness and understanding on these complex topics.

While STDF projects are not designed to achieve environment objectives or impacts, some STDF projects have had implicit links to the environment and achieved environment results and benefits. For instance, UNIDO, as the implementor of *STDF/PG/489: Improving market access for small scale fisheries in West Africa*, engaged with the UNIDO environment department to develop a project that meets the needs of safe trade and also had "win-win" benefits for environment (use of improved cookstoves). These stoves retain heat longer than traditional stoves, and have low consumption of firewood. In this way, the project helps to reduce pressure on forest resources. In addition, improved stoves emit very little smoke, which in the long term contributes to the health of those smoking fish, environmental pollution and global warming. In relation to the promotion of isothermal crates, the project has also helped to reduce environmental pollution. The crates are lighter than traditional ones and keep ice for longer. This also reduces the amount of fuel used for preserving fish products.

Another example of projects with implicit links to the environment are the three STDF regional biopesticides projects to address MRL issues affecting trade through the use of biopesticides alongside the reduced use of chemical inputs such as synthetic pesticides. In the completed project in Asia (STDF/PG/634), use of biopesticides was found to help growers increase their yields, mitigate trade issues related to pesticide residues, and employ more environment friendly practices. Mitigation studies under the project showed a reduction of 50% in pesticide MRL values by replacing convention synthetic pesticides with biopesticides at the end of the crop season.[43] Reduced use of convention pesticides by growers suggests environment benefits; however, this was not measured under the project and is difficult to quantify. Pesticide-centred crop protection is highly carbon-intensive, with product synthesis, distribution and field application generating up to 136.6 $MtCO_2$ equivalent per year.[44] Agriculture accounts for 12% of global annual greenhouse gas (GHG) emissions (7.1 Gt CO_2 equivalent), primarily through non-CO_2 emissions, namely methane (54%), nitrous oxide (28%), and carbon dioxide (18%). Thus, agriculture contributes significantly to climate change and is significantly impacted by its consequences.[45]

Other older STDF projects are also considered to have contributed to environment benefits. For instance, a regional project in Africa that focused on the IPPC's international Wood Packaging Material (WPM) standard (ISPM 15) was found to have contributed to phasing out methyl bromide (Box 9). In addition, regional projects on pesticide MRLs for minor-use crops in Africa, Asia and Latin America (implemented from 2012 to 2017) developed Codex MRLs for safer new generation pesticides for speciality crops grown widely in developing countries. An external evaluation noted that "the projects facilitated and encouraged the introduction of newer pesticides with reduced risks for both human health and the environment".[46] Referring to the Africa regional MRL project (STDF/PG/359), one stakeholder explained how "Developing capacity to meet pesticide-related export requirements had benefits for the environment in Ghana. The use of lower-risk pesticides was beneficial for wildlife, including insects that perform valued services like pollination and pest control, and also protected water bodies in farming areas."[47]

[43] APAARI/STDF. Policy Brief. 2024. https://standardsfacility.org/sites/default/files/2024-06/policy_brief_biopesticides_final.pdf

[44] Wyckhuys, K.A.G., Furlong, M.J., Zhang, W.*et al.* Carbon benefits of enlisting nature for crop protection. *Nat Food* **3**, 299–301 (2022). https://doi.org/10.1038/s43016-022-00510-1

[45] Lorenzo Rosa and Paolo Gabrielli 2023 *Environ. Res. Lett.***18** 063002 **DOI** 10.1088/1748-9326/acd5e8rg/10.1038/s43016-022-00510-1

[46] https://standardsfacility.org/sites/default/files/Evaluation_PG337_PG359_PG436_April2019.pdf

[47] John A. Pwamang, Acting Executive Director, Environmental Protection Agency, Ghana cited in STDF Environment Briefing Note (2018): https://standardsfacility.org/sites/default/files/Environment_Briefing_2018.pdf

Box 9: STDF regional project in Africa contributes to phasing out of methyl bromide (STDF/PG/460)

Some 80% of global consignments include some form of WPMs, which raises issues related to uncontrolled introduction and spread of plant pests in the wood and risks for the environment, trees and forest ecosystems. An STDF regional project in Africa addressed the risk of plant pests spreading via the wooden pallets used for packaging and transportation of goods in regional and global trade.

The STDF project engaged National Plant Protection Authorities (NPPOs) and private sector actors in Botswana, Cameroon, Kenya, and Mozambique to identify and address challenges in meeting ISPM 15. The project supported the development of Standard Operating Procedures for the use of heat treatment to control pests that may be present on WPM. This environmentally friendly approach subsequently enabled Cameroon and Kenya to phase out of methyl bromide, a fumigant used to control pests in agriculture and shipping which is also known to deplete the ozone layer and contribute to climate change.

See: www.standardsfacility.org/PG-460

Project implementors also noted that while STDF funding for projects was relatively small, it enabled piloting innovative ideas or approaches to address SPS challenges and facilitate safe trade that can be tested and scaled with funding from other donors. The inclusion of environment in these projects begins to meet the needs for donors who have funding requirements where environment must be considered. Further work to strengthen environment mainstreaming in STDF projects (including to identify and better measure the environmental benefits) would enable environment results and impacts to be communicated more clearly, in a way that may help to promote up-scaling including potentially to leverage funds under larger environment programmes (such as the Global Environment Facility).

Building on results to date, with more attention to mainstreaming, there are opportunities for STDF projects to achieve increased impacts for the environment in the future. For instance, innovative SPS safe trade solutions like biopesticides can contribute to reducing trade issues associated with pesticide MRLs, while contributing to environmental protection. This has potential to help developing countries meet their targets and National Determined Contributions (NDCs) to reduce greenhouse emissions under Article 6 of the Paris Agreement on Climate Change. It also has potential to support private sector value chains to reduce their carbon footprint in agricultural production to meet Net Zero[48] goals.

Sustainability: Are the STDF's efforts and approach towards environment mainstreaming likely to be sustainable and meet emerging SPS demands?

The following key questions were used to assess sustainability:

6.0 What strategic opportunities exist to mainstream environment in the STDF's work, and SPS capacity development more broadly, for improved results and sustainability?

6.1 What factors have influenced the sustainability of environment mainstreaming in STDF workstreams to date, and are likely to be influential in the future?

Key findings on sustainability: In general, STDF work on environment has expanded and improved over time, and been sustained by embedding environment in knowledge products, events, and projects. Aligning the *STDF strategy for 2020-2024 to the SDGs has supported environment mainstreaming, contributing to broader sustainability within the STDF safe trade focus.*

The STDF has identified and sustained inclusion of the environment in its work since 2012 with a mission-relevant focus on SPS capacity development and safe trade. The engagement of STDF founding partners, donors and other Working Group members has contributed to the integration of environment in STDF's workstreams. The STDF has brought forth new issues of environment that intersect with SPS issues and safe trade, which continue to be referenced and used by the SPS community. For instance, KIIs noted that STDF knowledge products and events were often their first introduction to the environment topics as they relates specifically to SPS issues and safe trade.

[48] Net zero agriculture is the concept of agricultural practices that achieve a balance between the amount of GHGs produced and the amount removed from the atmosphere, resulting in no net contribution to climate change.

Some STDF regional projects have provided an opportunity for exchange of best practice and policy related to environment, biodiversity and climate change in a way that can continue to influence new work. Notably, the aforementioned STDF regional biopesticide projects have linked to environment stakeholders and embedded environment knowledge at the regional and country levels, offering a platform to share learnings. For instance, following completion of the STDF biopesticides project in Asia and the Pacific (see Box 10), APAARI set up an online network to encourage dialogue, cooperation and learning on biopesticides among public and private sector stakeholders with an interest in the topic which may provide a way to promote continued dialogue, exchange and learning on these topics.

Box 10: Asia Pesticide Residue Mitigation through the Promotion of Biopesticides and Enhancement of Trade Opportunities (STDF/PG/634)

Led by the Asia-Pacific Association of Agricultural Research Institutions (APAARI), this project tested an innovative approach of combining the use of conventional pesticides with biopesticides, substituting the final application of conventional pesticides with microbial-based biopesticides at the end of the crop season. This substitution is expected to have a positive environmental impact through a reduction of conventional pesticide usage, resulting in reduced environmental pollution, health risks for farmers, environmental exposure for bees and other sensitive species, and improved biodiversity.

Following completion of the STDF biopesticides project in Asia and the Pacific, APAARI set up an online network to encourage dialogue, cooperation and learning on biopesticides among public and private sector stakeholders with an interest in the topic which may provide a way to promote continued dialogue, exchange and learning on these topics.

See: www.standardsfacility.org/PG-634

STDF's work on environment mainstreaming has been carried out and supported with no direct budget for environment mainstreaming or expertise, but rather embedded into staffing and resources for the delivery of knowledge products, events, and projects. This includes staffing of the STDF Secretariat, as well as resources budgeted under STDF projects and/or provided by implementing organizations, and the time and expertise shared by STDF partners and others to STDF's knowledge and outreach work. This mainstreaming approach is part of the strategy for addressing cross-cutting issues and has been sustained with new events and publications related to relevant environment issues in 2023, taking advantage of increased attention globally to issues challenges and opportunities related to climate change and the environment, including COP-28. Over a 10-year period, from the 2012 *Alien Invasive Species* publication through to the 2023 STDF Briefing entitled "*Strengthening SPS systems to mitigate and adapt to climate change*", the STDF has contributed knowledge projects and has integrated some specific environment considerations into project development and reporting. This is already a good indication of the sustainability of environment as a cross-cutting issue in the STDF.

> "The STDF is a small, credible neutral, partnership with respected convening power around SPS. STDF knowledge work and small grants unlock opportunities to scale innovation in safe trade."
>
> *KII*

Some KIIs interviewed questioned if the STDF's work in environment, biodiversity, and trade could be maintained or if the Secretariat could do enough without a dedicated budget or staff, but the majority thought the STDF was doing a good job mainstreaming environment into workstreams with the resources and staff available.

Environment mainstreaming is likely to gain increased importance and traction in the future from diverse actors involved in food production, distribution and trade. For instance, private sector actors in food and beverage value chains have increased environmental requirements that affect producers' ability to trade, such as stricter pesticide MRL levels or reduction of chemical use to reduce the companies' carbon footprint to meet Net Zero commitments. Governments are also beginning to look at the agricultural sector to reduce greenhouse gas emissions as a commitment to the *Paris Agreement, Article 6 emission reduction commitments*. Work on

biopesticides and integrated pest management to reduce chemical inputs are part of the solution to reducing greenhouse emissions from agriculture, an area where SPS issues and safe trade intersect with climate change. These trends offer opportunities to mainstream environment in the STDF's project work, for improved results and sustainability.

Within this assessment, those consulted identified several emerging environment issues related to SPS capacity, plant and animal health, and invasive species. Understanding how these environment issues can be impacted and/or enhanced by compliance with SPS measures is growing, but still not widely considered in the trade or environment communities. The need to draw attention to the environment in relation to SPS measures will continue to grow as climate change exacerbates the spread of pests and disease, threatening food security and export value chains important to developing countries. In this context, the STDF's global partnership can continue to play an important role in building understanding and knowledge of the linkages between SPS issues and the environment, as well as helping STDF beneficiaries and stakeholders in developing countries (and members of the STDF Working Group) to develop SPS capacity in a way that also achieves environment benefits for greater impacts and sustainability. This can happen as part of STDF's theory of change including through promoting more synergies and collaboration, and continuing to mainstream environment considerations into STDF knowledge products, events, as well as project development, approval, implementation, and monitoring, evaluation and learning.

Some KIIs suggested that the STDF may consider strengthening capacities of staff to understand environment and safe trade to enable them to work with partners to help better ingrate this cross-cutting issues into projects. Some STDF founding partners and other Working Group members may be able to provide knowledge and resources on aspects of environment and safe trade to help build this expertise and support improved mainstreaming processes. Rolling out improved mainstreaming at the project level and with beneficiaries is likely to require additional and ongoing support and resources to make environment linkages more explicit in projects (including to support monitoring). Environment considerations, linkages and results will also need to be explicitly identified in project indicators for improved monitoring and reporting, including within end-of-project assessments and impact evaluations. Development of the next STDF strategy for the period after 2024 provides a good opportunity to further improve environment mainstreaming in STDF's work, including as part of the theory of change and STDF's MEL Framework.

6. Conclusions

The STDF has been a pioneer in looking at the connections of SPS issues and capacity to environment from as early as 2012. These connections remain relevant today and are likely to increase in importance in the future given ongoing trends related to the spread of plant and animal diseases and food safety risks linked to climate change, and general concerns among many stakeholders related to biodiversity loss and environment protection. Reflecting its mandate and focus on building SPS capacity to facilitate safe trade (i.e. trade that is in line with the WTO SPS Agreement), the STDF's approach to the environment has been targeted and focused on key issues related to the environment from the perspective of SPS capacity development. This has ensured that the STDF's work on this topic remains relevant to SPS stakeholders, and promoted coherence with the work of STDF partners (for instance through joint publications or organization of joint events and webinars). The STDF has also been coherent and consistent in its approach to mainstreaming environment into projects (including applications, as well as monitoring and reporting).

> "STDF staff should increase their capacities in understanding the environment connections to SPS, plant and animal health, and invasive species so they can work with project partners to incorporate this into STDF funded projects."
>
> *KII*

Conclusion 1 Relevance:

The STDF's work to date on the environment is relevant to the key issues affecting SPS risks and challenges, and ongoing work by the STDF (as well as individually by its members) to strengthen SPS capacity and facilitate safe trade. In the future, given the expected increased spread of plant pests and animal diseases linked to climate change, as well as increased focus on food systems transformation, One Health approaches and interdisciplinary partnership approaches to solve complex challenges, STDF's work on environment is likely to remain highly relevant.

STDF's clear focus on at the environment (including biodiversity and climate change) specifically as it relates to SPS issues and safe trade has been essential to ensure relevance for STDF Working Group members and the SPS community.

STDF documents, webinars and events are well used within the SPS community, reflecting their relevance and value. KIIs frequently noted that these knowledge products were often their first introduction to environment topics related specifically to SPS and safe trade. STDF environment knowledge products are most relevant and useful given this clarity on the linkages and intersections between SPS risks and safe trade facilitation and the environment. It was recognised that the STDF's global partnership (with a relatively small Secretariat) is a trusted source of information with the ability to bring together diverse members working on SPS-related topics including environment.

Working in developing countries and regions likely to be further affected by emerging challenges related to climate change and on sectors impacted by environmental stresses, the work of the STDF is relevant in contributing to global efforts in relation to environmental protection, biodiversity conservation, and climate change mitigation. This is further evidenced by the linkages made in the STDF's 2020-2024 Strategy and the need to facilitate safe trade while protecting the environment, in alignment with the provisions in the SPS Agreement and the UN's 2030 Agenda.

Conclusion 2 Coherence:

Since 2012, the STDF Secretariat has been coherent and consistent in its approach to mainstreaming environment into knowledge work and products, the funding mechanism, and global outreach events. The work done has remained focused on SPS issues and safe trade connections to the environment and climate change, and the STDF is considered a pioneer in this area.

STDF's work on the environment has been implemented in a way that has ensured some coherence internally across STDF workstreams and the wider global partnership. For instance, it has facilitated linkages and synergies across project and knowledge workstreams (e.g. creating dialogue and exchange of learning), as well as with related technical work carried out by STDF founding partners and other Working Group members such as CABI. Expertise and knowledge from these organizations has been profiled and disseminated in STDF events (e.g. Climate Change webinars and publications), and used within STDF publications.

Greater depth and reach for STDF work on environment (including workstreams on knowledge and projects) could be developed through more collaboration and partnerships with Working Group members, as well as environment organizations like UNEP, Global Environment Facility, the CBD, or Bioversity International, and similar organizations working at the nexus of environment and safe trade.

To maintain the coherence of STDF's work on environment, emerging issues identified in this assessment and their implications for safe trade will become more important. Systems approaches like One Health and Food Systems have a relationship with environment and climate change, and SPS risks and capacity development. These require the STDF to remain intentional in developing mission-focused relevant knowledge products, capacity building, and projects that increase benefits for environment through SPS compliance and safe trade.

Conclusion 3 Effectiveness:

The STDF has been effective looking at environment, biodiversity, and climate change from its focused SPS and safe trade mission lens, within the existing overall budget. The STDF has effectively integrated environment into project applications without increasing application preparation or review time significantly. In 2015, the STDF added a section requesting grants applicants to provide details on ways in which their proposed projects or PPGs would address cross-cutting issues linked to the environment (and gender). Following the Gender Assessment and Gender Action Plan in 2023, the application forms were further revised to clearly distinguish issues related to both environment and gender. This is encouraging more environment mainstreaming, as indicated by KIIs.

This assessment highlights that 67% of projects and 40% of PPGs reviewed have included aspects linked to environment to a significant or moderate extent. STDF knowledge products and events have been recognised by partners and members to be highly informative and innovative in showcasing how environment intersects with SPS and safe trade.

The STDF's 2020 MEL framework encourages mainstreaming of cross-cutting issues in STDF workstreams with the establishment of five measurable programme indicators paying attention to environment and gender. In the future, greater attention to tracking STDF environment indicators (at programme and project level) can provide better information to assess effectiveness and impact on environment mainstreaming in the STDF.

On project grants, as donors and project implementors carry out environment impact reviews, if deemed required, it is concluded that the STDF does not need its own environmental impact review process for grant funding. The environment impact reviews carried out by implementing partners, along with the current section in the project application form, address this need. Project implementing organizations – as well as other Working Group members that carry out environment review processes on SPS capacity development projects – should be encouraged to share their approaches with the STDF. Organizations that undertake an environment review or assessment as part of STDF-funded projects should share these reports with the STDF.

The current environment section in application forms and reporting templates could be strengthened for effectiveness by adding specific environment activities and indicators, if appropriate for the project focus. Some KIIs suggested those applications that intentionally include environment activities and outcomes should be given a higher preference when evaluating applications for funding.

In addition, the STDF could further strengthen the project cycle by having applicants identify environment stakeholders, like environment, fish and wildlife, and/or conservation ministries and agencies, whose work intersects with SPS and animal and plant health within the project focus.

Conclusion 4 Efficiency:

The STDF provides useful research and viewpoints on SPS risks and capacity development, where environment, biodiversity and climate change are intertwined with safe trade. The STDF has been efficient at using limited resources and staff to address the environment, biodiversity and climate change nexus by embedding considerations into project development and reporting, as well as knowledge workstreams and events.

Some projects have demonstrated efficiency, for instance *STDF/PG543: Enhancing the capacity of Uganda's fruit and vegetable sector to comply with EU Phytosanitary Requirements*, which supported the training of over 1,400 people on GAPs and IPM, which will contribute directly to environmental protection. The final project report concluded that: "Farmers' implementation of the GMP will help prevent incidence of pests and diseases through activities such as rotation and planting less susceptible varieties as well as reducing misuse of pesticides."[49]

Efficiency in mainstreaming environment could be increased through further collaboration among Working Group members and with other relevant environment/trade organizations. The STDF Secretariat may consider developing some sort of environment markers or project-specific environment indicators to track the environment aspects of a project and report on these. Resources and staff time will be needed to address emerging SPS and environment issues identified and to enable collaboration. Mandates may also be needed by partners to utilise resources for joint work.

Conclusion 5 Impact:

The STDF has had an impact in mainstreaming environment through its workstreams while remaining focused on SPS capacity and safe trade. The STDF is not an environmental organization but has had impact on environment awareness and learning within the SPS community by remaining focused on looking at environment within the narrow focus of SPS and safe trade. STDF documents and projects on SPS and safe trade and its relationship to environment have contributed environment knowledge specific to safe trade.

Consideration of environment has been mainstreamed into the funding mechanism, with two-thirds of applications explicitly considering environment in project development. STDF regional pilot projects on biopesticides in Africa, Latin America and South-East Asia provide an example of how these impacts can be achieved by, for instance, engaging with environment stakeholders at the country level and demonstrating how use of biopesticides contributes to nature-positive solutions. An external evaluation of an STDF project in Latin America (*STDF/PG/502*) highlighted how the project had resulted in "fruitful and durable relations between SENASA and the Ministry of Environment in Argentina", which had led to synergies and improved pest risk analysis.[50] Other projects have also demonstrated opportunities to achieve win-wins for SPS compliance and the environment (e.g. through the use of improved stoves for fish smoking in West Africa, or contribution to phasing out methyl bromide linked to implementation of ISPM 15, see above).

Overall, experiences on STDF projects highlight that it is important to integrate environmentally sustainable ways of production and post-harvest management, where possible, to reduce possible negative impacts on the environment. In addition to improving safety and quality, projects that include support for the use of Good Agricultural Practices (GAP) and Good Aquaculture Practices (GAqP) also promote sustainable agriculture, contribute to meeting national and international environmental objectives, and encourage promotion of the optimum use of resources such as pesticides, fertilizers, and water as well as eco-friendly agriculture.

Key informant interviews also highlighted the impact of the STDF's knowledge work and events. Some noted that the STDF Secretariat's work on environment was their first exposure to the linkages with SPS risks and safe trade, and was influencing more attention to environment mainstreaming in SPS capacity development.

In the future, impact and reach can be increased with an environment-focused communication strategy. This may include joint events with STDF partners, highlighting environment linkages and results in STDF project pages on the website, and further promoting and disseminating STDF knowledge on environment (as well as relevant publications of STDF partners) to the broader safe trade community.

Demonstrating impact of SPS capacity development on the environment also requires improvements on monitoring and reporting, including greater attention to using and collecting data on relevant environment indicators. Although the STDF has five indicators in its programme logical framework that pay attention to environment, improvement is needed to better mainstream this cross-cutting issue and better track results linked to these indicators. The STDF may consider strengthening indicators by adding, for example, number of partnerships or collaborations with environment stakeholders in projects. Inclusion of environment activities and

[49] Final Report, STDF/PG 543, Enhancing the Capacity of Uganda's Fruit and Vegetable Sector to Comply with EU Phytosanitary Requirements 2022.

[50] Andrea Spear, Independent Evaluator, EX-POST EVALUATION OF THE STDF PROJECT: "Rolling Out Phytosanitary Measures to Expand Market Access in the Southern Cone Plant Health Committee Region" (STDF/PG/502), May 2023.

indicators in STDF-funded projects can strengthen mainstreaming of environment and also build capacities of stakeholders involved in and benefitting from these projects.

Conclusion 6 Sustainability:

The STDF Secretariat has been mainstreaming environment consistently into its work by fostering dialogue around the topic, producing knowledge and encouraging projects to pay attention to it despite the lack of dedicated budget/staffing. Work on environment (including climate change) has generally expanded and improved over time, and been sustained, even without a detailed plan for environment mainstreaming and dedicated resources.

Aligning the STDF Strategy for 2020-2024 to the SDGs has supported environment mainstreaming, contributing to broader sustainability within the STDF safe trade focus. The participation and support of STDF founding partners, donors and other Working Group members have contributed to the continued integration of environment as a cross-cutting issue in STDF's workstreams.

The STDF has sustained mainstreaming environment into knowledge products with no direct budget for environment or staff, but rather embedded environment in knowledge products, events, and projects. This is already a good indication of the sustainability of environment as a cross-cutting issue in the STDF.

The STDF could further build on its convening power and collaborative knowledge platform to support collective efforts in facilitating safe trade that is cognisant of environment. This would include collaborating more closely with Working Group members and other relevant environment organizations in order to develop and use collective knowledge for building SPS stakeholder capacities to consider environment and seek “win-win” opportunities for environment and safe trade.

This is likely to require additional and ongoing support and resources to project implementing organizations to make environment linkages more explicit in STDF projects (including to support monitoring) for improved results and sustainability of mainstreaming efforts. For instance, where environment is explicitly identified in project indicators, it will be easier for STDF project impact evaluations to explore environment considerations and benefits, and if and how they continued after project completion (including possible influence on and mainstreaming into the regular work of implementing partners or other project stakeholders).

The STDF should identify new ways to strengthen the capacities of STDF Secretariat, as well as project implementors to better understand environment mainstreaming in SPS capacity development and safe trade facilitation to better ingrate this cross-cutting issues into projects in the future. STDF founding partners and other Working Group members may be able to provide specific capacity building and knowledge on aspects of environment and safe trade to build this expertise.

7. Recommendations

Forward-looking recommendations from the assessment that the STDF may consider to further mainstream environment, biodiversity and climate change in its work in for improved results and impacts include:

Recommendation 1: The STDF should continue to build on its convening power and status in SPS capacity development and the safe trade community to further mainstream environment in its work. The collaboration on emerging issues related to food safety and animal and plant health with STDF founding partners and other Working Group members can provide a diversity of knowledge and a stronger collective response to these issues.

Taking forward work on environment mainstreaming would be enabled through more targeted attention in the STDF Working Group. This could happen in the short term, for instance, by including a dedicated agenda item on environment mainstreaming in meetings (as is done for gender).

Recommendation 2: The STDF should consider making environment more explicit in STDF projects, where possible and relevant.

Some STDF projects may be eligible to have a more in-depth focus on environment through the definition of specific activities (e.g. activities to reduce the environmental footprint or reduce food waste, such as use of biopesticides or integrated pest management to reduce chemical inputs and embedded carbon in crop production) without changing the core project objectives of improved SPS capacity and trade facilitation. For example, new STDF value chain development projects, focused on aquaculture or other products, should explicitly consider needs, opportunities and challenges related to environment at the design or inception stage, and address these needs and opportunities where feasible and possible (given the resources available).

This would require better identification of environment-related links at project development phase, including understanding the potential influence and impact (if any) on the environmental aspects of the SPS solutions to be developed or piloted through the project. Consideration could be given to add a criterion assessing how project proposals have taken environment mainstreaming into account, or a ranking of projects based on positive environment outcomes as part of the initial review by the STDF's Secretariat and consideration by the Working Group. Those proposals that have mutual benefits for safe trade and environment could be ranked higher for funding.

Project-implementing organizations should clearly report on how STDF projects impact on environment, and when relevant identify learning around environment issues. The STDF could strengthen the project cycle by having applicants identify environment stakeholders (like environment, fish and wildlife, and/or conservation ministries and agencies) whose work intersects with SPS issues and animal and plant health within the project focus. These organizations could be consulted and/or engaged in different ways in projects, where relevant, for instance based on shared interests and/or access to pertinent expertise and knowledge.

This recommendation could be implemented via outreach and awareness-raising with project-implementing organizations on the SPS-environment linkages and synergies. In addition, it is recommended to develop some simple guidance materials to support project applicants and implementors to effectively mainstream environment in project delivery, monitoring, reporting and learning.

Recommendation 3: The STDF should consider improving monitoring and tracking of STDF environment indicators (qualitative and quantitative) though better data collection and monitoring, including story gathering from project partners.

The STDF could strengthen existing environment indicators to include the number of partnerships and collaborations with environment stakeholders or government environment agencies (for instance to support environment mainstreaming in projects), or the number of approved projects that have both environment and safe trade benefits based on criteria established by the Secretariat. The STDF may consider developing some sort of environment markers, or project-specific environment indicators, to track the environment aspects of a project and report on these (without needing a full environment assessment or review at project inception stage).

Recommendation 4: The STDF should consider further developing the environment cross-cutting issue within the next STDF Strategy for the period after 2024, including within the updated MEL Framework and Communication Plan to accompany the next strategy. Improved MEL and communications with regard to the environment will help to show and convey in a more tangible (quantitative or qualitative) way the benefits of SPS

compliance for environment protection and the difference and value-added that projects can make. This will give more visibility to STDF's work on this topic to broader audiences, and may also help to promote more environment mainstreaming in SPS capacity development work led by other organizations globally.

Clearly communicating the environment benefits of SPS capacity development is important to help SPS authorities in developing countries identify and pursue new sources of financing from existing/new environment and climate funding streams (e.g. GEF, bilateral funding streams).

Communication materials and key messaging on environment are also important to give more visibility to the STDF's work on this topic (including relevant knowledge and publications of STDF founding partners and other members).

More outreach and communications on the linkages between the environment and SPS capacity development and related outcomes (including via the STDF's website) would elevate environment mainstreaming and support it to become an integrated part of STDF projects. It may also encourage more attention to mainstreaming environment in SPS projects funded and/or implemented directly by Working Group members, linked to STDF's role to influence and catalyse sustainable improvements in SPS capacity (in the STDF Theory of Change).

This recommendation could be implemented as part of a revision to the STDF Communications Plan, linked to the next STDF Strategy. In support of this recommendation, there would be value to review and update relevant (but now out-dated) STDF publications, like the one on Invasive Alien Species which was developed in co-operation with WOAH and IPPC.

Recommendation 5: Subject to resources, the STDF could consider setting up a Practitioner Group on environment (of interested STDF partners, implementors, donors and other relevant stakeholders) to exchange experiences and learning on environment mainstreaming in SPS capacity development, and to develop guidance on mainstreaming in practice.

The STDF may consider inviting environment-focused organizations (like the UNEP, CBD, GEF or Bioversity International), to join this group as members or advisors to benefit from their knowledge and expertise to strengthen the environment cross-cutting issue.

Such a group could consult and engage other staff from STDF partners who are working on the quadripartite *One Health Joint Action Plan (2022-2026)* *Action track 6: Integrating the environment into One Health*. This could, for instance, help to identify ways to increase attention to safe trade facilitation within this Action track, to disseminate relevant STDF knowledge, and/or to develop new learning on SPS risks related to environment aspects of One Health. UN initiatives (such as the UN Food Systems Coordination Hub) could be engaged to co-develop information products that focus on SPS risks and safe trade nexus with food systems.

The STDF Secretariat has made steady progress in mainstreaming environment into STDF knowledge products, events and projects. Environment connections to SPS and safe trade have been identified, but new issues are emerging that may affect safe trade and its benefit or impact on environment. The STDF Secretariat should continue to explore these environmental issues with policy makers and practitioners to globally add to the knowledge and best practices in safe trade, with the goal of protecting human, animal, and plant health and the environment.

Annex 1: Key Informant Interviews

Name	Surname	Organization	Location
Ravi	Khetarpal	APAARI	Bangkok
Eleonora	De Falcis	Bioversity-CIAT	Italy
Suzanne	Neave	CABI	UK
Lydia	Gatere	CABI	Kenya
Roger	Day	CABI	UK
Hariet	Hinz	CABI	UK
Nneka	Hull James	CAHFSA	Trinidad
Marianela	Araya Quesada	CBD	Montreal
Andrew	Robinson	CEBRA	Melbourne
Morag	Webb	COLEAD	Brussels
Sydney	Suma	Developing Country Expert	Pacific Islands
Nime	Kapo	Developing Country Expert	Papua New Guinea
Martijn	Boelen	European Commission (DG INTPA)	Brussels
Remco	Wahl	European Union Mission	Geneva
Eleonora	Dupouy	FAO	Rome
Julio	Pinto	FAO	Geneva
Catherine	Constant	France Dept of Agriculture	France
Maria	Cosme	France DG Tresor	Geneva
Marie-Luise	Rau	Germany, BMEL	Germany
Kathrin	Cordes	GIZ	Germany
Sarah	Brunel	IPPC Secretariat	Rome
Peter	Van Dijk	Min. of Foreign Affairs	The Netherlands

Name	Surname	Organization	Location
Jason	Sandahl	Minor Use Foundation	USA
Sven	Olander	SIDA	Sweden
Sithar	Dorjee	STDF Developing Country Expert	Bhutan
Ouma	Olum	TradeMark Africa	Kenya
Andrew	Edewa	TradeMark Africa	Kenya
Jill	Luxenberg	USDA	United States
Christopher	Brett	WBG	Rome
Keith	Hamilton	WOAH	Paris
Christiane	Wolff	WTO	Geneva
Daniel	Ramos	WTO	Geneva

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Annex 3: Assessment Framework

Evaluation Framework			
	Questions	**Indicator**	**Data Sources**
Relevance	**How relevant is STDF's approach to mainstreaming Environment, Biodiversity and Climate Change (ENVIRONMENT) in meeting the identified needs and priorities of STDF Working Group members and beneficiaries?** 1.4 To what extent and how is STDF's work aligned with cross-cutting issues, needs and priorities on the environment, biodiversity and climate change (ENVIRONMENT) identified by STDF Working Group members and beneficiaries? 1.5 How relevant is ENVIRONMENT for the implementation of SPS measures and safe trade facilitation? 1.6 Which SDGs is STDF's work relevant in the context of the SPS capacity buildings and projects? 1.7 To what extent has the work in the SPS Community STDF & members) responded to emerging priorities and contextual changes in plant, animal, and food safety related to ENVIRONMENT?	• Evidence in literature • Number of project/knowledge products that focus on or integrate ENVIRONMENT (Direct/Indirect contributions) • Identification of ENVIRONMENT link or opportunity in current or emerging work streams • Example given of ENVIRONMENT link or opportunity in current or emerging work streams • SDGs 12,14,15 identified in STDF's Strategy for 2020-2024) 13 or 17 • Identification of emerging issues in ENVIRONMENT	• Literature review • Document Analysis • Project Analysis • KIIs/Focus Groups • KIIs/Focus Groups

Evaluation Framework			
	Questions	**Indicator**	**Data Sources**
Coherence	**How coherent is STDF's approach to Environment, Biodiversity and Climate Change mainstreaming?** 2.0 How coherent is STDF work at integrating ENVIRONMENT as a crosscutting topic for SPS capacity development (including about One Health and food systems transformation) 2.1 To what extent is STDF's project cycle and knowledge work clear and actionable on ECB? 2.2 To what extent, and how, are indicators used to measure progress and results on environment/biodiversity/climate? 2.3 To what extent, and how, are issues and results related to the environment, biodiversity and climate change explicitly identified and communicated as part of STDF's knowledge and project work?	• STDF's knowledge and project work • Extent of ECB incorporated in key STDF planning documents. • Knowledge and Value for STDF	• Document Analysis • Projects Analysis • Implementor focus groups, KPIs. • KII
Effectiveness	**To what extent is the STDF's ENVIRONMENT mainstreaming approach producing results that are useful to stakeholders?** 3.0 How effectively have STDF workstreams (global platform, knowledge work, projects and PPGs) addressed ENVIRONMENT as a crosscutting topic for safe trade facilitation? 3.1 How effectively do the STDF Strategy, processes and documents (including the MEL Framework, Communications Plan, grant application and approval process) support ENVIRONMENT mainstreaming in practice? 3.2 How does attention to ENVIRONMENT in STDF's work align to work on ENVIRONMENT led by organizations involved in the STDF's global partnership? How does it take advantage of opportunities for synergies (if any)?	• KII knowledge and recognition of STDF ENVIRONMENT contributions • KII incorporating ENVIRONMENT into their work and organization • Identify opportunities for collaboration or cross sectoral cooperation	• Member publications and knowledge products • KII • KII

Evaluation Framework			
	Questions	**Indicator**	**Data Sources**
Efficiency	**Does STDF's ENVIRONMENT mainstreaming approach employ time and resources efficiently to meet needs of stakeholders?** 4.0 To what extent are resources (human, financial) dedicated to ENVIRONMENT mainstreaming in STDF workstreams? 4.1 How efficiently does STDF's work on ENVIRONMENT deliver (or is likely to deliver) results in an economic and timely way? 4.2 Are there opportunities to leverage resource for ENVIRONMENT through cooperative and collaborative work with other organizations?	• ENVIRONMENT has budget and resources to need, mandate and demand for ENVIRONMENT in SPS/Safe Trade? • Opportunities for collaboration identified	• STDF Staff • KII responses to #1.3 & 3.2
Impact	**Has STDF's approach to crosscutting themes of Environment, Biodiversity and Climate Change had higher-level impacts?** 5.0 To what extent, and how, are indicators used to measure progress and results on environment/biodiversity/climate? 5.1 What have been the intended or unintended, positive, or negative, effects and higher-level results of STDF workstreams on ENVIRONMENT? 5.2 To what extent has the STDF influenced and/or scaled up good practices and/or results related to ENVIRONMENT? 5.3 How could mainstreaming at the level of the STDF programme and workstreams (projects, knowledge work) be improved for greater impact?	• STDF MEL Framework • PG/PPG MEL • Use of ENVIRONMENT indicators • Summary of good practices and examples • Examples of needs or new areas	• Literature review • Project Analysis Document Analysis • Semi-structured KII interviews

Evaluation Framework			
	Questions	**Indicator**	**Data Sources**
Sustainability	**Are STDF's efforts and approach towards ECB mainstreaming likely to be sustainable and meet emerging SPS demands?** 6.0 What strategic opportunities exist to mainstream ENVIRONMENT in STDF's work, and SPS capacity development more broadly, for improved results and sustainability? 6.1 What factor s have influenced the sustainability of ENVIRONMENT mainstreaming in STDF workstreams to date, and are likely to be influential in the future?	• Evidence of the extent to which efforts are likely to last or are of growing concern and focus. • Extent of STDF and partners commitment to ENVIRONMENT in programs and policy	• Project Analysis • Document Analysis • Review of member websites • Semi-structured KII interviews

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