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Evaluation of PPA BN4 – Reduction of Food Loss and Waste

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EXECUTIVE SUMMARY

- Reducing food loss and waste (FLW) is pivotal for achieving the Sustainable Development Goal 12, which emphasizes responsible consumption and production, and its Target 12.3 “halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains.” Progress toward this target is monitored through the Food Loss Index (FLI), a sub-indicator developed and updated by the Food and Agriculture Organization of the United Nations (FAO).
- The FAO Strategic Framework 2022-31 includes 20 Programme Priority Areas (PPAs). The Office of Evaluation (OED) evaluated the PPA on Reducing Food Loss and Waste (Better Nutrition 4 or BN4). This evaluation, the first of its kind, covers the period from 2015 to 2022 and aims to enhance FAO’s contributions to FLW reduction.
- Based on a theory of change of how FAO seeks to contribute to FLW, the evaluation team analysed FAO’s normative role and portfolio of projects; reviewed 127 documents prepared for the UN Food Systems Summit, 63 past evaluations and more than 150 FAO reports and publications; and conducted interviews with 175 stakeholders, an online survey of 262 national statistical offices (69 responded), and 11 country case studies.

Findings

- The evaluation found that FAO has positioned itself as a key player in promoting sustainable agrifood systems, leveraging its technical expertise and its role as the custodian agency for SDG sub-indicator 12.3.1.a (the FLI). The FAO Strategic Framework 2022-31 has broadened the Organization’s focus on FLW from primarily addressing post-harvest losses to encompassing entire value chains, including at retail and consumer levels. This shift aligns well with the agrifood systems approach and evolving priorities of Members.
- FAO’s high-quality publications related to FLW are an area of strength. The *State of Food and Agriculture (SOFA) 2019* report on FLW represented a significant milestone. It defined terminology, analysed the trade-offs between the economic, social and environmental impacts of FLW, set the ground for a food system approach to reducing FLW, and provided the first global and regional estimates for the new FLI.
- FAO provides training on the methodology to produce the FLI. Among the 21 indicators for which FAO is custodian agency, this sub-indicator remains the one least reported on by Members. The sub-indicator is reported at the global regional and subregional level for all regions and subregions despite the limited country-level data.
- The current Strategic Framework gave greater visibility to the issue of FLW. However, this area of work is starved of both donor funding and FAO personnel. The field programme linked to BN4 represents less than one percent of FAO’s field project resources.
- While recognizing the progress achieved, the evaluation underscores the need for a more innovative and integrated approach to FLW reduction that pays greater attention to contextual factors, particularly socio-economic and environmental considerations.

Recommendations

- The evaluation makes five recommendations for FAO to:
 1. expand awareness raising efforts, as the topic of FLW remains out of public sight in many countries;
 2. further strengthen national statistical capacity for FLI measurement;
 3. increase the number of Agrifood Systems and Food Safety Division (ESF) and PPA core staff working on FLW;
 4. integrate environmental considerations, climate impact, gender and youth more systematically in the formulation and implementation of FLW reduction interventions, and mainstream FLW to a greater extent across *four betters*; and

5. strengthen the connection between the four accelerators – data, technology, innovation, and complements (governance, human capital, and institutions) – and the PPAs to seize the opportunities afforded by technical and policy innovations.

➤ The full report is available on the [Office of Evaluation \(OED\) website](#).

GUIDANCE SOUGHT FROM THE PROGRAMME COMMITTEE

- The Programme Committee is invited to review the content of the document and provide guidance as deemed appropriate.

I. Introduction

1. Following the publication of the FAO Strategic Framework 2022-31, which introduces the Programme Priority Areas (PPAs) as its main building blocks, the Office of Evaluation (OED) shifted the focus of its thematic evaluations from the Sustainable Development Goals (SDGs)¹ to the PPAs. The FAO Programme Committee (PC) endorsed this reorientation during its 132nd Session in November 2021.²
2. This evaluation is the first comprehensive assessment of FAO's food loss and waste (FLW) portfolio. It focuses on the period from 2015 to 2022. Findings and recommendations are expected to strengthen FAO's engagement in FLW reduction and inform the implementation of the FAO Strategic Framework 2022-31.
3. The evaluation is based on a theory of change of how FAO seeks to contribute to Reducing Food Loss and Waste (Better Nutrition 4 or BN4); a review of FAO's portfolio of work related to BN4; a synthesis of past evaluations; eleven country case studies from different regions and income classifications selected based on the presence of documented work on FLW;³ a review of all current and previous Country Programming Frameworks (CPFs); a structured review of key FAO knowledge products and of available data concerning their audience; an analysis of more than 150 FAO reports and other publications; an analysis of 127 documents prepared for the UN Food Systems Summit; a synthesis of 63 independent evaluations conducted by OED; more than 175 interviews with FAO personnel and stakeholders; and 69 (of 262) responses from personnel of national statistical offices in 38 countries, who had received training on the Food Loss Index (FLI).
4. Two limitations of the analysis presented here are worth highlighting. The first limitation is the exclusion of some analysis. The evaluation reviewed the lists of results tagged to BN4 in the Programme Planning, Implementation Reporting and Evaluation Support System (PIRES) for the 2022-23 and 2024-25 biennia. Preliminary analysis of these data confirms the findings of this report. Results from this analysis will be included in the full report posted on the OED website. The second limitation is the potential underestimate of FAO's accomplishments in FLW. The solutions to address FLW are often integral to food systems and can be covered or tagged under different PPAs. As a result, there might be a significant amount of work on FLW in other PPAs than BN4 that might have escaped the evaluation's attention, such as work under BN3 (Food safety) and BP3 (One health), on-farm losses under BP1 and BP2, and on FLW in urban settings in BE4.

II. Extent of the Problem

5. Between 690 and 783 million people in the world faced hunger in 2022, and an estimated 29.6 percent of the global population – 2.4 billion people – were moderately or severely food insecure, meaning they did not have access to adequate food.⁴ The environmental impacts of increasing production to satisfy future food consumption patterns would put at risk any chance of achieving the SDGs of the 2030 Agenda for Sustainable Development.⁵ In this context, FLW reduction is expected to play a critical role in agrifood systems reforms, as it presents an opportunity to enhance food security and nutrition, and to reduce the climate footprint from food production and consumption. Saving the food that we already produce may be one of the least expensive ways to transform agrifood systems towards greater efficiency and resilience.

¹ SDGs 2, 5, 6, 14 and 15 were evaluated, i.e. all the SDGs for which the Organization has a custodian role on related indicators, except for SDG 12, the evaluation for which was originally planned for 2022–2023.

² See FAO. 2021. Indicative rolling work plan of evaluations 2022–2025. PC 132/8. Rome.
<https://www.fao.org/3/ng783e/ng783e.pdf>

³ Armenia, Bangladesh, Colombia, Egypt, Ethiopia, Jamaica, Nepal, Rwanda, Thailand, Tunisia and Türkiye.

⁴ FAO, IFAD, UNICEF, WFP & WHO. 2023. *The state of food security and nutrition in the World 2023. Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum*. Rome
<https://www.fao.org/documents/card/en/c/cc3017en>

⁵ United Nations. 2019. *Global sustainable development report 2019: The future is now – Science for achieving sustainable development*. Independent Group of Scientists appointed by the Secretary-General. New York, United States of America.

6. Losing or wasting food⁶ is considered a problem for obvious food security and food sovereignty considerations, but also for economic reasons (loss of income) and increasingly because of the need to mitigate the ecological footprint of agrifood systems. Agriculture occupies 40 percent of land, uses 70 percent of global freshwater, and generates 8-10 percent of global greenhouse gas emissions.⁷ Any amount of FLW implies an unjustified ecological cost. An estimated eight to ten percent of global greenhouse gases is caused by such waste.⁸ If food waste were a country, it would be the third largest global greenhouse gas emitter.⁹
7. The causes of FLW encompass poor harvesting and handling practices, poor infrastructure, logistical challenges, production surpluses, market access issues, unstable prices, excessively stringent food quality regulations, the behaviour of food service providers and consumers, policies (including food subsidies), limited food processing capacity in low-income countries and natural factors such as weather and pests.¹⁰
8. FLW strategies tend to focus on technological solutions, often overlooking the relevance of socioeconomic factors that influence the division of labour, roles and responsibilities of men and women, and create disparities in their access to and control over resources, services, knowledge and technologies.¹¹

III. FAO's work on FLW reduction

9. FAO has a long history of supporting its Members on FLW reduction. FLW was a key thematic area under Strategic Objective 4 (SO4) of the Reviewed Strategic Framework 2010-2019.¹² Starting in 2015, FAO's Global Initiative on FLW (called "Save Food") conducted several case studies in Africa, Asia and Latin America and the Caribbean to identify critical loss points in the food supply chain. As custodian agency for SDG sub-indicator 12.3.1.a, the FLI, FAO plays a leading role in developing its methodology and building capacity of Members on related data collection.
10. FAO Strategic Framework 2022–31 articulates FAO's support to the SDGs. It is structured along the four *bettors* – *better production*, *better nutrition*, *a better environment*, and *a better life* – that are divided into twenty Programme Priority Areas (PPAs) which define in greater detail the work of the Organization. FLW reduction is one PPA under *better nutrition*, "BN4: Reducing food loss and waste." BN4 aims to support countries to adopt well-defined and contextualized roadmaps to enable all actors in the food supply chain, including consumers, to reduce FLW.
11. BN4 is led by FAO's Agrifood Systems and Food Safety Division (ESF) and co-led by FAO's Fisheries and Aquaculture Division (NFI). The BN4 team also includes focal points from all five Regional Offices and some other relevant units in headquarters.

⁶ "Food loss" refers to losses along production and supply chains, including qualitative losses (reduced prices of commodities due to damage and nutrient loss). "Food waste" is the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food services and consumers.

⁷ IPCC. 2019. Intergovernmental Panel on Climate Change's Special Report on Climate Change and Land. <https://www.ipcc.ch/srccl/>

⁸ FAO. 2019. *State of Food and Agriculture 2019 report – Moving forward on Food Loss and Waste Reduction*. Rome. <https://www.fao.org/documents/card/en/c/ca6030en>

⁹ Stuart, T., Weidgenant, L. & Makombe, W. 2021. *Laying Down Tracks Podcast: Episode 2 - Sustainable Consumption* [audio recording]. [Cited 1 November 2022]. <https://www.un.org/en/food-systems-summit/laying-down-tracks/EP2-sustainable-consumption>

¹⁰ FAO. 2022. *Voluntary Code of Conduct for Food Loss and Waste (FLW) Reduction*. Rome. <https://www.fao.org/documents/card/en/c/cb9433en>

¹¹ FAO. 2018. *Gender and food loss in sustainable food value chains – A guiding note*. Rome <https://www.fao.org/3/i8620en/i8620en.pdf>

¹² FAO. 2013. *Reviewed Strategic Framework - C 2013/7*. Rome. <https://www.fao.org/3/mg015e/mg015e.pdf>

12. An analysis of CPF documents from the current (131) and preceding (111) implementation periods¹³ indicates that there has been work on FLW in every FAO region and both periods. FLW is mentioned about the same number of countries in past (73) and *current* (72) CPFs.
13. A portfolio analysis identified 145 projects related to BN4 in the Field Programme Management Information System (FPMIS) between 2015 and 2022. These projects were identified in one of two ways: by searching for key words in the title and objective statement of each project¹⁴ starting before 2021 and by using the FPMIS PPA tags for projects starting after January 2021. The total BN4 budget for field programme activities is estimated at USD 54 million, nearly half of which is implemented in Africa. This makes BN4 the smallest of all PPAs in terms of its field programme.¹⁵ Tables 1 and 2 showcase the types of activities included in FAO’s BN4 portfolio and related knowledge products generated by FAO.

Table 1. Types of activities characteristic of FAO’s field programme on FLW

Intervention	Main activities
Capacity development	<ul style="list-style-type: none"> ▪ Raising awareness ▪ Training (post-harvest handling, conservation, etc.) ▪ Developing curricula for schools ▪ Developing guidelines for value chain actors
Innovation promotion	<ul style="list-style-type: none"> ▪ Introducing new technologies, including digital ones ▪ Providing materials and toolkits ▪ Promoting practice changes, such as harvesting schedule
Measurement of loss & waste	<ul style="list-style-type: none"> ▪ Producing data on FLW along value chains ▪ Developing capacity on assessing losses and waste
Support to policymaking	<ul style="list-style-type: none"> ▪ Developing policies ▪ Supporting legal and parliamentary work
Partnerships	<ul style="list-style-type: none"> ▪ Promoting partnerships with the private sector

Source: OED evaluation synthesis and portfolio analysis

Table 2. Examples of FAO knowledge products on FLW

Core function	Key activities
Normative instruments and standards	<ul style="list-style-type: none"> - Voluntary Code of Conduct for Food Loss and Waste Reduction (2022), a framework for the development of strategies, policies, legislations and programmes - the FLW Protocol, a multi-stakeholder partnership for FLW measurement - support to the development of policy, legislative, and regulatory frameworks, including PARLATINO’s Model Law to Prevent and Reduce FLW
Global publications and platforms	<ul style="list-style-type: none"> - Food Loss Index global reporting (SDG sub-indicator 12.3.1a) - The State of Food and Agriculture 2019 – Moving forward on food loss and waste reduction - Food Loss and Waste database (data from peer-reviewed and grey literature compiled by product, country and stage) - Technical Platform on the measurement and reduction of FLW¹⁶ - Community of Practice on FLW reduction

¹³ The timeframe for CPFs varies from country to country. On average, the “current” period corresponds to 2020–2024, while the “preceding” period corresponds to 2015–2019.

¹⁴ The key words were, in English: *Loss, Waste, Food Loss, Food Waste, Harvest, Harvest losses*; in Spanish: *Pérdida, Desperdicio, Pérdida de alimentos, Desperdicio de alimentos, Cosecha, Pérdidas de cosecha*; in French: *Pertes, Gaspillage, Pertes alimentaires, Gaspillage alimentaire, Récolte, Pertes de récolte*.

¹⁵ The actual size of FAO’s portfolio of projects working on FLW might be slightly larger than estimated because some of this work is done by projects not explicitly tagged as BN4, e.g. working on value chains, food safety and commercialization.

¹⁶ In 2020, The Technical Platform was integrated with the FAO-hosted Community of Practice on FLW.

	<ul style="list-style-type: none"> - support to the Food is Never Waste Coalition - web-based platform for the regional Save Food Community of Practice in the FAO Regional Office for Europe and Central Asia (REU)
Tools and methodology	<ul style="list-style-type: none"> - Guidelines for Members to develop food loss sample surveys¹⁷ - Food loss analysis case study methodology (e-learning course) - Guidelines on measurement of harvest and post-harvest losses - Legal briefs for parliamentarians in Latin America and the Caribbean on legislating to prevent and reduce FLW, and on enabling a legal environment for the prevention and reduction of FLW - Gender and food loss in sustainable food value chains – A guiding note¹⁸
Education and awareness raising	<ul style="list-style-type: none"> - #123Pledge hosted by FAO, UNEP and the World Resources Institute, urging governments, companies and single entrepreneurs to take action - masterclass on reducing FLW targeting youth (December 2022) - various e-learning courses - International Day of Awareness of Food Loss and Waste (29 September) - participation in international events, such as the International Conference on Food Loss and Waste in Jinan, Shandong Province, China (10 September 2021)

Source: PPA country information package (FAO 2022)

IV. Findings

Strategic positioning, partnerships and comparative advantage

Evaluation question a: To what extent are FAO's FLW interventions aligned with Members' priorities?

Finding 1: FAO has traditionally focused on reducing post-harvest losses. This focus has started to broaden since 2015 to encompass losses through entire value chains and waste at retail and consumer level, in line with the Food Systems approach and in response to the evolving priorities of Members. The current FAO Strategic Framework 2022-31 offers greater visibility to the issue of FLW.

14. National priorities regarding FLW reduction vary greatly across FAO Members. Most countries remain largely unaware of the extent of FLW and of the opportunities offered by their reduction, as very limited data exist on the issue. FAO has occasionally contributed to increasing awareness and action by, for example, financing a study or proposing FLW reduction projects and strategies to national stakeholders. However, such welcome proactiveness has its limits, as government buy-in is critical for FLW reduction to become a priority. Indicating growing interest (perhaps linked to greater access to data than in the recent past), FLW was mentioned by 70 percent (89 out of 127) of the countries who submitted a pathway document to the UN Food Systems Summit, held during the General Assembly in New York, United States of America, on 23 September 2021.^{19,20}
15. In the past, food *loss* loomed larger than food *waste* in developing countries.²¹ The latter was deemed a “rich man’s problem” affecting mainly the most industrialized and urbanized countries. This is no longer true. Currently, there is a strong demand from Members on waste reduction and management,

¹⁷ FAO. 2018. *Guidelines on the Measurement of Harvest and Post-Harvest Losses Recommendations on the Design of a Harvest and Post-Harvest Loss Statistics System for Food Grains (Cereals and Pulses)*. Rome. <https://www.fao.org/3/ca6396en/ca6396en.pdf>

¹⁸ FAO. 2018. Gender and food loss in sustainable food value chains – A guiding note. Rome <https://www.fao.org/3/i8620en/i8620en.pdf>

¹⁹ United Nations Food Systems Coordination Hub. n.d. Member State Dialogue Convenors and Pathways. In: *UN Food Systems Hub*. [Cited on 20 September 2023]. <https://www.unfoodsystemshub.org/member-state-dialogue/dialogues-and-pathways/>

²⁰ The same proportion (70 percent) prioritized awareness raising.

²¹ See, for instance, one of the first FAO reports on FLW: FAO. 2011. *Global food losses and food waste – Extent, causes and prevention*. Rome.

driven by rapid urbanization in Africa, Asia and Latin America and the Caribbean. Food waste is increasingly recognized as a major problem affecting developing and developed nations alike.²² Nevertheless, reducing food losses must also remain a priority in view of its importance in protecting the natural resource base and in contributing to the food security and nutrition for low-income food producers.

16. Findings from analyses of FAO's portfolio of projects – reinforced by country case studies – reveal that FAO's traditional positioning has been centred on post-harvest management, a quality management strategy covering harvesting, transportation, storage, conservation and processing, that emphasized the reduction of food losses.²³ Only five of the 145 identified FAO projects on FLW focused on food *waste* at retailer and consumer level. This reflects the traditional focus of FAO on food production. However, as currently formulated, BN4 calls for a holistic approach to reforming agrifood systems, and its positioning in the Strategic Framework under *better nutrition* rather than *better production* also communicates the need for a broader outlook encompassing food waste as well.
17. With its large network of Decentralized Offices and its strong mandate on nutrition, FAO appears well positioned to address both the issues of food loss and food waste, in spite of a weak in-house technical capacity on the latter.
18. This broader focus is already noticeable in FAO's normative and policy work, as seen for instance in Latin America and the Caribbean, in Liberia and in Viet Nam. Admittedly, it was already apparent in the previous Strategic Framework (2010-2019), where FLW reduction was expressed as an output of SO4.²⁴ The current FAO Strategic Framework (2022-31) offers greater visibility to the issue of FLW by allowing it a full PPA.

Evaluation question b: What are some of FAO's comparative strengths and weaknesses that help or hinder FAO's contribution on FLW?

Finding 2: To contribute to reducing FLW, FAO can build upon its well-recognized technical expertise, its position as a thought leader on FLW issues, its custodianship of the relevant SDG sub-indicator, its political and commercial neutrality, and its excellent outreach at the national, regional and global levels. Weaknesses include limited private sector and consumer engagement, and not placing sufficient emphasis on cross-cutting issues.

19. FAO can rely on its recognized technical expertise, custodianship of the relevant SDG sub-indicator (12.3.1.a – FLI), global reach, and political and commercial neutrality. Its work on FLW assessment and analysis has positioned it as a thought leader on FLW issues. Having built strong links with governments, particularly with ministries of agriculture at the national level, and with numerous regional organizations, FAO can rely on excellent outreach at the global level.
20. Strong partnerships with regional economic communities offer a useful entry point for policy work. FAO provides support to strategize FLW in the policies and strategies of regional economic communities and groups. For example, the Regional Postharvest Loss Management Strategy of 2021 of the Intergovernmental Authority on Development (IGAD) in Eastern Africa, developed with FAO

²² According to the latest data on the [FAO SDG Indicator Portal](#), 13.23 percent of all food produced in 2021 was lost, while the UNEP's Food Waste Index Report 2021 estimated that 17 percent of total global food production may be wasted each year. However, the two figures cannot be readily compared or added because they are calculated differently. For example, the FL estimate uses a basket of 10 commodities, while the FW estimates measures total food waste, rather than specific commodities.

²³ See for instance: FAO. 2004. *The Role of Post-harvest Management in assuring the quality and safety of horticultural produce*. Rome.

<https://www.fao.org/publications/card/fr/c/701bda8a-d62c-5050-ab63-6689dc119834/>

²⁴ Output 2.2.2 – “Support is provided for the development of evidence-based food losses and waste reduction programmes at national, regional and global levels.”

support, proposes the harmonization of legal frameworks (on food safety, standardization of quality etc.) to facilitate trade and reduce FLW.

21. OED's past evaluations have highlighted a reticence in engaging with the private sector.²⁵ This poses a challenge in effectively addressing agrifood systems issues (and FLW reduction in particular) across entire value chains, including consumers, a key constituency.²⁶ The national private sector was generally poorly engaged in the assessed work at country level, except for Tunisia, where FAO usefully engaged with milk retailers, and Thailand, where FAO engaged with micro, small and medium-sized enterprises of their retail products in five subsectors (animal, dairy and fish products, rice, and snacks).
22. In Ethiopia, FAO has delivered metal silos through local artisans, and supported the establishment of a Postharvest Management Society and a Postharvest Management Platform. Likewise, NFI reported creating multi-stakeholders FLW working groups or platforms in several countries. These venues are being used to reach out to the private sector and the academe and could potentially also help link up with consumer organizations.
23. FAO's approach often lacked sufficient emphasis on cross-cutting issues such as the environment and gender, with insufficient integration of these aspects in the country cases and in publications (see also Finding 10).²⁷

Evaluation question c. To what extent has FAO's work under the PPA been innovative and creative (in terms of tools, techniques, approaches and partnerships) in its support to Members?

Finding 3: FAO's embracing of innovative technical FLW solutions has been limited. FAO's field programme in FLW reduction is focused on existing low-technology solutions. A few innovative approaches have emerged and provide promising examples of how FAO's portfolio may evolve to find creative solutions for the reduction of FLW.

24. The analysis of technical approaches used in FAO interventions revealed strong reliance on proven solutions that remain innovative locally.²⁸ For instance, in Ethiopia, a project disseminated solutions such as metal silos and hermetic plastic bags, as an alternative to traditional silos. Another example is the use of larvae from *Hermetia illucens* (black soldier fly) to turn urban food waste into animal feed in the Dhaka Food System project in Bangladesh. This is a great example of applying circular economy principles to keep the food waste out of landfills, thereby contributing to reducing emissions through upcycling waste to feed.
25. A good example of an innovation is the recent launch of FAO's Food Loss App, which uses crowdsourcing to collect data needed to measure FLW, based on a simple but robust methodology.²⁹ The Food Loss App is too recent to be evaluated. Evidently, it can only *complement* rather than replace national surveys, which remain essential to report accurately against SDG indicators.
26. Another example is the use of "hackathons" and social media to crowdsource ideas and raise awareness. In China, two international "Youth Hackathons for Reducing Food Loss and Waste" were coordinated with the Chinese Academy of Agricultural Sciences, the Young Professionals for Agricultural

²⁵ FAO. 2019. *Evaluation of the FAO Strategy for Partnerships with the Private Sector*. Rome. <https://www.fao.org/3/ca6678en/ca6678en.pdf>

²⁶ Consumer awareness was identified as a priority trigger of change in the FAO Corporate Strategic Foresight exercise, summarized in the FAO Strategic Framework (para 32).

²⁷ Reportedly, the "multidimensional solutions approach" followed by NFI in their value chain work would allow for a better integration of such transversal issues. See <https://www.fao.org/flw-in-fish-value-chains/solutions/en/>

²⁸ At least within the sample. There may be significant activities on innovative technologies in FLW that are not captured in the scanned portfolio.

²⁹ The Food Loss App methodology was recently implemented in the FAO cafeteria in a simplified manner, as a way to raise staff and delegates awareness about the importance of reducing food waste; see FLAPP. n.d. Food Loss Application (FLAPP). In: *FLAPP*. [Cited on 10 January 2024].

Development and *Messe Düsseldorf*³⁰ in Shanghai in 2019 and Beijing in 2022. The aim was to help identify and promote innovative solutions, show how FLW-related challenges can be turned into opportunities, and raise awareness.³¹ FAO awareness raising campaigns have also made significant use of social media.

27. In terms of innovative partnerships, Regional Offices have played a role in facilitating connections with regional bodies and economic cooperation areas, leading to effective engagement in some regions, notably in Africa with the Africa Union and IGAD and in Latin America and the Caribbean with the PARLATINO. However, collaboration with other regional entities like the Association of Southeast Asian Nations (ASEAN) and the Asia-Pacific Economic Cooperation (APEC) remains limited.
28. In Latin America and the Caribbean, one of the most innovative interventions was the infusion of a (new) focus on gastronomy into otherwise traditional school feeding programs implemented in Colombia, the Dominican Republic and Guatemala. Chefs train school personnel on the use of low-cost local ingredients, such as spices and dressing, in preparing school meals. Tastier for pupils, these meals proved more likely to be consumed, reducing food waste and reinforcing nutrition goals.
29. These initiatives have emerged organically. This may be changing with the creation of an Office of Innovation (OIN) in December 2019 and the arrival of a new Director in 2023. This Office has called attention to the potential of “the Internet of food” and artificial intelligence in agriculture to help reduce FLW.³² In early 2024, OIN ran an internal competition to identify and support pilot testing of innovations in FAO’s portfolio. Although not targeted to FLW specifically, such initiatives hold promise for inspiring and encouraging innovative thinking.

Contribution to development results

Evaluation question d. To what extent did FAO’s technical advice on FLW lead to or facilitate a reduction in food loss? Were some of the approaches promoted by FAO adopted and upscaled by Member states or other actors?

Finding 4: The field programme associated with BN4 currently represents less than one percent of FAO field project resources. Nonetheless, FLW work has picked up momentum since the release of the FAO Strategic Framework 2022-31. FAO’s technical advice on FLW occasionally facilitated a reduction in FLW by national actors. Awareness campaigns for FLW reduction were organized and many value chain studies published with FAO support.

30. The field programme tagged to BN4 is the smallest among all PPAs, representing less than one percent of FAO field project resources.³³ Given this modest scale, expectations for substantial outcomes should be tempered, acknowledging that many initiatives, as detailed in country case studies, are ongoing efforts.³⁴

³⁰ A German company that organizes trade fairs and collaborates with FAO in the Save Food Initiative. See: Save Food Initiative. n.d. Home. In: Save Food Initiative. <https://www.save-food.org/>

³¹ A hackathon is an event where teams engage in creating solutions for specific challenges. See: World Food Forum. 2022. FAO China Youth for Food Loss and Waste Hackathon Competition Finals [video]. [Cited 1 February 2024]. https://www.youtube.com/watch?v=BKi6_0APZ9M

³² Alexandrova-Stefanova, N., Nosarzewski, K., Mroczek, Z., Audouin, S., Djamen, P., Kolos, N. and Wan, J. 2023. *Harvesting change: Harnessing emerging technologies and innovations for agrifood systems transformation – Global foresight synthesis report*. Rome, FAO and Cirad. <https://doi.org/10.4060/cc8498en>.

³³ This finding about the small size of FAO’s FLW portfolio is corroborated by other sources. An analysis of the PIREs workplanning module for the 2022-23 and 2024-25 biennia (describing the normative work of the Organization, i.e. a completely different source than FPMIS) indicates that BN4 ranks respectively the second and third smallest PPA in terms of the number of results listed, with 72 results tagged to BN4 out of a total of 2752 results in 2022-23 (2.6%), and the same number in 2024-25 (72) out of 2541 results in total (2.8%).

³⁴ One issue is that projects do not include impact evaluation, but for a few exceptions, so the FLW reduction following an FAO project/advice is often not measured or known.

31. Awareness campaigns for FLW reduction were organized in at least 16 countries.³⁵ The International Day of Awareness on FLW (29 September, proclaimed by the UN General Assembly in December 2019), celebrated jointly with UNEP, is one example. Awareness campaigns were often conducted with the support of the Save Food Initiative, a partnership between FAO, *Messe Düsseldorf* and Interpak.³⁶
32. The prior decade saw FAO emphasizing FLW awareness, notably securing its inclusion in the Malabo Declaration's objectives, which now serves as a reporting benchmark for all African countries. This commitment has incentivised a demand for statistical capacity building in FLW measurement within the region.³⁷
33. With the advent of the FAO Strategic Framework 2022-31, FAO's FLW activities have gained momentum, continuing and expanding collaboration with the African Union. Noteworthy is the biennial All Africa Postharvest Congress and Exhibition (AAPHCE), a forum for discussing sustainable FLW solutions, evidencing potential for further regional engagements. Country-specific projects, such as those in Tunisia and Ethiopia, have yielded significant insights and impacts on FLW reduction, despite challenges related to the affordability of metal silos in Ethiopia.
34. Latin America and the Caribbean has seen FAO facilitating regional dialogues, ultimately leading to the development of the *Voluntary Code of Conduct for FLW Reduction*³⁸ and influencing significant legal development.³⁹ Similarly, targeted interventions in Colombia have documented reductions in food waste from school refectories. Projects in Bangladesh have explored innovative waste management solutions in an urban setting, installing bio-digestors to process food waste into compost and biogas.
35. Türkiye evidenced strong commitment to reducing FLW through numerous initiatives. In November 2015, the country hosted and presided over the G20 Summit in Antalya, Türkiye, and inserted FLW in the agenda. The ensuing G20 Action Plan on Food Security and Sustainable Food Systems included a paragraph on reducing FLW that “welcome[d] the decision to establish a technical platform”.⁴⁰ This gave a mandate for a collaboration between FAO and the International Food Policy Research Institute

³⁵ Argentina (2017), Chile (2019), China (2017), Colombia (2019), Cuba (2018), the Dominican Republic (2020), Egypt (2022), Guatemala (2022), the Islamic Republic of Iran (2017), Malaysia, Mongolia (2014), Peru (2019), Saudi Arabia (2022), Thailand (2015), Timor-Leste (2011), Tunisia (2019), Thailand (2015), Türkiye (2021) and the United Arab Emirates (2022).

³⁶ Save Food Initiative. n.d. Home. In: :Save Food Initiative. [Cited 20 September 2023]. <https://www.save-food.org/>

³⁷ The data submitted to the AU remains limited and fragmentary. 35 countries reported on post-harvest losses in the 4th CAADP Biennial Review Report of 2023, but only 13 of them (Angola, Côte d'Ivoire, Comoros, Ghana, Guinea, Kenya, Lesotho, Malawi, Mauritania, Nigeria, Tanzania, Togo and Zimbabwe) reported against the five national priority commodities normally required. See: African Union. 2024. *Biennial Report to the AU Assembly on Implementing the June 2014 CAADP-Malabo Declaration*. Addis Ababa. https://au.int/sites/default/files/documents/43556-doc-EN_4th_CAADP_Biennial_Review_Report-COMLETE.pdf

³⁸ The idea to develop an international code of conduct for FLW reduction arose during a series of regional dialogues on prevention and reduction of food losses and waste held in Santo Domingo, the Dominican Republic (2015), Saint George's, Grenada (2016) and Santiago, Chile (2017). COAG26 requested FAO, subject to resource availability, to take the lead in collaboration with relevant actors to develop voluntary codes of conduct on food loss and food waste. The resulting Code of Conduct (CoC), developed through a very participatory and inclusive process, was endorsed by the 42nd Session of the FAO Conference in June 2021.

³⁹ See for instance: FAO. 2023. *Legislating to Prevent and Reduce Food Loss and Waste*. Legal brief for parliamentarians in Latin America and the Caribbean No. 10. Rome. <https://www.fao.org/3/cc0664en/cc0664en.pdf>; and FAO. 2022. *Enabling a legal environment for the prevention and reduction of food loss and waste*. Legal Brief 9/2022. Rome. <https://www.fao.org/3/cc2278en/cc2278en.pdf>

⁴⁰ See paragraphs 13 and 14 of G20. 2015. *G20 Action Plan on Food Security and Sustainable Food Systems*. Toronto, Canada. <https://www.mofa.go.jp/files/000111212.pdf>

(IFPRI) to set up the Technical Platform to measure and reduce FLW, launched in 2015. The Platform facilitates information-sharing and in-depth discussion.⁴¹

36. Türkiye also developed a National Strategy and Action Plan on Prevention, Reduction and Monitoring of Food Loss and Waste⁴² with FAO support, and funded a project to help Azerbaijan, Kyrgyzstan, Tajikistan, Türkiye, Turkmenistan and Uzbekistan develop their own national strategies and action plans for reducing FLW.

Evaluation question e. Have the knowledge products resulting from FAO's work for FLW reduction been based on rigorous evidence? Were they widely communicated, and did they reach an audience?

Finding 5: FAO has generated high-quality knowledge products related to FLW. SOFA 2019 was dedicated to FLW and has been widely accessed. Other knowledge products have not found a large audience yet. These tend to pay insufficient attention to social equity issues, such as gender and youth inclusion, which can be important determinants of FLW.

37. The evaluation reviewed 44 FAO publications on FLW by various divisions at headquarters and from the field. These publications were of high quality but quite technical and rarely people-centred. Knowledge products from NFI (co-lead of BN4) rated slightly better than others on social inclusion.⁴³
38. The evaluation estimated the audience of key knowledge products through web access statistics and citations in academic articles. The flagship report of *The State of Food and Agriculture (SOFA) 2019 – Moving forward on food loss and waste reduction* stands out in this analysis. It defined terminology, analysed the trade-offs between the economic, social and environmental impacts of FLW, set the ground for a food system approach to reducing FLW, and provided the first global and regional estimates for the new FLI. Reaching this milestone helped end a period of confusion about the terminology and the metrics of FLW. The report reached a very wide audience: in the 15 months after its publication, the SOFA 2019 report was downloaded 148 891 times (330 times per day on average), coming second only to downloads of SOFA 2016 on climate change.
39. A special issue of the journal *Food Policy* was published in January 2021, building upon the analytics of SOFA 2019. The large number of quotations garnered by these articles in peer-reviewed journals confirms that SOFA 2019 influenced how FLW is conceptualized and assessed in academia.⁴⁴
40. Other FAO knowledge products devoted to FLW have not reached a wide audience yet. Country case studies have also evidenced limited dissemination of publications produced by projects at country level. The *Voluntary Code of Conduct for Food Loss and Waste Reduction*, published in 2022, was downloaded 1 301 times during the fifteen months after publication, below the performance of similar Codes of Conduct issued by FAO on fertilizers or pesticides. However, one should note that the Codes of Conduct on fertilizers or pesticides were intended for a private sector audience and developed with private sector engagement, while the FLW CoC was requested by Members and is primarily for use by governmental actors, a difference in audience which may explain the difference in download frequency.

Evaluation question f. What has been FAO's contribution to the conceptualization, testing and roll-out of indicators for SDG target 12.3? Is this development contributing to filling data gaps on FLW, and to raising awareness about the issue?

⁴¹ FAO. n.d. Technical Platform on the Measurement and Reduction of Food Loss and Waste. In: FAO. [Cited 10 October 2023]. <https://www.fao.org/platform-food-loss-waste/en/>

⁴² <https://www.fao.org/documents/card/en/c/CB1074EN>

⁴³ There are of course exceptions to this, for instance: FAO. 2018. *Gender and food loss in sustainable food value chains – A guiding note*. Rome.

⁴⁴ According to Google Scholar, articles in this issue (volume 98) of *Food Policy* were cited an average of 58 times in the academic literature over a three-year period from publication in January 2021 to December 2023. An article entitled *Reducing food loss and waste: Five challenges for policy and research*, by Andrea Cattaneo, Marco V. Sánchez, Máximo Torero and Rob Vos was cited 129 times over the same period.

Finding 6: FAO has developed the FLI methodology and delivered training to national statistical offices. The methodology appears complex and technically demanding. In 2019, the FLI was the SDG indicator least reported on by Members among SDG indicators under FAO’s custodianship. It is also the one for which there was the most demand for assistance. FAO training workshops were often short and dedicated to several SDG indicators, not just to the FLI. Better results were reported whenever FAO was able to extend longer support.

41. FAO’s work on BN4 includes custodianship of SDG sub-indicator 12.3.1a (the FLI). FAO’s Statistics Division (ESS) and the former Office of the Chief Statistician (OCS) developed the FLI methodology in 2019,⁴⁵ a significant achievement. FAO also delivered in-person training events and an e-learning course.⁴⁶ This online course was taken by a total of 1 764 learners as of mid-February 2024. Another e-learning course was produced by NFI on fish loss assessment methodologies.⁴⁷ Since its publication in November 2023, it has been taken by 206 learners.
42. The FLI methodology appears complex and technically demanding, reflecting the complexity of food losses themselves. An assessment of the statistical capacity for all 21 FAO-relevant SDG indicators conducted by OCS in 2019 indicated that sub-indicator 12.3.1.a (FLI) was the least reported on at country level, and the one for which there was the most demand for assistance.⁴⁸ This was to be expected in 2019, for an indicator whose methodology did not even exist in 2015. However, so far only India has reported on the FLI. The indicator is reported at the global regional and subregional level for all regions and subregions despite the lack of country-level data.
43. The evaluation team surveyed 262 professionals working in national statistical offices who participated in FAO-led trainings on the FLI. Sixty-nine responses (26 percent response rate) were received from 38 countries. Although not representative, survey respondents rated the usefulness of FAO capacity development activities on the FLI highly and requested more support. The evaluation team interviewed the Ethiopia Statistical Service personnel, who valued greatly the prolonged support (over two to three years) received from FAO headquarters. FAO training workshops were often short and dedicated to several SDG indicators, not just to the FLI.

Coherence

Evaluation question g. To what extent and in what ways did the PPA structure and approach facilitate coordination and coherence, learning, mainstreaming and resource mobilization?

Finding 7: The PPAs are an effort to bring coherence at a low managerial cost. The co-leadership of BN4 between ESF and NFI is described as collegial, harmonious and open. Despite limited resources, the agrifood industries team of the Food and Nutrition Division (ESN) contributes a significant body of work in FLW reduction.

44. Having one leader and one co-leader for each PPA enables FAO to bring together leadership from different divisions, giving the areas of work more institutional visibility and enabling coordination. The BN4 PPA exemplifies these collaborations, with collegial and harmonious co-leadership from a socio-economic division (ESF) and a sectoral one (NFI) holding regular meetings that engage all participating divisions and offices. The Chief Economist has also provided significant leadership to the evaluated body of work.

⁴⁵ Fabi, C., & English, A. 2019. *Methodological Proposal for Monitoring SDG Target 12.3. Sub-Indicator 12.3.1.a The Food Loss Index - Design, Data collection methods and challenges*. Rome, FAO. 60 pp.
<https://www.fao.org/3/ca4012en/ca4012en.pdf>

⁴⁶ FAO. n.d. SDG Sub-indicator 12.3.1.a – Food Loss Index. In: *FAO*. [9 October 2023].
<https://elearning.fao.org/course/view.php?id=605>

⁴⁷ FAO. n.d. Fish loss assessment methods. In: *FAO*. [13 October 2023].
<https://elearning.fao.org/course/view.php?id=1031>

⁴⁸ FAO. 2019. Statistical Capacity Assessment for the FAO-relevant SDG indicators 2018/19.

45. PPAs are developed by divisions entrusted with no additional resources. Much relies on the good will and engagement of technical personnel. Among the 20 PPAs, BN4 is particularly starved of extra-budgetary funding. It is also an area of work that is under-staffed in ESF, where 35 staff and consultants are reportedly working on food safety and agrifood systems, but only one person is working on FLW (the PPA co-leader). This limits ESF's capacity to facilitate coordination, particularly in terms of mainstreaming FLW reduction efforts across FAO.
46. Other FAO divisions also contribute technical work on FLW, notably the Food and Nutrition Division (ESN) which hosts an agrifood industries team that does excellent work on FLW reduction. This team was originally in a division called the Rural Infrastructure and Agro-Industries Division (AGS) that was dismantled in 2014. Its agrifood industries team was transferred to ESN. The FAO technical capacity in FLW was severely reduced as a result.⁴⁹ Nevertheless, this team manages the Technical Platform on the Measurement and Reduction of Food Loss and Waste, is the technical lead for the International Day of Awareness of Food Loss and Waste and is actively engaged in providing technical assistance and support to FAOs field programme to address FLW reduction. ESS also plays an important role in BN4 regarding the FLI.
47. FAO's Development Law Service (LEGN) supported the drafting of a model law against FLW in Latin America and the Caribbean⁵⁰, provided legal assistance to countries legislating on this issue, and has documented legal development on FLW. The Rural Transformation and Gender Equality Division (ESP) has supported FLW analysis through the lenses of gender and youth, by assessing the social risks of potential solutions, supporting the design of gender-responsive strategies and facilitating the adoption of gender-sensitive technologies and practices.⁵¹ Each Regional Office has Regional Agrifood Systems Officers and BN4 focal points who have developed their own work programme.

Evaluation question h. How efficient were headquarters and regional and sub-regional offices at providing technical backstopping to Country Offices on BN4-related topics?

Finding 8: Technical backstopping varies significantly across countries, depending on factors such as proximity, demand, and availability of technical officers. Regional and Sub-regional Offices were very useful in their role of liaison with regional bodies.

48. The overall feedback from Country and Regional Offices is that the FAO Strategic Framework 2022-31 is simpler to adapt and communicate locally than the previous Strategic Framework, as it is closer to traditional FAO areas of work.
49. The efficiency and intensity of technical backstopping provided by headquarters, Regional and Subregional Offices to Country Offices varies significantly across regions and countries, depending on factors such as proximity, demand, and availability of Technical Officers. Although all Regional Offices have Agrifood Systems Officers, they do not all prioritize FLW. Personnel rotation also creates a need to constantly maintain links with Technical Officers at country level.
50. Regional and Subregional Offices were very useful in their role of liaison with regional bodies and economic cooperation areas, as was the case with the Latin American and Caribbean Parliament and

⁴⁹ In the former AGS, a total of 9 posts worked on post-harvest handling and processing issues. Only 2 or 3 of these posts currently work on FLW, the rest having been reoriented by the receiving Divisions.

⁵⁰ Parlamento Latinoamericano y Caribeño. 2017. *Proyecto de Ley Modelo para la prevención y reducción de las pérdidas y desperdicios de alimentos*. Panama. <https://parlatino.org/wp-content/uploads/2017/09/plm-prevencion-perdidas-dalimentos.pdf>

⁵¹ Notably thanks to a Swiss-funded project (RBA/GLO/001/SWI - *Mainstreaming food loss reduction initiatives for smallholders in food deficit areas*) implemented in Burkina Faso, the Democratic Republic of Congo and Uganda in collaboration with the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP). The project paid some attention to the link between gender and food losses, in view of the different roles played by women and men in post-harvest loss reduction. See: Totobesola, M., Delve, R., Nkundimana, J.d. *et al.* A holistic approach to food loss reduction in Africa: food loss analysis, integrated capacity development and policy implications. *Food Sec.* 14, 1401–1415 (2022). <https://doi.org/10.1007/s12571-021-01243-y>

the Africa Union. There is sparse collaboration with the Association of Southeast Asian Nations (ASEAN) and the Asia-Pacific Economic Cooperation (APEC), with potential for further expansion.

Evaluation question i. Have key economic, social and environmental synergies and trade-offs been adequately considered in FAO's FLW policy support?

Finding 9: Economic feasibility, impacts and trade-offs have generally been considered in FAO's FLW policy support, but less so in technology transfer projects.

51. Economic impacts and trade-offs have generally been considered in FAO's FLW policy support. Efforts have been made to highlight the economic benefits of reducing FLW, such as cost savings for businesses and improved efficiency in food supply chains.
52. However, there were also instances where certain technologies were promoted with insufficient consideration for economic issues. Any effort to reduce FLW will find it more profitable and less costly to work with large producers rather than with smallholders.⁵² In Ethiopia, FAO focused initially on small silos for small farmers and faced low adoption rates. A stronger demand ultimately emerged from the larger farmers and for larger silos, because of economies of scale. Further analysis is needed to delineate the holistic, systemic approach promoted by the PPA across the whole spectrum of production units, large and small, and help smallholders reach economies of scale through cooperative and other organizations.

Finding 10: Giving FLW the status of a PPA elevates the issue within FAO but it could also isolate it from other work streams, hampering mainstreaming efforts. A standalone focus on FLW may also appear too narrow to some decision-makers and donors. Stronger articulation with related areas – such as nutrition, food safety and quality, and environment – could help resource and catalyse results in this work stream.

53. Although the pathway from FLW to nutrition is clear and supports positioning it under *better nutrition*, FLW could fit under *better environment* just as well. In fact, FLW aligns conceptually with all *four betters* and deserves to be mainstreamed across the work of FAO to a greater degree than is presently done.
54. Mechanisms to coordinate the work across PPAs are starting to take shape. In 2023 the BN4 team has taken the initiative to invite all PPA leaders, as well as focal points of cross-cutting teams and accelerators, to co-learning workshops to promote a systems approach in the work conducted under the PPA BN4. To mainstream FLW reduction more systematically across all FAO regions, the Director-General has recently instructed Regional Offices to draft analytical papers on FLW in preparation for the Regional Conferences.
55. Stronger articulation of the link between FLW reduction and environmental causes could help resource this work stream, given the greenhouse gas emissions FLW represent and the burden of food waste management for growing urban centers. The evaluation identified one project from the Green Environment Facility (GEF) and two projects from the Green Climate Fund (GCF) paying some attention to FLW.

⁵² See for instance: Twilley, N. 2022. Africa's Cold Rush and the Promise of Refrigeration. *The New Yorker*, 15 August 2022. New York, United States of America. <https://www.newyorker.com/magazine/2022/08/22/africas-cold-rush-and-the-promise-of-refrigeration>

V. Conclusions

Conclusion 1: Positioning FLW as a standalone PPA in the FAO Strategic Framework 2022-31 has significantly elevated the issue within FAO's programme of work. However, the PPA appears insufficiently resourced by FAO and its partners, particularly given the fundamental importance of reducing FLW for the reform of agrifood systems.

56. FAO has made considerable global effort to position itself as a key player in promoting sustainable agrifood systems, leveraging its role as the custodian of SDG sub-indicator 12.3.1.a (FLI) to push FLW higher on national agendas. FAO has supported an emerging demand for waste management solutions, particularly in urban settings, as well as food loss interventions across different regions. FAO's efforts have focused on developing policies, strategies and laws, as well as raising awareness and advocating for FLW issues, with less attention (and funding) given to providing direct technical solutions.
57. Positioning FLW as a standalone PPA under *better nutrition* in the Strategic Framework significantly elevated the issue, undeniably highlighting the significance of combating FLW within the broader FAO programme of work. FAO's Director-General has demonstrated a strong commitment to FLW reduction, as illustrated recently by his request that Regional Conferences held in 2024 consider the matter in an effort to elevate the issue's profile among Members.
58. Given the importance of reducing FLW for the reform of agrifood systems, the PPA appears insufficiently resourced by FAO and its partners, in terms of personnel, non-staff financial resources and project funding (voluntary contributions). FLW reduction represents less than one percent of FAO's field project resources, even if some of this work at field level may be partly invisible, mixed as it often is in general value chain development.

Conclusion 2: FAO has positioned itself as a significant player in the promotion of sustainable agrifood systems and FLW reduction, in part thanks to some excellent knowledge products, such as SOFA 2019. Meanwhile, the work of FAO in the field has slowly diversified.

59. FAO's contribution to reducing FLW is evident in several Member States, notably in Bangladesh, Colombia, Ethiopia, Thailand, Tunisia and Türkiye. A number of awareness campaigns were organized, although the level of awareness remains low in many countries. A variety of commodity-specific studies were published with FAO support. Many strategies and even some laws for FLW reduction were endorsed. Improved harvesting practices and storage techniques were disseminated, and sustainable waste management has been promoted.
60. One challenge in addressing food loss is that both problems and solutions are very specific to each commodity or species. FAO's work on food loss has pertained mainly to grain, pulses, vegetables and fruit value chains. A few projects were found active on this theme in fisheries. Milk collection and dairy products appears largely missing in the sample of projects reviewed (except in Tunisia).
61. Reducing food losses also remains a priority in view of its importance in protecting the natural resource base and in contributing to the food security and nutrition for low-income food producers. However, there is an emerging demand on the issue of food waste reduction and management, driven by growing urbanization. FAO has provided some support in this area, working with municipalities and schools, thereby going beyond its traditional focus on food loss in rural areas. This is a welcome development. Making progress on food waste reduction appears cheaper and easier than on food loss; it is often a question of awareness raising to change purchasing and cooking habits, whereas reducing food loss requires significant investment and technical assistance. Food waste also represents a larger volume of greenhouse gas emissions than food loss. With its large network of decentralized offices and its strong mandate on nutrition, FAO appears well positioned to address this issue, in spite of limited in-house technical capacity.

Conclusion 3: The evaluation found modest progress in coherence building between the work of the different divisions and insufficient efforts to mainstream FLW in other PPAs and *bettters*. Better mainstreaming and a stronger articulation of the link between FLW reduction and environmental causes could help resource this work stream. However, there are still few mechanisms in the FAO Strategic Framework 2022-31 to promote the mainstreaming of one PPA into the others.

62. While FAO has often and usefully expressed FLW in terms of economic losses, the environmental costs of FLW have been insufficiently leveraged, including in resource mobilization. FAO needs to position FLW within a broader discussion, connecting the issue to others that may resonate locally. For instance, FLW is often communicated in terms of water loss in the Near East and North Africa; in terms of the corresponding amount of land needed for production in Rwanda; and in terms of the corresponding food import bill in Jamaica.
63. A standalone focus on FLW may appear too narrow to some decision makers and donors. Interventions to reduce food loss often overlap with those meant to preserve food safety and quality. There are also mainstreaming opportunities in farmer field schools, in nutrition education and in school feeding programmes.
64. Mechanisms to coordinate the work across PPAs and ensure coherence or coordination among PPAs across the *four betters* are taking shape. The four accelerators – data, technology, innovation, and complements (governance, human capital, and institutions) – constitute an under-developed element of the Strategic Framework. The offices in charge of promoting them have established limited connections with technical units and PPA teams. The BN4 PPA appears lacking in areas that overlap with the accelerators. Its data component has developed quite slowly. Several actors pointed to the work in the field not being transformative or innovative enough. Similarly, the policy element remains unexplored in many countries, although it represents the main objective of the PPA.

Conclusion 4: FAO’s normative work has been an important element of BN4, combining an effort to strengthen the evidence base with fresh statistics and studies, and seminal analytical work. Significant gaps remain in incorporating social dimensions in FAO’s publications dedicated to FLW and in documenting solutions for FLW reduction.

65. The evaluation found that FAO knowledge products in the domain of FLW are evidence-based, technically sound and designed for practical application. The flagship publication *The State of Food and Agriculture 2019* dedicated to FLW stands out as one of the most cited and downloaded SOFAs in the last eight years. The report defined terminology, provided the first global and regional estimates for the FLI and set the ground for a food system approach to reducing FLW. There was a period before SOFA 2019 and another one after it. There remains a significant gap in incorporating social dimensions in FAO’s publications dedicated to FLW, including those produced at regional and national level.
66. Data collection remains a strategic priority. FAO developed the methodology for the FLI during the evaluated period. Efforts to build statistical capacity and support data collection have been significant, though the need for enhanced data collection efforts persist. Among the 21 indicators FAO is custodian for, the FLI is the least reported on, in part because of the intrinsic complexity of the index and high data collection costs. There is high demand for technical support.
67. While the Technical Platform on the Measurement and Reduction of FLW offers a series of tools for the *measurement* of FLW, the Platform is presently missing a repository of *technical solutions* for FLW reduction and management, applicable in well-described contexts (for instance regarding the relative advantages and drawbacks of metal silos vs. hermetic bags).

VI. Recommendations

Recommendation 1: Expand awareness raising efforts, as the topic of FLW is still largely out of public sight in many countries.

68. Awareness raising campaigns may include:
 - building upon the International Day of Awareness of Food Loss and Waste to roll out a global dissemination campaign, adapted to each country’s context and using social and traditional media;
 - targeting producers, processor, retailers and consumers of food;
 - partnering with influencers and celebrities to reach a wider audience;
 - organizing virtual and in-person events to discuss evidence-based FLW reduction strategies, share practices, and showcase innovations;

- facilitating community-led projects, such as setting up community refrigerators and collection systems;
- crowd-sourcing innovations by launching global challenges inviting university teams to develop innovative technologies that address FLW, from farm to fork; and
- evaluating the impact of awareness campaigns.

Recommendation 2: Increase dedicated efforts to develop statistical capacity at national level to use the FLI methodology (adapted locally as and when required with guidance from FAO) in producing FLW data by Members.

- So far, only Ethiopia and India have reported against the FLI. Many studies are being produced on certain commodities but not aligned with the SDG indicator methodology. Dedicated efforts need to focus on this SDG indicator, using different funding sources as done during the evaluated period with the Global Strategy to Improve Agricultural Statistics and the 50x2030 Initiative, and leveraging regional institutions as done with the African Union.

Recommendation 3: Increase the number of ESF and PPA core staff working on FLW. The low level of personnel resources dedicated to FLW in ESF hampers the PPA's capacity to promote coherence and mainstream FLW work.

- Consider approaches to expand teams with vacant and new positions and by reorganizing existing teams to bring the skillset required for reducing FLW across agrifood systems. For example, the agrifood industries team placed under the Food and Nutrition Division (ESN) is delivering significant assistance in the BN4 topical area (within a broader portfolio centred on value chain promotion). However, synergies never developed with other ESN teams. Given similarities between the mandates of this agrifood industries team and that of the Agrifood Systems and Food Safety Division (ESF), it would seem desirable to place the ESN team under ESF to reinforce the BN4 core team to help coordinate and stimulate the PPA. Other options, such as altering the placement of the PPA itself (for instance under another Better or regrouping it with another PPA), are unlikely to result in improved resource allocation to the issue of FLW.

Recommendation 4: Integrate environmental considerations, climate impact, gender and youth more systematically in the formulation and implementation of FLW reduction interventions, and mainstream FLW to a greater extent across all *four betters*.

- Interventions to reduce food loss often overlap with those meant to preserve food safety and quality. There are also opportunities for a more systematic engagement with the divisions of Plant Production and Protection, Animal Production and Health, and Markets and Trade, as well as with the FAO Investment Centre and other relevant technical units, and at country level with farmer field schools, school feeding programmes and nutrition education programmes, among others.
- Better integration will also enable FAO to apply more systematically circular economy principles in its programmes, cater to the three dimensions of sustainability (economic, social and environmental) and mobilize resources in tandem with related areas of work, such as climate, given the large environmental footprint of FLW.
- The evaluation also points out opportunities for FAO to further solidify its role in the FLW sector by integrating gender considerations more deeply into value chain assessments and enhancing collaboration and knowledge sharing. A strategy for FLW in all *four betters* could also be envisaged to promote systematic mainstreaming.

Recommendation 5: Strengthen the connection between the four accelerators – data, technology, innovation, and complements (governance, human capital, and institutions) – and the PPAs to seize opportunities afforded by technical and policy innovations.

- Identify and implement approaches to promote connections among personnel in the accelerators. For example, consider the idea proposed by OIN of a physical area at FAO headquarters – an “acceleration zone” – to promote exchanges among personnel in the PPAs and the accelerators, at headquarters, regional and country levels.

- Evidence on effective innovations is key to mainstreaming them. A living repository of impactful approaches to reduce FLW (“FLW toolbox”) would help mainstream this work across FAO and beyond. FAO’s neutrality and in-house technical expertise positions it well to provide unbiased evidence of the effectiveness of different technologies.

EVALUATION TEAM AND QUALITY ASSURANCE

This evaluation was conducted by the Office of Evaluation with a team of internal and external experts. The team included Mr Olivier Cossée (Senior Evaluation Officer), Ms Arwa Khalid (Evaluation Officer) and Ms. Costanza Tiriduzzi (Analyst). They worked closely with five international experts: Mr Hezekiah Agwara reviewed the knowledge products under BN4; Mr Oualid Gaddas covered FAO's initiatives on FLW in the Near East and North Africa region; Ms. Margarita Lovon focused on Latin America and the Caribbean; Dr Dube Lighton reviewed FAO's initiatives on FLW in the African region ; Mr Armin Gregorian conducted the country case studies in Armenia and Türkiye; and Mr Sonam Tobgay conducted the case studies in Asia and the Pacific.

This evaluation benefited from robust quality assurance activities, including:

- exit debriefs at the end of each country mission with Country Office personnel allowed the team to validate preliminary observations.
- consultations with FAO units and offices engaged in BN4 and in the country case studies on the Terms of Reference and the draft report.
- OED quality assurance reviews of key deliverables to ensure the methodological rigor of the design and quality of the analysis and report. Internal reviewers were OED Senior personnel, including Dr Clemencia Cosentino.

The evaluation team gratefully acknowledges the insights and contributions of all reviewers.