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A review of the international and regional policy landscape for the management of plastics used in agriculture

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Abbreviations

ALDFG	abandoned, lost, or otherwise discarded fishing gear
ASEAN	Association of Southeast Asian Nations
CAP	Common Agricultural Policy
EPR	extended producer responsibility
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
HELCOM	Helsinki Commission
INC	Intergovernmental Negotiating Committee on Plastic Pollution
MARPOLI	International Convention for the Prevention of Pollution from Ships
MEAs	multilateral environmental agreements
POPs	persistent organic pollutants
UNCLOS	United Nations Convention on the Law of the Sea
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
VCoC	Voluntary Code of Conduct



Executive summary

This report, which provides a review of international and regional policy documents addressing the management of plastics used in agriculture, identifies the gaps, trends, and opportunities within existing governance frameworks and offers policy recommendations to more comprehensively address the full life cycle of plastics used in agriculture.

There are many policies that focus on plastic in fisheries. Almost no policies directly address plastics used in livestock production, aquaculture, or forestry. Microplastics generated from the use of plastics in agriculture are rarely explicitly addressed in international or regional policy documents. On the international level, no time-bound or measurable goals or targets have been set that explicitly target the sustainable management across the full life cycle of agricultural plastics. Likewise, the existing monitoring and evaluation requirements within the documents do not address the need to monitor the full life cycle of plastics used in agriculture even though it is being increasingly recognized that these plastics significantly contribute to plastic pollution. Existing standards inadequately assess risks to human and environmental health associated with microplastics and harmful chemical additives.

No international or regional policy document encourages the development of national policies, action plans or strategies to address plastics used in agriculture. There is no mechanism for international coordination to facilitate the transfer of knowledge and resources among countries. There are some notable examples, such as seen in the European Union, specifically addressing the use of plastics in agriculture, reflecting a growing focus on environmental sustainability within the sector.

The existing policy landscape addressing plastics used in agriculture is, however, often fragmented because the relevant policies have broader objectives instead of focusing on targeted policy interventions in the agricultural field. Given the lack of specific international regulation of the management of plastics in agriculture, the following policy recommendations are provided:

- 1.** Establish minimum requirements for tracking material and waste flows from agricultural plastics across production, consumption and waste disposal.
- 2.** Improve transparency and traceability through labelling that includes information on material composition and chemical additives, recycled content, the known risks of exposure, and recommended methods for use and disposal.
- 3.** Implement waste management procedures for agricultural plastics that covers maintenance, removal, and handling.

4. Create disincentives for the trade of agricultural waste in accordance with the Basel Convention.

5. Set standards for risk assessments, particularly for biodegradable plastics used in agriculture and for plastic fragments and associated chemical additives.

6. Establish standards and criteria for alternative materials and practices to ensure that they are safe and sustainable by design.

7. Implement Extended producer responsibility (EPR) programmes in which producers assume direct responsibility for the fate and impacts of plastics used in agriculture.

8. Establish a platform for an inclusive governance framework that engages diverse stakeholders and integrates the best available science, traditional knowledge, Indigenous Peoples' knowledge, and local knowledge systems.

9. Conduct assessments, such as cost-benefit analyses, that consider the trade-offs and impacts associated with the production, use, and disposal of plastics used in agriculture.



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Chapter 1. Introduction

1.1 PLASTICS IN AGRICULTURE: CURRENT USE AND POLICY CONTEXT

In 2021, the Food and Agriculture Organization of the United Nations (FAO) published the report *Assessment of agricultural plastics and their sustainability – A call for action* that presented the state of knowledge about plastics in agriculture. Many different agricultural inputs (e.g. plastic mulch, greenhouse covers, fishing nets, traps, irrigation pipelines) are made partly or entirely from plastic. These plastic products can increase food production by improving efficiency in the use of resources and reducing costs for agricultural producers. The report highlighted the widespread use of plastic in food systems and the agriculture sector (i.e. crop production, livestock, forestry, fisheries, and aquaculture). The largest volumes of plastic were used in crop and livestock production and fisheries (FAO, 2021). According to the report, every year 12.5 million tonnes of plastics are used in agricultural production.

In 2025, FAO published the report, *State of research on the impacts of plastic pollution on soil health and crops*, which provided an updated evidence base on agricultural plastic use and its implications for soil ecosystems. Recent FAO analyses reflected in this report estimate that more than 13.4 million tonnes of plastics are now used annually in agricultural production, reflecting both improved data availability and the continued expansion of plastic use across agrifood systems." Please note the following wording above should be *Italicized*: *State of research on the impacts of plastic pollution on soil health and crops*.

The 2021 report also identified significant gaps in knowledge and the limited availability of data on the end-of-life management of agricultural plastics and the impacts of these materials on terrestrial ecosystems. Despite these knowledge gaps, the available data indicate that when agricultural plastics enter and persist in the environment, they degrade into microplastics, which can contaminate soil and water. This plastic pollution can reduce crop yields. Microplastics can also accumulate in farm produce and seafood. This situation has raised serious concerns for food safety and food security (FAO, 2021).

This paper aims at providing an overview of policy instruments that make both explicit and implicit references to plastics used in crop and livestock production, forestry, fisheries, and aquaculture. It focuses specifically on regulatory instruments targeting the plastics that are intentionally and directly used in agricultural production. Some agricultural inputs (e.g. soil amendments derived from sewage sludge and compost) may be contaminated with plastics, which can unintentionally be introduced into agricultural production systems. This type of plastic pollution falls outside the scope of this overview. Also excluded are plastic materials that are used in post-production stages of the agricultural value chain (e.g. packaging for transport and retailing).

Examples of plastics used in different agrifood systems sectors include:

- **Crop production**
Mulch films, tunnel and greenhouse films and nets, irrigation tubes and driplines, bags and sacks, silage films, bottles, coatings on fertilizers, pesticides, and seeds, non-woven protective textiles or fleece, fruit protectors, plant protectors, plant support twines, and plant labels;
- **Livestock production**
Ear tags, bunker covers, bale nets and twines, silage tubes, silage covers, used bale twines, film-wrapped silage bales, containers for hygiene products, and veterinary product packaging;
- **Forestry**
Tree guards, chainsaw fuel containers, tree labels and support ties, and plastics used in seedling nurseries;
- **Fisheries**
Nets, ropes, lines, traps, boat gear, floats, buoys, and insulating fish boxes; and
- **Aquaculture**
Nets, ropes, lines, traps, and enclosures.

As awareness and scientific knowledge about the impacts of plastics used in agriculture has expanded, demand has increased for a transition to more circular approaches to managing plastic materials throughout their entire life cycle. Creating more sustainable and environmentally responsible systems for managing plastic production, consumption and disposal will require interventions that prioritize preventing agricultural plastics from being released into the environment, redesigning agricultural plastic products, reducing the amount of plastic used, and reusing and recycling the plastic materials wherever possible.

FAO has identified a range of regulatory and market-based instruments available to national governments to enhance the sustainability of plastics management in agriculture. These measures include:

- product bans and phase-outs
- the promotion of plastic alternatives and substitutes
- the development of product design standards
- the implementation of extended producer responsibility (EPR) schemes, and
- the introduction of taxes and fees to incentivize sustainable practices (FAO, 2024).

In 2022, at its 171st Session, the FAO Council endorsed the recommendations of the 28th session of the Committee on Agriculture (COAG28) and encouraged FAO to undertake scientific and evidence-based assessments related to the distribution and benefits of agricultural plastics and their alternatives, and to develop a Voluntary Code of Conduct for the sustainable use and management of plastics in agriculture (VCoC), in close consultation with FAO Members and a wide range of stakeholders. In September 2024, COAG 29 reviewed the proposed VCoC and recommended the continuation of the process to further develop the proposed document. The Provisional Voluntary Code of Conduct on the Sustainable Use and Management of Plastics in Agriculture was published in February 2025 (FAO, 2025).

The VCoC establishes seven interconnected goals: i) contribute to food security; ii) reduce environmentally harmful plastics; iii) ensure sustainable design and circularity; iv) promote proper

waste management; v) eliminating environmental leakage; vi) ensure the fair, equitable and inclusive participation and consideration of the needs of affected populations; and vii) promote international cooperation. The VCoC provides a policy framework to assist governments and stakeholders in developing global, regional, national, and sub-national strategies, policies, regulatory frameworks, and programmes to prevent plastic pollution from agricultural sources. It emphasizes multistakeholder collaboration and includes special considerations for small-scale farmers, women, youth, and Indigenous Peoples. The framework, which promotes international cooperation through capacity building and technology transfer, is intended to support low-income and lower-middle income countries achieve their goals for sustainable plastic management and develop safer, more environmentally sound alternatives to plastic.

FAO was also encouraged to provide guidance on issues related to the use of plastics in agriculture during the negotiations of the Intergovernmental Negotiating Committee (INC) on Plastic Pollution, mandated by Resolution 5/14 of the United Nations Environment Assembly (UNEA) of UN Environment Programme (UNEP), to develop an international legally binding instrument to 'end plastic pollution'. Since this Resolution was adopted in 2022, UNEP has been leading the process to develop a legally binding instrument to address plastic pollution that address the entire life cycle of plastic materials. The process has taken place through nine meetings held between 2022 and early 2026, including the OEWG meeting which took place in preparation of the first INC session, seeking to establish a global treaty on plastic pollution. Once adopted, this instrument would seek to regulate the production, use, and disposal of plastic products. Emphasis would be placed on promoting sustainable designs, enhancing waste management systems, and facilitating technical assistance, capacity building, and financial mechanisms to support its implementation. Through its submissions to the INC, FAO has emphasized that plastics used in agriculture should be addressed through a sectorial approach that would ensure that the unique challenges facing each sector are addressed and each stage throughout the life cycle of the plastic materials used in agricultural is considered. The VCoC could potentially provide the framework for this approach.

1.2. OBJECTIVES AND METHODOLOGY

This document provides a concise review of existing international and regional policy frameworks that pertain to the use and management of plastics in crop and livestock production, forestry, aquaculture, and fisheries. National-level policy instruments are not considered in this review. The primary objectives are to present an overview of the current state of policies and legislation addressing plastics in agriculture, offering insights into the existing governance landscape and highlight areas requiring further attention and action.

This report is based on work initially conducted by researchers at the University of Wollongong (Australia) in 2022, which assessed 44 regional and international policies. These policies, which most often targeted plastic pollution, ocean health, or soil health broadly, largely addressed plastics in agriculture indirectly. This report has extended the analysis to identify new policies explicitly referencing plastics used in agriculture. A list of all the policies that were included in the analysis is provided in Annex 1. The methodology involved developing appropriate search terms derived from foundational FAO literature and peer-reviewed studies and applying them to query environmental policy and legal databases. The methodology, including the databases consulted, the keywords applied, and the screening process, are described in Annexes 1 and 2, which also include notes on the limitations of the databases and keywords used.



Chapter 2. Overview of international and regional legal and policy instruments relevant to plastics used in agriculture

This section, which identifies and summarizes the landscape of international and regional legal and policy documents, provides a baseline understanding of current frameworks for regulating plastics used in agriculture. This overview serves as a foundation for analysing gaps and trends in these policies and can help to identify policy areas that require further attention. It is important to note that the policies reviewed here are not exhaustive and may omit relevant policies from other sectors (e.g. food safety).

The policy review is organized into three parts. The first part provides an overview of the policies targeting pollution broadly. It covers both land- and sea-based sources of pollution, which can include plastics used in agriculture. The second part looks at policies intended to protect the ocean that directly or indirectly target plastics used in fisheries (e.g. fishing gear) and aquaculture. The third part is an overview of the policies broadly or explicitly designed to protect the soil that potentially may cover plastics used in terrestrial agriculture. For each policy, specific provisions that have relevance to agriculture are examined in greater detail.

2.1. POLICY DOCUMENTS TARGETING POLLUTION BROADLY

2.1.1. INTERNATIONAL POLICY DOCUMENTS TARGETING HAZARDOUS WASTE

The Basel Convention and the Stockholm Convention regulate the trade of hazardous waste. Both conventions aim to protect human health and the environment.

The environmentally sound management and transboundary movement of hazardous waste, including certain kinds of plastic waste, is regulated under the Basel Convention. Guidelines on plastic waste, and national inventories for plastic waste and pesticide-container waste are currently under development.

The mandate of the Stockholm Convention is to protect human health and the environment from the dangers of chemicals categorized as persistent organic pollutants (POPs). All stages in the life cycle (production, consumption, trade and environmentally sound disposal) of the POPs listed in the Convention (Article 3) are subject to regulation. If waste, including plastic waste, contains POPs, its disposal must not lead to the recycling, recovery, reclamation, direct or indirect uses of those POPs (Article 6). The objective is to prevent the re-entry of POPs into the environment.

National action plans must also be developed and updated regularly by contracting parties to facilitate the management of POPs (Article 7).

2.1.2. INTERNATIONAL POLICY DOCUMENTS TARGETING PLASTIC POLLUTION

As noted earlier, in 2022, through Resolution 5/14, the UNEA provides a mandate for the development of a global treaty to address plastics at all stages of their life cycle. This Resolution builds on and acknowledges previous resolutions adopted by UNEA that relate to plastics, microplastics, and marine debris. These include resolutions:

- 1/6 – Marine plastic debris and microplastics (2016)
- 2/11 – Marine plastic debris and microplastics (2016)
- 3/7 – Marine litter and microplastics (2017)
- 4/6 – Marine plastic litter and microplastics (2019)
- 4/7 – Environmentally sound management of waste (2019)
- 4/9 – Single-use plastic products pollution (2020)

The UNEA resolutions that preceded Resolution 5/14 recognized the increase in marine debris and microplastics in the marine environment and the harm they cause. They noted the need for common definition, harmonized standards, and action plans to address this threat through both upstream and downstream actions. These resolutions highlighted the impacts associated with discarded or lost fishing gear and the costs associated with retrieval and removal. The impacts of plastic pollution from land-based sources, which can include crop and livestock production and forestry, were also noted.

Resolution 5/14 reaffirms the urgent need to strengthen global coordination, cooperation and governance and take immediate actions towards the long-term elimination of plastic pollution. As noted, the Resolution launched negotiations towards a new global legally binding instrument to end plastic pollution in marine and terrestrial environments. It calls for the instrument to encourage all stakeholders in both the public and private sector to undertake actions to cooperate. It also recognizes the significant contribution made by workers in informal and cooperative settings to the collecting, sorting and recycling of plastics. These plastics necessarily include plastics used in agriculture. While the legally binding instrument is being negotiated, the Resolution calls on all United Nations Member States to:

- adopt voluntary measures to combat plastic pollution and promote sustainable consumption and production, which may include approaches to establish a circular economy;
- develop and implement national action plans and undertake international actions and initiatives under their respective national regulatory frameworks; and
- provide statistical information on environmentally sound management of plastic waste on a voluntary basis.

This instrument, which could incorporate both binding and voluntary measures, will need to comprehensively address the full life cycle of plastics and encompass sustainable production and consumption, product design, and waste management.

2.2 POLICY DOCUMENTS TARGETING OCEAN HEALTH

2.2.1. INTERNATIONAL AGREEMENTS TARGETING MARINE POLLUTION

Among the earliest multilateral environmental agreements (MEAs) addressing marine pollution are the 1975 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter and its successor, the 1996 London Protocol. These two agreements regulate the intentional dumping of waste at sea.

Article IV of the London Convention explicitly prohibits the dumping of waste that includes persistent plastics or other durable synthetic materials (e.g. netting and ropes) that can float or remain suspended in the sea and significantly disrupt fishing, navigation, or other legitimate activities on the sea. The incineration of this type of waste at sea is also banned. Permits must be obtained from authorities for dumping permissible waste into maritime zones. Environmental impact assessments are required before obtaining this authorization. However, the London Convention does not establish binding obligations for states to monitor or evaluate the impacts of dumping waste in the marine environment.

The London Protocol, which adopts a precautionary approach, strengthens the provisions of the London Convention by prohibiting all dumping except for a narrow list of specifically permissible waste materials. London Protocol emphasizes the prevention of contamination at its source. Priority is given to minimizing waste and promoting cleaner production techniques rather than relying on remedial measures.

The legally binding 1983 International Convention for the Prevention of Pollution from Ships (MARPOL) regulates pollution from plastic waste generated during maritime operations. Annex V of MARPOL, which became effective in 1998, prohibits the dumping of garbage containing any form of plastics into all maritime zones (Regulations 3.2 and 6.4). Plastics, as defined in Annex V, include all garbage that consists of plastic or incorporates plastic in any form (e.g. synthetic ropes, synthetic fishing nets, plastic garbage bags, and incinerator ashes derived from plastic products).

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) establishes a comprehensive framework for State Parties to protect and preserve the marine environment within and beyond areas of national jurisdiction. UNCLOS does not explicitly address plastics used in agriculture, but Article 192 (General obligation) and Article 194 (Measures to prevent, reduce, and control pollution of the marine environment) imply that these plastics are included under its provisions. Article 1 defines pollution of the marine environment in a manner that encompasses all plastics, including those from agricultural sources. The definition is supported by further clarification in UNCLOS, which identifies pollution pathways from land (e.g. rivers, estuaries, pipelines, and outfall structures, as noted in Article 207), dumping (Article 210), vessels (Article 211), and the atmosphere (Article 212). The precautionary approach articulated in Part XII underscores the duty of state parties to prevent pollution from land-based and marine-based sources. As outlined in Article 204, state parties are also required to enforce their national laws on pollution from these sources and obliged to observe, measure, and evaluate pollution risks and impacts within the marine environment.

The 1995 United Nations Fish Stocks Agreement¹ further strengthens these obligations by focusing on the conservation and sustainable management of straddling and migratory fish stocks in areas beyond national jurisdictions and within exclusive economic zones. Article 5 of the Agreement requires states to minimize pollution, waste, discards, and losses of fishing gear, including abandoned and derelict gear, which are significant sources of marine plastic pollution. This obligation is made operational through the promotion of environmentally safe, and cost-effective fishing gear and techniques. To create an incentive to reduce the loss and abandonment of fishing gear, contracting parties must mandate the marking of fishing gear for identification purposes. The Agreement applies to both contracting parties and vessels, including those belonging to non-State fishing entities, fishing on the high seas for regulated stocks. Enforcement of the Agreement is typically carried out by regional fisheries bodies.

The non-binding 2012 Honolulu Strategy: A Global Framework for Prevention and Management of Marine Debris was developed by UNEP and the United States National Oceanic and Atmospheric Administration (NOAA) Marine Debris Program. The Strategy, which is designed to complement efforts toward the integrated management of solid waste, has three overarching goals:

1. reducing the amount and impact of land-based sources of debris entering the ocean;
2. addressing sea-based sources of marine debris, including solid waste, lost cargo, abandoned, lost, or otherwise discarded fishing gear (ALDFG), and abandoned vessels; and
3. mitigating the effects of accumulated marine debris on shorelines, benthic habitats (seabeds), and pelagic waters (open ocean).

For each goal, the Strategy provides a list of suggested actions (e.g. improving product design, and encouraging monitoring and evaluation efforts). The Strategy also advocates for the use of market-based instruments to support solid waste management and incorporates the polluter pays principle. However, the Strategy does not establish specific targets or timelines for achieving its broad objectives. Instead, it serves as a guidance framework, encouraging national and regional measures for preventive and restorative actions.

2.2.2. REGIONAL SEAS PROGRAMMES AND ACTION PLANS

The Regional Seas Programmes, which were developed under the framework of UNCLOS and are led by UNEP, are regional legal frameworks for protecting oceans and coastal areas from land- and sea-based sources of pollution. Governed primarily through legally binding conventions, the 18 Regional Seas Programmes have formulated broad provisions to address pollution. These provisions often involve developing action plans; conducting risk assessments; establishing financing mechanisms to support waste management; promoting education and outreach initiatives; creating design standards; and implementing systems for marking fishing gear. For example, the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities (LBS Protocol) was adopted to reduce and eventually phase out the use of substances that are toxic, persistent, and prone to bioaccumulation. Among the substances listed in the Protocol are various types of plastics (e.g. synthetic ropes, synthetic

¹ Formally titled the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

fishing nets, and plastic garbage bags). Similarly, the Helsinki Convention for the Baltic Sea establishes criteria and measures for preventing pollution from land-based sources. It mandates the prevention and elimination of pollution from agriculture and aquaculture through the application of best environmental practice and best available technologies. Part II of Annex III, which specifically addresses pollution from agriculture, focuses on farm dwellings, wastewater treatment, and the responsible application of nutrients to minimize environmental harm and promote sustainable practices.

Many conventions adopted by the Regional Seas Programmes require contracting parties to develop plans, standards, protocols, or guidance to address pollution originating from land- and sea-based sources. Examples include:

- the 2010 Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities (Nairobi Convention);
- the 2009 Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities (The Black Sea Commission);
- the 2002 Convention for Cooperation in the Protection and Sustainable Development of the Marine and Coastal Environment of the Northeast Pacific (Antigua Convention);
- the 1984 Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region² (Abidjan Convention);
- the 2006 Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention);
- the 2005 Protocol concerning the Protection of the Marine Environment from Land-Based Activities in the Red Sea and Gulf of Aden (Jeddah Convention);
- the 1999 Protocol Concerning Pollution from Land-Based Sources and Activities to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention); and
- the 1976 Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention).

To implement their conventions, several Regional Seas Programmes have adopted regional action plans for marine litter that address land-based sources of pollution. Examples include:

- the Barcelona Convention's Regional Plan on Marine Litter Management in the Mediterranean (2014);
- the Coordinating Body on the Seas of East Asia (COBSEA) regional action plan for marine litter (2019), which encourages the development or strengthening of legislation to mandate the marking of all fishing gear; and
- the Secretariat of the Pacific Regional Environment Programme's Regional Action Plan for Marine Litter (2018-2025), which calls for evaluating options to identify lost fishing gear for the allocation of clean-up costs.

² The Convention, originally titled Convention for Co-operation in the Protection and Development of the Marine and Coastal environment of the West and Central African Region, was given its current title in 2008.

Additionally, Action 3.1 of the Pacific Regional Action Plan for Marine Litter, prepared by the Secretariat of the Pacific Regional Environment Programme, supports Pacific Island Countries and Territories in applying, monitoring, and enforcing the 2017-04 Conservation Management Measure on Marine Pollution, adopted by the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. This measure encourages Commission Members, Cooperating Non-Members, and Participating Territories to become parties to MARPOL Annex V and the London Protocol. It also promotes the retrieval of ALDFG by fishing vessels operating in the Western and Central Pacific Fisheries Commission Convention Area.

Some regional action plans developed by the Regional Seas Programmes take a comprehensive approach and incorporate multiple instruments relevant to plastics used in agriculture. For example, the Helsinki Commission (HELCOM) Regional Action Plan, revised in 2021, includes several targeted measures for waste management within the fishing sector. It encourages the promotion and dissemination of best practices related to waste management and options to address key waste items from fishing and aquaculture sectors. Deposit schemes and EPR schemes are considered for the packaging of beverages in passenger ships and border shops, but these provisions do not necessarily address plastics used in agriculture. The plan also calls for research on dolly ropes³ to develop harm prevention measures. It also recommends conducting risk assessments to identify hotspots for ghost net accumulation, which could be used to develop initiatives for safe removal. The plan also promotes 'fishing for litter' schemes to encourage fishers to collect litter caught in their nets during routine operations. The no-special-fee system for the Baltic Sea area, adopted in 2007 by the HELCOM (Recommendation 28E/10), applies to marine litter caught in fishing nets and returned to ports. Under this provision, ships are required to pay a fixed fee for waste management, regardless of whether they deposit sea-based waste at port facilities. With this system, fishers are not penalized financially for bringing sea-based waste back to waste management facilities.

The second Oslo and Paris Conventions for the protection of the marine environment of the North-East Atlantic (OSPAR) Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic (2022) outlines measures similar to those in the HELCOM Regional Action Plan (paragraphs 35-37 and 63) for addressing plastics from fisheries and aquaculture. It emphasizes the importance of awareness campaigns to inform fishers of their obligations to report, mark, and retrieve lost nets in accordance with the EU Control Regulation (1224/2009) (paragraph 76). The regional action plan also includes action to stimulate circularity in the management of waste from fishing and aquaculture gear. This includes sharing best practices and gear design standards. Waste from agriculture, though not explicitly plastic waste, is mentioned and addressed through coordinated actions with municipalities on best practices for waste prevention.

The Northwest Pacific Action Plan (NOWPAP) Regional Action Plan on Marine Litter promotes market-based economic instruments to incentivise the removal of marine litter by fishers and includes a no-special-fee approach. The Plan highlights the marking of fishing gear (Action 1.2)

³ Dolly ropes are described in the action plan as "bunches of polyethylene threads used to protect the cod end of demersal trawl nets from abrasions; synthetic fibre."

as a means of identifying owners and reducing fisheries-related marine litter. The plan takes note of the successes the Republic of Korea has had since 2006 in reducing marine litter through the marking of fishing gear.

2.2.3. FAO CODES OF CONDUCT AND TECHNICAL GUIDELINES

FAO has developed, often in collaboration with other international government organizations overseeing MEAs, several policy documents (e.g. codes of conduct or guidelines for FAO Members) on topics that pertain to plastics used in agriculture. These policies are non-binding, but many countries have attempted to incorporate them into national law. They include provisions to minimize pollution as part of broader environmental protection by using selective gear, recovering ALDFG, developing market-based schemes (e.g. certification) that can internalize the cost of waste management, marking fishing gear, and preventing soil pollution.

The FAO Code of Conduct for Responsible Fisheries, which promotes a precautionary approach, urges participating states to minimize catch from derelict fishing gear, and reduce pollution, waste, and discards in a manner that is consistent with the principles outlined in the United Nations Fish Stocks Agreement. The Code also encourages State Parties to put in place measures to prevent the catch of non-target fish and non-fish species, and minimize impacts on associated or dependent species. Like the United Nations Fish Stocks Agreement, the Code recommends the development and use of selective, environmentally safe, and cost-effective fishing gear and techniques to achieve these objectives (Art. 7). The adoption of domestic laws and regulations based on MARPOL, which prohibits the discharge of waste in all maritime zones (Article 8), is also encouraged. Additionally, the FAO Technical Guidelines for Fishing Operations recommend that states establish national offences for deliberately discarding or dumping any fishing gear or parts thereof into the aquatic environment (Annex III, Section B, paragraph 1.1) (FAO, 1996). Building on the United Nations Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries, the FAO Voluntary Guidelines on the Marking of Fishing Gear (2018) provide practical guidance to aid in the identification and recovery of ALDFG.

The FAO Technical Guidelines on Aquaculture Certification (2011), which also stress the importance of following the precautionary approach, are aligned with the Code of Conduct for Responsible Fisheries. These technical guidelines call for risk analyses to identify impact thresholds that trigger remediation (Article 42). Adopting the polluter pays principle, Article 43 recommends that certification schemes promote the internalization of costs, including those associated with pollution, although plastics are not explicitly mentioned. The Guidelines, which also highlight the need for transparency in operations, require waste disposal to be conducted responsibly (Article 51), and encourage the restoration of habitats and sites that may have been damaged by aquaculture-related activities (Article 38). Other relevant FAO instruments include the International Guidelines on Bycatch Management and Reduction of Discards (2011) and the International Guidelines for the Management of Deep-sea Fisheries in the High Seas (2008).

2.2.4. EUROPEAN UNION FRAMEWORKS

With regards to plastics originating from fishery operations, the EU adopted the Regulation 2015/531.⁴ Article 7 of this Regulation states that costs related to the removal of fishing gear by fishers are eligible for government support. These costs cover removal of lost gear, investment in equipment for collection and storage of litter, the development of financial incentives to encourage waste collection by fishers, port reception facilities for recycling and storage, awareness raising, and training programmes. EU Council Decision 2019/1563 of 16 September 2019 sets out the European Union's position within the Western Central Atlantic Fishery Commission. It includes provisions to support, where appropriate, actions by the Commission to reduce the impact of fisheries and aquaculture on marine ecosystems specifically by preventing and reducing the discharge of plastics at sea, minimizing ALDFG and facilitating its recovery.

The EU adopted Directive 2019/904 on reducing the impacts of certain plastic products on the environment. This policy provides regulations for countries on the use and management of single-use plastic products, oxo-degradable products, and fishing gear containing plastic. Issues that the provisions address include the development of EPR schemes for fishing gear, minimum annual rates for collection of fishing gear for the purposes of recycling, the monitoring of markets for fishing gear and waste fishing gear, standards related to circular design of fishing gear, and awareness raising measures on the impacts of fishing gear. The policy also focuses on daily use of single-use plastic products (e.g. utensils and food wrapping) and prohibits the use of products made from oxo-degradable plastics, some of which may be used in agriculture.

The strategic guidelines for a more sustainable and competitive EU aquaculture for the period from 2021 to 2030, a non-binding policy document, outline measures to enhance the environmental performance of the aquaculture sector. Proposed actions include assessing the sector's environmental impact, developing a risk strategy to mitigate those impacts, using fewer or more sustainable veterinary products, and conducting long-term monitoring of aquaculture sites for plastics and other waste that is generated from aquacultural activities. The annex in the guidelines provides additional recommended actions that include replacing plastic aquaculture gear with more sustainable alternatives, adapting sites to minimize material loss into the environment, improving waste sorting practices, and developing innovations in the packaging used for aquaculture products.

2.2.5. REGIONAL FISHERY MANAGEMENT ORGANIZATION REGULATIONS

Regulations from regional fishery management organizations address plastics used in agriculture, particularly from ALDFG. These regulations vary depending on their context, but they share several common policy components. These shared components include prohibiting the disposal of plastics from fishing vessels overboard, requiring fishing vessels to make every reasonable effort to prevent and retrieve lost gear, mandating that vessels carry equipment to facilitate gear retrieval, and obliging vessels to report any lost gear that cannot be recovered. The list of these 10 regulations,

⁴ The full title of the regulation is: Commission Delegated Regulation 2015/531 of 24 November 2014 supplementing Regulation (EU) No 508/2014 of the European Parliament and of the Council by identifying the costs eligible for support from the European Maritime and Fisheries Fund in order to improve hygiene, health, safety and working conditions of fishermen, protect and restore marine biodiversity and ecosystems, mitigate climate change and increase the energy efficiency of fishing vessels.

presented below, offers an overview of the efforts undertaken by regional fishery management organizations to address plastic pollution through targeted measures.

1. Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) Recovery Plan for Baltic Harbour Porpoises (2016)
2. Northwest Atlantic Fisheries Organization Conservation and Enforcement Measures (2024)
3. Southern Indian Ocean Fisheries Agreement (SIOFA): CMM 2022/091 Conservation and Management Measure for Control of fishing activities in the Agreement Area (Control) (2022)
4. South Pacific Regional Fisheries Management Organisation: CMM 17-2022 Conservation and Management Measure on Fishing Gear and Marine Plastic Pollution in the SPRFMO Convention Area (2022)
5. South Pacific Regional Fisheries Management Organisation: CMM 08-2023 Conservation and Management Measures for Gillnets in the SPRFMO Convention Area (2023)
6. North Pacific Fisheries Commission: Conservation and Management Measure on the Prevention, Reduction, and Elimination of Marine Pollution (2023)
7. Recommendation by ICCAT on Abandoned, Lost or Otherwise Discarded Fishing Gear, International Commission for The Conservation of Atlantic Tunas (2019)
8. Recommendation GFCM/42/2018/11 on the regional marking of fishing gear (2022)
9. Regulation (EU) 2019/833 Of the European Parliament and Of the Council of 20 May 2019 laying down conservation and enforcement measures applicable in the Regulatory Area of the Northwest Atlantic Fisheries Organisation, amending Regulation (EU) 2016/1627 and repealing Council Regulations (EC) No 2115/2005 and (EC) No 1386/2007 (2019)
10. Southeast Atlantic Fisheries Organisation: System of Observation, Inspection, Compliance and Enforcement (2019)

2.2.6. OTHER REGIONAL POLICY DOCUMENTS

A small number of other policies specifically target plastics used in fisheries. Notably, some of these policies also address land-based sources of pollution, which can include plastics associated with agricultural activities such as crop production, livestock production, and forestry.

For the Caribbean Community (CARICOM), the Caribbean Regional Fisheries Mechanism (CRFM) Strategic Plan 2022–2030 stresses the importance of implementing sustainable management practices, and includes measures to reduce ghost fishing and bycatch. These measures are seen as critical for the sustainable use of fishery resources in the region. However, the document does not clearly elaborate on how these measures will be implemented.

General Fisheries Commission for the Mediterranean (GFCM) resolution (GFCM/44/2021/12) on the 2030 Strategy for Sustainable Fisheries and Aquaculture in the Mediterranean and the Black Sea called for the development of a regional strategy to address plastic pollution originating from both land and sea sources. The Strategy, which was adopted in 2021, includes measures on ALDFG. The Strategy also outlines actions to promote sustainability in the aquaculture sector, some of which are intended to reduce the use of plastics in aquaculture operations.

In 2010, in response to the problems caused by lost or discarded gillnets used for deep-sea fishing, the Commission for the Conservation of Antarctic Marine Living Resources adopted

Conservation Measure 22-04 that put in place, on an interim basis, a prohibition against deep-sea gillnetting in the area covered under the Convention for the Conservation of Antarctic Marine Living Resources. Exceptions were made for vessels carrying out scientific research. Commercial fishing vessels carrying gillnets were required to provide advance notice to the Commission.

The 2018-2028 Regional Plan of Action for Small-scale Fisheries in the Mediterranean and the Black Sea promotes the small-scale fisheries sector in the region. Under its 'Climate and Environment' section, actions are outlined that encourage the participation of small-scale fishers in the circular economy. These actions include developing plans to recycle recovered nets and rewarding fishers for collecting marine litter.

The Association of Southeast Asian Nations (ASEAN) Regional Action Plan for Combating Marine Debris in the ASEAN Member States (2021 – 2025) does not expressly mention plastics from terrestrial agriculture or aquaculture. However, the action plan emphasises the importance of monitoring, reporting and evaluating marine debris for its successful implementation. ASEAN has supported regional actions by publishing a guidebook for common methodologies for assessing and monitoring of marine litter that specifically address lost fishing gear through retrieval, marking, and incentives. ASEAN Member States have also adopted national action plans for marine plastics that are contributing to the regional action plan.

2.3. POLICY DOCUMENTS TARGETING SOIL HEALTH

In this overview, there are relatively few policies regulating the use of plastics in terrestrial agricultural, and policies on soil health do not explicitly cover agricultural plastics as pollutants. FAO voluntary codes of conduct and technical guidelines on soil health contain measures that have implications for the use of agricultural plastics and can serve as a framework for policy actions. The EU also has several policy mechanisms targeting soil health that include provisions related to the use of plastics in terrestrial agriculture, as explored in section 2.3.2 below.

2.3.1. FAO VOLUNTARY CODES OF CONDUCT AND TECHNICAL GUIDELINES

FAO, together with World Health Organization (WHO), has strengthened best practices in the global management and use of pesticides by adopting the International Code of Conduct on Pesticide Management (2014), which superseded the 1985 International Code of Conduct on the Distribution and Use of Pesticides. The use of pesticides can serve as a strong parallel to the use of plastics in agriculture. Both are chemical-based substances that are intentionally and unintentionally introduced into agricultural ecosystems and environments beyond them, and both have impacts on human and environmental health. Interventions to eliminate or mitigate the harm created by these materials should address their entire cycle (production, use, management and disposal), and the International Code of Conduct on Pesticide Management⁵, which is a voluntary framework, provides guidance for all stakeholders engaged in the production, distribution, use and end-of-life management of pesticides. The Code also encourages and offers guidance on the establishment of national legislation to implement comprehensive pesticide management.

⁵ International Code of Conduct on Pesticide Management website:
www.fao.org/pest-and-pesticide-management/pesticide-risk-reduction/code-conduct/en/

Including dozens of individual recommended measures, the code is intended to maximize the benefits associated with pesticide use and minimize harm to human and environmental health. Suggested practices are designed to prevent accidental poisoning due to mishandling, storage, transport, use or disposal of pesticides, including the pesticide residues in food and feed for animals. Plastic containers for pesticides can be taken into consideration with regards the transportation and storage of pesticides, disposal and safe handling of contaminated plastic containers, and the risks of recycling these containers. Under the Code of Conduct, subsidiary guidance documents have been published, including the Guidance on Pest and Pesticide Management Policy Development (2010) and the Guidelines on Management Options for Empty Pesticide Containers (2010).

In 2019, the International Code of Conduct for the Sustainable Use and Management of Fertilizers was published (FAO, 2019). As plastic containers are widely used in the transportation and packaging of both fertilizers pesticides, the implementation of these guidelines can contribute to the environmentally sound management of these containers.

FAO has published a series of guidelines for soil protection to promote sustainable land management and safeguard food safety. These guidelines, which include the 2017 Voluntary Guidelines on Sustainable Soil Management (FAO, 2017) and the 2015 Revised World Soil Charter (FAO, 2015), do not make any direct references the use of plastics used in agriculture. However, they do emphasise the importance of sustainable development in food production and the protection of soil biodiversity.

As emphasized by the Voluntary Guidelines on Sustainable Soil Management, soils filter, fix, and neutralize pollutants, but they can also release pollutants under changing conditions. Therefore, the prevention of soil contamination remains the best way to maintain healthy soils and further ensure food safety and achieve the Sustainable Development Goals. A new code of conduct on the use of plastics in agriculture could promote these goals by addressing intentional and non-intentional release of microplastics to soils.

2.3.2. EUROPEAN UNION FRAMEWORKS

The EU has developed several policies that directly target plastics used in agriculture. The use of biodegradable materials and the phasing out of plastic-coated fertilizers have been highlighted in these policies.

The EU Soil Strategy for 2030 establishes a framework to protect and restore soils and ensure soil sustainability for EU Member States and sets out specific measures to follow. Under the section on preventing soil pollution, EU Member States agreed to adopt measures to reduce the release of intentionally added microplastics, as required under the European chemical safety policy, Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)⁶, and develop a framework for increasing the use of bio-based, biodegradable, and compostable plastics by 2022. It can be assumed that the use of agricultural plastics in crop production is covered under these actions. These instruments contribute to the implementation of the EU Biodiversity Strategy for 2030 and the achievement of the European Green Deal. The EU Soil Strategy 2030 also

⁶ This can include controlled release fertilizing products that contain polymers as coating agents.

envisaged the adoption of a new Soil Health Law by 2023. A Soil Monitoring Law was adopted in 2025 (EU Directive 2023/0232).⁷ The law establishes the first EU-wide binding framework for soil health assessment, setting out common requirements for EU Member States. Importantly, it requires Member States to assess physical, chemical, and biological soil parameters in an integrated manner through a unified monitoring framework, explicitly including microplastics alongside chemical contaminants, nutrient status, and biological indicators. This integrated approach helps ensure that assessments identify different types of soil contamination, which may not be detected when chemical condition alone is monitored. Member States have three years to transpose the Directive into national legislation and must ensure all soils reach certified “healthy” status by 2050. Failure to transpose may lead to infringement procedures and potential financial penalties.

In the EU, best environmental management practices in the agricultural sector are laid out in European Commission Decision 2018/813.⁸ In some cases, this document encourages the use of plastic as a best environmental management practice (e.g. plastic mulching to reduce the evaporation rate of water from soil and plastic double glazing to improve greenhouse energy efficiency). In other cases, best environmental management practices and associated environmental performance indicators include using bio-based plastics for mulching films and nursery pots and sending uncontaminated plastics to recycle. In this document, the best environmental management practices outline criteria for biodegradable plastics (plastics with a biodegradation rate higher than 90 percent and no heavy metals). As binding regulations, these best environmental management practices are to be adopted when organizations are developing and implementing environmental management systems.

Similarly, EU Regulation 2019/1009⁹ sets out rules related to EU fertilizing products that are available on the market. This Regulation allows EU fertilizing products to contain polymers (which can be plastics) under certain conditions (e.g. as coating agents). However, this regulation also stipulates that by 2024 the European Commission assesses the biodegradability criteria for such polymers and develops methods to determine compliance with this criterion. This regulation may serve to restrict the use of plastics in fertilizer products by encouraging the use of biodegradable polymers and lead to the development of criteria and testing methodologies that prevent the accumulation of plastic in the environment. The regulation also limits the volume of plastics materials larger than 2 mm allowed in compost and digestate by 2026. However, it does not specify whether smaller plastic materials are to be monitored and regulated.

The 2021 Action Plan for The Development of Organic Production aims to enhance the organic farming sector in the EU. It is part of broader initiatives from the EU, such as the 2030 Biodiversity

⁷ Full title: European Union Directive (EU) 2023/0232 establishing a Soil Monitoring Law and setting out a Union-wide framework for the assessment, monitoring and reporting of soil health, including physical, chemical and biological soil descriptors, as adopted by the Council of the European Union in 2025, pursuant to the EU Soil Strategy for 2030 and in alignment with the European Green Deal objectives.

⁸ Full title: European Commission Decision 2018/813 on the sectoral reference document on best environmental management practices, sector environmental performance indicators and benchmarks of excellence for the agriculture sector under European Commission Regulation (No 1221/2009) of the European Parliament and of the Council on the voluntary participation by organisations in a community eco-management and audit scheme.

⁹ Full title: EU Regulation 2019/1009 of the European Parliament and the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003

Strategy, the Farm to Fork Strategy, and the European Green Deal. The Plan acknowledges that plastic is used in organic farming (e.g. mulch films, greenhouses and tunnels, silage films, nets for storing animal feeds, shellfish ropes and packaging). It adopts a framework on bio-based, compostable, and biodegradable plastic materials used in agriculture. This Framework was also announced in the European Strategy for Plastics in a Circular Economy and the Circular Economy Action Plan – COM (2020).

In 2018, The EU established a new voluntary product standard, 'Voluntary Product Standard for Biodegradable Mulch Films (EN 17033) for biodegradable mulch films' that specifies the necessary requirements and test methods for mulch films. EU Standard EN 17033 recommends the clear marking of biodegradable mulch films and their packaging so that farmers can be assured that mulch films applied on their lands will disintegrate and biodegrade without leaving harmful residue in the soil. The Standard details how to perform different tests, provides information on the classification of films according to the crops, and offers recommendations for farmers on the application of biodegradable mulch films (European Bioplastics, 2018). A recommendation to only apply conventional mulch films that are thicker than 25 microns was added to standard EN 13655 (Plastics - Thermoplastic mulch films recoverable after use, for use in agriculture and horticulture).

The European Common Agricultural Policy (CAP), which constitutes a partnership between the EU and European farmers, promotes rural development, animal-friendly agricultural management, and animal welfare. Sustainable approaches to livestock production could impose more obligations for farmers to protect water resources, adapt to climate change, conserve biodiversity, and enhance animal welfare. Under the CAP, farmers are encouraged to work in a sustainable and environmentally friendly manner and maintain soil fertility and biodiversity. EU Member States are required to develop their own strategic plan. The current national strategic plans, which run from 2023 – 2027, may include more explicit mentions of agricultural plastic but are beyond the scope of this report, which focuses on regional and international policy instruments.

2.4. SUMMARY OF POLICIES

Many MEAs, international codes, and regional policies strive to reduce pollution from land- and sea-based sources to protect ocean and soil ecosystems. Within these policies, some measures directly or indirectly target the use of plastics in agriculture. Many address pollutants in general, but others specifically target waste generated from the use of agricultural plastics (e.g. waste from fishing vessels or packaging for pesticides and fertilizers).

These agreements, both binding and non-binding, are intended to protect the environment by regulating the downstream stages in the life cycle of the pollutants. In some cases, they promote the reduction in the use of or substitution of specific products. Some policies are comprehensive and enforceable, while others rely on voluntary actions. Provisions often focus on waste management, but some also emphasize sustainable production, design, and circularity. The effectiveness of these policies in addressing their objectives and reducing the impact of plastics in agriculture, which varies widely, depends on their binding nature, adoption rates, and enforcement mechanisms. An overview of the effectiveness of these policies is outside the scope of this report.



Chapter 3.

Trends, gaps, and opportunities within the current governance framework in international and regional policy instruments

Many diverse policy instruments have been put in place to address sea- and land-based sources of pollution as well as plastics used in agriculture. At a high level, the mapping of international and regional instruments related to the governance of sea- and land-based agricultural activities, has shown that there are international conventions that regulate some aspects of plastics used in agriculture, including general marine environmental protection from pollution (UNCLOS, article 194), POPs (Stockholm Convention) and hazardous waste and other wastes (Basel Convention). Some regional policy frameworks also regulate the use and disposal of plastics used in agriculture, particularly in fisheries and crop production. The policies demonstrate the diversity and breadth of approaches that can and are being applied to address the impacts of plastics used in agriculture. However, they do not comprehensively cover the life cycle of all these products.

Many instruments adopted under the regional seas conventions and action plans broadly regulate pollution found in the marine environment but do not mention plastic specifically. These instruments cover pollution from crop and livestock production, forestry, fisheries, and aquaculture. The focus, however, is on pollution from agricultural runoff that contains nutrients, pesticides, sediments and pathogens. Plastic pollution is not specifically mentioned. It may be included in the measures laid out under Regional Seas Programmes. Many of these policies promote an alignment with municipal authorities in waste management and water treatment. Some of these policies also encourage, or in some cases have implemented, fee-based systems to finance waste management for plastics used in fisheries. Alignment and coordination with pollution control authorities, as well as financing waste management can be important for successfully implementing measures to address the impacts caused by agricultural plastics used in marine environments.

There are many policies that focus on plastic from fisheries. They largely address the retrieval of fishing gear. Common measures in these policies are the prohibition of discards, the marking of gear, having equipment for gear retrieval on board, taking all reasonable efforts to retrieve gear, and reporting when gear cannot be retrieved. To a lesser extent, incentive programmes for fishers to retrieve gear are either directed or encouraged in the policy documents.

Compliance and enforcement or punitive measures are not included. These policies may serve dual purposes: addressing plastic pollution from the fisheries sector, and reducing bycatch. Some of these policies, and others, are beginning to mention plastic from aquaculture as well, noting that gear used in aquaculture production can also end up as a pollutant.

Far fewer policies focus on plastic used in crop production and biodegradable alternatives. The existing policy framework in Europe offers guidance, sets standards, and puts in place regulatory instruments to support the transition to biodegradable alternatives in crop production. The measures that promote the use of sustainable alternatives are not outlined in broader pollution policy frameworks discussed or for other sectors included in this assessment (i.e. fishing and aquaculture gear, and plastics used in livestock and timber production).

The EU has adopted regulations and directives that target certain components of plastics used in agriculture and at multiple stages in the life cycle of these materials. These include EPR mechanisms for fishing gear; incentives, mandates, and standards to support the transition to biodegradable mulches; and the replacement of plastics used in aquaculture for more sustainable alternatives. These regulations and directives complement Regional Seas Programmes and regional fishery management organizations with European membership that target land- and sea-based sources of pollution.

Some notable policy gaps across the sample of policies assessed

There is lack of comprehensive and universal goals and targets specifically for plastics used in agriculture. On the international level, no time-bound or measurable goals or targets have been set that explicitly target the sustainable management across the full life cycle of agricultural plastics. At the regional level, the EU has established a goal, through Regulation 2019/1009, to develop biodegradability criteria for polymers used in agriculture. However, similar goals have not been set in other regions or for other kinds of agricultural plastics.

MARPOL and several regional instruments that directly or indirectly target ALDFG, call for the elimination of sea-based sources of plastic. However, they do not set any explicit targets beyond those measures that prohibit the operational discharge and intentional dumping into the ocean of wastes that contain plastics. Although not explicitly indicated, the goals of preventing, reducing and eliminating plastic pollution from the sector can otherwise be inferred through the broader measures of existing instruments.

Key policy design components are lacking or underutilized in the agricultural plastics policy landscape. This assessment finds limited encouragement of economic instruments or principles (e.g. polluter pays principle and EPR). These instruments mostly apply to fishing gear in Europe. They have not been adopted in other sectors or regions. This situation exists despite an increasing number of national policies that have EPR policies. Almost no compliance, accountability, or enforcement mechanisms addressing agricultural plastics have been developed within policy documents. General high-level principles are outlined in the broader governance of pesticide containers in the International Code of Conduct on Pesticide

Management, and the indirect goal of elimination of ALDFG by MARPOL Annex V and the Code of Conduct on Responsible Fisheries. With only limited reporting requirements adopted for ALDFG, the accountability of states in meeting the objectives of these instruments is minimal.

Likewise, the existing monitoring and evaluation requirements within the documents do not address the need to monitor the full life cycle of plastics used in agriculture even though it is being increasingly recognized that these plastics significantly contribute to plastic pollution. Trade of plastic waste from the agricultural sector, both hazardous and non-hazardous, is addressed under the Basel Convention. However, the regulation of imports and exports of plastic products used in agriculture is not yet widely encouraged under the existing policy landscape as a mechanism for limiting the use of problematic products nor creating incentives to make the design or business practices for these products more sustainable. In terms of information-related instruments, only some policies promote research and development of sustainable, affordable, innovative, and cost-efficient alternative approaches to the use of agricultural plastics, or socioeconomic studies on the impacts of mismanagement of these plastics. Where these policy instruments have already been developed (e.g. EPR for fishing gear in Europe), they serve as important references in the development of broader and more comprehensive policies targeting plastics used in agriculture.

No international or regional policy document encourages the development of national-level policies or strategies to address plastics used in agriculture. The development of national action plans for the sustainable design, management and use of plastics used in agriculture is not called for under binding or voluntary measures. One exception is the Stockholm Convention, although it does not explicitly cover agricultural plastics. Agricultural plastics are not integrated into waste management plans or other relevant national strategies (e.g. circular economy strategies). It is unclear whether the global plastics treaty or its national implementation, which will likely be done through national action plans, will include in it any explicit mention of plastics used in agriculture. This gap could be filled by the voluntary code of conduct currently under development.

Microplastics generated from the use of plastics in agriculture are rarely explicitly addressed in any international or regional policy document. This includes the intentional and unintentional application of microplastics, or activities that may directly lead to the creation of microplastics. Several policies that do not explicitly mention plastics used in agriculture might indirectly have an impact on these microplastics generated from plastics used in agriculture, such as in sewage sludge. For example, under REACH, the EU Commission has agreed to restrict the release of intentionally added microplastics into the soil and the broader environment.

There is no mechanism for international coordination to facilitate the transfer of knowledge and resources among countries. The existing policy documents do not encourage or facilitate coordination and cooperation in capacity development and technology transfer, knowledge sharing, education and awareness on issues related to plastics used in agriculture. Likewise, no financial mechanisms have been proposed to support the implementation of measures to sustainably manage plastics used in agriculture in low-income and lower-middle income countries.

Policy documents do not provide or encourage standards for risk assessments for plastics used in agriculture. There may be existing risk assessment standards or guidelines for contaminated areas that may contain plastics, but there are none specifically intended for plastics used in agriculture. Given the lack of data on agricultural plastics, it may not be feasible to establish risk assessment standards. However, developing these standards can also support improved monitoring and reporting (Schnepf, 2022).



Chapter 4.

Recommendations for promoting the sustainable use of plastics in agriculture

The following recommendations and considerations are proposed for the implementation of an international instrument to address plastics used in agriculture:

1. The existing policy landscape addressing plastics used in agriculture is fragmented often because the relevant policies often have broader objectives. Therefore, any policy instrument targeting plastics used in agriculture should address and acknowledge the full life cycle of agricultural plastics.
 1. Minimum requirements should be encouraged for tracking material and waste flows from agricultural plastics across production, consumption and waste generation. This tracking would include trade and emissions to the environment. Monitoring of recovery and reduction rates following the implementation of any intervention should also be required or encouraged. Clearinghouses or other mechanisms should be leveraged to establish inventories of information of agricultural plastics throughout their life cycle.
 2. Transparency and traceability can be improved through labelling. This can include information on material composition and chemical additives, recycled content, the known risks of exposure, and recommended methods for use and disposal. Labelling for plastic pesticide containers is promoted in the International Code of Conduct on Pesticide Management and the Guidelines on Good Labelling Practice for Pesticides (FAO, 2022). However, a more comprehensive labelling scheme is required to improve transparency throughout the life cycle of agricultural plastics.
 3. Evidence suggests that plastics used in agriculture end up as pollution. This can be a result of a number of factors including poor design; a lack of equipment, skills and incentives to use and retrieve products from the environment; and insufficient collection and waste management infrastructure. Future policies should encourage effective waste management for agricultural plastics that covers maintenance, removal, and handling.
 4. In accordance with the Basel Convention, the trade of agricultural plastic waste should be disincentivized or discouraged, particularly from countries of the Organisation for Economic Co-operation and Development (OECD) to non-OECD countries. Under the current policy landscape, the trade of plastics used in agriculture is not consistently regulated.

5. Standards for risk assessments should be developed, especially for biodegradable plastics used in agriculture and for plastic fragments and associated chemical additives. Some standards already exist for mulching films. Risk assessments should be applied to products already on the market and those coming onto the market. National regulators should determine the types and standards for plastic products to be used locally.
 6. Standards and criteria should be developed for alternative materials and practices so that they are safe and sustainable by design. They need to be based on their short- and long-term social and environmental impact, and should encourage, where practical and feasible, the use of biodegradable alternatives.
2. Although the current policy landscape is fragmented, there are many policies and frameworks that are aligned with or pertain to plastics in agriculture. Their implementation and effectiveness should be reviewed to identify best practices and draw lessons for the future. These policies and frameworks include:
1. Policy documents, such as the Code of Conduct for Responsible Fisheries, the International Code of Conduct on Pesticide Management and the International Code of Conduct for the Sustainable Use and Management of Fertilizers.
 2. The European Plastics Strategy, which is a private sector initiative involving companies that produce and supply non-packaging plastics used in agriculture, could contribute to improving the sustainability of the use of plastics in European agriculture. This Strategy cultivates partnerships between farmers, growers and industry and distributors, to reduce negative impacts on the environment (APE Europe, 2021).
 3. The European Plastic Pact, which was an initiative that managed the plastic supply and value chain from design and use to recycling and reintegration. It aimed to reduce virgin plastic use by 20 percent, increase recycling rates, and encourage the design of products that were recyclable or reusable. The Pact ceased operations in September 2023.
 4. The 2021 Sustainable Livestock Guide,¹⁰ which does not explicitly mention plastics, could still contribute to the harmonization of plastics used in livestock production through strengthening policies, increasing knowledge and disseminating information. This objective could be achieved, as recommended by FAO and the World Bank, through capacity building at national and local levels of government and research grants and educational programmes. This Guide emphasises sustainable development as its main principle. Effective management of plastics used in livestock production could be a critical aspect in achieving these goals.

¹⁰ Sustainable Livestock Guide website: <https://www.sustainablelivestockguide.org/investing-sustainable-livestock-isl-guide>

5. The International Seafood Sustainability Foundation¹¹ has put forward a series of guidance on the use of non-entanglement and biodegradable fish aggregating devices (FADs), focusing on recommended practices for the design and use of fishing gear. Recommendations with the same focus are also set out in the Best Practice Framework for the Management of Fishing Gear published by Global Ghost Gear Initiative¹².
 6. GLOBALG.A.P.¹³ establishes global and national standards in over 130 countries and compliance assurance schemes for agriculture, aquaculture, and floriculture. These standards and the networks can be leveraged in the development of a voluntary code of conduct.
- 3.** A number of policy principles can be applied in the development and implementation of international instruments targeting plastics used in agriculture.
1. EPR programmes, in which producers have a more direct responsibility for the fate and impact of plastics used in agriculture (e.g. by encouraging reuse of plastic) should be encouraged and widely applied for plastics used in agriculture across all sectors. EPR programmes, when developed nationally or regionally, should be collaborative and inclusive of all stakeholders, and following models such as those adopted in the Ireland Farm Plastics framework and the EU Directive on single-use plastics.
 2. A platform for establishing an inclusive governance framework could engage different groups and integrate the best available science, traditional knowledge, knowledge of Indigenous Peoples and local knowledge systems. This type of platform, which does not yet exist, could also work toward solutions that promote gender equality and protect livelihoods in both the formal and informal sectors of the economy.
 3. Assessments (e.g. cost-benefit analyses) that consider the various trade-offs and impacts of the production, use, and disposal of plastics used in agriculture should be conducted. The assessments need to cover the economic benefits for farmers and agricultural workers, health risks and the risks of irreversible soil pollution.

¹¹ International Seafood Sustainability Foundation website: <https://www.iss-foundation.org>

¹² Global Ghost Gear Initiative website: <https://www.ghostgear.org>

¹³ GLOBALG.A.P. website: <https://www.globalgap.org>



Conclusions

This paper describes international and regional policy documents or policy document compilations (See Annex 1) that either directly or indirectly address the use of plastics in crop production, livestock production, forestry, fisheries, and aquaculture, across the life cycle of plastics. Collectively, this set of policy documents can be considered as the current supranational policy landscape for plastics used in agriculture. Instruments in some of the policy documents explicitly address agricultural plastics. In other policy documents, the instruments target land- and sea-based sources of pollution more broadly and do not explicitly deal with agricultural plastics.

Broadly speaking, plastics used in agriculture are addressed through either policies that aim to improve the socio-economic and environmental sustainability of different sectors (e.g. farming, fishing, aquaculture, fertilizer, pesticide, and soil policies), or policies that aim to reduce plastic pollution (e.g. single-use plastic bans, circular economy strategies). To a smaller, but perhaps growing extent, global and regional policies address plastics used in agriculture (e.g. through the promotion of the uptake of biodegradable mulches) directly. Currently, there is no comprehensive policy at the international or regional level that specifically focuses on or has a clear mandate to address the use of plastics in agriculture, across their entire life cycle.

This should not come as a surprise. In the policy documents included in this report, the pollution and other impacts associated with agricultural plastics is only a part of broader objectives. Based on the findings of this analysis and on existing assessments of the plastics policy landscape, the mandate of the existing global and regional instruments is often not specific to plastics used in agriculture and only partially addresses their life cycle.

There are many international and regional policies that both directly and indirectly address the use of agricultural plastics. These policies cover, to some extent, plastics used in crop production, livestock production, forestry, fisheries, and aquaculture. Some policies broadly address land and sea-based sources of pollution, which includes all forms of plastics used in agriculture that become pollutants. In the different agricultural sectors where agricultural plastic is used, policies most frequently and directly address plastics that are used in fisheries or crop production and become pollutants. Other agricultural sectors receive much less coverage.

The policies also differ in whether they are binding or non-binding. This difference has an impact on compliance and enforcement. Among the regional policies, there is overrepresentation by the EU or by regional bodies that include EU countries (e.g. OSPAR). Also, very few policies focus on the upstream stages of the life cycle of agricultural plastics. Most notably, they do not address biodegradable and bio-based alternatives or other options for reducing the use of fossil-based plastics.

Overall, the existing international and regional governance over plastics used in agriculture is fragmented. Not all kinds of agricultural plastics and life cycle stages are covered across existing policies. Certain instruments or components were found to be lacking in these policies, and this hinders their compliance and effectiveness. Measures that are lacking include:

- mandates or guidelines to monitor policy outcomes and collect data using tracking and reporting;
- clear enforcement provisions;
- the use of economic instruments to encourage sustainable practices across the life cycle of the plastic materials; and
- standards to guide design and waste management.

These policy design elements are used in governance frameworks for other sectors as part of a comprehensive response to global challenges.

Now is an important moment to take stock of the existing policy landscape. In response to the recommendations of the 28th Session of the Committee on Agriculture, which were later endorsed by the 171st Session of the FAO Council and the 43rd Session of the FAO Conference, FAO has carried out inclusive and geographically representative consultations with its Members and a wide range of stakeholders to develop a Voluntary Code of Conduct for the sustainable use and management of plastics in agriculture. In 2025, FAO published the Provisional Voluntary Code of Conduct on the Sustainable Use and Management of Plastics in Agriculture. The VCoC for sustainable use of plastics in agriculture, which applies to the use of plastic materials at all stages of the life cycle, can fill the gaps identified in the policy landscape.

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Annex 1. Methodology and summary tables of instrument identified and analysed

This report is built upon an analysis and draft conducted by researchers at the University of Wollongong in 2022. The 2022 draft focused on an assessment of 44 regional and international policies from a sample of 102. These policies were largely regional and international environmental policies with instruments that non-explicitly referred to plastics used in agriculture, either by addressing plastic broadly, pollution broadly, or agricultural systems broadly.

For this report, researchers aimed to determine whether new policies have been added and to incorporate policy documents with explicit references to plastics used in agriculture. For this purpose, researchers developed and tested a set of keywords using terms and keywords extracted from foundational literature from FAO and peer-reviewed publications (found using Google Scholar) on the topic of plastics used in agriculture, as listed below:

- "Agricultural plastic"
- "Farm Plastics"
- "Mulch* film*"
- "Bale twine"
- "Ghost fishing*"
- ghostfish
- "ghost net*"
- "ghost gear"
- ALDFG
- derelict fishing gear*
- abandoned, lost, discarded fishing gear
- "aquaculture pollution"
- "pollution from aquaculture"

In February 2024, each search term, established from the foundational literature above, was applied in the following databases to extract relevant policies: FAOLEX,¹⁴ Duke Plastics

¹⁴ FAOLEX is a policy database with international, regional, national, and subnational laws, regulations and policies on food, agriculture and natural resources management.

Policy Inventory,¹⁵ Portsmouth Global Plastics Policy Centre,¹⁶ and the Global Plastic Laws Database.¹⁷ Among these, FAOLEX is the most comprehensive global legal database, with policies pertaining to food, agriculture, and natural resource management, and the other three comprise the most comprehensive source of plastics policies on international, regional, and subnational levels. All of them publish their methodologies, which include database searches, literature reviews, and expert elicitation, for collecting plastic policies. However, it is possible that these databases do not encompass the full scope of potentially relevant policies for plastics used in agriculture, including those pertaining to fertilizers, animal feedstock, food safety, and pesticides. In addition, other search terms not identified by the researchers might yield further results.

Each policy document was screened for inclusion and was saved if it mentioned relevant terms in policy instruments and actions. Specific attention was paid to indication from governments that they intend to address plastics used in agriculture. Selected policies were then read and qualitatively summarized.

International legally binding conventions and protocols	Targeted agriculture sector(s) and/or inclusion of all plastics
Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Protocol) https://www.imo.org/en/KnowledgeCentre/ConferencesMeetings/Pages/London-Convention-Protocol.aspx	Fisheries (explicit)
Regulations for the Prevention of Pollution by Garbage from Ships (Annex V of MARPOL 73/78, an Optional Annex to the 1978 Protocol Relating to the International Convention for the Prevention of Pollution from Ships, 1973) https://www.imo.org/en/ourwork/environment/pages/garbage-default.aspx	Fisheries (explicit)
United Nations Convention on the Law of the Sea (UNCLOS) https://www.imo.org/en/ourwork/legal/pages/unitednationsconventiononthelawofthesea.aspx	Fisheries (explicit) All plastics
Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations Fish Stocks Agreement - UNFSA) https://treaties.un.org/pages/viewdetails.aspx?src=treaty&mtdsg_no=xxi-7&chapter=21&clang=_en	Fisheries (explicit)
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal https://www.basel.int/theconvention/overview/tabid/1271/default.aspx	Crop production (implicit) All plastics
Stockholm Convention on Persistent Organic Pollutants (POPs) – Text and Annexes Revised in 2019 https://chm.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx	All plastics

¹⁵ The Plastics Policy Inventory is a searchable database of policy documents targeting plastic pollution (January 2000 to January 2023).

¹⁶ A bank of independently reviewed plastics policies and initiatives, evaluated by researchers at the University of Portsmouth.

¹⁷ Global Plastic Laws is an extensive database and resource library focused on plastic legislation.

International voluntary instruments	Targeted agriculture sector(s) and/or inclusion of all plastics
United Nations Environment Assembly (UNEA) Resolutions	
<i>Resolution 1/6: Marine plastic debris and microplastics.</i> https://digitallibrary.un.org/record/3967653?ln=en&v=pdf	Fisheries (explicit)
<i>Resolution 2/11: Marine plastic litter and microplastics</i> https://digitallibrary.un.org/record/3969797?ln=en&v=pdf	Fisheries (explicit)
<i>Resolution 3/7: Marine plastic litter and microplastics</i> https://digitallibrary.un.org/record/3976928?ln=en&v=pdf	Fisheries (explicit)
<i>Resolution 4/6: Marine plastic litter and microplastics</i> https://digitallibrary.un.org/record/3982589?ln=en&v=pdf	Fisheries (explicit)
<i>Resolution 4/7: Environmentally sound management of waste</i> https://digitallibrary.un.org/record/3982590?ln=en&v=pdf	All plastics
<i>Resolution 4/9: Addressing single-use plastic products pollution</i> https://docs.un.org/en/UNEP/EA.4/Res.9	All plastics
<i>Resolution 5/14: End Plastic Pollution: Towards an International Legally Binding Instrument</i> https://digitallibrary.un.org/record/3999257?ln=en&v=pdf	All plastics
Voluntary guidelines and strategies	Targeted agriculture sector(s) and/or inclusion of all plastics
The Honolulu Strategy: A Global Framework for Prevention and Management of Marine Debris (UNEP and NOAA) https://wedocs.unep.org/20.500.11822/10670	Fisheries (explicit) All plastics
Code of Conduct for Responsible Fisheries (FAO) https://openknowledge.fao.org/handle/20.500.14283/v9878e	Fisheries (explicit) Aquaculture (implicit)
FAO Voluntary Guidelines on the Marking of Fishing Gear (FAO) https://openknowledge.fao.org/handle/20.500.14283/ca3546t	Fisheries (explicit) Aquaculture (implicit)
Technical Guidelines on Aquaculture Certification (FAO) https://openknowledge.fao.org/handle/20.500.14283/i2296t	Aquaculture (explicit)
International Guidelines for the Management of Deep-sea Fisheries in the High Seas (FAO) https://openknowledge.fao.org/handle/20.500.14283/i0816t	Fisheries (explicit) Aquaculture (implicit)
International Code of Conduct on Pesticide Management (FAO and WHO) https://openknowledge.fao.org/handle/20.500.14283/i3604e	Crop production (implicit)
International Code of Conduct for the Sustainable Use and Management of Fertilizers (FAO) https://openknowledge.fao.org/handle/20.500.14283/mz476en	Crop production (implicit)
Voluntary Guidelines for Sustainable Soil Management (FAO) https://www.fao.org/land-water/water/drought/drought-portal/details/en/c/1201146/	Crop production (implicit)

European Union legally binding instruments	Targeted agriculture sector(s) and/or inclusion of all plastics
<p>Commission Decision (EU) 2018/813 of 14 May 2018 on the sectoral reference document on best environmental management practices, sector environmental performance indicators and benchmarks of excellence for the agriculture sector under Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme</p> <p>https://eur-lex.europa.eu/eli/dec/2018/813/oj/eng</p>	Crop production (explicit)
<p>Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 Laying Down Rules on the Making Available on the Market of EU Fertilising Products</p> <p>http://data.europa.eu/eli/reg/2019/1009/oj/eng</p>	Crop production (explicit)
<p>Directive (EU) 2019/904 on reducing the impacts of certain plastic products on the environment</p> <p>https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0904</p>	Fisheries (explicit) Crop production (implicit)
<p>Council Decision (EU) 2019/1563 of 16 September 2019 on the Position to be Taken on Behalf of the European Union Within the Western Central Atlantic Fishery Commission (WECAFC)</p> <p>https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D1563</p>	Fisheries (explicit) Aquaculture (explicit)
<p>Regulation (EU) 2019/833 of 20 May 2019 Laying Down Conservation and Enforcement Measures Applicable in the Regulatory Area of the Northwest Atlantic Fisheries Organisation</p> <p>http://data.europa.eu/eli/reg/2019/833/oj/eng</p>	Fisheries (explicit)
European Union voluntary instruments	Targeted agriculture sector(s) and/or inclusion of all plastics
<p>The European Common Agricultural Policy (CAP)</p> <p>https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en</p>	Crop production (implicit) Livestock production (implicit)
<p>EU Soil Strategy for 2030</p> <p>https://environment.ec.europa.eu/topics/soil-health/soil-strategy-2030_en</p>	Crop production (implicit)
<p>Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on an Action Plan for the Development of Organic Production</p> <p>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0141R%2801%29</p>	Crop production (explicit) Aquaculture (explicit)
<p>Communication to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: Strategic Guidelines for a More Sustainable and Competitive EU Aquaculture for the Period 2021 to 2030</p> <p>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52021DC0236</p>	Aquaculture (explicit)
<p>EN 17033:2018 - Plastics - Biodegradable mulch films for use in agriculture and horticulture - Requirements and test methods</p> <p>https://standards.iteh.ai/catalog/standards/cen/b09b1982-efd3-45fe-9d87-7798699e5c3c/en-17033-2018?srltid=AfmBOoqgyiOpRm9TglYjIQsvIGcDYlibYqkS_dliiICza_dxixKSSULz</p>	Crop production (explicit)

Legally binding regional marine environment protection policies	Targeted agriculture sector(s) and/or inclusion of all plastics
<p>Northwest Atlantic Fisheries Organization (NAFO) Conservation and Enforcement Measures (2024)</p> <p>https://www.nafo.int/Fisheries/Conservation</p>	Fisheries (explicit)
<p>Southeast Atlantic Fisheries Organisation (SEAFO): System of Observation, Inspection, Compliance and Enforcement (2019)</p> <p>https://www.fao.org/faolex/results/details/en/c/LEX-FAOCI63878/</p>	Fisheries (explicit)
<p>Additional Protocol to the Abidjan Convention Concerning Cooperation in the Protection and Development of Marine and Coastal Environment from Land-Based Sources and Activities</p> <p>https://apps1.unep.org/resolutions/uploads/2012-abidjan_conventionlbsa_protocol-adopted.pdf</p>	Crop production (implicit) Livestock production (implicit) Forestry (implicit)
<p>International Commission for the Conservation of Atlantic Tunas (ICCAT) Recommendation on Abandoned, Lost or Otherwise Discarded Fishing Gear (2019-11)</p> <p>https://ikhapp.org/all-publications/recommendation-19-11-by-iccat-on-abandoned-lost-or-otherwise-discarded-fishing-gear/#:~:text=This%20recommendation%20requires%20each%20CPC,developing%20CPCs%20in%20relation%20to</p>	Fisheries (explicit)
<p>Protocol Concerning Pollution from Land-Based Sources and Activities to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)</p> <p>https://leap.unep.org/sites/default/files/treaty/lbs-en.pdf</p>	Crop production (implicit) Livestock production (implicit)
<p>North Pacific Fisheries Commission: Conservation and Management Measure on the Prevention, Reduction, and Elimination of Marine Pollution</p> <p>https://www.npfc.int/system/files/2024-07/CMM%202024-15%20On%20the%20Prevention%2C%20Reduction%2C%20and%20Elimination%20of%20Marine%20Pollution.pdf</p>	Fisheries (explicit)
<p>Convention for Cooperation in the Protection and Sustainable Development of the Marine and Coastal Environment of the Northeast Pacific (Antigua Convention)</p> <p>https://www.ecolex.org/details/treaty/convention-for-cooperation-in-the-protection-and-sustainable-development-of-the-marine-and-coastal-environment-of-the-northeast-pacific-tre-001350/</p>	Fisheries (implicit) Aquaculture (implicit)
<p>South Pacific Regional Fisheries Management Organisation (SPRFMO): CMM 08-2023 Conservation and Management Measures for Gillnets in the SPRFMO Convention Area</p> <p>https://www.sprfmo.int/fisheries/conservation-and-management-measures/cmm-08-gillnets</p>	Fisheries (explicit)
<p>South Pacific Regional Fisheries Management Organisation (SPRFMO): CMM 17-2022 Conservation and Management Measure on Fishing Gear and Marine Plastic Pollution in the SPRFMO Convention Area</p> <p>https://www.sprfmo.int/fisheries/conservation-and-management-measures/cmm-17-marine-pollution</p>	Fisheries (explicit)

Legally binding regional marine environment protection policies	Targeted agriculture sector(s) and/or inclusion of all plastics
<p>Southern Indian Ocean Fisheries Agreement (SIOFA) - CMM 2022/091 Conservation and Management Measure for Control of fishing activities in the Agreement Area (Control)</p> <p>https://siofa.org/management/CMM/09%282022%29</p>	<p>Fisheries (explicit)</p>
<p>Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities (Nairobi Convention)</p> <p>https://www.nairobiconvention.org/nairobi-convention/who-we-are/nairobiconvention-protocols/</p>	<p>Crop production (implicit)</p> <p>Livestock production (implicit)</p> <p>Aquaculture (implicit)</p>
<p>General Fisheries Commission for the Mediterranean (GFCM): 2030 Strategy for Sustainable Fisheries and Aquaculture in the Mediterranean and the Black Sea (GFCM/44/2021/1)</p> <p>https://leap.unep.org/en/countries/national-legislation/resolution-gfcm44202112-gfcm-2030-strategy-sustainable-fisheries-and</p>	<p>Fisheries (explicit)</p> <p>Aquaculture (explicit)</p>
<p>General Fisheries Commission for the Mediterranean (GFCM) Recommendation on the Regional Marking of Fishing Gear (GFCM/42/2018/11)</p> <p>https://www.fao.org/faolex/results/details/en/c/LEX-FAOC201614</p>	<p>Fisheries (explicit)</p>
<p>The Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention)</p> <p>https://www.unep.org/unepmap/who-we-are/barcelona-convention-and-protocols</p>	<p>Fisheries (explicit)</p> <p>Aquaculture (implicit)</p> <p>Crop production (implicit)</p> <p>Livestock production (implicit)</p>
<p>Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention)</p> <p>https://helcom.fi/about-us/convention/</p>	<p>Fisheries (explicit)</p> <p>Crop production (implicit)</p> <p>Aquaculture (implicit)</p>
<p>Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities (The Black Sea Commission)</p> <p>https://www.ecolex.org/details/treaty/protocol-on-the-protection-of-the-marine-environment-of-the-black-sea-from-land-based-sources-and-activities-tre-154598/</p>	<p>Crop production (implicit)</p> <p>Forestry (implicit)</p>
<p>Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention)</p> <p>https://tehranconvention.org/</p>	<p>Crop production (implicit)</p>
<p>Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) - Protocol concerning the Protection of the Marine Environment from Land-Based Activities in the Red Sea and Gulf of Aden</p> <p>https://persga.org/app/uploads/2024/05/1716107249_278_750834_lbaprotocol2005.pdf</p>	<p>Crop production (implicit)</p> <p>Livestock production (implicit)</p> <p>Aquaculture (implicit)</p>

Voluntary regional marine environment protection instruments	Targeted agriculture sector(s) and/or inclusion of all plastics
<p>General Fisheries Commission for the Mediterranean (GFCM) Regional plan of action for small-scale fisheries in the Mediterranean and the Black Sea</p> <p>https://openknowledge.fao.org/server/api/core/bitstreams/2clb75a9-7183-4948-aa97-998389f3be3bb/content</p>	Fisheries (explicit)
<p>Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) Recovery Plan for Baltic Harbour Porpoises- Jastarnia Plan</p> <p>https://www.ascobans.org/en/document/ascobans-recovery-plan-baltic-harbour-porpoises</p>	Fisheries (explicit)
<p>Caribbean Regional Fisheries Mechanism (CRFM) Strategic Plan 2022–2030</p> <p>https://www.crfm.int/index.php?option=com_k2&view=item&id=698:third-crfm-strategic-plan-2022-2030&Itemid=449</p>	Fisheries (explicit)
<p>ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States</p> <p>https://asean.org/book/asean-regional-action-plan-for-combating-marine-debris-in-the-asean-member-states-2021-2025-2/</p>	Fisheries (explicit)
<p>Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) - Interim Prohibition of Deep-Sea Gillnetting (Conservation Measure 22-04 of 2010)</p> <p>https://cm.uat.ccamlr.org/en/measure-22-04-2010</p>	Fisheries (explicit)
<p>The Helsinki Commission Regional Action Plan for Marine Litter in the Baltic Sea (2015 and revised in 2021)</p> <p>https://helcom.fi/action-areas/marine-litter-and-noise/marine-litter/marine-litter-action-plan/</p>	<p>Fisheries (explicit)</p> <p>Crop production (explicit)</p> <p>Livestock production (explicit)</p>
<p>OSPAR Regional Action Plan for Prevention and Management of Marine Litter in the North-East Atlantic (original 2014, revised in 2022)</p> <p>https://www.ospar.org/work-areas/eiha/marine-litter/regional-action-plan</p>	<p>Fisheries (explicit)</p> <p>Aquaculture (explicit)</p> <p>All plastics</p>
<p>Northwest Pacific Action Plan (NOWPAP) Regional Action Plan on Marine Litter</p> <p>https://globalplasticshub.org/action-plan/200</p>	<p>Fisheries (explicit)</p> <p>Aquaculture (explicit)</p>
<p>The Secretariat of the Pacific Regional Environment Programme (SPREP) Regional Action Plan for Marine Litter</p> <p>https://www.sprep.org/publications/pacific-regional-action-plan-marine-litter</p>	Fisheries (explicit)
<p>The Coordinating Body on the Seas of East Asia (COBSEA) Regional Action Plan on Marine Litter</p> <p>https://globalplasticshub.org/initiative/10793</p>	<p>Fisheries (explicit)</p> <p>All plastics</p>

Annex 2

All search terms tested in policy review

Terms	Terms that produced no results	Terms that produced too many irrelevant results
<ul style="list-style-type: none"> ■ Agricultural plastic* ■ Farm Plastics ■ "Mulch* film*"" ■ Bale twine ■ "Ghost fishing*" ■ Ghostfish ■ "Ghost net*" ■ "Ghost gear" ■ ALDFG ■ "Ghost fishing*" ■ Ghostfish ■ "Ghost net*" ■ "Ghost gear" ■ "Aquaculture pollution" ■ "Pollution from aquaculture" 	<ul style="list-style-type: none"> ■ "Bags and sack*" ■ "Fertilizer sack*" ■ Silage films ■ Fruit protector* ■ Plant protector* ■ "Polymer coated fertilizer" ■ "Nursery pot tray*" ■ "Irrigation pipe*" ■ Tunnel and greenhouse films* and net* ■ Irrigation tubes and driplines ■ Non-woven textile protection ■ Hermetic storage bags ■ Reusable crates ■ "Support tie*" ■ Tree guard* ■ Chainsaw fuel container ■ Bunker cover* ■ Bale net* ■ Silage tube* ■ Insulating crates 	<ul style="list-style-type: none"> ■ Polymer coat* ■ Bottles ■ Coatings on fertilizers, pesticides and seeds ■ Non-woven protective textiles or "fleece" ■ Nets, ropes, lines, traps and enclosure* ■ Flexible intermediate bulk container* ■ Ear tag ■ Fishing nets ■ Ropes ■ Derelict fishing gear* ■ Abandoned, lost, discarded fishing gear ■ "Aquaculture equipment" ■ "Aquatic debris"

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