CALL FOR SUBMISSIONS:
Towards the development of a Voluntary Code of Conduct on the sustainable use of plastics in agriculture

Template for submissions (maximum 2000 words in total)

In the context of the development of the Voluntary Code of Conduct on the sustainable use of plastics in agriculture (VCoC), FAO's Office of Climate Change, Biodiversity and Environment (OCB) invites you to submit your feedback on the questions below, and to share good practices and lessons learned on the sustainable use of plastics and agriculture and their alternatives.

You are welcome to respond to any of the below questions, as per your interest and expertise. Your responses, alongside the feedback we gather during our ongoing webinar consultations, will help inform the first full draft of the VCoC.

You can provide your feedback by answering questions in any of the six UN languages (English, French, Spanish, Russian, Arabic and Chinese).

To take part in this Call for submissions, please get registered or login to your account on the FSN Forum website; and upload the completed submission form on the dedicated webpage. For any technical support regarding downloading or uploading the submission form, please send an email to fsn-moderator@fao.org.

The Call for Submissions is open until November 7, 2023.
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TEMPLATE for SUBMISSION
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TEMPLE for SUBMISSION

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1. Proponent (name and surname; email address; country)

Repa Kustipia, rkustipia@gmail.com, Indonesia

2. Name of organization and organization type: Academia and research, Government; IGO; Independent Consultant; NGO, Private Sector, PRO; Standard Setting; Trade association (if applicable)

Center for Study Indonesian Food Anthropology (CS-IFA) and Social Enterprise Gastro Tourism Academy
Type Organization: Independent Research Study Center (Foundation) and Social Enterprise

3. Gender (Female; Male; Other; Prefer not to say)

Female

4. Reducing problematic plastics

Some plastic materials and products used in agriculture are unnecessary, avoidable, problematic, or short lived. A VCoC could recommend their banning, reducing or phasing out. Examples include products made of polyvinyl chloride (PVC); oxo-degradable plastics; non-biodegradable polymer coated fertilizers; mulching films; and bale film and nets.

Which plastics polymers, substances or products the VCoC could recommend banning, reducing or phasing out?

PVC (Polyvinyl Chloride), Oxo-degradable plastic, Non-Biodegradable Polymer Coated Fertilizer, and Mulch Film. In Indonesia, plastic plays an important role in agricultural activities. Various plastic materials and products are widely used to meet the various needs of agricultural practices. This includes mulch film, which is used to cover the soil around plants, effectively reducing soil erosion, controlling weed growth, and preserving soil moisture. Plastic irrigation hose is an important component in drip irrigation systems, ensuring efficient distribution of water to plants. Polybags are usually used to initially plant seeds before being transferred to the field. In addition, plastic planting containers, such as pots and trays, are used to maintain and cultivate various plants. Some fertilizers are packaged in plastic materials, usually polyethylene or polypropylene bags. Additionally, protective nets made of plastic are deployed to protect plants from pests, birds and extreme weather conditions. Finally, plastic is widely used for product packaging, providing a protective layer to agricultural goods such as fruit and vegetables, ensuring their quality and freshness until they reach the market.
5. Alternatives and substitutes

Solutions to improve the sustainability of plastics used in agriculture include adopting agricultural practices that avoid the use of plastic, or substituting plastic products with other materials, including biobased and biodegradable alternatives. For example, some fishing gear components could be biodegradable; plastic mulch could be substituted with cover crops in some applications.

What guidance should the VCoC include on plastics alternatives and substitutes?

In Indonesia, plastics play a vital role in agriculture, with their use in mulching films, irrigation hoses, polybags, growing containers, and packaging. However, there's growing concern over the environmental impact. To address this, the Voluntary Code of Conduct (VCoC) on sustainable plastic use in agriculture is recommended. It should emphasize promoting eco-friendly alternatives and substitutes. The VCoC must provide guidance on adopting sustainable practices that reduce plastic usage, such as employing biodegradable components in fishing gear and replacing plastic mulch with cover crops. Education, regulation, and waste management should be integral components to ensure successful adoption of these sustainable practices.

6. Reuse and sustainable design

Some plastic products are necessary and cannot be replaced by alternative practices or materials. In some cases, their lifespan can be increased by promoting reuse and repurpose. In addition, labeling, product standards and design can reduce the environmental impact of plastic life cycle: for example, mandatory plastic mulch thickness can ensure its retrieval and prevent the generation of microplastics.

How could the VCoC improve the sustainability of plastics products used in agriculture through guidance on products reusing, repurposing, standards and design?

The Voluntary Code of Conduct (VCoC) aims to enhance the sustainability of plastic products used in Indonesian agriculture, addressing the pressing issue of plastic waste mismanagement. To achieve this, VCoC offers guidance on using plastic items, emphasizing the promotion of repurposing practices such as reusing plastic pots and containers. It advocates the development and implementation of product standards to ensure plastic items are durable and recyclable. Additionally, VCoC encourages sustainable product design, minimizing plastic use where possible. It underscores the importance of labeling and information dissemination to educate farmers on reuse possibilities. Overall, VCoC seeks to foster a culture of responsible plastic usage in agriculture to mitigate environmental challenges.

7. Selection criteria

Trade-offs may become evident when assessing a fossil-based plastic product against an alternative. For example, many biodegradable products are more expensive than their fossil-based counterparts. Plastic products and their alternatives should be assessed and compared across their life cycle and for all dimensions of sustainability including food security, food safety and nutrition. Management options should be assessed for each particular application and in specific contexts.
What guidance should the VCoC include to balance the benefits and trade-offs of plastics and their alternatives?

Guidelines within the VCoC, adopting a rural sociology approach, play a pivotal role in striking a balance between the advantages and disadvantages of plastics and their alternatives in Indonesia’s rural settings. These guidelines underscore the importance of conducting comprehensive assessments, delving into the social and economic repercussions of plastic use and alternatives within rural contexts. They emphasize community engagement, advocating for active dialogue and consultation with local inhabitants, thereby gaining insights into their values and requirements regarding plastic or alternative usage. Furthermore, the guidelines emphasize the significance of tailoring policies to match the unique characteristics of rural Indonesia. By implementing these directives, the VCoC contributes to the creation of a holistic and sustainable framework for evaluating plastics and alternative applications, respecting the diverse social, economic, and cultural aspects of rural communities in Indonesia.

8. End-of-life and EPR schemes

After its intended use, it is paramount that plastic waste is retrieved and is not left contaminating the environment. Waste collection, recycling and disposal can be driven by the establishment of Extended Producer Responsibility (EPR) schemes. In addition, it is important to address the issues of illegal dumping and open burning. MARPOL Annex V and LC/LP already addresses illegal dumping and disposal of plastic waste from sea-based activities. Traceability mechanisms can also support compliance and enforcement activities.

What guidance should the VCoC include on the end-of-life management of agricultural plastics waste, including through Extended Producer Responsibility (EPR) schemes?

In the context of agriculture in Indonesia, the Voluntary Code of Conduct (VCoC) should encompass guidelines tailored to address the unique challenges related to plastic usage and waste management. While the country has a strong tradition of minimizing plastic usage in farming, challenges emerge as agricultural production scales up, leading to increased plastic consumption. To balance the benefits and trade-offs, VCoC should emphasize a holistic life cycle assessment of plastics and alternative materials, considering social, economic and environmental impacts. Cost comparisons between plastic and alternatives should be realistic, aiding decision-making for farmers. Moreover, the guidelines should focus on education and training, recognizing the limited resources for recycling in the agricultural sector. Encouraging sustainable innovations that provide affordable and eco-friendly alternatives can significantly reduce plastic usage. Collaboration among government, industry, and NGOs can foster collective solutions. Continuous monitoring and evaluation should ensure the successful implementation of VCoC recommendations and their impact on agriculture, waste management, and the environment, aligning with Indonesia’s unique agricultural challenges.

9. Microplastics
Micro and nano-plastics pollute agricultural soils and oceans, and are harmful to ecosystems, animals and potentially human health. Sources of microplastic pollution in agriculture include sewage sludge application, the use of non-biodegradable polymer coated fertilizers, seeds and pesticides, and the use of non-biodegradable dolly-rope.

How could the VCoC support the reduction of microplastics pollution in agriculture?

Vertical Cultivation of Crops (VCoC) is a sustainable agricultural method that can aid in reducing microplastic pollution in farming, particularly in environments where the ecosystem has been damaged due to mining and ecological issues, like in Indonesia. VCoC encourages the use of organic growing media, reducing the risk of microplastic contamination from polluted soil. Additionally, it promotes a reduction in plastic usage, such as plastic bags or mulch, commonly seen in conventional agriculture. Closed-loop water recycling systems within VCoC minimize the risk of microplastic contamination of groundwater, potentially harming crops. Organic farming practices under VCoC reduce the use of chemical fertilizers and synthetic pesticides, often sources of microplastics. Proper waste management, facilitated by VCoC, can minimize microplastic contamination from waste. Furthermore, VCoC serves as a platform for environmental education and awareness, educating farmers and local communities on the importance of sustainable farming and environmental preservation. It can also aid in advanced environmental monitoring and be supported by government policies and regulations promoting sustainable farming and plastic reduction. Cooperation among farmers, government, and society is essential to achieve the broader goal of reducing microplastic pollution alongside VCoC.

10. Stakeholder engagement

Multistakeholder engagement is necessary to promote active and meaningful participation in the development and implementation of the VCoC. The VCoC may target a broad range of stakeholders including governments; manufacturers, installers, distributors of plastic products or their alternatives; farmers, foresters and fishers; Indigenous Peoples, youth, and waste collectors, recyclers and disposers, both from the formal and informal sectors.

How to ensure (and what guidance is needed for) meaningful engagement of all relevant stakeholders in the development and implementation of the VCoC?

Sustainable agriculture is crucial for the long-term health of our planet. It encompasses a variety of farming practices aimed at minimizing environmental impact while ensuring food security. Sustainable agriculture focuses on preserving soil health, conserving water resources, reducing chemical inputs, and promoting biodiversity.

One key element of sustainable agriculture is organic farming, which eliminates the use of synthetic pesticides and fertilizers, relying instead on natural processes to increase soil fertility and control pests. Crop rotation and cover cropping are also common practices in sustainable agriculture, as they help improve soil structure and nutrient cycling.

Furthermore, sustainable agriculture places a strong emphasis on responsible land management to prevent deforestation and habitat destruction. Agroforestry, for example, integrates trees with crops
or livestock, providing multiple benefits such as improved soil fertility, carbon sequestration, and diversified income sources for farmers.

Precision agriculture, which employs technology like GPS and remote sensing, allows for more efficient use of resources like water and fertilizer, reducing waste and environmental impact. Overall, sustainable agriculture represents a holistic approach to farming that prioritizes the long-term well-being of the environment, communities, and future generations. It recognizes that the health of our planet and the production of nutritious food are interconnected goals that can be achieved through thoughtful and eco-conscious practices in the agricultural sector.

11. Financial instruments, technical assistance and trade

The VCoC could recommend incentives for financial institutions to create instruments (e.g. EPR schemes) to promote circular economy of plastics in agriculture. Technical assistance could support assessments, development of alternatives, skills and capacity building. Trade policies can support a more sustainable management of agricultural plastics by restricting or banning the import of plastic products that do not respect products standards.

What financial incentives, priorities for technical assistance and trade measures could be included in the VCoC?

In light of Indonesia's intricate archipelagic terrain and adopting an economic anthropological perspective, the integration of financial incentives, technical assistance priorities, and trade measures into the Vertical Cultivation of Crops (VCoC) framework must be thoughtfully tailored to accommodate the nation’s distinctive attributes. To this end, a set of recommendations emerges:

- **Financial Incentives**: To bolster the adoption of sustainable agricultural practices, financial incentives could play a pivotal role.
- **Subsidies or Low-Interest Loans**: The government can extend financial support through subsidies or low-interest loans to empower farmers.
- **Tax Incentives**: Encouraging innovation and the local production of eco-conscious plastic products for agriculture can be facilitated through tax incentives.
- **Priority for Technical Assistance**: Focusing on local needs and understanding the intricacies of diverse agricultural practices across Indonesia's numerous islands.
- **Local Research**: Prioritizing technical assistance through localized research efforts ensures a deep understanding of the unique challenges and requirements of agriculture in different regions, factoring in indigenous cultures and traditional farming techniques.
- **Training and Education**: Extensive training and education programs targeting farmers and local communities can promote the adoption of sustainable farming techniques, plastic waste reduction, and the utilization of eco-friendly alternatives, fostering a broader cultural shift towards sustainable agriculture.
- **Trade Measures**: Trade policies can be instrumental in advancing sustainable agricultural practices by promoting responsible plastic use.
- **Product Standards Enforcement**: Strengthening import controls on agricultural plastic products is essential to guarantee their adherence to elevated safety and environmental standards, mitigating the introduction of subpar materials into the market.
**Local Product Development**: Encouraging the development and production of environmentally friendly plastic alternatives within Indonesia bolsters self-reliance, reducing reliance on imported plastic products.

**In the context of financial incentives, technical assistance priorities, and trade measures for sustainable agriculture, an anthropological perspective seeks to comprehend:**

- **Culture and Local Values**: Anthropology investigates how the local culture and values of various regions in Indonesia influence their perception of agricultural innovations, such as the use of plastics in farming.
- **Traditional Farming Practices**: Anthropology delves into traditional farming practices across diverse Indonesian communities and examines how the use of plastics may either clash with or support these practices.
- **Social Interaction and Collective Decision-Making**: Social aspect analyzes how decisions related to farming and plastic use are made at the community or societal levels.
- **Social and Economic Impacts**: From an anthropological standpoint, understanding the social and economic repercussions of plastic use in agriculture is crucial.
- **Adaptation to Change**: Anthropology explores how communities and farmers adapt to changes in agricultural practices, especially when financial incentives or new technologies are introduced.

Through this anthropological lens, a deeper insight into how agricultural practices and the utilization of plastics in agriculture are shaped by and shape culture, values, and social structures across diverse Indonesian communities can be gained. Because Indonesia point of view needs cultural insight too.

### 12. Regulatory and enforcement mechanisms

Good practices to support regulatory and enforcement mechanisms that could be included in the VCoC include: product registration, product licensing, product standards, licensing of actors in the supply chain, licensing users of plastic products, traceability mechanisms, and labelling with usage and end-of-life management instructions.

**How could the VCoC provide guidance on efficient regulatory and enforcement?**

The VCoC can provide efficient regulatory and enforcement guidance for agriculture in Indonesia by fostering collaboration among various stakeholders, including the government, agricultural industry, research institutions, and local communities. It can facilitate the development of relevant product standards, overseeing mechanisms, and certification processes for environmentally friendly plastic products used in farming. Technology-based approaches, such as sensor monitoring and data-driven applications, can be implemented for effective supervision. Additionally, educational programs and awareness campaigns can promote sustainable farming practices and responsible plastic use among farmers and stakeholders. Emphasizing a commitment to sustainability, VCoC aims to reduce plastic waste and encourage responsible plastic waste management in agriculture.

### 13. Research and knowledge gaps

Research gaps need to be addressed to inform effective policies for the sustainability of plastics used in agriculture, including among others: the impacts of macro, micro and nano plastic pollution on soil,
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14. Implementation arrangements

Typical FAO Codes of Conduct provide an overarching framework under which more detailed guidelines, standards and tools are developed. It is important that Codes of Conduct are kept up to date with the latest policy, scientific and technological developments. Codes of Conduct are supported by technical committees that meet regularly to review developments, recommend improvements and new subsidiary guidance.

What technical aspects should be regularly reviewed to keep the Code up to date, and how could the Technical Committee(s) be structured to best review these aspects?

The formation of the Technical Committee should include representation from various stakeholders involved in agriculture, including indigenous community representatives, government bodies, private sector entities, and research institutions. The Committee should possess a strong understanding of cultural diversity and social values in Indonesia to ensure that the Code remains relevant, sustainable and respectful of local environmental conservation traditions.

In the socio-cultural and economic context of Indonesia, there are several technical aspects that should be periodically reviewed to keep the Code up to date and culturally relevant, especially...
considering the traditional practices of indigenous communities that prioritize environmental conservation. These aspects include:

- **Adherence to Customary Laws**: This aspect involves understanding how the Code can align with customary laws and traditions of environmentally conscious indigenous communities across various regions of Indonesia.
- **Sustainable Technologies**: Regular evaluations of sustainable technologies that align with the needs and availability in Indonesia are crucial.
- **Waste Management**: Effective waste management, including plastic waste, in the context of Indonesian agriculture should be a primary concern.
- **Local Community Participation**: Local communities, especially those following environmental conservation traditions, should have an active role in the Code’s review process.
- **Monitoring and Enforcement**: Aspects related to monitoring and enforcement of the Code should be periodically reviewed to ensure that existing rules can be effectively implemented at the local level.

15. Structure of the VCoC

Different options for structuring the VCoC exist to ensure it efficiently targets all agricultural subsectors (crop and livestock, forestry, fisheries and aquaculture). For example, the VCoC could focus primarily on terrestrial agriculture, and include fisheries and aquaculture only by cross-referencing existing policies and guidelines. Alternatively, the VCoC could have an umbrella structure valid for all subsectors, followed by specific guidelines for different subsectors (crop and livestock, forestry, fisheries and aquaculture). Finally, the VCoC could have an umbrella structure valid for all subsectors, followed by guidelines on specific aspects (including for example, durable/single use products, licensing, labelling and EPR Schemes).

*Which structure would be more efficient in targeting all agricultural subsectors?*

In Indonesia, the most efficient structure for the VCoC will depend on various factors, including the complexity of the agricultural sector, the diversity of subsectors, and the goals to be achieved. However, given the diversity of agricultural subsectors in Indonesia, a possible combination of "Umbrella Structure with Subsector Guidance" and "Umbrella Structure with Specific Aspect Guidance" may be a suitable option.

- **Umbrella Structure with Subsector Guidance**: An umbrella structure can encompass general principles applicable to all agricultural subsectors in Indonesia, such as plastic waste management and sustainable farming practices.
- **Umbrella Structure with Specific Aspect Guidance**: An umbrella structure can also focus on specific aspects relevant to all agricultural subsectors in Indonesia, such as the use of durable/single-use products, licensing, labeling, and EPR schemes.

However, it is essential to engage in consultations with various stakeholders, including the government, farmers, agricultural industries, and indigenous communities, to determine the structure that best suits the needs and characteristics of agriculture in Indonesia.

16. Agrifood value chains stages
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The VCoC could encompass different stages of the agrifood value chains. It could target plastics used solely for primary agricultural production; it may also include plastics used for agrifood storage, transport, processing and distribution; and finally, it may include the entire agrifood value chain from production to consumption, including consumer packaging.

Which stages of the agrifood value chains should be covered by the VCoC?

Determining the stages that the VCoC should cover in the Indonesian agricultural context will depend on the objectives and challenges faced in the sector. There are several stages that can be considered, including primary agricultural production, storage and transportation, processing and distribution, and consumer packaging. Each stage has different environmental and social impacts, and therefore, it is necessary to collaborate with various parties to design an effective and sustainable framework that takes into account the unique characteristics of agriculture in Indonesia.

17. Good practices and lessons learned

Good practices for the sustainable management of plastics and their alternatives can be found in all regions of the globe. Please leave below any information regarding specific applications, good practices, lessons learned, and innovative approaches on the management of plastics in agriculture and their alternatives.

Lessons learned from the use of plastic in Indonesian agriculture underscore the urgency of adopting more sustainable practices. The environmental consequences of plastic use, including widespread pollution, necessitate a shift towards alternatives that minimize ecological harm. The high dependency on plastics, coupled with their price volatility, highlights the need for diversifying materials and investing in long-lasting solutions. Increasing education and awareness campaigns about the adverse effects of plastic use can drive behavioral change among farmers and communities. Encouraging local innovation and supporting grassroots initiatives can yield promising eco-friendly solutions. Strengthening governmental policies and fostering collaboration among stakeholders will be crucial in forging a more sustainable path for Indonesia's agriculture.

18. Links and additional comments

References:
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