PRISMA

Australia-Indonesia Partnership for Promoting Rural Incomes through Support for Markets in Agriculture

PRISMA

ENVIRONMENTAL PROTECTION STRATEGY

Operational Guideline for Safeguarding and Managing Environmental Risk, Impact and Outcome

Version 2.1
August 31, 2019

Version Control

Version	Date	Revision	Rationale Details	Author	Approver
1.0	January 26, 2015 (PRISMA phase 1)	PRISMA Environmental Management System (EMS)	Initial Environmental Management System (EMS) Document.	Matthew Savage (Oxford Consulting Partners)	Sadia Ahmed
2.0	September 5, 2018 (PRISMA phase 1)	Environmental Management Strategy (EMS): A Proactive and Practical Environment Approach for Agriculture Market Development.	Improvement to go beyond do no harm while staying proactive and practical. Introducing a review, monitoring and value chain based qualitative impact measurement aspect that is inspired by Life Cycle Assessment (LCA) approach.	William Soe, Mamta Mehra	Goetz Ebbecke, Khaled Khan
2.1	August 31, 2019	Environmental Protection Strategy: delivered as part of PRISMA 5 years strategy to DFAT -	Version improvement integrating aspects and learnings from TIRTA, SAFIRA & ARISA, complying with updated DFAT Environmental and Social Safeguard policy & operational procedures (March 2019) and capturing positive impact to environment.	Teddy Kristedi, William Soe	

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List of Abbreviations and Acronyms

AIP-RURAL	: Australia-Indonesia Partnership for Rural Economic Development
AMDAL	: *Analisis Dampak Lingkungan*, a form of hypothetical environmental impact assessment following the Indonesian standard
DFAT	: Department of Foreign Affairs and Trade
DEE	: Department of the Environment and Energy
EDA	: Environment Desk Assessment
ELCIA	: Environment Life Cycle Impact Assessment
EPS	: Environmental Protection Strategy
ESC	: Environment Smart Checklist
GHG	: Greenhouse gas
GSD	: Growth Strategy Document
GoI	: Government of Indonesia
ICN	: Intervention Concept Note
IP	: Intervention Plan
ISD	: Intervention Steering Document
M4P	: Making Market Work for the Poor
MSD	: Market System Development
PMT	: Project Management Tool
PRISMA	: Promoting Rural Income through Support for Markets in Agriculture
QMT	: Quality Monitoring Tool

Executive summary

The livelihood of smallholder farming households in rural Indonesia heavily depends on environmentally sensitive natural resources which can be impacted by project activities as well as by wider environmental change, including climate change. Acknowledging this, PRISMA integrates an environmental context into its interventions, both to capitalize and to maximize any possible positive environmental impact, and to minimize any negative environmental impact.

PRISMA's first environmental management strategy embodied the "do no/less harm" principle and has been applied in the program since 2015. Up to now, PRISMA has conducted 57 environmental desk assessments of its interventions and three environment life cycle assessments of select commodities, namely coffee, maize and livestock. During the second semester of 2018, PRISMA updated its EPS, which was reviewed and endorsed by the Australian government's Department of Foreign Affairs and Trade (DFAT)[1].

At the start of Phase 2, PRISMA has revised its environmental management strategy. This latest version keeps the solid foundation of the "do no/less harm" principle, and at the same time makes a progressive shift towards a more proactive stance on the impact of its interventions on the environment. This translates into an emphasis on positive environmental impact, by incorporating resilience-oriented indicators, derived from climate smart-agriculture approaches, into the program's intervention plans.

This strategy integrates learning from the former AIP-Rural suite of programs and adopts relevant elements from the latest DFAT Environmental and Social Safeguard policy and operational procedures (March 2019). In addition, it aligns with the Indonesian environmental guideline (AMDAL), thereby making it more proactive and at the same time compliant with both Indonesian and Australian environmental regulatory frameworks. To facilitate the operationalization of the strategy, this paper includes a process flowchart and a range of tools which are closely aligned with the relevant aspects of DFAT's risk matrix and the Significant Impact Guidelines of the Australian government's Department of the Environment and Energy. In addition, the scores and findings of the environment assessment will become an integral part of any intervention approval process and the program's quality monitoring tool, encouraging and incentivizing the program's interventions teams to take a more nuanced and proactive view of the environment.

[1] This second version of the EPS was not applied in practice, as no new intervention was initiated during the closing phase of the program.

1. Introduction to the Environmental Protection Strategy (EPS)

1.1. Background to the PRISMA approach

The Promoting Rural Incomes through Support for Markets in Agriculture (PRISMA) is a multi-year Australia-Indonesia partnership program, working to accelerate poverty reduction through inclusive economic growth. It partners with key stakeholders to improve agricultural competitiveness, productivity and profits for smallholder farming households in Indonesia. PRISMA aims to achieve an income increase for one million of these households by 2023. It focuses on various agricultural sectors in six provinces of Indonesia: Central Java, East Java, West Nusa Tenggara (NTB), East Nusa Tenggara (NTT), West Papua and Papua. Adopting the market system development (MSD) approach, the first phase of the program (2013-18) has benefited 345,001 smallholder farming households with an average increased income of 252%.

As an MSD program working in the agriculture sector, PRISMA is inevitably exposed to various environmental impacts, both those it inflicts on and those it receives from the environment. The rural poor as the intended program beneficiaries depend heavily on environmentally sensitive natural resources for their livelihoods. These resources can be impacted negatively by programmatic activities, as well as by wider environmental change (including climate change). PRISMA might also provide opportunities for improvements to environmental conditions, or to strengthen farming household resilience to environmental change. Although it does not focus directly on the environmental factors of market systems, it is important that the program understands the environmental context in which it works, in order to maximise and capitalize any possible positive environmental impact, while maintaining its "do no harm" approach and, whenever possible, reducing harm to the environment.

1.2. Introduction to the EPS document

This document has been developed based on the PRISMA Phase 1 environmental strategy (2018), which has been proven to be effective and endorsed by DFAT. Insights from (1) TIRTA's environmental strategy (2018), (2) DFAT's 2019 Environmental and Social Safeguards Policy[2] and operational procedures[3], and (3) the shift from the principle of "do no harm" to a more pro-active approach are the key drivers which steer the updating process of this guideline.

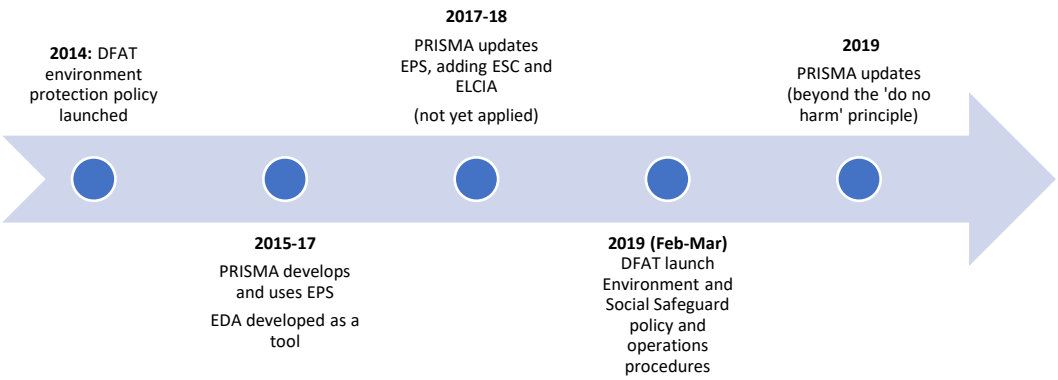

Figure 1. Historical outline of PRISMA's Environmental Protection Strategy (EPS) document.

The updated PRISMA environmental protection strategy document aims to:

[2] DFAT Environmental and Social Safeguard Policy, February 2019.
[3] DFAT Environmental and Social Safeguard operational procedures, March 2019.

- establish a common understanding and provide a guideline, tools and system to enable for program staff to continue their good work;
- enable awareness creation among staff regarding the risks and potential positive/negative impacts on the environment resulting from the program's interventions;
- facilitate PRISMA staff to identify, manage and mitigate any potential negative outcomes of intervention activities on the environment;
- streamline inclusion of good environmental and climate-smart agriculture practice into the program.

This document provides a set of tools for staff to use to self-assess the program's environmental impact, as well as a mechanism to identify, mitigate, assess and re-assess environmental risk during the program cycle.

2. Compliance and principles: their application to the PRISMA context

2.1 Principles of and compliance with Indonesia and Australia legal framework

This update to the program's Environmental Protection Strategy provides an opportunity to enhance its compliance with the Indonesia and Australia regulatory frameworks on environment protection.

The legal frames of reference of this document are as follows:

- The Indonesia legal framework applied in this document refers to ***Analisa Mengenai Dampak Lingkungan*** **(AMDAL)**, as mentioned in the Republic of Indonesia Law No. 32 Year 2009 (on Environmental Protection and Management) and Ministry of Environment Regulation No.5/2012 (regarding types of activity/project requiring environmental impact assessment). This describes which facilities and activities are covered by the Government of Indonesia's environmental impact assessment system, and the procedural steps by which to meet government compliance requirements.
- The DFAT guideline states that all its investment needs to refer to the Australia's **Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)**. It provides **"**Significant Impact Guidelines 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies[4]" as a tool to assist in determining whether a referral is necessary.

This "Environmental Protection Strategy" (EPS) document has been developed with DFAT's updated Environmental and Social Safeguard Policy (February 2019) and its subsequent Operational Procedures (March 2019) in mind, and follows the five environmental safeguards principles outlined therein:

- Principle 1: do no harm
- Principle 2: identify, assess and manage environmental and social impacts
- Principle 3: engage effectively with stakeholders
- Principle 4: work effectively with partners
- Principle 5: promote improved environmental and social outcomes

In accordance with *Australian Government Legislation – The Environment Protection and Biodiversity Conversion Act, 1999*, "the environment" is defined as:

a) ecosystems and their constituent parts, including people and communities;
b) natural and physical resources;

[4] http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-12-actions-or-impacting-upon-commonwealth-land-and-actions.

c) qualities and characteristics of locations, places and areas;
d) heritage value of places; and
e) social, economic and cultural aspects of the items mentioned in (a), (b), (c) or (d).

2.2 Key definitions

Contextualising the principles and definition outlined in section 2.1, PRISMA intends to (1) prevent, observe and assesses the presence of any **negative environmental impact** of its investment, and (2) promote **positive environmental impacts** and feasible options regarding climate-smart agricultural practices as part of the market-based solutions that the program is working to achieve.

In terms of **negative impacts**, PRISMA will:

1. be attentive to any risk of negative impact which might happen due to the program's presence and activity;
2. attempt to circumnavigate or avoid being engaged in a market with any environmental risk which might impair the program's activities and output.

As for **positive impacts**, PRISMA will:

1. pursue opportunities to leverage environmental issues which might be present in the market system in order to advance the program's outcome;
2. be attentive to any attributable positive impact established in the field and establish a positive impact on the environment whenever feasible.

In managing the program's accountability for its environmental impact, PRISMA employs the following definitions:

- **Direct environmental impact**. This is the first degree of change to impact on any environmental indicators which happens due to innovation adoption by the program's target beneficiaries. For instance, an innovation which reduces the utilisation of scarcely available water in a specific area could reduce resource utilisation as a direct impact of that innovation.
- **Indirect environmental impact**. In contrast, this refers to the attribution of change outside the intervention's direct impact. The definition thus covers any consecutive impact on other environmental indicators instigated by the direct impact of the program. For instance, the above example of reduction of water utilisation might positively contribute to a better supply of water for wildlife around the agricultural area, as well as reducing the requirement or length of time needed for a pumping mechanism to supply that water. This would result in a positive impact in terms of maintaining biodiversity, and by reducing other resources (such as the fuel needed for the pump) and/or the emission of carbon into the atmosphere from the pumping mechanism. One of the main tools PRISMA will employ in observing this kind of impact is carbon footprint calculation and analysis.
- **Directly attributable environmental impact**. This refers to attribution to first degree of change to any environmental indicators within the reach of an intervention's direct impact. This is an impact which has occurred indisputably because of changes in practice or input selection resulting from the program's direct intervention, for example training or promotions. Typically, direct environmental impact is also (but not always) directly attributable to the intervention. For instance, reduction of resource utilisation (such as water) is a direct impact directly attributable to an intervention which has promoted an innovation which reduces use of a scarce resource in a specific area.
- **Indirectly attributable environmental impact**. In contrast to direct attribution, indirect attribution also covers the entire impact of that indicator, which might be the result of wider systemic change in the later intervention progress. Monitoring of this indicator will measure how the MSD approach delivers exponential impact over the time of the business model's

establishment, wider adoption, and sustainable implementation. For example, when the impact of the reduction of water use has been adopted outside the program's immediate scope, resulting in a positive environmental impact to a wider area, the wider reduction of resource utilisation is categorised as an indirect environmental impact of the innovation from an attribution point of view.

2.3 Pillars of PRISMA's EPS and its applications

The updated EPS improves upon previous iterations and is designed to embody the following three aspects:

2.3.1 Identifying and mitigating environmental risks

Living up the "do no harm" mandate, this most recent update not only retains the identification aspects first adopted in previous versions, but further strengthens these to better comply with both Indonesian and Australian regulatory frameworks. The updated EPS introduces the necessity for (1) Indonesian AMDAL screening to start each intervention development and (2) the integration of components from Australian Significant Impact Guidelines during the regular intervention review process. Both are aimed at better identifying and preventing interventions with the potential to inflict environmental damage.

New to this aspect of the EPS is the introduction of PRISMA's Environment Team, which will provide support in developing a mitigation and monitoring plan for those interventions with the potential to have a sizeable impact on the environment. The role of this team is to identify and bridge any environmental capacity and sensitivity gap across implementation teams, and to keep negative risk at bay and within controllable, acceptable levels, while keeping pragmatism and business feasibility in mind. This aim will be achieved by guiding implementation teams in exploring opportunities to reduce (or even eliminate) such risk within their interventions. Aside from interventions which specifically require it, implementation teams may also benefit from the support of the Environment Team, which helps explore opportunities to circumnavigate any environmental hazards that have the potential to negatively affect interventions.

This updated version of the EPS also introduces a traffic light system to identify levels of environmental risk, derived from DFAT's operational procedures. Almost identical to the source reference, the traffic light system denotes four levels of impact:

Table 1. Traffic light system categorising the environmental aspects of PRISMA interventions.

Traffic light	Remarks
Low	*Risk is presumed to be low/nonexistent; intervention may be implemented without any mandatory specific improvement in terms of environmental aspects.*
Medium	*Presence of risk is firmly inside the perceived acceptable range of safety; intervention may be implemented without any mandatory specific improvement in terms of environmental aspects.*
High	*Presence of risk is deemed significant close to the threshold of perceived acceptable range of safety; intervention may be implemented only with mandatory specific improvement in terms of environmental aspects*
Very high	*Presence of risk is significantly outside the perceived acceptable range of safety. With no plausible and feasible mitigation strategy available, intervention needs to be redeveloped in order to lower its risk level.*

The program has adopted a matrix of assessment from the Australian regulatory framework to determine the level of risk, which is integrated into the suite of instruments utilised in the implementation of this EPS (see annexes and instrument section for further details).

2.3.2 Capturing and leveraging best practices

PRISMA's continued aim with this iteration of the EPS is to capture and leverage best practices in terms of environmental issues, both when an intervention benefits the environment and when environmental aspects could be utilised in furthering the intervention goal. In line with the program's "do no harm" approach, the support system that PRISMA's Environment Team provides can also be engaged by staff on request. Staff can also call upon the team's expertise to explore opportunities to endorse and embed best practices in interventions as appropriate.

2.3.3 Streamlining and mainstreaming climate-smart agriculture practices

New to this update is the emphasis on climate-smart agriculture practices. As the effects of climate change become increasingly apparent and affect agriculture everywhere, PRISMA is taking the initiative not only to safeguard itself and its targeted achievements, but also to secure the food security, nutrition and livelihood of those who depend on agriculture in general by endorsing the adoption of climate-smart agriculture practices. To achieve this outcome, the support system that the Environment Team provides will provide suggestions and consultations, either on demand or by exploring the presence of need across PRISMA's interventions. The application of climate-smart agriculture practices will be an integral element of program performance throughout the program cycle.

3. Application of PRISMA's Environmental Protection Strategy

With its implementation envisioned to be realised via its holistic integration into the program governance system, PRISMA's EPS is engraved into the foundation of the program's intervention activities. Its implementation is the responsibility of the Implementation and the Result Measurement & Learning teams. With the aim of ensuring a monitoring approach which is quantitative, and measurable yet practical, the EPS presents an array of instruments, specifically tailored to provide a variety of scope and depth of safeguarding at each stage. Application will start right from intervention design and continue through the implementation, monitoring, and review/evaluation stages, providing a scalable management of environmental impact designed to facilitate the appropriate management decisions throughout the intervention lifecycle.

3.1. Stages in implementing PRISMA's Environmental Protection Strategy

The EPS is implemented by PRISMA team members following various safeguarding steps throughout the three major stages (design, implementation, and maintenance and monitoring) of the program's simplified intervention life cycle. Figure 2 illustrates how the safeguarding steps are established within the intervention life cycle, along with its respective instrument and RACI matrices[5]:

[5] The RACI matrix denotes the roles and responsibilities of a project's stakeholders, by identifying who is or should be *responsible*, *accountable*, *consulted* and *informed*.

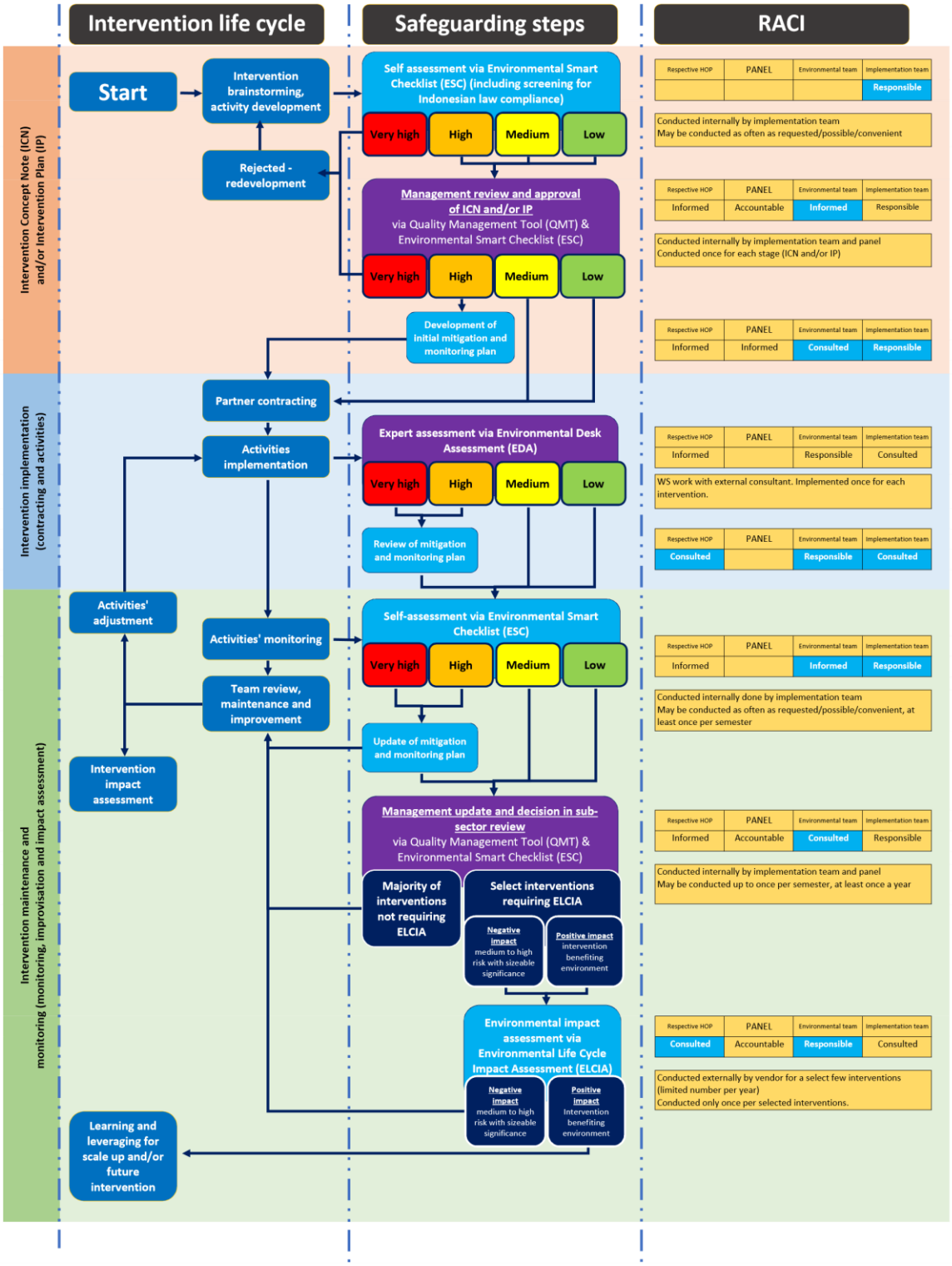

Figure 2. Steps in implementing PRISMA's EPS alongside the program's simplified intervention life cycle.

3.1.1. Design: Intervention Concept Note and/or Intervention Plan

At this critical point of scoping and selection prior to implementation, each intervention (and its respective sub-sectors) is screened and reviewed via a desk assessment using the program's Environmental Smart Checklist (ESC) and Quality Monitoring Tool (QMT), resulting in two independent scores. The first score focuses on negative impacts and risk, the second on positive impacts resulting from the application of climate-smart agriculture technology (see Annex A). The system combines both to provide a final score which contributes to the total QMT score.

In order to continue to the next stage, any red-flagged[6] interventions must be improved or altered. PRISMA's Environment Team will support the program implementation team in identifying and mitigating any environmental risk present in the intervention design. This process is designed to take place at regular intervals throughout the intervention, as the implementation team are encouraged to conduct a self-assessment at a time of their own choice and in addition to the mandatory QMT.

3.1.2. Implementation: contracting and activities

After successfully completing these safeguarding steps, the partner contracting process needs to follow the agreed monitoring and mitigation plan. At the end of each activity, experts will conduct an environment desk assessment (EDA), aimed at providing the implementation team with guidance, suggestions and/or confirmation that implementation is proceeding in an environment-friendly manner, to support them in improving their self-assessment using the ESC and/or QMT. The EDA also becomes the entry point for the implementation team to address any identified environmental risks.

3.1.3. Maintenance and monitoring: monitoring, improvisation and impact assessment

With the better depth and focus of analysis that the EDA facilitates, the implementation team are envisioned to be better equipped to monitor and self-assess their own interventions. Interventions are reviewed regularly in an intervention and/or sub-sector review process, and the introduction of the EDA is therefore expected to result in improvement to the efficacy and quality of the program's safeguarding efforts. This serves a dual purpose: (1) to enable a proper definition of the updated risk matrix and a decision regarding whether the intervention requires or could benefit from a further environmental impact assessment study, and (2) to enable the management team to identify and capitalise quickly those interventions which either exemplify environmental best practices and a climate-smart approach, or actively benefit the environment. To facilitate this, PRISMA will expand the scope of the environmental section of the Intervention Steering Document (ISD) and connect it to AIP-Rural's program-wide knowledge management system.

PRISMA will implement and document almost all of the safeguarding processes outlined above via an integrated portfolio management platform. This will be accessible to all staff, thereby supporting the program-wide data and knowledge management initiative. How the system will encompass the program's EPS alongside its components is elaborated in the program's Result Measurement Manual.[7]

3.2. Instruments

To fulfill these aims, the following suite of instruments has been developed and tailored to match PRISMA's specific needs.

3.2.1. Environment-Smart Checklist

The ESC is a semi-quantitative assessment tool which is also a part of PRISMA's QMT. The main takeaway of this tool is to enable a rapid self-assessment of intervention activities in terms of their

[6] This refers to interventions with orange traffic light status. Interventions having a red status will be rejected automatically.

[7] See the PRISMA Result Measurement Manual, 2019.

potential to inflict negative environmental impact, and their resilience to environmental risks. This current update has been redefined based on the Australian and Indonesian regulatory frameworks, while keeping it as least technical as possible for ease of use, starting from the intervention design and planning phase, and based on desk study results.

Specifically, screening for the requirements set down in AMDAL (the Indonesian regulatory framework) is integrated into the beginning of the intervention development process as a form of compliance with the framework, and the Australian Significant Impact Guidelines are incorporated into the ESC indicator as part of compliance with the Australian regulations. This instrument will also serve in supporting regular monitoring, by capitalising a combination of technical information on hypothetical risks and benefits obtained from the expert's EDA and direct field observation.

As a practical quantitative tool, the ESC will also serve as a decision-making tool by which to assess the need to conduct an Environment Life Cycle Impact Assessment (ELCIA) study and the benefits of doing so (see section 3.2.3, below). The aim here is to enable the realisation of ELCIA's full potential while maintaining value for money.

3.2.2. Environment Desk Assessment

The EDA is a qualitative technical assessment tool. Its key objectives are to undertake a broad assessment of (1) the intervention's proneness toward exposure to environmental risk, and (2) the impact on the intervention's success of current and future variability in the environmental parameters. The EDA, albeit descriptive, summarises these two impacts into four categories (low, moderate, high, very high) (see Annex B for details). The ratings given to an intervention are the takeaway message intended to guide the implementing team in terms of the necessary action to take.

The EDA report will provide a broad overview of the impact of (1) the intervention on the environment, and (2) the environment on the success of the intervention. It will also provide the starting point for the program in utilising the ESC tool. This assessment tool, with the four classes of rating scheme, will facilitate the implementation team to take any necessary, timely action to address environmental issues as part of the intervention's implementation. It will also provide guidelines on undertaking any required risk mitigation measures.

3.2.3. Environment Life Cycle Impact Assessment (ELCIA)

Based on the ISO 14044 Life Cycle Assessment (ISO 14044 LCA), the program's Environment Life Cycle Impact Assessment (ELCIA) has been developed to quantitatively measure the environmental impact of its interventions, with the key objective of analysing this impact quantitatively throughout the value chain. This assessment is expected to contribute to PRISMA's understanding of its environmental impact, and to provide opportunities for comparison between different practices, specifically by highlighting the impact of the program's investments and activities. The decision whether or not to conduct an ELCIA will be taken by PRISMA's management team at each portfolio review meeting, based on the impact, potential to capitalise the result, and operational outreach, and informed by analysis of the EDA and ESC.

The ELCIA analysis will lead to recommendations about how PRISMA can be more environmentally sustainable in the future. It will also make suggestions regarding additional changes to the program's production systems, aimed at further improving its overall environmental sustainability. This approach will enable PRISMA to highlight and capitalise positive impact that may emerge from a risky sector. It will also open up a new path for the program's environment strategy, moving from one which avoids environmental risk to one which actively seeks to lessen the environmental burden of an ongoing market system, either from the beginning of the program, or as a follow-up from existing interventions.

This might affect how the environmental strategies of an intervention or sector are defined. Whenever possible, the program will aim to maximise the utilisation of ELCIA and encourage the adoption of best practices among its private sector partners. The aim is that this in turn will benefit businesses by facilitating them to reach a more sustainable environmentally-minded market.

3.3. Infrastructure and data in promoting and mainstreaming best practices and climate-smart agriculture

To promote and mainstream environmental best practices and climate-smart agriculture, PRISMA has established a knowledge-sharing and learning environment which provides incentives for the implementation team to adopt and share its learning on best practices. The new web-based ISD will play a vital role as a one-stop data collection and data-sharing platform across all interventions. All supporting documents related to the environment will be made available and/or accessible via the ISD, providing a starting point for more elaborate knowledge-sharing activities during the program's day-to-day activity. The active incentive for the implementation team will be brought about by integrating (1) the climate-smart agriculture aspect of the program, and (2) activities benefiting the environment under the ESC's positive impact indicator. The ESC will then contribute as a scoring parameter for the intervention's QMT, where an increased score will be obtained by each intervention that integrates best practices and climate-smart agriculture into its activities.

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Annexes

A. Environment-Smart Checklist

The Environmental Smart Checklist (ESC) is a semi-quantitative assessment tool proposed as part of PRISMA's Environmental Protection Strategy. The tool's key objective is to undertake a quick self-assessment of the intervention's (1) proneness to inflicting negative environmental impact, and (2) resilience to environmental risks. The ESC aim to add practical usefulness via a self-assessment and thinking tool designed to be as least technical as possible, with the intention of enabling its utilisation starting from the early intervention design and planning phase (based on desk study results). It will also support regular monitoring by capitalising a combination of real-world information from the implementation team's field observations, as well as hypothetical technical risk and benefit information from the expert's desk assessment added during the later stage of the intervention. This updated ESC incorporates an additional section specifically designed to screen for the need to carry out AMDAL at the beginning of each intervention development process as a form of compliance with the Indonesian regulatory framework. As a practical quantitative tool, the ESC will serve as both a scoring parameter in PRISMA's QMT, as well as a decision-making tool to suggest the necessity for and benefit in conducting an ELCIA study, enabling the realisation of ELCIA's full potential while maintaining value for money.

ESC's components, indicators and subindicators

This updated ESC is based on the Australian Significant Impact Guidelines. Aside from compliance with the Australian regulatory impact, its components now encompass screening for AMDAL, assessment of negative impact on the environment, and the promotion of farm resilience and positive impact on the environment. The components alongside its indicators and their respective sub-indicators materialised in the ESC are:

1. **AMDAL screening.** This indicator is only assessed at the beginning of intervention development as part of compliance; under the updated EPS the intervention must be screened to ensure it meets the AMDAL criteria. AMDAL's parameters are:

    a. Does the intervention work in the following sectors?
    - **Livestock and animal husbandry**
    - **Agriculture**
    - **Marine and aquaculture**

    b. If so, screen the intervention according to the following criteria:
    - **Livestock and animal husbandry** – no requirement for AMDAL.
    - **Agriculture** requires an AMDAL assessment whenever it meets the following criteria:
        - [Food crop cultivation with/without a processing unit] activities exceed 2000 ha per farmer
        - [Horticulture cultivation with/without a processing unit] activities exceed 5000 ha per farmer
        - [Seasonal plantation-type cultivation, with/without a processing unit in a non-forestry cultivation area] activities exceed 2000 ha
        - [Seasonal plantation-type cultivation with/without a processing unit in vast area of convertible production forest (HPK)] activities exceed 2000 ha;
        - [Annual plantation-type cultivation with or without a processing unit in a non-forestry cultivation area] activities exceed 3000 ha;
        - [Annual plantation-type cultivation with or without a processing unit in vast area of convertible production forest (HPK)] activities exceed 3000 ha.
    - **Marine and aquaculture** require AMDAL assessment whenever they meet the following criteria:

- [Shrimp/fish pond cultivation at advanced/medium levels, with/without a processing unit] exceeds 50 ha
- [Floating freshwater aquaculture cultivation system] exceeds 2.5 ha and/or 500 units;
- [Floating saltwater aquaculture cultivation system] exceeds 5 ha and/or 1000 units.

2. **Presence of negative impact on the environment**. This is established by using the following sub-indicators:

   a. presence of irreversible negative impact/disturbance upon geosphere properties and forms (landmass and waterbody only);
   b. natural resource utilisation arising from agricultural activities;
   c. waste management and pollution issues arising from agricultural activities;
   d. presence of specific environmentally concerning (and/or climate change-related) agents in the intervention;
   e. presence of negative impact upon/disturbance of biodiversity and ecosystem (biosphere).

   These five sub-indicators reflect their counterparts in the Australian Significant Impact Guidelines. The ESC requires its users to provide their opinion on the likelihood of their intervention having positive and negative environmental impacts and the consequences of these; this is only done for sub-indicators relevant to the intervention. Users should use the aid questions provided in the ESC to screen for the relevancy of each sub-indicator. Table 2 presents an elaboration of each sub-indicator and its aid questions[8].

[8] This is not the actual tool; this will be integrated into the online web-based portfolio management tool (PMT-web); please refer to PRISMA-2's Result Measurement Manual for discussion of PMT-web.

Table 2. ESC indicators and their relevance to the Australian Significant Impact Guidelines (DoE indicators).

	Indicators	[yes or unsure]/[no]	If [yes or unsure], likelihood*	Consequences*	Reference
1. Presence of negative impact on the environment					
Negative sub-indicator 1	**Presence of irreversible negative impact/disturbance toward the geosphere properties & form (landmass, waterbody only)**		• **[Almost certain]**[9] • **[Likely]** • **[Possible]** • **[Unlikely]** • **[Rare]**	• **[Severe]** • **[Major]** • **[Moderate]** • **[Minor]** • **[Limited]**	
	Is there a real chance, possibility or fact that the intervention will/does:				
	substantially alter natural landscape features	*[yes or unsure]/[no]*			DoE indicators - impacts on landscapes and soils
	cause subsidence, instability or substantial erosion	*[yes or unsure]/[no]*			DoE indicators - impacts on landscapes and soils
	measurably reduce the quantity, quality or availability of surface or ground water	*[yes or unsure]/[no]*			DoE indicators - impacts on water resources
	channelise, divert or impound rivers or creeks, or substantially alter drainage patterns	*[yes or unsure]/[no]*			DoE indicators - impacts on water resources
	alter water circulation patterns by modification of existing landforms or the addition of artificial reefs or other large structures	*[yes or unsure]/[no]*			DoE indicators - impacts on ocean forms, ocean processes and ocean life
	substantially damage or modify large areas of the seafloor or ocean habitat, such as sea grass	*[yes or unsure]/[no]*			DoE indicators - impacts on ocean forms, ocean processes and ocean life
	alter coastal processes, including wave action, sediment movement or accretion, or water circulation patterns	*[yes or unsure]/[no]*			DoE indicators - impacts on coastal landscapes and processes
	permanently alter tidal patterns, water flows or water quality in estuaries	*[yes or unsure]/[no]*			DoE indicators - impacts on coastal landscapes and processes
Negative sub-indicator 2	**Natural resource utilisation from agricultural activities**		• **[Almost certain]** • **[Likely]** • **[Possible]** • **[Unlikely]** • **[Rare]**	• **[Severe]** • **[Major]** • **[Moderate]** • **[Minor]** • **[Limited]**	
	Is there a real chance, possibility or fact that the intervention will/does:				
	involve medium or large-scale excavation of soil or minerals?	*[yes or unsure]/[no]*			DoE indicators - impacts on landscapes and soils
	measurably alter water table levels?	*[yes or unsure]/[no]*			DoE indicators - impacts on water resources

Continued on next page

[9] Red text denotes options available for user to select as per their opinion (note: this not the actual tool).

Negative sub-indicator 3	**Waste management & pollution issues from agricultural activities**		• **[Almost certain]** • **[Likely]** • **[Possible]** • **[Unlikely]** • **[Rare]**	• **[Severe]** • **[Major]** • **[Moderate]** • **[Minor]** • **[Limited]**	
	Is there a real chance, possibility or fact that the intervention will/does:				
	substantially alter natural landscape features	*[yes or unsure]/[no]*			DoE indicators - impacts on landscapes and soils
	cause subsidence, instability or substantial erosion, or	*[yes or unsure]/[no]*			DoE indicators - impacts on landscapes and soils
	involve medium or large-scale excavation of soil or minerals?	*[yes or unsure]/[no]*			DoE indicators - impacts on landscapes and soils
	measurably reduce the quantity, quality or availability of surface or ground water	*[yes or unsure]/[no]*			DoE indicators - impacts on water resources
	channelise, divert or impound rivers or creeks or substantially alter drainage patterns, or	*[yes or unsure]/[no]*			DoE indicators - impacts on water resources
	measurably alter water table levels?	*[yes or unsure]/[no]*			DoE indicators - impacts on water resources
	release oil, fuel or other toxic substances into the marine environment in sufficient quantity to kill larger marine animals or alter ecosystem processes, or	*[yes or unsure]/[no]*			DoE indicators - impacts on ocean forms, ocean processes and ocean life
	release large quantities of sewage or other waste into the marine environment?	*[yes or unsure]/[no]*			DoE indicators - impacts on ocean forms, ocean processes and ocean life
Negative sub-indicator 4	**Presence of specific environmentally concerning (and/or climate change related) agents in the intervention**		• **[Almost Certain]** • **[Likely]** • **[Possible]** • **[Unlikely]** • **[Rare]**	• **[Severe]** • **[Major]** • **[Moderate]** • **[Minor]** • **[Limited]**	
	Is there a real chance, possibility or fact that the intervention will/does:				
	generate additional/more smoke, fumes, chemicals, nutrients, or other pollutants which will substantially reduce local air quality or water quality?	*[yes or unsure]/[no]*			DoE indicators - pollutants, chemicals, and toxic substances
	result in the release, leakage, spillage, or explosion of flammable, explosive, toxic, radioactive, carcinogenic, or mutagenic substances, through use, storage, transport, or disposal?	*[yes or unsure]/[no]*			DoE indicators - pollutants, chemicals, and toxic substances
	substantially disturb contaminated or acid-sulphate soils?	*[yes or unsure]/[no]*			DoE indicators - pollutants, chemicals, and toxic substances
	increase atmospheric concentrations of gases which will contribute to the greenhouse effect or ozone damage?	*[yes or unsure]/[no]*			DoE indicators - pollutants, chemicals, and toxic substances

Continued on the next page

Negative sub-indicator 5	Presence of negative impact/disturbance toward biodiversity and ecosystem (biosphere)		• [Almost certain] • [Likely] • [Possible] • [Unlikely] • [Rare]	• [Severe] • [Major] • [Moderate] • [Minor] • [Limited]	
	Is there a real chance, possibility or fact that the intervention will/does:				
	involve medium or large-scale native vegetation clearance	*[yes or unsure]/[no]*			DoE indicators - impacts on plants
	involve any clearance of any vegetation containing a listed threatened species which is likely to result in a long-term decline in a population or which threatens the viability of the species	*[yes or unsure]/[no]*			DoE indicators - impacts on plants
	introduce potentially invasive species	*[yes or unsure]/[no]*			DoE indicators - impacts on plants
	involve the use of chemicals which substantially stunt the growth of native vegetation, or	*[yes or unsure]/[no]*			DoE indicators - impacts on plants
	involve large-scale controlled burning or any controlled burning in sensitive areas, including areas which contain listed threatened species?	*[yes or unsure]/[no]*			DoE indicators - impacts on plants
	cause a long-term decrease in, or threaten the viability of, a native animal population or populations, through death, injury or other harm to individuals	*[yes or unsure]/[no]*			DoE indicators - impacts on animals
	displace or substantially limit the movement or dispersal of native animal populations	*[yes or unsure]/[no]*			DoE indicators - impacts on animals
	substantially reduce or fragment available habitat for native species;	*[yes or unsure]/[no]*			DoE indicators - impacts on animals
	reduce or fragment available habitat for listed threatened species which is likely to displace a population, result in a long-term decline in a population, or threaten the viability of the species	*[yes or unsure]/[no]*			DoE indicators - impacts on animals
	introduce exotic species which will substantially reduce habitat or resources for native species, or	*[yes or unsure]/[no]*			DoE indicators - impacts on animals
	reduce biological diversity or change species composition on reefs, seamounts or in other sensitive marine environments	*[yes or unsure]/[no]*			DoE indicators - impacts on ocean forms, ocean processes and ocean life
	reduce biological diversity or change species composition in estuaries	*[yes or unsure]/[no]*			DoE indicators - impacts on coastal landscapes and processes

As mentioned briefly above and elaborated in Table 2, self-assessment of any negative impact covered by the ESC follows these two steps:

i. user **screens for any *real chance, possibility or fact that the intervention will/does* result in the provided aid-questions** taken from Australian Significant Impact Guidelines;
ii. user needs to provide **opinion scoring on *any indicators whose aid-questions yield at least one [Yes and/or Unsure] response***. If all aid-questions for an indicator yield [No] then the user can skip the indicator.

For opinion scoring, the user can refer to Table 3 below, which provides a benchmark and calibration for each opinion-scoring scale.

Table 3. ESC, negative impact: opinion-scoring parameters

Likelihood		Consequence	
Very likely. Event is expected to occur in most circumstances as there is a history of regular occurrence with PRISMA, similar organisations or investments	**Almost certain**	**Severe**	Significant impact on the environment. Impacts are irreversible and diverse, with strong cumulative impacts over a large and/or sensitive geographic area. Severe and permanent increase to people's vulnerability to climate change impacts; very high GHG emissions.
Strong possibility event will occur as there is a history of frequent occurrence with PRISMA, similar organisations or investments	**Likely**	**Major**	Significant impact on the environment. Impacts are irreversible, diverse, over a sensitive geographic area. Significant and long-term increase to people's vulnerability to climate change impacts, and/or significant GHG emissions.
Event might occur at some time as there is a history of casual occurrence with PRISMA, similar organisations or investments.	**Possible**	**Moderate**	Moderate impact on the environment. Impacts may be long-lasting, extend beyond the local area, and include sensitive environmental communities. Moderate and short-term increase to people's vulnerability to climate change impacts, and/or moderate GHG emissions.
Not expected; slight possibility it may occur at some time.	**Unlikely**	**Minor**	Minor impact on the environment. Impacts are temporary and confined to a small area of low environmental sensitivity. Minimal and short-term increase to people's vulnerability to climate change impacts, and/or minimal GHG emissions.
May occur only in exceptional circumstances; possible but has never yet occurred.	**Rare**	**Limited**	Minimal impact on the environment. Impacts are largely undetectable. No or negligible increase to people's vulnerability to climate change impacts; negligible GHG emissions

After the user provides their score, the system aggregates the results and comes up with a final score based on the matrix taken from the Australian Significant Impact Guidelines[10]. Further elaboration on the matrix and actual scoring method is available in the scoring methodology section, below.

3. **Presence of positive impact on the environment and climate-smart agriculture practices**

This update to the ESC introduces an easier, more direct mechanism for positive impact scoring. IN contrast to the previous opinion-based approach, it requires a simple summary of innovative Climate-Smart Agriculture Techniques (CSAT) and/or elements of the intervention which might benefit the environment. The summary is achieved by counting the number of sub-indicators realised during the intervention and translating this into a final score according to the score translation table (see the scoring methodology section, below). Table 4 provides an elaboration of the indicator and sub-indicators.

[10] See Table 5.

Table 4. ESC, positive impact: indicators and sub-indicators

Positive indicator 1	**How many elements of the following practice are (properly) endorsed & applied in your intervention? [endorsing resilience against climate change and/or benefiting the environment]**	Count the number of [yes] responses across 19 sub-indicators below	
	Water management	*[yes] / [no]*	World Bank study (2018) covering the top 15 technology clusters of various listed Climate Smart Agriculture Technologies (CSAT) across 33 countries; acknowledged by experts
	Intercropping	*[yes] / [no]*	
	Conservation agriculture	*[yes] / [no]*	
	Crop tolerance to stress	*[yes] / [no]*	
	Organic inputs	*[yes] / [no]*	
	Crop rotations	*[yes] / [no]*	
	Inputs/fertiliser management	*[yes] / [no]*	
	Disease management	*[yes] / [no]*	
	Diet management (for fisheries and animal husbandry sector)	*[yes] / [no]*	
	Silvopasture	*[yes] / [no]*	
	Green manure/cover crops	*[yes] / [no]*	
	Improved pasture	*[yes] / [no]*	
	Tree management	*[yes] / [no]*	
	Mulching	*[yes] / [no]*	
	Reduced/no tillage	*[yes] / [no]*	
	Prevention of irreversible negative impact/disturbance of geosphere properties and forms (landmass and waterbodies only)	*[yes] / [no]*	Addressing group of issues defined as negative risk covered in DoE indicators
	Prevention of negative impact/disturbance of biodiversity and ecosystem (biosphere)	*[yes] / [no]*	
	Reduction/displacement of specific environmentally concerning (and /or climate change-related) agents in the intervention	*[yes] / [no]*	
	Reduction of waste management and pollution issues arising from agricultural activities	*[yes] / [no]*	

Methodology for the indicator score calculation

Assignment of a score using this self-assessment tool will usually be carried out by the implementation team managing the intervention. The appropriate mentor will also be involved in scoring as part of the sub-sector review; the sub-sector scores obtained by both the implementation team and mentor will provide the environmental score as part of the program's QMT. Stakeholders involved in self-scoring can base their assessment on direct field observation, planning and/or secondary data such as the EDA or other sources of information. The individual scores assigned to the indicators/subindicators are based on the criteria listed above. The details are given below.

1. **Scoring on the presence of negative impact on the environment**. Scores are assigned according to a traffic light categorisation, combining the aspects of likelihood and consequences, using the following matrix taken from the Australian Significant Impact Guidelines.

Table 5. ESC, negative impact: final traffic light matrix

Probability		Consequences				
		Limited	**Minor**	**Moderate**	**Major**	**Severe**
Likelihood	**Probability**	Minimal impact on environment; impacts are largely undetectable. No/negligible increase to people's vulnerability to climate change impacts; negligible GHG emissions	Minor impact on environment; impacts are temporary and confined to small area of low environmental sensitivity. Minimal/short-term increase to people's vulnerability to climate change impacts, and/or minimal GHG emissions	Moderate impact on environment; impacts may be long lasting, extend beyond local area and include sensitive environmental communities. Moderate/short-term increase to people's vulnerability to climate change impacts, and/or moderate GHG emissions	Significant impact on environment.' impacts are irreversible, diverse, over a sensitive geographic area. Significant/long-term increase to people's vulnerability to climate change impacts, and/or significant GHG emissions	Significant impact on environment; impacts are irreversible, diverse, with strong cumulative impacts over large and/or sensitive geographic area. Severe/permanent increase to people's vulnerability to climate change impacts, and very high GHG emissions
Almost certain	Very likely – event expected to occur in most circumstances as there is a history of regular occurrence at DFAT, similar organisations or investments	**Medium**	**Medium**	**High**	**Very high**	**Very high**
Likely	Strong possibility event will occur as there is a history of frequent occurrence at DFAT, similar organisations or investments	**Medium**	**Medium**	**High**	**High**	**Very high**
Possible	Event might occur at some time as there is a history of casual occurrence at DFAT, similar organisations or investments	**Low**	**Medium**	**Medium**	**High**	**High**
Unlikely	Not expected; slight possibility it may occur at some time	**Low**	**Low**	**Medium**	**Medium**	**High**
Rare	May occur only in exceptional circumstances; possible but to date has never occurred	**Low**	**Low**	**Low**	**Medium**	**Medium**

The resulting traffic light categorisation is then translated into a score, according to the criteria:

Table 6. ESC, negative impact: final scoring criteria

Traffic light category	Resulting score
Low	4
Medium	3
High	2
Very high	1

2. **Scoring on the presence of positive impact on the environment and climate-smart agriculture practices**. This follows the scoring criteria table:

Table 7.ESC, positive impact – final scoring criteria

Traffic light category	Resulting score
0 (nothing)	1
1	2
2	3
3 (or more than 3)	4

ESC and QMT role in management decision-making related to the environment

Based on the above calculation process, the significance of an intervention to the program is likely to change dynamically over time. Live adjustment will result in a better representation of the program's current environmental impact of its interventions, readily available to inform the management decision-making process. This will be made possible by integrating the review process end to end in each intervention. Management will take on a quality assurance role and be equipped to determine the level of integration of dedicated environmental measures into an intervention.

Environmental impact assessment using the ELCIA might be conducted by considering the significance of the sector or intervention in regards to the program's overall achievement. The indicator governing this is translated by reference to outreach generated, based on the latest published Progress Report and Implementation Plan (PRIP). The methods for this are outlined below.

Significance to the program. Scoring of this indicator is assigned on a scale of 1-5, based on actual outreach and potential outreach numbers. This will be carried out automatically as part of PRSIMA-2's new PMT and QMT systems, and the score based on a ranking process, as follows:

i. An index value is generated by dividing the percentage of each intervention's contribution by the overall program's outreach achievement (non-overlapped beneficiaries). This process uses the actual number; interventions still at an early stage with no outreach use their respective projection values.

ii. Scoring is carried out according to the index, based on the thresholds shown in Table 8:

Table 8. Scoring thresholds for ESC's 'significance to program' indicators

Score	Index threshold (below or equal to)
5	Above 70%
4	70%
3	50%
2	30%
1	10%

Instrument resumé

Environmental Smart Checklist (including the QMT environmental section)

- The ESC is a semi-quantitative self-assessment tool providing input for two specific issues, utilising one of two different calculation approaches:
  - the intervention's quality in terms of environment issues, and
  - whether implementation of ELCIA of the intervention is required and can deliver additionality toward the program's overall achievement.
- The ESC is to be applied to achieve both purposes at least once per semester. The implementation team members (task leader and intervention leaders) and their respective mentor will decide the score. The EDA or other information sources can be utilised as a basis for scoring; results are to be discussed in the portfolio review process.

B. Environment Desk Assessment

The Environment Desk Assessment (EDA) is PRISMA's Environmental Protection Strategy qualitative assessment tool. Its key objective is, through undertaking a broad desk assessment, to identify (1) an intervention's proneness to exposure to environmental risk, and (2) the potential impact on the intervention's success of any current and future variability in the environmental parameters. The EDA, albeit descriptive, summarises these two impacts into four categories (low, moderate, high and very high), as detailed below. The ratings given to an intervention are the takeaway message intended to guide the implementing team as to what action needs to be taken.

Structure of the desk assessment report

The EDA tool is in the form of a Word document report. For each intervention, an external consultant develops a short (4-8 pages) EDA report. The report is structured into six sections:

i. **Sector summary**. This provides background information on the current situation of the commodity/practices of an intervention at the national and local levels. It describes any prevailing challenges, thus providing opportunities to address these challenges and improve production.

ii. **Intervention summary**. Based on the challenges and opportunities that the sector summary has identified, this summarises how the intervention can help farmers/users to improve productivity of the given commodity by undertaking the initiatives outlined in the intervention. The intervention summary introduces the intervention, the study location, and the stakeholder(s) involved as well as their roles and responsibilities as part of the intervention.

iii. **Impact of the intervention on the environment**. This could be positive, negative or both. This section provides a detailed list of the types of potential impacts of the intervention on the environment, based on the assumption that no environmental management practices to overcome any negative impacts have yet been integrated into the intervention (unless explicitly stated in the intervention summary).

iv. **Risk from the environment to the success of the intervention**. Interventions are prone to variabilities in environmental parameters (rainfall, temperature, wind, humidity, sunlight, drought, frost and flood). This section provides a detailed description of each anticipated risk across these parameters. It mandatorily covers climate change issues related to the intervention.

v. **Environmental risk mitigation strategies and opportunities for improved resilience**. This section discusses possible risk mitigation strategies and opportunities available to build resilience of the intervention against anticipated environmental risks. Efforts have been made to provide risk mitigation strategies appropriate to each risk listed in section iv.

vi. **Summary of risk rating for the proposed intervention**. The EDA ends with qualitative ratings (low, moderate, high, very high) given according to the two indicators listed below, based on a summary of sections iv-v.

Ratings indicators

- ratings based on the risk of negative impacts of the intervention on the environment (both on "no risk mitigation" and "with risk mitigation proposed")
- ratings based on the exposure of the sub-sector intervention to environmental and climatic risk (both on "no risk mitigation" and "with risk mitigation proposed")

Ratings

The qualitative ratings are classified into four categories: low, moderate, high and very high:

- **Low**. Limited environmental risk or exposure associated with the intervention, and/or interventions incorporate sufficient mitigation or resilience measures. Very limited need for additional risk mitigation measures and/or monitoring.
- **Moderate**. Moderate level of environmental risk or exposure associated with the intervention, and opportunities exist to further reduce risk and build resilience. The team should monitor environmental risk and exposure, and mitigate risk where possible.
- **High**. High level of environmental risk or exposure associated with the intervention, requiring further review and integration of mitigation/resilience measures. The implementation team should look at ways to carry out a more detailed assessment and identify potential mitigation strategies to adopt.
- **Very high**. Very high level of environmental risk or exposure associated with the intervention, where no feasible mitigation effort is/might be plausible for the program to carry out. Program should phase out and/or avoid entering such interventions.

Outcome of the EDA

The EDA report provides a broad overview of the impact of (1) the intervention on the environment and (2) the environment on the success of the intervention. It also provides and refines the starting point for the program in utilising the ESC tool (elaborated in Annex A). This assessment tool, with the three classes of rating scheme, will help the implementation team to take necessary and timely action to address environmental issues as part of the intervention operation program. It also provides the necessary guidelines on undertaking possible risk mitigation measures.

Instrument resumé
Environmental Desk Assessment • A hypothetical (technical) desk review by the program's environment expert. General and broad in terms of analysis. Serves as a basis, starting point and reflective review for the program to self-assess its interventions.

C. Environment Life Cycle Impact Assessment

Based on the ISO 14044 Life Cycle Assessment (ISO 14044 LCA), the program's Environment Life Cycle Impact Assessment (ELCIA) is the third instrument developed to address the environmental requirements of the program by quantitatively measuring the environmental impact of its interventions. The key objective of this assessment is quantitatively to analyse the environmental

impact of an intervention on the environment throughout the value chain, that is, from 'farm to gate'. This assessment is expected to contribute to PRISMA's understanding of its environmental impact and to provide opportunities for comparison between different practices, specifically by highlighting the impact of the program's investments and activities. Compared to EDA and ESC, ELCIA is a more comprehensive and resource intensive exercise. Despite being a proxy-based method and not involving direct technical analysis of every indicator in question, ELCIA still requires the collection of representative and sizeable data, comparable to the regular impact assessments commonly conducted by the program. It is therefore proposed to conduct ELCIA only for those interventions deemed to have (1) higher negative impacts on the environment, and (2) higher significance to the program, as mentioned in the ESC section. The decision to carry out ELCIA will be taken by the management team at each portfolio review meeting based on the impact, potential to capitalise the result, and operational outreach, as inferred from the EDA and ESC analysis.

The outcome of the ELCIA analysis is expected to provide results leading to recommendations concerning how the AIP-Rural PRISMA program can achieve greater environmental sustainability in its future work in the different intervention sectors in Indonesia. It will suggest additional changes to production systEPS for the program to consider as the it moves forward, aimed at further improving its overall environmental sustainability. With exploration of the possibility of ELCIA implementation, it is expected that the program will be able to deepen its assessment not only qualitatively but also quantitatively, integrating a clear benchmark for a comparison in the analysis. Integration is also expected to complete the environmental management approaches by incorporating a complete program management cycle into PRISMA's environmental strategy. While current practices could be considered sufficient (and sufficiently effective) in most cases, there is a lack of emphasis on a complete, actual verification/monitoring of impact at the field level as a follow-up to interventions. An implemented ELCIA would explore the impact of an intervention after implementation, measuring impact against a baseline based on the sector's environmental impact profile. This approach would enable the program to highlight and capitalise positive impact from a risky sector. At the same time, it would open up a new path for the program's environment strategy, moving from an avoidance of environmental risk to actively seeking to lessen the environmental burden on an ongoing market system, either from the start of the program's activities or as a follow-up from existing interventions.

In terms of result implementation, the ELCIA result could be utilised to define the future environmental strategies of an intervention or sector. When possible, PRISMAwill encourage the adoption of a similar environmental approach among its private sector partners. Interested partners might be endorsed to carry out an ELCIA with support from the program, which in turn might benefit their business by reaching a more sustainable environment-minded market. Partners might then adapt their business by following the ELCIA suggestions, engage in a carbon trading market to offset their carbon trace burden, or even become a carbon credit provider.

Methodology

As a structured, comprehensive and internationally standardised method, the ELCIA attempts to quantify all relevant emissions, resources consumed, and various other issues ranging from environmental and health impact up to resources depletion issues that are associated with any good/services (European Commission, Joint Research Centre, Institute for Environment and Sustainability, 2010).

The ELCIA consists of the following steps:

1. *Definition of the goal and scope* of the ELCIA study; describes the product, process or service to be assessed.
2. *Inventory analysis* of both quantified input and output of processes in the product system (such as energy, materials and emissions), along with data collection related to the functional unit defined earlier.
3. *Impact assessment* delineating the different impact categories of results identified in the inventory analysis; this should be done in line with the types of environmental problem identified.

The impact assessment has three main components:

- defining which impacts will be measured;
- identifying how these impacts will be measured; and
- data collection.

The impact assessment analysis will utilise both primary data (which PRISMA's field staff will collect) and secondary data (obtained from PRISMA's baseline and impact assessment documents). The data will be processed at the inventory analysis stage, prior to the impact assessment. The inventory analysis will utilise a pre-established database provided by a third party (such as 'ecoinvent', one of the leading available life cycle inventory databases) and its interpretation of results will be carried out using 'ReCiPe', a life cycle impact assessment procedure designed to facilitate this. Specifically, the selection of specific indicators for inclusion in the inventory analysis will be heavily customised, depending on the specific agribusiness model in question. Due to the requirement to utilise specific software and a third-party database, this exercise will be conducted exclusively by a third party. PRISMA will engage a research firm to conduct the preliminary analysis and decision-making process, to establish which indicators to cover in the data collection, and to conduct the inventory analysis.

Instrument resumé

Environment Life Cycle Impact Assessment (ELCIA)

- An ELCIA is a proxy-based method used to quantitatively measure and analyse processes across targeted sections of the value chains in the business model that an intervention endorses. The exercise requires a substantial amount of resources, and therefore is only carried out on select interventions/sectors as required.
- The decision to implement an ELCIA emerges from a program's periodic portfolio review process.