



Green and Sustainable Agriculture Framework for Lao PDR to 2030

“Green agriculture for a healthy society”

*Towards inclusive green growth through sustainable agriculture
production and environment management*

Department of Policy and Legal Affairs
Ministry of Agriculture and Forestry

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ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ
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ກອບແຜນດຳເນີນງານ ກະສິກຳສີຂຽວ ແລະ ຍືນຍົງ ຂອງ ສປປ ລາວ ຮອດປີ 2030

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- ມາດຕາ 3** ຫ້ອງການ, ບັນດາກົມ, ສະຖາບັນ ແລະ ທຽບເທົ່າ ອ້ອມຂ້າງກະຊວງ ກະສິກຳ ແລະ ປ່າໄມ້, ພະແນກກະສິກຳ ແລະ ປ່າໄມ້ແຂວງ, ນະຄອນຫຼວງວຽງຈັນ ແລະ ພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ຈົ່ງຮັບຮູ້, ຮ່ວມມື ແລະ ພ້ອມກັນຈັດຕັ້ງປະຕິບັດ ຕາມຂໍ້ຕົກລົງສະບັບນີ້ ໃຫ້ໄດ້ຮັບຜົນເປັນຢ່າງດີ.
- ມາດຕາ 4** ຂໍ້ຕົກລົງສະບັບນີ້ ມີຜົນສັກສິດ ແລະ ນຳໃຊ້ໄດ້ນັບແຕ່ວັນລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ລັດຖະມົນຕີ

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ປອ. ແພັດ ພິມພິພັກ

Forewards

Green and sustainable agriculture (GSA) development is a policy priority of the Government of Lao PDR. GSA has been articulated in the National Green Growth Strategy (NGGS) to 2030 and other policy statements. The Agriculture and Forestry Sector is one of seven key target sectors to implement the strategy for its own sector. The Agriculture and Forestry Sector has been translated the strategy into “Green and sustainable agriculture framework (GSAF) in Lao PDR to 2030”. The formulation of GSAF is aligned with other national policies, and regional and interanal policies.

The main purpose of the Green and Sustainable Agriculture Framework (GSAF) is to provide a detailed elaboration of this policy priority as well as guidance for the development and implementation of green and sustainable agriculture programmes and activities in Lao PDR. This GSAF focuses on these sub-sectors: crops, livestock, fisheries, agroforestry and non-timber forest products. The Framework applies to all participants and stakeholders involved along the entirety of the agricultural value chain, ranging from farmers to retailers, as well as policy actors, researchers, interest groups, and consumers within the five sub-sectors.

On behalf of the GSAF development team, I would like to express my great appreciation to the leaders of Ministry of Agriculture and Forestry (MAF) for their guidance and we are grateful for the kind cooperation of our colleagues from MAF’s departments for helping us to acheive objectives and success of the GSAF development. I would also express special thanks to the Food and Agriculture Organization of the United Nations (FAO) and the Stockholm Environment Institute (SEI), for the generous financial and techcial supports throughout the formulation and consultation processes.

 **Director General**

Thatsaka SAPHANGTHONG, Ph.D

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Executive Summary

1. Objective: Green and sustainable agriculture (GSA) development is a policy priority of the Government of Lao PDR. GSA has been articulated in the National Green Growth Strategy (NGGS) and other policy statements. This framework provides a detailed elaboration of this policy priority as well as guidance for the development and implementation of green and sustainable agriculture programmes by the Ministry of Agriculture and Forestry (MAF), such as the Clean Agriculture Programme, Agroforestry Programme and others yet to be identified. The Framework aims to ensure that MAF has consistent, relevant and up-to-date documentation of the governance, institutional arrangements, policy development, planning and implementation of green and sustainable agriculture development initiatives.

2. Scope: The Framework on Lao Green and Sustainable Agriculture (GSAF) focuses on these sub-sectors: crops, livestock, fisheries, agroforestry, and non-timber forest products. The Framework applies to all participants and stakeholders involved along the entirety of the agricultural value chain, ranging from farmers to retailers, as well as policy actors, researchers, interest groups, and consumers within those five sub-sectors.

3. Context of the agriculture sector: The Lao agriculture sector is dominated by large areas of fallow land, a high number of low-productivity smallholder producers, and a nascent scene of agribusiness enterprises. Nevertheless, agriculture is a priority sector in terms of workforce employment and economic development for the country. Therefore, the Government seeks to invest in existing farms and enterprises to make them more productive and attuned to market demands, as well as attracting domestic and foreign agribusiness investors to further intensify and accelerate the development of the sector. Commercial agricultural production faces competition from neighbouring markets. Lao PDR has, hence, been pursuing policy objectives that will enable the country to establish itself and grow as a relevant actor in a highly competitive agricultural trade environment. Guided by the National Green Growth Strategy (NGGS) 2018-2030, the Government intends to continue increasing the competitiveness of Lao commodities in the region while promoting green and sustainable forms of agricultural production and engagement in value chains. This will ensure the provision of safe, nutritious and high-quality food to domestic and international consumers while conserving and protecting the country's natural resources and its environment.

4. Rationale for the framework: The main purpose of the GSAF is to provide guidance in selecting priorities and strategic directions for the development of programmes and activities in green and sustainable agricultural production. As part of this process, it is the intention of the Framework to consolidate the numerous, disparately used and confusing technical terms, expressions and approaches in the area of green and sustainable agriculture in Lao PDR. The GSAF must also be seen as the operationalisation of the National Green Growth Strategy as well as the Agriculture Development Strategy. As such, it will facilitate the formulation and implementation of a coherent policy framework to support national and sub-national programmes. It will also provide guidance for investors and green entrepreneurs in the agriculture sector.

5. **Two streams of GSA:** The National Green Growth Strategy stresses two important on-going streams of green and sustainable agriculture:
- a) *sustainable environmental resource management and conservation policies, practices and results* (e.g., Lao PDR’s goal for permanently sustainable 70% forest cover)
 - b) *sustainable, efficient and safe production and value-add processes, and consumption of sufficiently plentiful, aesthetically acceptable, safe and healthy agricultural products*, resulting in economic growth, poverty reduction, food security and good nutrition and other impacts

6. **Green socio-economic development:** GSAF follows 9th National Socio-Economic Development Plan 2021 to 2025 and the Agricultural Development Strategy for 2021 to 2025 for GSA to form a major pillar of the Lao economy by 2030. Green and sustainable agriculture (GSA) views the country’s natural and man-made landscapes as a permanent long-term feature. These landscapes need to be used productively and efficiently for the benefit of the country. At the same time, they must be effective in the conservation of the environment and natural resources.

7. **GSA’s diversity measures:** The GSAF calls for programming that sets a diversity of measures according to the technical and socio-economic feasibility and acceptability of each specific case, location and sector. In order to guide the identification of locally adapted approaches, five features of Green Agriculture are identified:

- Integration of crop-livestock systems
- Agro-ecological landscape management
- Environmentally sustainable weed and pest control
- Natural and sustainable nutrient inputs
- Post-harvest storage and processing facilities

8. **Good Agricultural Practice (GAP):** The Agricultural Development Strategy 2025 adopts Good Agricultural Practice (GAP) as the foundation of green and sustainable agriculture. This standard works as the cornerstone for moving the sector to more green and sustainable production and processing, and promoting the concepts of safe, clean and ethical food.

Alignment of GSAF to national, regional and international policy frameworks

<u>National Policy Framework</u>	<u>ASEAN and Greater Mekong Sub-Region Policy</u>
<ul style="list-style-type: none"> ▪ 8th National Socio-Economic Development Plan (NSEDP) ▪ The Agriculture Development Strategy (2025) and Vision (2030) ▪ National Green Growth Strategy ▪ National nutrition strategy to 2025 and Plan of Action to 2020 ▪ Lao PDR National Agro-Biodiversity Programme and Action Plan II (2015-2025) ▪ Livestock policy and standards ▪ Fisheries Law and Strategy 	<ul style="list-style-type: none"> ▪ ASEAN Economic Community and has co-signed the Declaration on ASEAN Post-2015 ▪ Environmental Sustainability and Climate Change Agenda ▪ ASEAN Socio- Economic Blueprint 2025 ▪ ASEAN Good Agricultural Practice (GAP) Standards ▪ ASEAN Sociocultural Community Blueprint 2025 (ASCC 2025)

<ul style="list-style-type: none"> ▪ Intellectual Property Law (2012) and GI Guidelines 	<ul style="list-style-type: none"> ▪ ASEAN Plus Three Cooperation Strategy on Food, Agriculture and Forestry 2016-2025 (APTCS) ▪ Leaders’ Statement on Promoting Sustainable Development Cooperation in 2016. ▪ Siem Reap Action Plan, 2018-2022 (SASRAP)
<p>International Policy Frameworks</p> <ul style="list-style-type: none"> ▪ Sustainable Development Goals (SDGs): ▪ Nationally determined contributions (NDCs)- Climate Change ▪ Implementing the Sendai Framework for Disaster Risk Reduction in the Agriculture Sector in Asia and the Pacific ▪ FAO’s common vision for Sustainable Food and Agriculture and the 10 elements of agroecology framework ▪ IFAD’s flagship programmes ▪ Adaptation for Smallholder Agriculture Programme ▪ Medium Term Cooperation Programme with Farmers’ Organizations in Asia and the Pacific (MTCP2) ▪ Aichi bio-diversity targets 	

9. **Improved resilience of agricultural systems:** GSAF calls for a variety of clean, efficient and safe alternative production, which are adapted to the varying environmental and socio-economic conditions across Lao PDR.

10. **Sustainable input management:** GSA avoids pollution through agro-chemicals and improves efficiency of energy consumption in agricultural production, thus moving towards closed-cycle agricultural production systems.

11. **Value generation:** GSA Develops functional markets that are inclusive and accessible to smallholder producers, to ensure increased income and move beyond subsistence-based production. Markets and associated value chains at the local, national and regional level demand quality, safe and clean products and will, in part, drive the shift to more sustainable production systems.

12. **Multi-functional agricultural land use planning:** GSA aims at raising the resilience of farming systems to climate change and disasters and optimising the use of land by zoning for multiple uses (e.g., flood control, cropping, pasture).

13. **Capacity building/Green Extension:** GSA calls for re-organising the national extension services and target sustainable production and increase sustainable choices for producers and processors. The target audience as recipients of green extension has been identified as farmer groups, farmer organisations and co-operatives.

14. **Maintaining/promoting agro-biodiversity:** GSAF emphasises the opportunities that come with the unique geomorphological and cultural circumstances of Lao PDR. Agro-biodiversity is seen as a major opportunity for culturally unique, beneficial, and in-demand agri-products, which conserve resources and offer market openings.

15. **Focus on niche markets:** instead of competing with large bulk producers GSAF aims for high-value niche products where Lao PDR has a strategic advantage, i.e., specialty brands and rare varieties of bulk commodities.

16. **Unique products:** GSAF seeks to take advantage of Lao PDR's unique geographic location and excellent growing conditions, the proven ingenious skills of Lao producers to breed high-quality varieties. This will be boosted by increased efforts to achieve *Geographical Indication (GI)* credentials for a selected number of high-quality products.

17. **Upskilling:** Lao producers need to be upskilled in various forms of standards, regulations, safe handling of inputs, mechanisation, modern irrigation techniques, post-harvest processing and packaging, transport and marketing, in order to achieve the desired sustainability outcomes. A new form of extension is required (*Green Extension*), where responsibilities for identifying, sharing and implementing potential new innovative solutions are devolved to local administrative levels (as part of the 'three builds' – *Sam Sang* policy).

18. **Involving the private sector:** Recognising that SMEs are at the centre of agricultural sector transformation, GSAF promotes markets for green agricultural commodities and pro-poor, environmentally sound value chains. The development of these can be scaled up from identified success stories such as the business development of the *Xaoban* group.

19. **Communicating priorities:** Agricultural policy and priorities need to be clearly communicated to development partners through appropriately translated documents, public events and regular engagement and communication by MAF. Actions developed following the GSAF will contain a number of implementation programmes, such the Clean Agriculture Programme of the Department of Agriculture (DOA), which will be prepared and implemented over the course of over the next ten years.

20. **Key stakeholders:** Key stakeholders for implementation of the Framework on Green and Sustainable Agriculture include:

- **Public sector:** led by MAF and other relevant government agencies. Public organisations are responsible for promoting, supporting, standardising and monitoring progress toward green and sustainable agriculture.
- **Private sector:** businesses and entrepreneurs are expected to invest in green and sustainable commodities, whether in production or processing. Private actors are to participate in PPPs and act as technology and knowledge transfer agents to modernise production; additionally, businesses provide services to smallholder farmers and enter in fair contract farming arrangements, which are mutually beneficial.
- **Farmers and farmer groups:** responsibility also lies with farmers to produce clean and safe commodities and to participate more effectively in markets.
- **Civil society groups:** these play an important role in facilitating agricultural and rural development activities.
- **Research and academic institutions:** researchers are to provide evidence-based recommendations and alternatives, to generate innovations, and to develop and test new production techniques and processing technology aiming at increasing productivity.

- **Development partners:** it is expected that DPs subscribing to the GSAF will provide substantial funding for development programmes in the fields of clean, green, fair and sustainable agriculture.
- **Consumers/General Public:** ultimately, the GSAF is designed to provide consumers with better quality and safe Lao-grown food; it is the responsibility of the consumer to, in turn, accept and purchase agricultural products from Lao green and sustainable agricultural production

21. **Investment areas:** Three investment areas have been identified to accelerate the transition towards green and sustainable agriculture. The GSAF call on stakeholders to initially focus on these areas:

- **Green Agricultural Innovation and Technologies:** Broad dissemination of successful innovations and technologies, following stringent testing and proof-of-concept validation. The Lao agriculture sector displays low levels of mechanisation and requires investments into clean and future-proof (no-regrets) technology.
- **Green Extension:** Upskilling at all levels from individual farmers to institutions and administrative bodies is urgently required. As a departure from the traditional mode of delivering extension to farmers production alternatives must undergo analysis and testing for suitability under local conditions.
- **Green Markets and Value Chains:** A key driver for the shift to GSA is the presence of vibrant markets and value chains that ensure commodities are produced in a sustainable and ethical manner. This requires the emergence of functional value chains and markets that are inclusive and accessible to smallholder producers. Further, there is a need to ensure that smallholder farmers have access to credit and meet market expectations. Achieving this will require the emergence of financial markets and instruments that are tailored to the needs of smallholder farmers.

Abbreviations

ADS	Agricultural Development Strategy (2015-2025)
DALAM	Department of Agricultural Land Management, MAF
DLF	Department of Livestock and Fisheries, MAF
DOA	Department of Agriculture, MAF
DOPF	Department of Planning and Finance, MAF
DOPLA	Department of Policy and Legal Affairs, MAF
DP	Development Partners
DTEAP	Department of Technical Extension and Agro-Processing, MAF
GAP	Good Agricultural Practice (FAO quality standard)
GI	Geographic Indication
GOL	Government of Lao PDR
GSA	Green and Sustainable Agriculture
GSAF	Green and Sustainable Agriculture Framework
IPM	Integrated Pest Management
MAF	Ministry of Agriculture and Forestry
MOH	Ministry of Health, Lao PDR
MONRE	Ministry of Natural Resources and the Environment
MOIC	Ministry of Industry and Commerce
MOST	Ministry of Science and Technology
MPI	Ministry of Planning and Investment
NABP II	The Lao National Agro-Biodiversity Programme and Action Plan II (2015-2025)
NAFRI	National Agriculture and Forestry Research Institute
NGGS	National Green Growth Strategy
NSEDP	National Socio-Economic Development Plan (2016-2020)
OA	Organic Agriculture
PAFO	Provincial Agriculture and Forestry Office
SRI	System of Rice Intensification

Introduction and Rationale

(1) Objective

Green and sustainable agriculture (GSA) development is a policy priority of the Government of Lao PDR. GSA has been envisaged and made imperative in the National Green Growth Strategy as well as the national Agricultural Development Strategy. GSA encompasses the type of agricultural sector development that

- emphasises increased productivity,
- contributes to economic growth and
- eradicates extreme poverty,

while, at the same time,

- preserving natural resources,
- reducing waste from agriculture production processes,
- adapting to and mitigating the impacts of climate change,
- building resilience against disasters, and
- ensuring healthy and safe agriculture and food systems.

GSA moves the agricultural sector towards more sustainable production systems, conservation of resources, such as water and soil, and long-term high-quality outputs critical to the sustainable development goals of the country.

This framework is intended to establish GSA as a new standard for agricultural development in Lao PDR. It provides guidance for programme development, which is overseen by the Ministry of Agriculture and Forestry (MAF). Several programmes, such as the Clean Agriculture Programme will follow this framework. At the same time, the Framework on Green and Sustainable Agriculture (GSAF) follows the newly revised Agriculture Development Strategy (AGS 2030).

The principles and priorities comprised in the GSA framework are reflected in the 9th NSEDP for Lao PDR. The outputs set forth in the NSEDP include “robust and sustainable economic growth” as well as “green growth and climate action”, which include priorities, such as green agricultural practices and sustainable production. The GSA framework is, therefore fully aligned with the 9th NSEDP, the NGGS, and the ADS.

The GSAF aims to ensure that MAF has consistent, relevant and up-to-date documentation of the governance, institutional arrangements, policy development, planning and implementation of green and sustainable agriculture development initiatives. This way, it contributes to both processes and support mechanisms of MAF to further embed and spread sustainable agricultural practices throughout the country.

(2) Scope

Within the Agriculture Sector, the GSAF focuses on the crops (irrigated and rain-fed), livestock, fisheries, agro-forestry, and non-timber forest products (NFTPs) sub-sectors. Agro-forestry and NFTPs represent areas of transitional linkage between agricultural crops,

livestock and fisheries and forests and rangelands. These five sub-sectors make significant contributions to food security and nutrition as well as poverty eradication in Lao PDR. They are also placed at the centre of MAF's Agriculture Development Strategy (ADS 2030) which is currently being revised for the period 2021 - 2030. The Framework applies to all participants involved along the entirety of the agricultural value chain, including farmers, laborers, processors, transport and logistics providers, wholesalers, retailers, policy makers, researchers and consumers within these five sub-sectors.

For now, the forestry sector has been omitted from the GSAF for three reasons: (a) there is a traditional separation of strategies between the forestry and the agricultural sector; (b) forestry is a sector with a smaller number of actors and, thus, policy measures are qualitatively different compared to those in agriculture; and (c) the Government of Lao PDR has decided to align strategic planning of forestry more closely to the measures addressing Lao PDR's intended nationally determined contributions (INDC) to reductions in greenhouse gas emissions under the United Nations Framework Convention on Climate Change (UNFCCC) as well as REDD+ efforts.

Nevertheless, the GSAF recognises that forestry plays an important part in sustainable production and green value chains. It is noteworthy that the issue of non-timber forest products (NTFPs) have been included here and that the framework could be expanded to include forestry. The health of Lao PDR's forests is heavily dependent on the type and quality of activities in adjoining agricultural areas. It is important to ensure that the transition to GSA does not negatively impact of Lao PDR's capacity to mitigate greenhouse gas emissions as well as the country's adaptive capacity to climate change. Ultimately, the goal is to ensure that the GSAF and sustainable forestry policy frameworks are integrated and fully complementary.

(3) Context of the agriculture sector

The Lao agriculture sector is characterised by large areas of fallow land, a high number of low-productivity smallholder producers, and relatively small and inexperienced agribusiness enterprises. Nevertheless, agriculture is a priority sector in terms of workforce employment and economic development. Therefore, the Government seeks to invest in existing farms and enterprises, irrigation systems, and infrastructure to make them more productive and market-oriented as well as to attract agribusiness investors to intensify current development levels. Commercial production in the agriculture sector faces tough competition from neighbouring markets, particularly China, Thailand, and Vietnam. Lao PDR has, as a consequence, has been pursuing policy objectives that will enable the country to grow as a relevant actor in a highly competitive agricultural trade environment.

Agricultural policy in Lao PDR has undergone a significant transition over the previous 4 decades. During the very early years of development planning, the agricultural sector goals of the Government were mainly targeted at maximisation of production and achieving food security. Starting in the 1980s, commercialization and production of crops, livestock and fisheries commodities and the progressive inclusion of businesses in the agricultural sector became important areas in agricultural development policy. More recently, the focus has drastically shifted to include and emphasize nutritional security and food safety, health and

child development, and resource conservation. This provides the overall context within which the Government, business community, and people of Lao PDR are pursuing policies and implementing programmes, in which modernisation of agricultural production, development of value chains, expansion of in-country processing capacity and construction of domestic and foreign markets, have taken centre stage. Simultaneously, there has been a realisation that Lao agriculture is restricted in its ability to compete in the market segment of generic, high-volume products against larger neighbours and agricultural powerhouses China, Viet Nam, and Thailand. The Lao Government has responded to these realities by adopting policies that aim to emphasize quality production and marketing of finely-branded, differentiated high-value niche products using cleaner, greener, safer, healthier and more sustainable forms of production and processing.

The realignment of policies, strategies and implementation programmes on green and sustainable agriculture is a result of the Government's target to the achievement of food sovereignty and sustainable development. It is in line with the recently adopted National Green Growth Strategy (NGGS) 2018-2030. Through the NGGS, the GoL intends to promote sustainable forms of agricultural production and value chain operation to increase the competitiveness of its commodities while ensuring the provision of safe, nutritious and good quality food for domestic and international consumers. Sustainable Agriculture is likely to improve the quality and value of Lao agricultural products and provide these with a comparative advantage, which, in turn, will increase the competitiveness of the sector. The sustainable agriculture approach outlined in this document, encourages transparent production and processing chains, as well as production according to environmentally and socially sustainable principles. The approach seeks to be sufficiently flexible without being prescriptive, while promoting locally adapted and more sustainable production systems that are sensitive to the socio-geographic context. Following the NGGS, the GSA approach followed in the framework supports measures to prevent environmentally damaging and unsustainable production systems, such as the industrial scale mono-cropping production systems that were used until recently for banana and maize production.

In line with domestic and international demands and trends, Lao PDR has set a target of implementing **Good Agricultural Practice (GAP) and Good Animal Husbandry Practice (GAHP)** as a minimum standard across production systems throughout the country. Whether industrial crops or unique regional specialty products, GAP is internationally seen as an appropriate production standard. Where more stringent sustainable production systems are possible, these are promoted and disseminated, such as concepts of agroecology, low input agriculture, bioeconomy, circular economy, and organic agriculture. It is understood that organic agriculture (OA) represents the pinnacle, rather than the base of green and sustainable agriculture systems in Lao PDR. As such OA may have a narrower window for adoption and application and may be limited in its feasibility. In contrast, GAP can be more easily implemented on a wider scale throughout the country. Beyond this minimum GAP standard, more sustainable production systems can be piloted in selected areas for future roll-out.

(4) Rationale for the green and sustainable agriculture framework (GSAF)

Why does Lao PDR need a Framework on Green and Sustainable Agriculture? The overall aim of the GSAF is to provide guidance to the priorities, strategic direction, and development necessities of green and sustainable agriculture for the benefit of the entire nation.

One of the main challenges in formulating the framework is that much of the discourse on the promotion of agriculture in Lao PDR revolves around terms that describe different production systems and methods that have been used elsewhere. For example, the terms agroecology, conservation agriculture, agrobiodiversity and improved and clean conventional farming systems are evident throughout policy and briefing documents that have an overall focus on transforming the agriculture sector. More recently, however, the term “clean and green” agriculture has emerged as a part of the endemic discourse associated with the concept of a green economy and the movement towards a circular economy. “Clean and Green” has come to stand for a host of farming systems that are generally regarded as more sustainable than conventional farming. The term includes organic farming, conservation agriculture, low-input agriculture, agroecology, and agrobiodiversity, as well as efforts to make farming safer and more hygienic. The Lao **Green and Sustainable Agriculture Framework** (GSAF), presented here, is intended to consolidate these efforts into a consistent Lao understanding and application of green and sustainable agricultural development.

The numerous and disparately used technical terms in the area of green and sustainable agriculture are often confusing tend to cloud the debate. The confusion of terms and the resulting range of different expressions in policies and programmes are an obstacle to reaching the objective of agricultural transformation, especially at the subnational levels. Inconsistencies result in a lack of policy coherence. The National Green Growth Strategy (NGGS) was introduced recently as a vehicle for subsuming economic development under the banner of sustainability. Nevertheless, the NGGS introduced a further dimension and suite of terms in the green and sustainable agriculture discourse – with potential for more confusion. It is, hence, the intention of GSAF to bring clarity to the political and institutional anchoring of Green and Sustainable Agricultural Development policy in Lao PDR. In the process, the GSAF will outline pertinent principles and guidelines on how to proceed with development of policy measures and implementation programmes.

The GSAF does not attempt to banish conventional and commercial agriculture. It does, however, intend to promote conservational or minimum input approaches to agriculture as part of the overall Lao Agricultural Development Strategy. The objective is to achieve sustainable production, conserve resources (such as water and soil), ensure long-term high-quality output of Lao agriculture and guarantee the health and safety of all producers, handlers and consumers of products.

Green and sustainable agriculture can encompass intensive production systems that include recycling of materials, precision inputs, conservation of resources, along with being energy efficient. Nevertheless, for Lao PDR in its current state of agricultural development, low input approaches and the adoption of sustainable use of agro-biodiversity are more realistic to achieve the ‘clean and green’ vision. Sustainable high-input and closed-cycle agriculture

depends on a high level of infrastructure investments and market maturity, which Lao PDR currently lacks.

Definition of Green and Sustainable Agriculture (GSA)

Over the past decade the concept of Green Agriculture has emerged as an approach to move towards more sustainable and inclusive agri-food systems. This has, in part, been driven by the notion of a green economy (or *Bioeconomy*) and a shift towards a circular economy. Green Agriculture incorporates ideas from a range of conceptual areas that include fair trade, agroecology, organic or biodynamic agriculture, as well as conservation agriculture. While the initial focus in Lao PDR has been on crops, the concept needs to be expanded to the non-timber products, livestock and fisheries sectors and, eventually, forestry.

Green and Sustainable Agriculture (GSA) emphasises locally adapted farming techniques – irrigated and rain-fed - and practices that aim to increase yields whilst reducing waste and inefficiency problems in value chains, particularly in the post-harvest stage. It includes state-of-the-art concepts, such as integrated pest management (IPM) and System of Rice Intensification (SRI). It offers the opportunity to improve and sustain ecosystem services and provides higher returns per unit of labour. As such, GSA is more productive in output and more effective in the conservation of natural resources and mitigation of greenhouse gas emissions. Nevertheless, no single production method will be suitable for every set of given conditions. Thus, GSA remains broad in its approach and this Framework calls for programme development that identifies a diversity of measures according to the feasibility and social acceptability of each specific case area and sector. Across a diversity of approaches seven (7) key features constitute Green and Sustainable Agriculture for the purpose of this document:

- **Integration of crop-livestock systems** – this provides diversity within production with a number of benefits that include food security, economic risk mitigation, and promoting resource conservation. It encapsulates elements of recycling through management of waste generated through livestock and crops that contribute to nutrients/composting/energy (e.g. biogas) that build soil health and reduce the need for external nutrient/energy inputs. Integrated crop-livestock systems should be agro-biodiverse to avoid disease as well as ensure the provision of critical ecosystem services.
- **Agroforestry** – constitutes the smart integration of trees into farming systems. It is a way to preserve productive ecosystems and adapt to climate change with the potential to decrease vulnerability and ecosystem degradation from fully exposed fields or pastures. In Lao PDR, different agroforestry models are practiced whereby trees may be integrated in the perimeter of fields, intercropped, or planted at landscape level. The trees deliver a mix a various ecosystem services for the farmers including shade, soil stabilization, nitrogen fixation, biomass for soil fertilisation, animal forage, and human nutrition.
- **Non-timber forestry Products (NFTPs)** – biomass from wild plants and animals - other than timber - extracted from forests and woodlands by local households for food and livelihood (e.g. fruits, nuts, vegetables, mushrooms, game, medicinal

plants, resins, honey, bark, fibre, palms, grasses, small wood products, firewood, etc). In Lao PDR, rural people have historically relied on NTFPs as a constant and secure source of diverse food and additional income. Increasing population and land use pressure threatens the abundance of many traditional NTFPs. It is vital to investigate and develop new and sustainable ways to use these agro-resources.

- **Agro-ecological landscape management** – a core element within agroecological farming and conservation agriculture that promotes agrobiodiversity and multifunctional landscapes. Ultimately, multifunctional land use should move beyond the farm level to the landscape level. A key element of this principle is that diversification of species at the farm level translates to diversity at the landscape level (i.e. landscape mosaics). Promoting integrated agro-ecological landscapes avoids conversion of forests and other natural ecosystems to bare-face agricultural land.
- **Environmentally sustainable weed and pest control** – moving away from dependence on herbicides and pesticides that are common to conventional production systems and promoting integrated pest management (IPM), integrated crop management (ICM) and integrated crop-livestock farming. This also includes production systems that avoid the use and application of chemical inputs, such as System of Rice Intensification (SRI) and direct seeding. More recently, Agroecological Crop Protection (ACP) has emerged as a coherent approach based on agroecological principles.
- **Natural and sustainable nutrient inputs** – minimizing dependence on external sources for crop nutrients and promoting the production of biofertilizers via nitrogen-rich crops or on-farm recycling of crop residues and livestock waste. Eventually, the aim is to link cities and towns to the farm by closing nutrient loops, thereby contributing to the circular economy.
- **Post-harvest storage and processing facilities** – reducing food and nutrient waste and addressing the current impasse of farmers being ‘price takers’ - rather than ‘price makers’ - through adequate storage and adding value to primary products. This principle includes the development of efficient and equal markets and fair value chains that are key to driving the transition. These needs to be complemented by technology transfer and training on production and processing techniques to meet market requirements.

In sum, Green and Sustainable Agriculture merges sustainable environmental practices with skilled labour and efficient markets to reduce poverty and conserve natural resources. According to the Agricultural Development Strategy, GSA will form a major pillar of the Lao economy by 2030.

Good Agricultural Practices (GAP)

During the implementation of the Agricultural Development Strategy 2025, **Good Agricultural Practice (GAP)** has been adopted as a standard for green and sustainable agriculture. This standard works as the cornerstone in moving the sector to more green and sustainable production and processing and promoting the concepts of safe and clean food that is produced in an ethical manner.

The main principles of GAP revolve around four areas: the production process, the environment, food safety, and animal welfare. As such, GAP aims at improving conditions for producers, including the welfare of farming families and others involved in the production process, to the end that food and commodities produced are cleaner, safer, and more nutritious. Simultaneously, GAP should not contaminate water and soils, and maintains agro-biodiversity in farming systems and landscapes. An important aspect is the safe, efficient and precise application of agro-chemicals in the production process. Additionally, GAP includes animal welfare as an integral part and resource within the agricultural production process.

A main outcome that is achieved by implementing GAP on a large scale is that of ensuring consumer confidence in the food system. This happens in a number of ways including:

- GAP's role in the prevention of pathogen contamination;
- Increased capacity of producers and value chain operators to leverage their competitive advantage by ensuring and documenting the quality and safety of their product.
- Quality assurance for consumers to buy certified products without worrying about environmental damage.
- Sustainable use of natural resources as part and parcel of GAP implementation.

The Lao GSAF promotes GAP as a minimum standard in agriculture across all crop, livestock, fisheries and forestry and rangeland commodities, in order to achieve a minimum sustainable level of agricultural production. Beyond GAP, the GSA supports more sustainable forms of production - such as organic agriculture, conservation agriculture, pesticide-free agriculture, and agro-forestry. At the same time, it is acknowledged that sustainable agriculture cannot be implemented throughout the country in a unified manner. Not all crops, agricultural commodities and markets can be easily adapted to sustainable production – at least not yet in Lao PDR. Hence, more sustainable forms of agriculture - while aspirational - will be limited to areas wherever they are feasible, with the assumption that autonomous adaptation will occur according to demand.

For example, Thathom District in Xaysomboun province has determined it feasible and viable to declare itself a 'pesticide-free district'. The expectation in this case is one of increased value added by selling safer and healthier products in specialized markets by producing added value and taking advantage of additional benefits such as direct marketing and agro-tourism. This is an example for "beyond GAP" GSA.

In contrast, the industrial production of cassava for starch for international markets in Saravane, requires significant external inputs to maintain production levels and international quality standards. In this case, commodity specifications are determined by the industry, and farmers rely on policy support for more sustainable agricultural production standards. It is likely that the minimum GAP standard is applicable for most of cassava farms.

However, whether practicing sustainable or conventional agriculture, it is possible and feasible to implement GAP, in order to take advantage of the environmental, social and

health benefits for producers, consumers and the country. Hence, the Ministry of Agriculture and Forestry (MAF) is aiming at adopting a two-step approach to green and sustainable agriculture development:

- (1) Adopt GAP as the minimum standard or starting point for green and sustainable agriculture for any type of agricultural farm production, collection (for NFTP) or value chain activities, whether for own consumption or for commercial intent; and
- (2) Exploration of more sustainable forms of production that are suited to given local areas and environments.

The approach is visualised in Figure 1. A staggered approach allows for elevating Lao agriculture to GAP standards while testing, exploring and experimenting with increasingly sustainable production systems (such as pesticide free, low input agriculture, climate smart agriculture and agro-forestry) in geographically explicit, identified regions, wherever these are suitable.

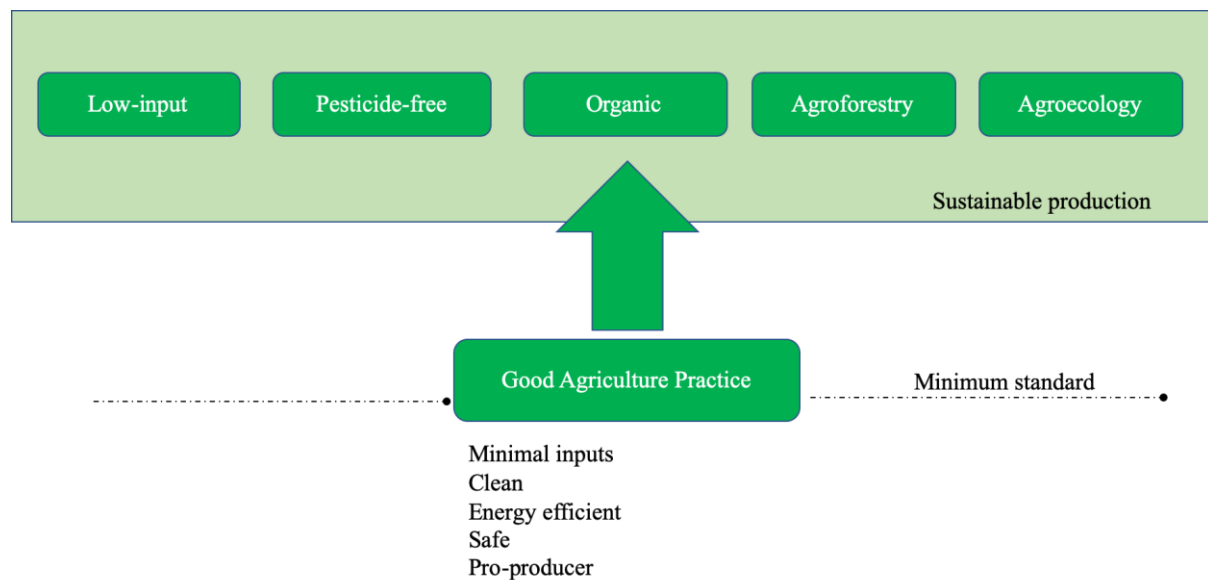


Figure 1: Staggered approach for implementing GSAP

Climate Mitigation and Climate Change Adaptation

As parties to the UNFCCC as well as signatories to, both, the Kyoto Protocol and the Paris Agreement, the GoL is committed in reducing its emissions as well as implementing measures to adapt to the symptoms of the climate crisis. Currently, FAO is supporting GoL to mainstream climate adaptation and disaster risk reduction in its subnational planning processes, starting in the provinces of Khammouane and Savannakhet. In addition, REDD+ efforts are ongoing in the forestry sector. It is planned to extend these efforts into the agroforestry sector, which will make it part of GSA.

Although GSA does not specifically address climate change, it is expected that the transition towards more sustainable agriculture has positive effects on mitigation and adaptation.

Lowering chemical inputs, using crop residues for soil improvement, growing perennials in agroforestry, as well as conservation agriculture techniques, for example, hold the potential to improve carbon sequestration in soils and plants and keeps the ground covered. Improving the resilience of agricultural production systems contributes to adaptive capacity of farmers to respond to the symptoms of climate change, i.e., floods, droughts, and storms in most of the country.

Despite expected positive impacts on climate mitigation and adaptation, it is important to state that the transition to more sustainable farming (GSA) cannot impact on current forest areas and other areas of high conservational value (e.g., wetlands). The support for GSA must not negatively impact on other land uses, particularly climate positive land uses. Similarly, when developing adapted green value chains, emphasis needs to be put on avoiding emissions and building resilience.

Alignment with national, regional and international policy

National Policy Integration

The agricultural policy of Lao PDR closely follows the nation's overall goals of building a politically stable, secure, competitive, and green and sustainable economy (**Vision 2030**). The national **10-year Vision** sets a focus on quality and sustainable growth, graduation from LDC (combatting poverty) through human development, efficient use of natural resources and continued regional integration. The agricultural policy is also aligned with the **9th National Socio-Economic Development Plan (NSEDP)**, which calls for sustainable socio-economic development, improving human capacity, maintaining peace and security, democratisation and justice, and widening international cooperation.

The Agriculture Development Strategy (2025) and Vision (2030) calls for a *“modern agriculture that is diverse, productive, sustainable and resilient to climate change and that could be integrated into regional and international value chains contributing both to food security and enhancing the development of comparative and competitive advantaged commodities [thereby] contributing to [the] successful implementation of [the] National Socio-Economic Development Plans”*.

Under *Specific Technical Measures*, the Agriculture Development Strategy calls for “Clean Agriculture Production and Food Safety”, which includes a reference to GAP as the standard as well as the intention to further expand Organic Agriculture (OA), non-pesticide production and conservation agriculture. The following implementation measures are identified in the ADS for the crops sub-sector:

- (i) adaptation of standards for the various production methods that meet international requirements;
- (ii) establishment of certification Bureaus that guarantee the adherence to standards and allow for added value to those agricultural commodities that have been certified;
- (iii) establishing model farms for GAP and OA in each province;
- (iv) establishing markets for clean agricultural products;

- (v) development of a management system for agricultural inputs ensuring their quality
- (vi) support producer groups for clean production and marketing.

For livestock-specific strategies, focus is laid on promotion of species diversity; preference for native species; and integrating crop and livestock farming systems. The above measures are further elaborated in the present GSAF.

The Agricultural Development Strategy requires the development of a National Clean Agriculture Programme, which is being developed by the Department of Agriculture and will be concomitant to the GSAF. The ADS further calls for a research project to provide information in formulating policies at all levels on developing clean and sustainable agriculture to secure food security and nutrition. This research project has been conducted and forms the basis of the GSAF (see: "Embedding green and sustainable agriculture in the Lao PDR policy agenda: A discussion paper")

National Green Growth Strategy

In the spirit of the National Green Growth Strategy (NGGS) for Lao PDR, the direction for agricultural development will focus on improving efficiency, effectiveness and the sustainable use of existing natural resources (land, water resources and others) to generate maximum benefit for its people. The NGGS ensures that sector strategies, such as the ADS, (above) have integrated green growth principles. These, in turn are also included in the 9th NSEDP. Green growth principles include:

- (i) **Improve the efficiency and effectiveness** by applying alternative clean, efficiency and sustainable production technique and technology, which are adapted to different conditions across Lao PDR.
- (ii) **Decrease of waste, pollution, and energy consumption** resulting from agricultural production and move towards closed-cycle agricultural production by increasing efficiencies and improving use of agriculture wastes from agriculture production process for producing organic fertilizer to improve soil quality, biogas or fuel.
- (iii) **Upskilling of producers and the workforce** to achieve improved technology and efficient production as well as opening opportunities for alternative livelihoods. This includes the promotion and development of local unique products, which link to tourism, export, and food security.
- (iv) **Promote integrated farming and crop rotation** to reduce soil degradation; restrict and reduce monocrop and monoculture over long periods to avoid negative impacts on healthy soil and biodiversity; promote multi-functional landscapes, agro-biodiversity, and climate-adapted farming
- (v) **Enhance ownership in cross-sectoral coordination** relevant to production management, import, distribution and, pesticide and chemical use that harmful for human, animal and environmental health in the production process; enhance capacity and efficiency in production management to reduce degradation of soil, river, biodiversity as well as human and animal wellbeing by improving regulations, law, implementation mechanism and measures against offenders.

- (vi) **Support and promote green and sustainable agriculture** as unique to Lao PDR and based on local knowledge to increase exports of value-added products and to integrate with the national tourism sector.
- (vii) **Improve and expand agriculture infrastructure** to improved productivity water resources management (quality and quantity) to create maximum benefits and to minimize conflict in water use, risk and climate change and disaster.

National nutrition strategy to 2025 and Plan of Action to 2020

The National Nutrition Strategy to 2025 and Nutrition Plan of Action to 2020 recognizes the importance of safe and nutritious food at the individual and household level with a focus on

- achieving sufficient food and food safety,
- emphasising the importance of appropriate nutrition during the first 1,000 days of human life,
- reducing the prevalence of disease caused by contaminated food, and
- reducing the negative impacts of other infectious diseases, which impair the body's ability to absorb food.

Inadequate nutrient intake is mainly due to inappropriate nutritional knowledge and practices, causing food deficits to occur. Preservation and sustainable management of wildlife, wild plants, agricultural biodiversity, and other unique natural resources are important for food and nutrition security, as are sustainable cropping and horticultural practices that avoid overuse of chemical inputs, and monoculture.

The strategic direction of the National Nutrition Strategy on addressing underlying causes is to focus on producing adequate and healthy food for consumption, improve access to nutritious food, improve clean water (systems and practices), ensure sanitation, and improve access to health and nutrition services. The GSAF links with the National Nutrition Strategy by promoting clean production and processing systems and ensuring sustainable use of natural resources as well as agricultural inputs as a foundation for a healthy national food system.

Lao PDR National Agro-Biodiversity Programme and Action Plan II (2015-2025)

Agro-biodiversity plays a key role in socially important ecosystem services such as the provision of potable water, maintenance of water quality, waste removal, soil erosion control, reduction of rainfall runoff and flood-control. Thus, the preservation, protection and sustainable use of the agro-biodiversity and its supporting systems significantly increase the country's resilience to climate change.

The Lao National Agro-Biodiversity Programme and Action Plan (NABP II) recognizes that Lao PDR's rich agro-biodiversity is important for the agriculture sector, in order to maintain critical ecosystem services, such as nutrient recycling, soil moisture retention, pest and disease control, and pollination. It also helps to sustain ecosystem services on a wider level, i.e., the supply of water, energy, minerals, and wildlife conservation, upon which much of the Lao economy depends. Crop, animal and fungal genetic resources are key building blocks of agro-biodiversity and extremely important biological resources.

The NABP II comprises of three outcomes:

- (1) An enabling policy environment and legal framework for the sustainable use and conservation of agro-biodiversity resources in Lao PDR;
- (2) Organizational and technical capacity for the conservation and sustainable use of agro-biodiversity in government, the private sector and farmers developed and strengthened;
- 3) Floral, faunal, fungal and other elements of agro-biodiversity in all ecosystems of Lao PDR effectively managed, utilized and conserved.

The GSAF is in line with the NABP II as it considers the preservation and protection of Lao agro-biodiversity to be an essential precondition to sustainable agriculture. Agro-biodiversity helps maintain essential ecosystem services that are required as a foundation for sustainable agriculture.

Livestock policy and standards

Livestock makes significant contributions to food security and poverty eradication in Lao PDR, and it has been placed at the centre of the Government's development strategy, both, in the National Socio-Economic Development Plan for 2016–2020 and the Agriculture Development Strategy (ADS) for 2025. The Government has set an annual production target for meat and egg production of 414,000 tons, and fish and aquatic production of 297,000 tons. To meet these targets, the Government emphasizes the need for investment in and promotion of feed, breeds, commercialization, animal health and technology. Eight policies have been identified to promote the sustainable commercialization of livestock and fishery production:

- 1) Policy on land use for terrestrial and aquatic animal production;
- 2) Policy on labour;
- 3) Policy on finance and banking;
- 4) Policy on energy;
- 5) Policy on processing;
- 6) Policy on trade and price security;
- 7) Policy on terrestrial and aquatic animal transportation; and
- 8) Policy on human resource development for the livestock and fisheries sector.

More efforts have been made toward green and sustainable agriculture practice in the livestock sub-sector especially promoting Good Animal Husbandry Practices (GAHP), in line with the policy on implementing GAP nationwide. Under the Law on Livestock Production and Veterinary Matters, MAF has developed standards on (1) pig raising farms; (2) cattle for meat production farms; (3) chicken farms; and (4) livestock slaughtering and meat inspection. Currently, the Department of Livestock and Fisheries is drafting decrees on vaccination to be endorsed by prime minister.

Fisheries Law and Strategy

Fisheries include wild catch of river fish and other aquatic animals as well as aquaculture. Fish and aquatic animals are a very important component in the diet of the Lao people. It is a major source of protein especially for rural communities. According to government statistics, all farming families in the country regularly spend time either fishing or raising fish. The Fisheries Law specifies principles, regulations and measures on the organization of activities, management, and inspection to boost farming, conservation, protection, and development of fisheries as well as the sustainable exploitation of aquatic fauna. The aim of the law is to ensure sufficient fish and other aquatic fauna as food for the Lao people, as well as environmental protection, both contributing to sustainable economic development.

The GSA and the Fisheries Law both aim at adapting the Lao fisheries sub-sector to the challenges of climate change. The Government's objective is to generate income for farmers and to make a significant contribution to the country's food security through fisheries. Important elements of MAF's fisheries strategy include the establishment and strengthening of farmer groups, focus on integrated rice-fish systems, value chains for aquatic products production as well as the production of safe and nutritious aquatic food.

Non-timber forestry products (NTFPs)

The aim is to promote sustainable systems of NTFP use that contribute to the conservation of forest biodiversity as part of the GSAF. The Forestry Strategy to 2020, and the Lao PDR National Agro-Biodiversity Programme and Action Plan II (2015-2025) defines NTFPs as an integral part and an important element of agro-biodiversity in Lao PDR, and comprise all plants, animals and fungi harvested for use or sale. Lao PDR has high dependency on NTFPs, due to its low population density combined with a high rate of forest cover. NTFPs provide a strong incentive for forest users to manage forest resources sustainably. In Lao PDR, the importance of NTFPs can be summarized as follows: (1) food security; (2) cash or non-cash income; (3) agricultural community small-scale businesses; (4) construction materials for houses, building tools; (5) medicine; and (6) conservation of biodiversity in wild animals and wild and cultivated plants. Villagers are able to collect high volume of NTFPs in various kinds from the forests, with an economic value equivalent to that of rice production. NTFPs are collected in mountainous areas to provide a safety net to local residents in terms of livelihood support. However, the way NTFPs are used had changed because of deforestation and forest degradation. There is a need for conservation and sustainable NTFPs use involving local people in the planning and management of NTFPs and in the sharing of benefits to increase the likelihood of success for conservation measures. Production of NTFPs by domestication in individual forest gardens could be one approach to relieve environmental pressure from forest areas. At provincial level, policy has been rolled out, for instance, the second 5 years Bamboo development strategy (2016-2020) for Houaphan Province.

Intellectual Property Law (2012) and GI Guidelines

Geographic Indication (GI) of niche and locally unique agricultural commodities in Lao PDR is a process jointly managed by MAF (Department of Agriculture and NAFRI) in conjunction with the Ministry of Science and Technology (Department of Intellectual Property). While GI certification is motivated and processed through MAF, registration has occurred through

MOST since 2016. A National GI Committee is composed of representatives of the two ministries as well as the Lao Chamber of Industry and Commerce. Currently 19 locally unique products are being considered for potential GI registration, with various specialty products (Paksong and Komaen Tea, Bolaven Coffee, Luang Prabang and Houphanh Silk already registered in 2020). The process of registration is based on the 2012 Intellectual Property Law, which provides for procedures relating to GI in the Lao People's Democratic Republic. An update on the IP law is currently in development and expected to be published shortly. Additionally, GoL has stated an interest in accession to the World Intellectual Property Organization's Lisbon Agreement for the Protection of Appellations of Origin and their International Registration.

The National GI Committee is currently expanding its reach to include additional Government agencies and ministerial departments as well as establishing provincial GI task forces to support GI and trademark development throughout the country. The ultimate aim is to establish a national GI control and traceability system as it is a legal requirement for registered GI in Lao PDR. These quality control measures will provide trust to the consumers, build product reputation, and provide producers with a justified GI premium.

The Ministry of Agriculture and Forestry, in its Agriculture Development Strategy to 2025 and Vision to the year 2030, emphasizes its target to strengthen the country certifications capacities to comply with ISO/IEC 17065 Standard, relevant standard applying to GI certification.

The Department of Agriculture, through its Standards Division, has already developed standards and certification systems, which certify whether crop plantation system follow GAP and OA standards. DoA has expressed that these standards shall be integrated to be part of the National GI system.

The GSAF is closely aligned with GI registration procedures, particularly in terms of creating new markets for niche and boutique agricultural commodities. It is believed that GI registration and certification adds value and supports pro-poor income generation to producers and producer associations, while support to develop the image of Lao agriculture as clean, green and quality-assured.

Regional Policy Integration

In the regional context, Lao PDR is a statutory member of the **ASEAN Economic Community** and has co-signed the **Declaration on ASEAN Post-2015 Environmental Sustainability and Climate Change Agenda**, which aims at establishing a balance among economic growth, social development and environmental sustainability. Lao PDR also supports the **ASEAN Socio-Economic Blueprint 2025**, which calls for a society that engages and benefits the people, is inclusive and equitable, promotes human rights, manages resources sustainably, responds to climate change challenges, is resilient to future uncertainties, and strengthens social protection for at-risk groups. Closer to agriculture, Lao PDR, in the context of ASEAN agreements, aims at achieving sustainable production and consumption, which include making use of environmentally sound technologies, environmental education, waste management, energy efficiency, and inclusion of best practices in policy development.

Within MAF, it is seen that the regional policy goals are complementary to national goals, and that the national policy is an implementation of regional commitments. Lao PDR became a member of the ASEAN in 1997. In the context of ASEAN agreements and policy frameworks, it is considered by the GoL that regional policy goals are complementary to national goals and national policies are the implementation of regional commitments. Alignment and integration enable Lao PDR to benefit from wider cooperation, create synergies with regional development programmes and initiatives, and take advantage of institutional, financial and technical support in the region. This equally applies to Lao agriculture development and policies.

As a contribution to the ASEAN integration process and to harmonise sustainable agriculture regionally, Lao PDR has taken pro-active steps to further agroecology within the region. The Lao Facilitated Initiative on Agroecology for ASEAN (LICA) aims at supporting ASEAN experts and ASEAN Working Groups with information on agroecology following the objective to develop a common ASEAN position on agroecology including policy tools and mechanisms for an agroecology transition in the region. GoL has proposed this initiative to the Special 38th ASEAN SOM AMAF meeting in Singapore and it has been endorsed by the Special SOM at the 40th AMAF meeting in 2019 (Vietnam).

ASEAN Good Agricultural Practice (GAP) Standards

ASEAN GAP is a regional standard for good agricultural practice during production, harvesting and post-harvest handling of fresh fruit and vegetables in the ASEAN region. ASEAN GAP standards draw on criteria and standards of national GAPs in Malaysia, Philippines, Singapore, Vietnam and Thailand as well as best practices from around the globe. The practice of ASEAN GAP aims to prevent the risks of hazards occurring, to facilitate agriculture trade within and beyond the region, and to improve viability for farmers and sustain a safe food supply and the environment. The hazards covered by ASEAN GAP include food safety, environmental impacts, worker health, safety and welfare, and produce quality. The implementation of GAP standards across the ASEAN region currently varies: many ASEAN government have developed country-specific GAP-based certification systems, while some others are only starting with awareness programs for farmers.

Aligning with international and regional trends, Lao PDR is pursuing the implementation of GAP as a minimum standard across all production systems and by smallholders and private sector. GAP has been adopted as a standard within current Lao national policy to guide the sector's transition to more sustainable production and processing and to promote the concepts of clean, safe and ethically produced food. In addition to setting GAP as the minimum standard, the GoL also supports and explores more sustainable forms of agricultural production and processing.

ASEAN Guidelines on Promoting Responsible Investment in Food, Agriculture and Forestry (2018)

The Guidelines aim at ensuring that investments in ASEAN agriculture meet global standards and promote responsible and sustainable investment. ASEAN is home to a large number of major agribusinesses with the largest amount of investments stemming from other ASEAN

countries. The guidelines apply to both host countries as well as ASEAN investors as they reflect ASEAN's unique situation among developing regions as both a source and host of FDI in agriculture and forestry.

The Guidelines embrace the centrality of value chains, including the importance of fair pricing of produce sold by farmers, supporting the improvement of quality and safety standards across the chain, and food security. They recognise that smallholder farmers and SMEs constitute the majority of investments in agriculture address this disparity, by emphasising benefit sharing for resource-constrained farmers and SMEs. The Guidelines also support governments to implement mechanisms that assist smallholder farmers and SMEs in meeting the necessary standards.

The primary purpose of the Guidelines is to promote investment in food, agriculture and forestry for economic growth, nutrition security, food safety and equitable benefits, as well as the sustainable use of natural resources. Investment promotion is one goal, but interests of other stakeholders, including local and indigenous communities, smallholders and marginalized groups, cannot be excluded. The Guidelines provide a reference for decisions and good practice and, as they are voluntary in nature, they do not conflict with existing national laws and regulations or with binding international treaties. In fact, they are complementary to the GSAF and other legal and policy frameworks in Lao PDR.

ASEAN Sociocultural Community Blueprint 2025 (ASCC 2025)

The ASCC 2025 is the strategy and planning mechanism of the ASEAN Socio-Cultural Community (ASCC). ASCC is driven by the commitment to lift the quality of life of ASEAN peoples through cooperative, people-oriented, people-centred, environmentally friendly activities. The intent of ASCC 2025 is to achieve substantial progress in developing and strengthening regional policy frameworks and institutions to advance Human Development, Social Justice and Rights, Social Protection and Welfare, Environmental Sustainability, ASEAN Awareness, and Narrowing the Development Gap with concrete legal instruments such as Declaration on Non-Communicable Diseases in ASEAN and the Declaration on Elimination of Violence Against Women and Elimination of Violence Against Children.

ASEAN 2025 Blueprint is aligned with universal and transformative goals and targets for the 2030 Agenda for Sustainable Development. Among its specific goals, the Blueprint calls for: a sustainable community that promotes social development and environmental protection through effective mechanisms to meet the current and future needs of its peoples; and a resilient community with enhanced capacity and capability to adapt and respond to social and economic vulnerabilities, disasters, climate change as well as emerging threats, and challenges.

ASEAN Plus Three Cooperation Strategy on Food, Agriculture and Forestry 2016-2025 (APTCS)

ASEAN Plus Three Cooperation Strategy on Food, Agriculture and Forestry (APTCS) was launched in 2011. The priority areas of APTCS (2016-2025) include food security and livelihoods, promoting sustainable development of agriculture and forestry sectors,

enhancing trade of agricultural and forestry-based products and finally addressing challenges facing agriculture and forestry sectors of the APT countries. The new cooperation strategy is also envisioned to contribute towards the realization of the ASEAN Community Vision 2025.

The APTCS (2016-2025) takes into account the emerging measures identified in the new Vision and Strategic Plan for ASEAN Cooperation on Food, Agriculture and Forestry (2016-2025), ASEAN Integrated Food Security Framework (IAFS) and SPA on Food Security in the ASEAN Region (2015-2020), ASEAN Plus Three Bioenergy and Food Security Framework (2015-2025) and ASEAN Plus Three Leaders' Statement on Promoting Sustainable Development Cooperation in 2016.

The ASEAN Roadmap for Enhancing the Role of Agriculture Cooperatives in the Global Value Chain 2018-2025

The roadmap was adopted at the 40th AMAF Meeting on 11 October 2018 and provides guidance on how ASEAN agricultural cooperatives can participate in global agricultural value chains, as well as how agricultural cooperatives can get recognized and legalized within ASEAN. ASEAN member states have committed to furthering the cause of cooperatives and the Sectoral Working Group on Agricultural Cooperatives in ASEAN coordinates and monitors throughout the implementation period.

ADB Strategy 2030

ADB Strategy 2030 sets the course for ADB's efforts to respond effectively to Asia and the Pacific region's emerging trends and to continue addressing critical regional development agendas such as rising inequality and climate change. Aligning with key global commitments, ADB continues its efforts to eradicate extreme poverty while expanding its vision to achieve a prosperous, inclusive, resilient, and sustainable Asia and the Pacific. To allow for the diversity of countries, ADB applies differentiated approaches and prioritises support for the poorest and most vulnerable countries in the region.

The Strategy identifies 7 key operational priorities, among which are:

- tackling climate change,
- building climate and disaster resilience,
- enhancing environmental sustainability;
- promoting rural development and food security.

These goals are achieved through improving market connectivity and agricultural value chain linkages, enhancing food safety and agricultural productivity, promoting the adoption of advanced technologies and climate-smart agricultural practices, and supporting the improvement of natural resource management standards.

ADB assistance to the GMS region is built on its long-standing institutional support under the GMS Economic Cooperation Program, of which Lao PDR is a member. ADB developed the *Agriculture Assessment Strategy Roadmap for Lao PDR in 2018*, identifying specific

priorities for future ADB's support in the agriculture sector. The development of a country partnership strategy for Lao PDR (2017-2020) is aligned with the goals of the 8th Five-Year National Socio-Economic Development Plan (2016–2020) and benefits from the country consultations on the ADB Strategy 2030.

Strategy for Promoting Safe and Environment-Friendly Agro-Based Value Chains in the Greater Mekong Subregion and Siem Reap Action Plan, 2018-2022 (SASRAP)

The Strategy for Promoting Safe and Environment-Friendly Agro-Based Value Chains in the GMS, and Siem Reap Action Plan for 2018-2022 was endorsed by the GMS Ministers in 2017. The SASRAP strategy sets to achieve the following broad outcomes:

- (i) greater trade through development of transport and economic corridors in the subregion
- (ii) economies of scale through regional value chains cutting across various GMS countries
- (iii) inclusive safety through improved policy coordination and harmonization and border control over quality and food safety.

The Strategy sets an ambitious goal to transform GMS agriculture systems into leading global suppliers of safe and environment-friendly agriculture products (SEAP). The strategy will focus on expanding markets for SEAP regionally, to East Asia and to global markets. Lao PDR is a member of the GMS Economic Cooperation Program. The GMS has different advantages to become a leader in agri-food trade including its strategic geographical location, the continuity of its landmass, rapid development of economic corridors and diversity of the agroecological environment. As such, the SASRAP is a sub-regional strategy which aims to enhance the success of the strategies pursued independently by each nation, develop a more prosperous subregion with sustainable growth and to address issues of common interests that are challenging for separate national strategies.

International Policy Frameworks

Internationally, Lao PDR has subscribed to the **Sustainable Development Goals (SDGs)** and has aligned its strategy, policies and goal-setting closely with the international **Agenda 2030**. In addition, Lao PDR wishes to become internationally competitive by graduating from **Least Developed Countries (LDC)** status by 2020 by improving their UN Human Development Index through improvements in the areas of poverty alleviation, human resource development and improving economic vulnerability.

Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs) were adopted by all United Nations Member States in 2015 and serve as a shared blueprint and universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. The 17 SDGs recognize that ending poverty must be tackled together with strategies to improve health and education, reduce inequality and promote economic growth. Sustainable agriculture plays a key role in the 2030 Agenda and a fundamental step to secure Zero

Hunger. Target 2.4 and its Indicator 2.4.1 are dedicated to promoting sustainable agriculture, stating that *“By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality”*.

The GoL is strongly committed to the implementation of the 2030 Agenda for the achievement of SDGs. SDGs have been localized and integrated into Lao national planning frameworks. Specifically, SDGs are embedded into the 8th National Socio-Economic Development Plan (NSEDP) and its Monitoring and Evaluation Framework. The country is implementing the SDGs through the NSEDP and the sector development plans of each ministry. Aligning with the implementation of the SDGs, the Agricultural Development Strategy 2025 has been accelerated to support the transition from subsistence to market-oriented agricultural production that is adapted to climate change and focus on smallholder farmers.

Nationally Determined Contributions (NDCs)

The Paris Agreement was signed in 2015 by 196 parties to transform development trajectories and to combat the adverse impacts of climate change and enhance climate resilience. The aim of the Agreement is to limit warming to 1.5-2 degrees Celsius above pre-industrial levels and to strengthen the ability of countries to deal with the impacts of climate change. At the heart of the Paris Agreement and the achievement of its goal are the National Determined Contributions. NDCs represent the efforts and concrete actions planned by each country to reduce emissions and adapt to the impacts of climate change. Required by Article 4 of the Paris Agreement, each country prepares, communicates and maintains successive NDCs that it intends to achieve. Domestic mitigation measures which reflect domestic circumstances and capabilities to reach the planned contributions will be pursued by each country. Agriculture is negatively affected by climate change and the sector itself is a significant contributor to global greenhouse gas. Hence, both climate and development goals can be delivered via the sector and NDCs are important opportunities to promote productive and resilient agricultural practices while combatting climate change impacts. National governments can optimize resources and leverage progress across both agendas by creating synergies to the implementation of NDC and SDGs.

Recognized as a highly vulnerable country to climate change impacts, Lao PDR has developed the Intended Nationally Determined Contributions (2015) and the implementation of the INDCs is under the cross-ministerial National Disaster Management Committee. The INDCs are incorporated in the 8th National Socio-Economic Development Plan to ensure the continued mainstreaming of climate related policy in overall national plans. Climate risks on the agriculture sector are also mainstreamed in Lao Agriculture Development Strategy to 2025 and Vision to 2030, focusing on preventing, controlling and addressing impacts from natural disasters.

Sendai Framework for Disaster Risk

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the Third UN World Conference in 2015. As a successor agreement to the Hyogo Framework for Action (HFA) 2005-2015, the Sendai Framework is built to ensure the continuity of the achievements under the HFA and to introduce a number of innovations. The Sendai Framework is a 15-year, voluntary, non-binding agreement which recognizes the primary role of the State as well as the sharing of responsibility and engagement of all other stakeholders including local government, private sector in disaster risks reduction. Providing the way forward to preventing and reducing disaster risk to achieve resilient and sustainable development, the Framework's objective is "the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries". Lao PDR has been actively undertaking HFA and its successor, the Sendai Framework.

The need for agreed regional and sub-regional strategies and mechanisms for reviewing implementation progress by regional and global platforms is highlighted in the Sendai Framework. As a result, the "Asia Regional Plan for implementation of the Sendai Framework 2015-2030" was developed to facilitate the cooperation and to guide and support national implementation of Sendai Framework. The regional plan aims to provide: policy direction to guide the implementation of the Sendai Framework in the context of the 2030 sustainable development agendas in the region; a long-term road map, spanning the 15-year horizon of the Sendai Framework outlining a chronological pathway for implementation of priorities to achieve seven global targets; and a two-year action plan with specific activities that are prioritized based on the long-term road map and in line with the policy direction.

2.2 billion people in Asia depend on the agriculture sector for their livelihoods and it is estimated by FAO that losses for the sector in the region due to climate-related disasters was 47 billion USD between 2003-2013. The impacts of disasters on the sector continue to rise. Sendai Framework provides an opportunity to promote policy reforms by explicitly recognizing the coherence between poverty eradication, disaster risk reduction, climate change adaptation and sustainable agriculture for the first time. Lao PDR is highly exposed to a range of hazards, extreme weather and climate change due to its tropical setting. The GoL has mainstreamed disaster and climate risk management into policies, institutions and national development plans to address the issue and enhance the resilience of various sectors including agriculture. Agriculture is identified as one of the most vulnerable sectors to climate risks in Lao PDR. With 80% of people's livelihoods depending on agriculture, mainstreaming DRR in agriculture policies has evolved over the past years. The Plan of Action for Disaster Risk Reduction and management in agriculture (2014-2016) was developed to enhance risk reduction in agriculture.

UN Decade of Family Farming

UN Decade of Family Farming (UNDDFF, 2019-2028) and its Global Action plan is meant to support the development of National Action Plan (NAP) for Family Farming. NAPs are coordinated plans that consider tangible measures and specific commitments regarding family farming, particularly through public policies, programmes and regulations that involve roadmaps for the countries and regions in its efforts to support the sustainable development of family farming.

NAPs constitute concrete mechanisms to advance sustainable food production, the promotion of rural development, the fight against rural poverty, the biodiversity preservation, cultural preservation and ultimately ensuring a future for sustainable food production for humanity from a holistic standpoint. They undoubtedly provide a great opportunity for the discussion between governments and family farming representatives. FAO is supporting this through a global project, which should support Lao PDR to develop its NAP on Family Farming at the initial phase of the GSAF.

FAO's common vision for Sustainable Food and Agriculture and the 10 elements of agroecology framework

FAO's Common Vision for Sustainable Food and Agriculture (2014)

FAO has played a lead role in working with its member countries to promote sustainable agriculture and in promoting international treaties, policies, strategies and programmes. Aimed at developing a common approach to FAO's work on sustainability, the Common Vision for Sustainable Food and Agriculture (2014) was built on accumulated knowledge and experience through these programmes and initiatives. The Vision represents an integrated sustainability approach and a unified perspective which applies across all agricultural sectors. Taking into account social, economic and environmental considerations, the Vision lays out five key principles which are:

- improving efficiency in the use of resources;
- conserving, protecting and enhancing natural ecosystems;
- protecting and improving rural livelihoods and social well-being;
- enhancing the resilience of people, communities and ecosystems;
- promoting good governance of both natural and human systems.

The five principles provide a basis for developing national policies, strategies, programmes, regulations and incentives which will guide the transition to sustainable food and agriculture systems. Lao PDR is a priority country for support by FAO. In building the country programming framework for Lao PDR (2016 – 2021), FAO's "Building a Common Vision for Sustainable Food and Agriculture" is one among important sources of inputs.

The 10 elements of Agroecology guiding the transition to sustainable food and agriculture systems (FAO, 2018)

As an integral part of FAO's Common Vision for Sustainable Food and Agriculture, *agroecology* is promoted as a unique and integrated approach to transform food and agricultural systems, to mainstream sustainable agriculture on a large scale, and to achieve Zero Hunger and other SDGs. Ecological and social concepts and principles are simultaneously applied to the design and management of food and agricultural systems in agroecology. It aims at optimizing the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system. Based on bottom-up and territorial processes, agroecological innovations are the product of the co-creation of knowledge, combining

science with the traditional, practical and local knowledge of producers and aim at delivering contextualized solutions to local problems. In agroecology, producers and communities' autonomy and adaptive capacity are enhanced and they play the role of key agents of change. The following interlinked and interdependent 10 Elements on agroecology are laid out by FAO:

1. diversity;
2. synergies;
3. efficiency;
4. resilience;
5. recycling;
6. co-creation and sharing of knowledge;
7. human and social values;
8. culture and food traditions;
9. responsible governance;
10. circular and solidarity economy.

By identifying important properties of agroecological systems and approaches, the 10 Elements are a guide and an analytical tool for policy makers, practitioners and stakeholders in planning, developing and evaluating agroecological transition.

IFAD's flagship programmes

Adaptation for Smallholder Agriculture Programme

The Adaptation for Smallholder Agriculture Programme (ASAP) is IFAD's flagship programme for channelling climate and environmental finance to smallholder farmers. ASAP supports the upscale of 'multiple-benefit' approaches to smallholder agriculture, which increase production while reducing and diversifying climate-related risks. ASAP aims to improve the capacity of at least 8 million smallholder farmers to enhance their livelihood options, responding to an environment characterized by uncertainty, rapid change and climate risks. ASAP focuses on policy engagement, climate risk assessment, women's empowerment, private sector engagement, climate services, natural resource management and governance and knowledge management.

Lao PDR is one of the most vulnerable countries to climate change in the SE Asia region due to high dependence on natural resources and low adaptive capacity. While agriculture remains the primary source of employment in the rural areas of Lao PDR, overall sector productivity is low and its potential is further undermined by climate change impacts. To tackle this issue, the Southern Lao Food and Nutrition Security and Market Linkages Programme (FNML) and its new component - The Smallholder Adaptation to Climate Change Component (SACCC) - is co-financed by IFAD's ASAP and Government of Lao PDR. The SACCC, in combination with other FNML components, seeks to reduce the climate change vulnerability and enhance the resilience of highly vulnerable communities and households by strengthening the natural, physical, social, human and financial capital of their communities. The initiative is consistent with the objectives of IFAD's Country Strategic Opportunities Programme and aligned with the National Social Economic Development Plan

of Lao PDR, the Government's Strategy for Agricultural Development to 2025, the National Adaptation Programme of Action to Climate Change (2009) and the National Climate Change Strategy" (2010).

Medium Term Cooperation Programme with Farmers' Organizations in Asia and the Pacific (MTCP2)

MTCP2 or the "Medium Term Cooperation Programme with Farmer Organizations in Asia and the Pacific" is a capacity building program which aims to strengthen the capacities of farmers organizations (FO), including cooperatives, in Asia and the Pacific to deliver better, improved and inclusive services to their members and to engage in effective dialogues with governments. Farmers' organizations play key roles in social change and national development, especially in poverty reduction, food security and nutrition. As such, MTCP2 aims to contribute to poverty alleviation, improved livelihoods and positive socio-economic impacts in Asia and the Pacific region through strengthened capacities of the rural poor and their organizations. MTCP 2 is implemented over a period of five years and is managed by farmers organizations at regional and national levels. Its primary beneficiaries are smallholder farmers and its main participants are 150 FOs representing 20 million small-scale farming families in 25 countries in Southeast and South Asia and the Pacific.

Aichi bio-diversity targets

The Strategic Plan for Biodiversity 2011 – 2020 was adopted during the tenth ordinary meeting of the parties to the Convention on Biological Diversity (COP10) which took place in 2010 in Japan. The Strategy Plan is a ten-year framework for action by all countries to safeguard biodiversity and its benefits to the people. To ensure the achievement of positive outcomes for the implementation of the Strategy Plan, the 20 headline targets are included in the Strategy Plan and referred to as the Aichi Biodiversity Targets (ABTs). The ABTs are organized under five strategic goals identified in the Strategic Plan. It requires that each member country set their own targets, prepare National Biodiversity Strategies and Action Plans, and submit periodic national reports on implementation measures and the effectiveness of those actions in meeting the Convention's objectives.

Lao PDR is a culturally and environmentally rich country with very high diversity of landscapes, ecosystems and culture. In addition, a relatively low population density and lower rate of natural resources exploitation compared to surrounding countries make Lao PDR one of the most bio-diverse countries in Southeast Asia. Increasing economic reform and development has been seen in Lao PDR in the last 40 years which leads to rapid decline in natural capital and negative impacts on its biodiversity. The Government of Lao PDR took different actions to address the issue of biodiversity conservation including acceding to the Convention on Biological Diversity and Aichi targets. A National Biodiversity Strategy and Action Plan together with periodic national reports (in 2010 and 2016) are prepared by GoL as a party to the convention.

As part of its effort to protect the biodiversity, different steps have been taken by Lao PDR towards the sustainable use of natural resources, particularly related to organic agriculture. National organic agriculture standards and a national labelling system for organic products

have been developed. Organic farmer's markets have been promoted, and a Lao Certification Body and procedures for organic certification have been established.

Policy priorities for GSA in Lao PDR

Based on the current Agricultural Development Strategy 2025, which calls for *clean agriculture production that is environmentally friendly* as well as for the *development of quality and standards of agricultural products*, five policy for GSA have been established. These are also reflected in the seven directions for agriculture stated in the National Green Growth Strategy¹. These principles are in accordance with international Sustainable Agriculture standards (e.g., FAO's 10 elements of agroecology), as well as a reflection of current national priorities in the agricultural sector.

1. Improve resilience of agricultural systems: a transition towards diversified cultural landscapes, crop rotation, fallow crops, crop-livestock integration, and an emphasis on agrobiodiversity will strengthen food and nutrition security, as well as conserve valuable and unique biotic resources. This priority links to the agroecological principles of *diversity* and *resilience* and also links to the GSA guiding principle of *integration of crop-livestock systems* listed above.

Target action: Promotion of a variety of clean, efficient and safe alternative production, which are adapted to the varying environmental and socio-economic conditions across Lao PDR.

2. Sustainable input management: efficient use of agricultural inputs, upholding GAP standards, IPM, organic nutrient inputs, and locally produced diversified seeds ensures independence of (imported) chemical inputs and allows for green and clean farming systems. This priority links to the agroecological principles of *efficiency* and *diversity* and also links to the GSA guiding principle of *environmentally sustainable weed and pest control and natural and sustainable nutrient inputs* listed above.

Target action: Avoiding pollution through agro-chemicals and improving efficiency of energy consumption in agricultural production, thereby moving towards closed-cycle agricultural production systems.

3. Value generation: Post-harvest storage and processing according to international standards of hygiene and cleanliness (incorporation of GAP), as well as the reduction and reuse of farm waste and run-off increases the value of agricultural products at farm and supports the national policy on clean niche and boutique commodities. This priority links to the agroecological principles of *co-creation and sharing of knowledge* and *culture and food traditions* and also links to the GSA guiding principle of *post-harvest storage and processing facilities* listed above.

Target action: Developing functional markets that are inclusive and accessible to

¹ (1) improve efficiency and effectiveness of clean agricultural production; (2) decrease of waste, pollution and energy consumption; (3) upskilling of producers; (4) integrated farming and crop rotation; (5) cross-sectoral coordination; (6) promote clean and organic agriculture; (7) improve and expand agricultural infrastructure

smallholder producers to ensure increased income and a shift away from subsistence-based production. Markets and associated value chains at the local, national and regional level demand quality, safe and clean products and will in part drive the shift to more sustainable production systems.

4. Multi-functional agro-ecological land use planning: Rigid land use laws prevent flexibility and adaptive management of production; independent and informed farmer decisions (within zoning limitations) can be supported through recognized tenure, extension, and transparent input management. This priority links to the agroecological principles of *synergies, recycling and circular, solidarity economy, and responsible governance* and is also compatible with the GSA guiding principle of *diversified crop rotation and land use* listed above.

Target action: Enhance agro-ecological functions of land through landscape level planning and monitoring. Promote forest resources conservation, mitigation and adaptation to climate change and disasters prevention. Optimize the use of land use by zoning for multiple uses (e.g., flood control, agro-forestry, pasture).

5. Capacity building/Green extension: Upskilling of producers and the workforce along entire value chains for improved technology and efficient production as well as opportunity development for alternative livelihoods. This includes the promotion and development of local unique products, which link to tourism, export, and food security. Associated with upskilling, development of “agri-preneurs” that operate across the entire value chain and markets. This priority links to the agroecological principles of *human and social values* and *responsible governance* and also covers other principles of GSA listed above.

Target action: Re-organise extension services to target sustainable production and increase sustainable choices for producers and processors. Promote farmer groups and organisations as recipients of green extension.

Very much in line with the five policy priorities, stakeholder consultation amongst government agencies and development as well as research partners, **four focus areas** for planning have been identified. As a whole, Lao PDR intends to move towards more sustainable and green forms of agriculture. Its strategy is to set a minimum requirement of standards (GAP) and to further promote more sustainable forms of agriculture wherever feasible, economically viable, and adapted to local conditions. It aims at using resources as efficiently and effectively as possible, while avoiding waste and pollution to the environment. It recognises the need to equip producers with the necessary skills, which enable them to bring diverse and clean production systems into the modern era of specialised marketing, cater to consumer requirements, and the demand for clean and safe food.

The first focus area is on agricultural inputs, their minimal but efficient use, safe handling, and resource preservation as much as locally possible. While it is clear that organic (zero chemical inputs) or other sustainable agricultural methods will not yet be possible throughout the country, it will be in selected areas.

The second focus area looks at the production system itself and promotes improvements in efficiency of energy and resources. This includes re-use of crop residues, composting of organic waste, bio-digestion, and generation of energy on-farm. While traditional farming displays several of these elements, they can be upgraded by applying modern technology and knowledge if producers are adequately trained.

The third focus area emphasises the necessity for developing appropriate markets that create a demand for sustainably produced food and agricultural commodities. Value chains need to be transparent, fair and beneficial to all and end-consumers need to have the confidence that Lao agricultural products from are safe, clean and of excellent quality.

Finally, **the fourth focus area** concentrates on the aspect of human capital, which is important to improve production processes in agriculture but also critical in transitioning the workforce into other industries. Agriculture needs to diversify in Lao PDR but it is also livelihoods that must diversify, and new opportunities created that ensure stable and sustainable livelihoods. This includes livelihoods that embrace additional income sources next to farming, but also a movement out of farming and into emerging industries in the country.

While transitioning of parts of the workforce from farming into other industries seems unavoidable, capacities and activities related to agri-processing and packaging in rural areas to increase value addition as well as services related to mechanization of agriculture, advisory services to farmer groups and other ancillary industries will boost local and rural economies. The development of the hospitality industry, in particular, holds the potential to positively meld with sustainable agriculture approaches, e.g., via agro-ecotourism.

The fourth focus also includes support for women farmers and women in the value chain. As many decisions and labour in GSA depends on women, benefits need to be shared equally and are best utilized with strong involvement of women. Building human capital includes empowerment of actors that do not have equal access to decisions and benefits and improving the roles these actors can inhabit in GSA.

The above-mentioned 5 policy priorities have been derived from existing policy documents and international guidelines, while the 4 focus areas encapsulate stakeholder voices from actors in the agricultural sector. The relationship between agro-ecological principles, GSA principles, policy priorities, and focus areas is reflected in the below Figure.

Agro-ecological Principles	GSA Guiding Principles	Policy Priorities	Focus Areas
1.diversity;	Integration of crop-livestock systems	Improve resilience of agricultural systems	Efficient use of agricultural inputs
2.synergies;	Agroforestry	Sustainable input management	Efficient energy and resource use
3.efficiency;	Non-timber forest products	Value generation	Developing appropriate markets
4.resilience;	Agro-ecological landscape management	Multi-functional agro-ecological land use planning	Ensuring stable and sustainable livelihoods
5.recycling;	Environmentally sustainable weed and pest control –	Capacity building/Green extension	
6.co-creation and sharing of knowledge;	Natural and sustainable nutrient inputs		
7.human and social values;	Post-harvest storage and processing		
8.culture and food traditions;			
9.responsible governance;			
10.circular and solidarity economy.			

Figure 2: GSA Principles, Policy Priorities, and Focus Areas for GSAF Implementation

Green and Sustainable Agriculture in Action

The following lists some key actions expressed by GoL and other stakeholders, which link to the above policy priorities and focus areas, and which form the cornerstones of an implementation plan for GSA. The following list is not in order of priority and may change according to further elaboration of policy priorities.

Maintaining/promoting agro-biodiversity

In addition to green and sustainable production, the GSAF intends to emphasise the opportunities that come with the unique geomorphological and cultural circumstances of Lao agriculture. Lao PDR is a country with immense biodiversity, including diversity in agriculture. For example, the number of indigenous cultigens of rice is unsurpassed in the region. In addition, traditional farming systems are typically diverse and include various forms of multi-cropping, intercropping, integrated crop-livestock systems, and indigenous breeding techniques. Traditional farming is well adapted to local environments and yields its own, unique forms of production and crops. Lao PDR agricultural policy recognises the strength in high levels of agrobiodiversity that can be found in these systems and the potential they have towards achieving sustainable forms of agricultural production. Resistance against local strains of pests and diseases, as well as adaptation to local environmental conditions, high diversity of cultigens, crops, farming systems and land use patterns strengthen the resilience of local agricultural production to a number of economic and environmental risks. Thus, agricultural policy promotes agrobiodiversity and supports this policy through various institutions tasked with promoting and expanding it.

This Action links to policy priority 4.

Focus on niche markets

Lao PDR also realises that, due to its size and positioning of the country amongst larger economies, it cannot compete with its neighbours in bulk commodities and that there is a niche in high value market products and associated value addition where the sector has a

strategic advantage (e.g., coffee). Conventional means of competition in commodity markets via lowering cost of production and producer prices are not feasible for Lao PDR.

The comparative advantage of Lao agriculture is its ability and relative ease to move towards green and sustainable agricultural production systems and processes before current farming and production systems are locked into unsustainable industrial pathways that raise the threshold to achieve sustainable alternatives. GSAF provides farmers with the opportunity to grow commodities and capture higher premiums in increasingly expanding green consumer markets emerging domestically and overseas.

This Action links to policy priority 3.

Unique products

The diversity of cultural land use has also yielded unique specialised agricultural products and non-timber forest products that increasingly find a demand in domestic and international markets. For example, coffee grown in Lao PDR has a bona fide reputation throughout the region and beyond. This is not only through its unique geographic location and excellent growing conditions, but also through the ingenious skills of Lao producers to breed high-quality varieties. Efforts are being made to expand the range of unique and specialised agricultural products, as evidenced by the promotion and marketing of the *Khao Kai Noi* glutinous rice variety. Many stakeholders believe that there is potential for more, especially in combination with sustainable farming techniques.

Unique varieties produced in a clean and resource-minimising fashion represent a high level of value addition and respond to a global trend of local, clean, fair specialty foods. Lao PDR is well-positioned to enter such markets and has made steps towards being able to provide a wider variety of specialised products: tea, fruit, coffee, etc. For this reason, efforts to achieve *Geographical Indication* (GI) credentials for a selected number of high-quality products have been taken, and these efforts should be seen as part of the policy on sustainable production and consumption in agriculture.

This Action links to policy priority 4.

Upskilling

Lao PDR is well aware that entering new, green markets, value addition, adoption of cleaner production techniques, and safer use of agricultural inputs can only be achieved through upskilling the workforce within the sector. Starting from a low level of education, but with an immense wealth of experience in agricultural production, Lao producers need to be upskilled in various forms of standards, regulations, handling of inputs, mechanisation, modern irrigation techniques, post-harvest processing and packaging, transport and marketing, in order to achieve the desired sustainability outcomes. A new form of extension is required (*Green Extension*), where potential new solutions are devolved to local administrative levels swiftly (as part of the ‘three builds’ – *Sam Sang* policy), but also where local solutions can be scaled up through a system of rigorous testing and information exchange. To reach full effectiveness, extension service staff need to be well-educated, not

only technically, but also in forms of dissemination, knowledge exchange, and community facilitation.

Green Extension is a form of rural advisory service which supports the scaling of sustainable agriculture by facilitating socio-ecological learning processes with farmers. Green Extension is not a single approach or blueprint for achieving sustainability; it includes a range of methods to promote various types of content in informing and capacitating farmers. It facilitates the creation, sharing and application of local knowledge. Sustainable agricultural practices must be adapted to local conditions, and these conditions are both diverse and dynamic in Lao PDR. Green Extension supports farmers in analysing local problems and opportunities and testing alternative practices under local conditions. This service can be provided by a range of different organizations: government departments, NGOs, private enterprises, and by farmer groups, organisations and cooperatives.

This Action links to policy priority 5.

Involving the private sector

GSAF acknowledges the critical role of the private sector, particularly SMEs in agricultural sector transformation. Supporting GSA needs to occur in an enabling environment for markets, in which green agricultural commodities are traded, and pro-poor, environmentally sound value chains developed. Bringing agroecology to markets requires farmers willing to change the way they farm and the way they interact with the food value chain. Behaviour change, however, also needs to occur among consumers as well, with a shift towards a willingness to buy products that have quality attributes (e.g., safe, fresh, nutritious, tasty, environmentally friendly, organic, traditional), as well as support from other stakeholders, including the private sector to support these changes. Considerable involvement of the private sector in Lao sustainable agriculture can be promoted by government in that it models behaviour change (e.g., green procurement) as well as engaging with farmers on these issues.

Private sector engagement is supported through the investment promotion law and ensures the creation of value and sustainable value chains in-country. This, in turn, ensures green employment and more sustainable food production, as well as new income opportunities through eco-tourism, cultural tourism, and green infrastructure development. These priorities have been enshrined in the 9th NSEDP.

This Action links to policy priority 3.

Communicating priorities

Agricultural policy and priorities need to be clearly communicated to development partners through appropriately translated documents, public events and regular engagement and communication by MAF. If development partners are clear on the Government's priorities it will become easier for them to engage in targeted support for MAF's activities. The Sub-Sector Working Group on Agro-biodiversity has suggested a coordination mechanism to

support Green and Sustainable Agriculture, which can mediate between Government, private sector and other social actors.

Achieving a green and sustainable agricultural future for Lao PDR will necessitate a concerted and unified effort by all stakeholders in the agricultural sector to meet the 2030 Vision and the SDGs. The *how* will need to be prioritized through consensus building between stakeholders and the resources committed. The Department of Agriculture, MAF, is currently developing its Clean Agricultural Programme, which will support the implementation of the GSAF. In addition, a concrete Action Plan will follow the GSAF.

Table 1: Relationship between policy priorities, focus areas, GSA actions, and investment areas

Principles	Focus areas	Actions	Investment Areas
Improve resilience of agricultural systems	Agricultural inputs and resource reservation	Maintaining/promoting agro-biodiversity	Green agricultural innovation and technologies
Sustainable input management	Efficient production systems		
Multi-functional agro-ecological land use planning			
Value generation	Developing appropriate markets	Focus on niche markets	Green markets and value chains
		Unique products	
Capacity building/Green extension	Developing human capital and supporting women farmers	Upskilling	Green extension
		Involving the private sector	
		Communicating priorities	

Institutional arrangements

The key actors in implementing the GSAF include the public and private sectors, farmers and farmer organizations, civil society groups, and development partners. The specific role of each key stakeholder group is discussed below:

Public sector

The role of government is to provide public services and regulate markets. In doing so, the government designs policies to encourage green and sustainable agriculture, explores new market channels to promote GSA, and invests in productive infrastructure to support GSA implementation (roads, farmer market spaces, storage areas, internet, etc.). These tasks are carried out by line agencies participating in the green and sustainable agriculture development process as the National leading agencies including Ministry of Agriculture and Forestry (MAF), Ministry of Planning and Investment (MPI), Ministry of Natural Resources and Environment (MONRE), Ministry of Industry and Commerce (MOIC), Ministry of Science and Technology MOST, Ministry of Health (MOH).

Based on agency mandate and responsibility, each agency will be responsible for promoting, supporting and monitoring progress toward green and sustainable agriculture. This can occur along a wide range of tools to boost the adoption of GSA: tax exemptions, subsidies, green procurement, financial tools, collective action, risk sharing and transparent contracting. In addition, agencies must work together to develop and guarantee a clear set of standards for every type of sustainable production, from GAP to organic. Specific roles and responsibilities toward the implementation will be identified in the action plan following the GSAF.

In line with the organizational structure set forth by the National Green Growth Strategy, the Director General, Department of Planning and Finance, MAF, acts as the focal point for coordination and promotion of Green and Sustainable Agriculture within the Agriculture Sector. Relevant technical departments, however, are responsible for reporting on progress based on the identified and agreed indicators/measures in order to ensure successful implementation of the GSA.

The implementation of the GSAF requires action by the public sector in following areas:

- (1) MAF will lead in implementing of GSAF through coordination of and working together with all stakeholders;
- (2) Develop policies, guidelines, and standards to support and promote green and sustainable agriculture,
- (3) Mobilize support from development partners, private sector and relevant stakeholders as well as ensuring government resources are allocated for the implementation;
- (4) Enhance coordination at all levels for the implementation of the framework;
- (5) Work with stakeholders to monitor progress and achievement based on agreed performance indicators;
- (6) Develop capacity of government staff at national and local levels to ensure common understanding and effective implementation.

The exact coordination modus of GSA within MAF will be part of the planning process and decided by MAF following the adoption of the GSAF. One possible modus is that (a) at the policy level matters should be handled by DOPLA; and (b) at the more operational level, there should be a dedicated MAF-wide “Green and Sustainable Agriculture Focal Point / Unit” within MAF.

Private sector

The GoL has encouraged domestic and foreign private sector investment into agriculture and rural development. Domestic enterprises are encouraged to form joint ventures with regional (foreign) investors with a focus on producing clean and nutritious agricultural products for consumers. Small- and medium-scale enterprises (SMEs) are encouraged to play an expanded role in trade and transport services as well as acting as local dealers for national and transnational regional companies providing agricultural production inputs, technology transfer, post-harvest handling services, and agro-processing of primary products. Strong and reliable business partners can help develop healthy value chains that

benefit producers, keep to international standards, and get products into overseas markets by investing in the appropriate infrastructure. Successful partnerships can only be realized if they are inclusive, transparent, and follow national policy guidelines.

The GoL also strongly encourages the private sector to follow FAO's Voluntary Guidelines for Responsible Investments in Agriculture and Food Systems (RAI), which recognises and respects human rights and set out 10 principles for working inclusively across stakeholders, including women and youth across the value chain and emphasise values, such as transparency and accountability, cultural heritage and traditional knowledge, as well as sustainable production and consumption.

The implementation of the GSAF requires actions by the private sector as follows:

- (1) Seek profitable investments with minimum impacts on environment and society,
- (2) Participate in PPPs to modernize and operate technical service centres as technology and knowledge transfer agent,
- (3) Provide affordable services for smallholder farmers,
- (4) Operate fair contract farming,
- (5) Apply responsible business principles and comply with GoL laws and regulations.
- (6) Integrate GoL measures with regional policy frameworks, especially ASEAN.

Farmers and farmer groups

Smallholder farmers are regarded as critical agents of change. However, they are likely to benefit from enabling the agricultural transition under the GSA framework. Joining farmer organizations and cooperatives/groups will improve their ability to obtain equitable terms from key market actors. Improving the quality of rural life and economic empowerment of farmers will ensure the continuity and sustainability of smallholder agriculture and rural livelihoods. Although public services can be provided and market-linked livelihood opportunities made available, farmers will need to respond to new opportunities and have to be given the opportunity to do so. The emerging national committees on family farming, under the present UN Decade of Family Farming (2019-2028), provides a chance to organise nationally and coordinate with other national committees in the region. Access to new livelihood opportunities within GSAF is to be inclusive and fair to all participants in Lao society and farmer groups are seen as a positive way to gain leverage and enable equitable trading conditions for all.

The implementation of the GSAF requires actions from farmers and farmer groups as follows:

- (1) Recognize the production and marketing benefits of farmer organizations;
- (2) Apply experience and local knowledge to increase productivity of subsistence farmers;
- (3) Blend local knowledge with modern agricultural production technologies;
- (4) Adopt smart agriculture and smart farming approaches;
- (5) Respect biodiversity and ecosystems on which productive and profitable agriculture is dependent;

- (6) Be innovative, so that innovation processes can be locally owned, responding to the needs and conditions of local stakeholders and to agro-ecosystems.
- (7) Improve farmer-to-farmer sharing of information as well as peer-group validation systems for quality control
- (8) Coordinate with the GoL to implement the GSAF

Civil society groups

Civil society organizations (CSOs; including Non Profit Associations (NPA) and international non-government organizations (INGOs)) play an important role in facilitating agricultural and rural development activities. They have been instrumental in developing monitoring indicators; participating in development planning; and advocating for placing rural and pro-poor development at the centre of public policy and public sector programming. CSOs are important for exploring new approaches and strategies to reach the rural poor and mainstream women and youth in development. The experiences of CSOs can be useful in building a solid foundation for collaboration among key stakeholders.

As part of the Green Extension (GE), which is a rural advisory service provided by both state and non-state actors, civil society shall support the development of smallholder farming in a way that secures the future wellbeing of rural communities. In order to achieve establish Green Extension and achieve its objectives, there is a need for collaboration between different stakeholders. For more on Green Extension, see investment priority no.2, below.

The implementation of the GSAF requires actions from CSOs as follows:

- (1) Respond to local needs related to agriculture development;
- (2) Ensure that farmers, including women youth and vulnerable groups, have a voice in decision making in agriculture development at all levels;
- (3) Coordinate with the GoL to implement GSAF;
- (4) Coordinate with the GoL to train and advise farmers/producers on green and sustainable agricultural practices and share lessons learned on GAP, GAHP, OA, agroecology and agroforestry;
- (5) Coordinate with the GoL to train and advise farmers on approval processes for obtaining certification including Participatory Guarantee Systems (PGS).

Research institutes

Research institutes (academia and research institutes at national, regional and international levels) provide evidence and analysis based on research findings as well as knowledge generation. The research topics cover technical aspects, as well as technological innovation and policy development. Particularly, the principal objective of any policy research activity is to foster dialogue between researchers and policy developers, based on hard evidence and comprehensive and practical research findings. The outcome of policy research should be to influence policy decisions and the application of the rule of law (governance).

The implementation of the GSAF requires actions from Research Institutes as follows:

- (1) Provide evidence-based recommendations and options to address new, complex and cross-sectoral issues;
- (2) Generate innovations that allow producers to produce more with less input and less effort;
- (3) Develop and test new production techniques and technology aiming at increased productivity.
- (4) Develop or reinforce linkages with extension services and farmer organizations to encourage co-creation of knowledge, broader dissemination and appropriation

Development partners

Government and development partners follow the principles of the Vientiane Declaration in which all parties are responsible and accountable for their actions and committed to working together. The Government anticipates that between 10-20% of the funds from development partners will be sourced to achieve the 9th NSEDP's objectives. In addition, measures required to achieve targets for SDGs and green growth strategy, including GSA, will require assistance from development partners. The GSAF requires development partner support to promote balanced economic growth in the agriculture sector; encourage sustainable and environmental friendly production to ensure food and nutrition security, food safety, and product quality; manage the use of natural resources to obtain maximum benefits, maintain sustainability of resources; and increase coordination between different directly related and indirectly related sectors (e.g., MAF, MPI, MONRE, MOIC, MOST, MOH).

The implementation of the GSAF requires actions from development partners as follows:

- (1) Support the government to implement GSA using a programme-based or sector-wide approach;
- (2) Put GSA on the agenda of the Roundtable and related Sector Working Group meetings;
- (3) Monitor, together with the Government, the progress of green and sustainable agriculture development based on agreed performance indicators using Lao PDR's statistical, monitoring, and evaluation guidelines.

Consumers

Consumers represent an important link in the value chain. Stakeholder consultation recommended to place more importance on consumer information and understanding. All actors along the value chain as well as GoL are responsible for providing this information to consumers and responding to consumer demand. Consumers, on the other hand are needed to respond to new opportunities in terms of higher-quality products provided as well as the value system behind GSA. Equally, consumers shall find ways of ensuring engagement with and empowerment of smallholder farmers.

A proven pathway to engage with consumers is through Participatory Guarantee System (PGS) certification. It is meant to support certification for organic products but can be tailored for other purposes, such as for certifying safe and chemical-free vegetables. PGS is a

capacity building tool for farmers that helps developing trusting relationships with consumers. In Lao PDR, PGS could be facilitated by the mass organisations.

The implementation of the GSAF requires actions from consumers as follows:

- (1) Engage with smallholders and other actors along agricultural value chains

Implementation

For the **GoL** and other Governments in the Mekong Region, recommendations on the way towards the implementation of GSA include:

- Speed up preparation of clear national policies, strategies, plans and legal, regulatory and institutional frameworks for green and sustainable agriculture development.
- Strengthen research-extension linkages to ensure proper and effective dissemination technologies and knowledge, including research findings and extension messages.
- Give due attention to defining financial incentives and the promotional instruments to use encourage investment by farmers and private sector in green and sustainable agriculture.
- Ensure full participation of all stakeholders, including all those in allied industries and services like transportation, processing, marketing in the process.
- Support start-up green and sustainable agriculture operations with clear and simple incentives and with a view to scaling up.
- Promote and support research and extension and preservation of indigenous species, indigenous technologies and indigenous diets.
- Consistently look for means of organizing study tours and attending international meetings and conferences, especially in the Region, on green and sustainable agriculture by government officers, farmers, private sector and other stakeholders.
- Create appreciation and awareness of green and sustainable agriculture production and products in order to increase supply and demand at local and Regional and international levels.
- Designate “Green and Sustainable Development Zones (GSADZ)” and “Green and Sustainable Agriculture Preferential Zones (GSAPZ)” with fast track mechanisms for investment, and linkage to existing Economic Zones, commercial corridors and major infrastructure like the China –Lao Fast Train and the network of airports in respective countries.

For **development partners**, recommendations for the way forward may include:

- Assist governments in strengthening capacity and actual preparation of clear national policies, strategies, plans and legal, regulatory and institutional frameworks for green and sustainable agriculture development, strengthen research and extension to address green and sustainable issues.
- Assist governments in establishing and strengthening green and sustainable farmer’s organizations, including strengthening their lobbying capacity and linkage with regional networks of green and sustainable farmers.

- Assist governments to create awareness among civil society, NGOs, possible donors and funding institutions on the role of green and sustainable agriculture in economic growth, achievement of Sustainable Development Goals (SDGs) and Nationally Declared Contributions (NDCs), with aim of facilitating assistance to the sector and to green and sustainable agriculture in particular.
- Assist government, in collaboration with other development partners, to establish national green and sustainable agriculture information centres (economic, technical and other information); and to preferably grow such centres to provide fee-for-service research, extension and development services.
- Continue with regular monitoring, review and analysis of green and sustainable agriculture policies and practices in the Region and beyond, with the aim of extracting success stories for emulation by countries in the Region.
- Assist governments in the region to work on necessary attributes of green and sustainable practices and products in the region to export produce to the European Union, Japan, South Korean and other countries.
- Document sources of funding and existing financial resources for green and sustainable agriculture in countries in the Region, create awareness among farmers of their existence, and distribute information through financing institution and/or through workshops.

For immediate action, Lao PDR, will proceed with the finalisation of the GSAF leading its finalization and endorsement. The following are some of the key measures to be taken:

- Technical consultation with MAF's key department in 2020.
- National consultation with relevant line agencies and ministries in 2020.
- Incorporation of discussions and recommendation from this Regional Workshop into the GSAF, together with continued consultation with regional partners on harmonization of GSAF across the Mekong Region and ASEAN.
- Finalization of the draft GSAF.
- Endorsement of GSAF by MAF.

Performance indicators

GSA needs measurement tools to evaluate the effectiveness and efficiency, and the extent to which economic activity is nudged towards a greener pathway. Monitoring and evaluation is based on the measurable green and sustainable agriculture targets related to crops, livestock and fishery as food production and consumption, economic efficiency, resource use, environmental impact, and social welfare. Performance indicators will track progress towards green and sustainable agriculture. The aim is to broaden the range of existing resource productivity indicators to allow for more comprehensive comparative analyses and benchmarking for green and sustainable agriculture.

Performance indicators must be measured against a baseline. The baseline should be established in the first year of implementation (2021) in order to (a) test the feasibility of

indicators and (b) establish baseline values for measurements during each year of implementation during the implementation period. For a list of suggested performance indicators on GSA, see Annex 1.

Finance and Investment for G&SA

The main elements of GSA are embedded in current policy and approaches already implemented by line agencies. The transition towards Green Agriculture, thus, does not necessitate a radical course change. MAF leadership, following NSEDP 8 as well as ADS 2025 and the NGGS have identified three **investment areas** that need partners' attention to accelerate the transition:

1. **Green Agricultural Innovation and Technologies:** There is ample evidence of this in Lao PDR and the ability of farmers to adapt to changing conditions and contexts. This includes, both, traditional approaches (e.g., rice-fish systems in Outhoumphone District) as well those promoted through implementation of specific projects with development partners, along with innovations in processing and marketing (e.g., organic vegetables in Vientiane capital, and *Phou San Tea* in Xiengkhoung province). A wide variety of technological interventions, approaches and innovations are in the public domain and are promoted by line agencies and international projects. Nevertheless, innovations often do not receive appropriate scaling and, thus, remain locally limited in distribution. Broad dissemination of successful innovations and technologies, following stringent testing and proof-of-concept is, therefore, a high priority for investment.
2. **Green Extension:** Upskilling at all levels from individual farmers to institutions and administrative bodies is urgently required. As a departure from the traditional mode of delivering extension to farmers production alternatives must undergo analysis and testing for suitability under local conditions. Rural advisory services need to bring together government line agencies, the private sector, communities and farmer groups to contribute to change. The overall objective of investments into these areas is to support the scaling of green agricultural innovations and technologies.
3. **Green Markets and Value Chains:** A key driver for the shift to GSA is the presence of vibrant markets and value chains that ensure commodities are produced in a sustainable and ethical manner. Markets dictate the quality attributes and the way commodities are produced. In the past the focus has been on production rather than on markets demand. Investments in this area will shift the focus on quality attributes and the demands of consumers with an emphasis on sustainability. This requires the emergence of functional value chains and markets that are inclusive and accessible to smallholder producers. Further, there is a need to ensure that smallholder farmers have access to credit and meet market expectations. Achieving this will require the emergence of financial markets and instruments that are tailored to the needs of smallholder farmers.

Whilst the three investment areas outlined above will need to be implemented in parallel, creating green enabling policies and conditions is a prerequisite. Smart and effective levers can create the enabling environment. Such levers include tax incentives (i.e. tax breaks for the establishment of agroforestry systems or exports of value-added commodities), access to low interest finance in implementing green and sustainable technologies, the establishment of functional markets that drive domestic demand, investments in raising consumer awareness etc. Without the enabling policy environment transition towards GSA may be delayed. However, measures and disaggregated policies will be identified further in the GSA Action Plan, following the GSAF.

Annex: suggested outcome and performance indicators for green and sustainable agriculture

Expected Outcome	M&E Indicator	Source of data	Responsible Agency
Crops production			
Cropping intensity and extent of protection	Increased no. of areas	At farm level	DOA
OA Certification increased	Increased no. of registered and certified farmers	At institution level	DOA
GAP Certification increased	Increased no. of registered and certified farmers	At institution level	DOA
Sales/importation of pesticides, herbicides and fertilizers	Decrease in the quantities of these inputs	Import & export data	<ul style="list-style-type: none"> DOA MOIC (import & export)
Training on organic certification procedures	No. of training: <ul style="list-style-type: none"> Once every year Once every two years Once every three years 	List of training from training providers and list of trainees	<ul style="list-style-type: none"> DOA DTEAP
Animal production (livestock and poultry)			
Good animal husbandry practices increased (cattle, pig and chicken)	Increased no of registered and certified farmers based on established standard for cattle, pig and chicken	At institutional level	DLF
Business operation on slaughtering increased	No. of qualified business operation based on type and standard of slaughtering house	List of slaughtering house at institutional level	DLF
Meat inspection	Results of inspection (e.g. meet standard or issues) % meat sold inspected	Report on meat inspection at institutional level	<ul style="list-style-type: none"> DLF MOH
Training on meat and food inspection	No. of training	List of training from training providers	<ul style="list-style-type: none"> DLF MOH
Import and export of vaccines	No. of import and export of vaccines	Import and export data from official record and website	DLF
Registration of vaccinated livestock	No. of vaccinated livestock	Record at institution level	DLF
Registration of vaccines	No. of registered vaccines	Record at institution level	DLF
Fishery production			
SPS Certification increased	No. of registered and certified farmers/producers	Record at institution level	DLF
Increased fish seed (fingering) produced in country	<ul style="list-style-type: none"> Sales of fish seed at least 3cm in length from both government and private hatcheries recorded in DLF annual reports to MAF, increase by at least 15%/year over the next five years. 	Record at institution level	DLF

	<ul style="list-style-type: none"> At least 60% of fish seed sales recorded by DLF should be indigenous fish species in 2021 and rise to 80% by 2025 The numbers of small-scale private fish seed producers contributing towards DLF data on fish seed production should increase by at least 20% each year and DLF provincial registers of small-scale fish seed producers should be available on-line (DLF website) by 2023 		
Abundance of local fish species	Observation for > 5 years	Report on fish species	DLF
Increased self-reliance	Decreased volume of imports of fishes > 5	Import and export data from official record and website	DLF
Safe production of fish products	Free food contamination through sporadic test	Report on food contamination test at institutional level	DLF
Control of fish disease	Reduced number of disease through observation of >5	Report on disease and outbreaks at farm level	DLF
Cross-cutting issues			
Growth of agroforestry systems	<ul style="list-style-type: none"> Agroforestry areas Observation > 5 years 	At landscape and farm level	DOF
Landscape diversity	Observation on landscape changes for >5 years	At landscape and farm level	DALaM
Establishment of timber and tree crops plantations as part of landscape mosaic	Increased plantation areas of timber and tree crops (no. of hectare)	At landscape and farm level	DOF
Amount of fallow areas for a shift towards crop rotations	<ul style="list-style-type: none"> Changes in the amount of fallow areas Observation >5 years 	At landscape and farm level	DALaM
Soil degradation (erosion, salinization, compaction, organic matter loss)	Observation for >5 years	At landscape and farm level	DALaM
Training on agroecology and Tool for Agroecology performance Evaluation (TAPE)	No. of training provided <ul style="list-style-type: none"> Once every year Once every two years Once every three years 	List of training from training providers and list of trainees	DALaM DTEAP NAFRI
Soil quality	<ul style="list-style-type: none"> Report on soil quality test Observation for >5 years 	<ul style="list-style-type: none"> Describes the conditions that make the soil a living body e.g. soil health. 	DALaM

		<ul style="list-style-type: none"> • Soil organic matter affected by environmental conditions and land use change 	
Agrobiodiversity	<ul style="list-style-type: none"> • Increase no. of species (plants, insects) • Observation for >5 years 	At field level	NAFRI
Water quality	<ul style="list-style-type: none"> • Result of water quality test • Observation for >5 years 	At field level	MONRE
Social and Economic Perspectives			
Net farm income	<ul style="list-style-type: none"> • Increase of household income (total household income) 	<ul style="list-style-type: none"> • Household survey • Agriculture census or LECS 	<ul style="list-style-type: none"> • DOPF • MPI (Statistic Center)
Number of SMEs on agriculture production, processing, etc. increased	Increase no. of SMEs	Record at institution level	MOIC (Department of SME)
Number of One District One Product (ODOP) on agriculture product increased	Increase no of ODOPs	Record at institution level	MOIC (Department of Trade Promotion)
Decreased labour use??	No of labour used in agriculture	<ul style="list-style-type: none"> • Household survey • Agriculture census or LECS 	<ul style="list-style-type: none"> • DOPF • MPI (Statistic Center)
GI Certification increased	No. of registered and certified products	Record at institution level	MOST

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