

Agriculture and Forestry Research Strategy 2025 and 'Vision up to 2030'

(Brief/Summary October 2015)

“Meeting National Food and Nutrition Security and Poverty Alleviation Goals through Agricultural Science & Technology”

In Lao PDR agriculture is still accounted as the primary sector of the national economy. It contributes to food security, poverty alleviation and management of natural resources. Over 70% of the country's population lives in rural areas, and agriculture is their primary livelihood. The Ministry of Agriculture and Forestry (MAF) has developed the Agriculture Development Strategy (ADS) 2025, and a 'Vision up to 2030', aiming to achieve a number of prominent goals. These include: food and nutrition security, contributing to the SDGs with zero hunger by 2025, suitably commercialized production systems, protection of rural livelihoods and poverty alleviation, and sustainable forest utilization and conservation.

Under this strategic umbrella quality investment in an agricultural renewal will increase agricultural diversity, boost productivity among smallholder farmers, enable a non-polluting agriculture production and develop value-adding post-harvest technologies that encourage a transformative change in food and nutrition security, generating rural wealth, regional competitiveness, and sustainable natural resources management.

Challenges to Lao PDR's Agriculture Sector

The Government of Lao PDR recognizes the importance of agriculture in the Agricultural Development Strategy 2025, and the 8th National Socio-economic Development Plan (2016-2020). In this context, the country's agriculture sector is challenged by several emerging trends, most importantly a smallholder-based production with modest commercial productivity, insufficiently skilled human resources and weak extension services; a low level of farmer experience with appropriate agriculture technologies and a less developed market orientation. Post-harvest losses could be avoided and additional value is often generated outside the country; for some products there is a high regional and international competition.

In addition to this, Lao PDR has always been vulnerable to natural disasters including floods and droughts, and according to global and regional scientific projections the quantity and intensity of these events will increase with further unfolding of climate change. Farmers, especially those working under rain-fed conditions, including the Lao uplands, are becoming more and more subject to the variations of weather and climate. Negative effects such as pests and diseases, soil erosion and nutrient degradation, depletion of natural resources and loss of agro-biodiversity may be expected.

The country's agricultural research is severely constrained through lack of financial support, outdated facilities and insufficient technical capacities for R&D in terms of innovative delivery; existing funds are limited to core research activities and funding for critical new research programs is not available. Global economic developments and the country's admission to the World Trade Organization (WTO) and the Asian Economic

Community (AEC) raise new challenges for the national agricultural research system to develop appropriate and effective technologies.

Creating a New Vision for Agriculture and Forestry Research

The Agriculture and Forestry Research Strategy (AFRS) 2025 and the 'vision up to 2030' focus on the identification of strategic issues in NAFRI's internal and external environment and elaborate on a number of recommendations. The AFRS is an instrument of MAF for agriculture and forestry development and for achieving its development goals as outlined in the Agriculture Development Strategy (ADS 2025). The strategic goal of AFRS is to define and articulate how NAFRI intends to carry out research for development and to contribute to achieving the goals of the ADS 2025. Specifically for food and nutrition security, poverty alleviation through the effective and efficient use of scientific knowledge and research results, increasing sustainable agriculture productivity and sustainable natural resources management.

The mission of NAFRI is to provide institutional, human, and scientific resources to the government and to a wider spectrum of stakeholders and development partners, donors, and the private sector for carrying out systematic research for development. Solutions have to be found for specific problems caused by a limiting production and degradation of natural resources and agro-biodiversity, whilst developing suitable responses to climate change. NAFRI works closely with different levels of policy-makers and planners to provide advice and feedback accommodating a conclusive policy environment; strengthening a culture of research, moving towards further capability building and enhanced collaboration, and developing effective communication and information systems, allowing actors on national, provincial and district levels, and farmers a better access to information and knowledge.

Future research priorities will help creating and scaling up appropriate and effective technologies that contribute to food and nutrition security, poverty reduction, local value addition, suitable market promotion, and environmental sustainability. In order to deliver the desired results, NAFRI's research areas are grouped into six broad thematic areas or strategic research programs guiding future practice-oriented interventions:

1. **Sustainable agro-biodiversity program**; this programme aims to:
 - Coordinate the national agrobiodiversity program,
 - Develop a sustainable practice for natural resources utilization, management and conservation of agriculture genetic resources to support of potential future needs for food security and suitable commercial production,
 - Support the development of improved methods, mechanisms and technical recommendations to ensure the sustainable management of agro-biodiversity.

2. **Improved agriculture productivity program**; this programme aims to:
 - Develop and use appropriate agricultural technologies (effective low cost technologies) for improvement of agriculture production systems,
 - Testing and developing good agriculture practices relating to soil nutrient depletion, loss of agro-biodiversity, maintaining of land productivity, developed of skilled human resources and improved water use efficiency,
 - Enhancing the regional competitiveness of the Lao agricultural sector through improved post-harvesting and processing technologies, and local

value-addition to enable access to markets and viable integration in these markets.

3. **Agriculture adaptation to climate change program**; this program aims to:
 - Develop climate information services (agro-climate advisory) and deliver improved farmer guidance for better and climate-safe management of production, and provide technical support to the climate adaptation capacity of farmers,
 - Develop climate-smart agricultural practices through testing and scaling-up of technologies and improved practices that are needed to further build farmers' adaptive capacity to climate change,
 - Strengthening of policies and institutions for climate-resilience through vulnerability assessments, scenario modelling and policy analyses to provide the information and tools for planners and decision-makers for well targeted support to agriculture and food security under changing climatic conditions.

4. **Agriculture and forestry policy research program**, this program aims to:
 - Provide policy makers at different levels (MAF and other concerned institutions) with information and guidance on emerging national, regional and global opportunities and challenges in the sector,
 - Improve rural livelihoods and rural empowerment through relevant policy development,
 - Improve accessibility to information and knowledge of different actors so they can make more informed decisions at all levels.

5. **Capacity building program**; this programme aims to further build on NAFRI's institutional capacity, focusing on three areas:
 - Human resources development,
 - Organizational and institutional development, and
 - Research infrastructure and facilities development.

6. **Information and Communication program**; the program aims to:
 - Improve communication facilities and management systems (ICT, library, information and communication support),
 - Develop 'AKIS' (sharing of information, resources and responsibilities; networking; linking),
 - Strengthen multi-level and multi-stakeholder information, communication and coordination.

Each thematic program will include several research issues such as variety and commodity improvement, resources management, marketing and value chain development. The major agricultural research areas presently included are rice, field crops, coffee, fruits and vegetables, livestock, aquatic resources, on-farm soil and water management, forestry, related natural resources management issues, socio-economic aspects of the agricultural communities and farming systems, post-harvest operations, gender issues, and policy research for rural development.

Considering the country's agro-ecological diversity, socio-economic situation and the existing R&D actors, NAFRI will also emphasize the development of region-specific agricultural research programs. NAFRI will prioritize a systems-based research approach that incorporates multiple disciplines and addresses multiple and specific varieties and agricultural products. Environmental sustainability, social inclusiveness, and smallholder

farmers' equity in income generation will be distinguishing features of research undertaken, besides the explicit contribution to food and nutrition security, poverty alleviation, and sustainable resources management.

Indigenous knowledge, traditional practices and local resources, including soil qualities, water quantity and quality, variety of genetic materials, and local skills, will be used in research and appropriate technology development serving a sustainable way of production. NAFRI will also promote suitable commercial agriculture by supporting development of post-harvest technologies and their local downstream processing opportunities that add value to products and raw materials; from rice, cash crops, vegetables and fruits, coffee, livestock and fisheries and non-timber forest products (NTFPs). Such research and development will give due attention to the socio-economic conditions of the farmers and village communities.

In addition to its role in technology development and policy analyses, NAFRI will contribute to establishing a network for national and international research collaboration that will provide a favorable environment for agriculture and forestry research in the region, and will assure pluralistic participation and engagement of all potential stakeholders, donors, investors and beneficiaries.

NAFRI's Priority Needs and Requirements for Support

NAFRI works on further structural and functional re-orientation to assure effective operations with impact, efficient administrative handling and streamlining of research and development efforts. Through this new strategy NAFRI has initiated a deeper review of its role and mandate, responsibilities and planned achievements, and will over time continue to make necessary changes and modifications in the strategy and related operational procedures.

Being in line with global efforts to adapt to climatic changes and to reduce the emission of greenhouse gases (GHGs), NAFRI will help to adjust agriculture technologies whilst maintaining local benefits and counteracting negative effects that will be experienced. A new research centre, specifically mandated to foster agricultural adaptation to climate change from a viewpoint of science, has been established to support mainstreaming of such technologies and extension practices. Also, the congruent establishment of the 'Policy Think Tank' at NAFRI will play an important role for policy studies and advocacy.

NAFRI will continue to strengthen its capacity with focus on human resources, quality R+D infrastructure and facilities, and an institutional development that reflects its competence.

A review of the system of incentives will help to retain the qualified staff or researchers and getting best results with clear target orientation. NAFRI increases its efforts for mobilizing funds and resources for appropriate research, will strengthen national and international research and collaboration, and work along a line of appropriate research for suitable and practical agricultural extension in the country. Partners of NAFRI may find it useful to align their future support to the priorities and reforms outlined in the strategy and the objectives of the six research programs.