



Governing Pesticide Use at the District Level

Key messages:

- As agriculture commercializes, pesticide use is increasing, and with it negative impacts to human health and the environment.
- Kham District is an example of brown commercial agriculture, where low value extensive commodity production depends on high pesticide use. After a few years, this system becomes less and less profitable for farmers. Thathom District banned pesticides entirely, which is only possible because there is less commercial agriculture in the district.
- District governments can support greener agriculture and better pesticide management with a systematic approach. A ban on pesticide alone will have limited impact.
- Reactive policies can reduce human and environmental impacts including:
 - Enforcement of existing law and regulations on pesticide import, sale and use, including in foreign investments in agriculture.
 - Using community risk reduction guidelines to move from individual action such as protective gear use, to community agreements on not spraying near water sources, homes and schools.
 - Supporting MAF and MoNRE efforts for safe pesticide container disposal.
 - Training on harvest timing after spraying, proper quantities and integrated pest management to reduce residues on vegetables.
- Proactive options can support more green commercialization including:
 - Improving the efficiency of market systems by enforcing fair contracts, reducing tax burdens, access to credit, and supporting crop storage and processing infrastructure.
 - Support for crop diversification with technical advice and small infrastructure such as irrigation ponds, village processing facilities.
 - Green extension approaches like farmer to farmer training.
 - Support for organic and GAP certifications, with easier group development, and transparent, efficient certification processes to promote market trust.
- Furthermore, there is a need for a multi-stakeholder approach – different actors have different roles to play including agriculture, education, health, industry, the private sector and aid organizations.

Introduction – Policy and Legislative Context

Agricultural Commodity Production or Commercialisation: The 8th National Socio-Economic Development Plan (8th NSEDP) 2016-2020 and Agricultural Development Strategy (ADS) 2025 and Vision 2030 identify increased production of agricultural commodities for domestic and export markets as one of the priorities for economic development, job creation, income generation and enhanced food security and nutrition in Lao PDR. The emphasis on commodity (or commercial) agriculture production, as opposed to traditional subsistence production, is being implemented in a competitive market atmosphere. This combination of technological progress and market forces has resulted in increased and to some extent unrationalized, unsafe and environmentally unfriendly use of external or manufactured inputs such as fertilizers, herbicides, and pesticide which are banned in Lao PDR.

Green Growth Policy and Green Agriculture Strategy: At the same time, the 8th NSEDP includes policy goals that encourage green and environment-friendly agricultural production, including decreasing chemical use, increasing soil nutrient balance, and enhanced conservation of biodiversity, resources and ecosystems. The ADS and Vision to 2030 outline the detailed strategic planning framework for the implementation of clean agriculture production and food safety. This emphasis on safe and environmentally friendly agricultural and food production systems has been re-enforced by the promulgation of the Green Growth Policy by the Government of Lao PDR in 2018 and the on-going preparation of the Green Agriculture Strategy by the Ministry of Agriculture and Forestry (MAF).

Pesticide legal and legislative framework: To implement the food safety and environmentally safe policy and strategic plan, MAF has issued a number legislative and regulatory instruments. In particular, the Decree on Pesticide Management is intended to enforce the monitoring of pesticide use in farming to ensure the quality and safety for producers, consumers, and environment (GOL 2017). The Guidelines on Monitoring and Use of Pesticides in Lao PDR is intended to provide advice on appropriate application and inspection methods in line with technical recommendations (DOA 2017).

Situation and issues: Recent and on-going assessments show that there is increasing, unregulated and not well managed use of pesticides with strong evidence of unsafe residue levels in produce samples and blood samples of people impacted by pesticide use:

- between 1999 and 2011, legal pesticide imports increased by over 5 fold (LURAS 2018b);
- there is a substantial amount of illegal pesticide imports which are not included in official statistics (CEDAC, SAEDA and PANAP 2013);
- the number of farm households that concentrate on commercial production increased by 10% - illustrating that the intensity of pesticide use depends on the volume of product;
- pesticide use and control were practiced dissimilarly in various areas in the country;
- the degree of pesticide use and impacts to people, animals and environments vary and depend on conditions in each location;
- regions producing commercial crops and those with high market demand for their products have higher rates of pesticide use;
- application rates of herbicides in the country are up to 2 to 4 times higher than recommended rates;
- 54% of fruit and vegetable samples in 2017 in markets in Xiengkhouang Province tested positive for pesticide residues, with 16% showing unsafe levels. Figures are higher for imported produce (LURAS 2018a);
- sample blood tests in Xiengkhouang Province also showed “unacceptable” levels of exposure among school children, teachers, farmers and consumers (LURAS 2018a).

Measures to control use and mitigate the impact of use of chemicals at District level: In 2013, authorities in Thathom District instituted a total ban on the sale and use of pesticides and herbicides in the District, with significant fines for violators. This policy brief looks at policy options and suggests policy recommendations at the District level for the effective control of the sale and use of pesticide and herbicide. It takes into account the need to balance commercialisation of the agriculture and forestry sector with sustainable green practices that ensure the safety of all value chain operators and the conservation the environment, natural resources and biodiversity. In Thathom District the decision to severely limit the use of agricultural chemicals was also highly influenced by the fact that most people live in concentrated settlements at the bottom of a valley. As such, the uncontrolled use of chemicals on farms that are mainly located on the surrounding upland slopes would lead unacceptable levels of contamination of water, soil and other resources in areas where people live.

Methodology

The policy brief synthesizes information and issues from various research projects and studies on agricultural chemicals in Lao PDR. It incorporates the results of a comparative case-study of Thathom District which has a ban on pesticides and a low rate of pesticide use and nearby Kham District, which has no ban on pesticides and a high rate of use of chemical inputs. Descriptive statistics and information are used to analyze the factors that influence the use of agro-chemicals in the respective Districts. Lessons learned are used to formulate policy options and recommendations on green agriculture and food safety that may be applicable to other areas of the country.

Policy Options

Multi-dimensional nature of agriculture commercialisation: There are many dimensions to increased commodity production (or agricultural commercialisation) in Lao PDR (Figure 1). One dimension, namely the intensity or rate of use or non-use of manufactured chemicals, has facilitated the identification of two main paths to commercialisation: a brown path (red dots) and a green path (green dots).

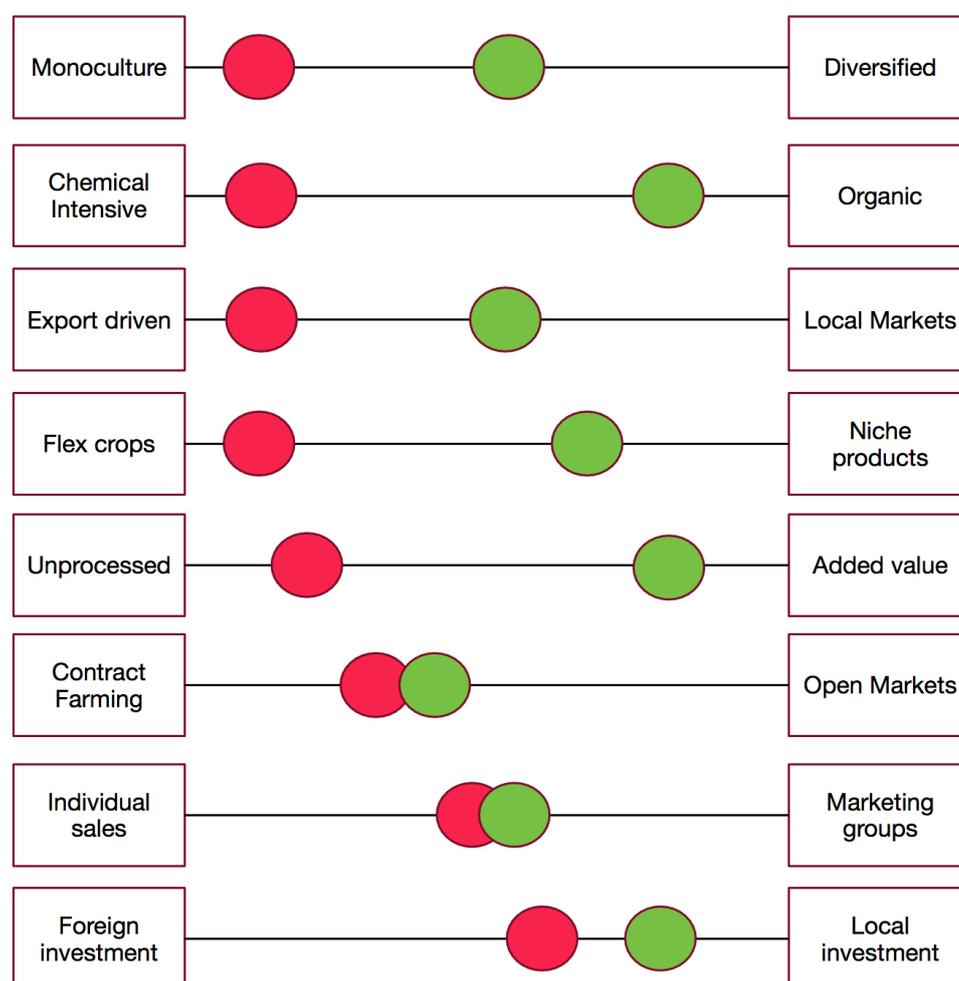


Figure 1: Multiple dimensions of agriculture commercialization in different districts

Brown Agriculture Path: Producers on the brown path are primarily identified by intensive use of chemical inputs, especially chemical fertilisers, pesticides and herbicides. Brown producers are also mainly monocultural, oriented to production of flex crops for exports without processing, and mostly sell as individuals, rather than through groups. While they directly produce most of their output, they also sometime engage in contract farming arrangements. A lot of foreign investment in the agriculture and forestry sector tends to favour brown production. This model is often not profitable for farmers over the long-term due to soil degradation and increasing input costs.

Green Agriculture Path: Producers on the green path are identified primarily by adherence to organic farming and GAP. Green producers also tend to produce a diversified selection of niche market and value-added products which they mainly sell in domestic markets and consume at home. When conditions are suitable, they engage in contract farming, mainly with processors and other market middlemen. While group marketing can be very advantageous, many green producers end up selling their produce as individuals. They are mainly dependent on local sources of capital for investments. Thus, brown and green producers can sometimes overlap in the dimensions of contract farming, marketing organisation, and sometimes in terms of the source of investment.

Brown Kham District: Kham District, Xiengkhouang Province is an example of a brown agriculture District. District statistics show that the import of chemical inputs increased significantly in the past decade. Pesticide surveys in Kham and Nonghad districts in 2016 show that about 101 metric tons of pesticides were imported from Vientiane, Vietnam and neighbouring districts (PAFO 2016). There has been considerable growth in commercial agricultural production using modern production techniques including chemical inputs. However, the above surveys show that pesticide application has caused considerable harm to people health and environment. Production of commodity crops in this District are generally extensive and low value – they require the use of significant land area and prices to farmers are often low.

Green Thathom District: Thathom District, Xaisomboun Province has been implementing agriculture production following the green growth strategy by focusing on clean agriculture production (OA and GAP). The district authorities issued a regulation including a total ban on the sale, distribution and use of any pesticides. The District Agriculture and Forestry Office, District Commercial and Industry Office, District Security Office and Focal Villages work together to monitor and inspect pesticide shops in Thathom District and issue fines for the shops that violate the regulations. This policy turned Thathom District into a model for clean agriculture production (OA and GAP) in Lao PDR.

Systematic Approach to Development of Green Agriculture Policy Options: Thathom’s pesticide ban has been relatively easy to effect because agriculture production in Thathom District is relatively small, diversified, seasonal, and supplies a small and specific local organic market. Also, the District is relatively isolated and the overall level of commercialisation is limited. These factors make the demand for chemical inputs in Thathom relatively small. However, there are inevitable pressures to commercialise, including the drive to reduce poverty, reduced collection of NFTP, monetization of livelihoods and reduced isolation through improved access to roads and other forms of communication. Moreover, by itself, banning pesticides is a reactive government-driven measure that is not a sufficient condition for supporting organic farming and GAP. Thus, the ban needs to be complimented by a set of wide-ranging reactive and proactive measures (Figure 2). Such measures need to take into account the multi-stakeholder nature of pesticide policy. Thus all concerned Government agencies, farmers, other value chain operators, input sellers and distributors, consumers, and groups that are affected by pesticide such as children, pregnant and lactating mothers should be involved.

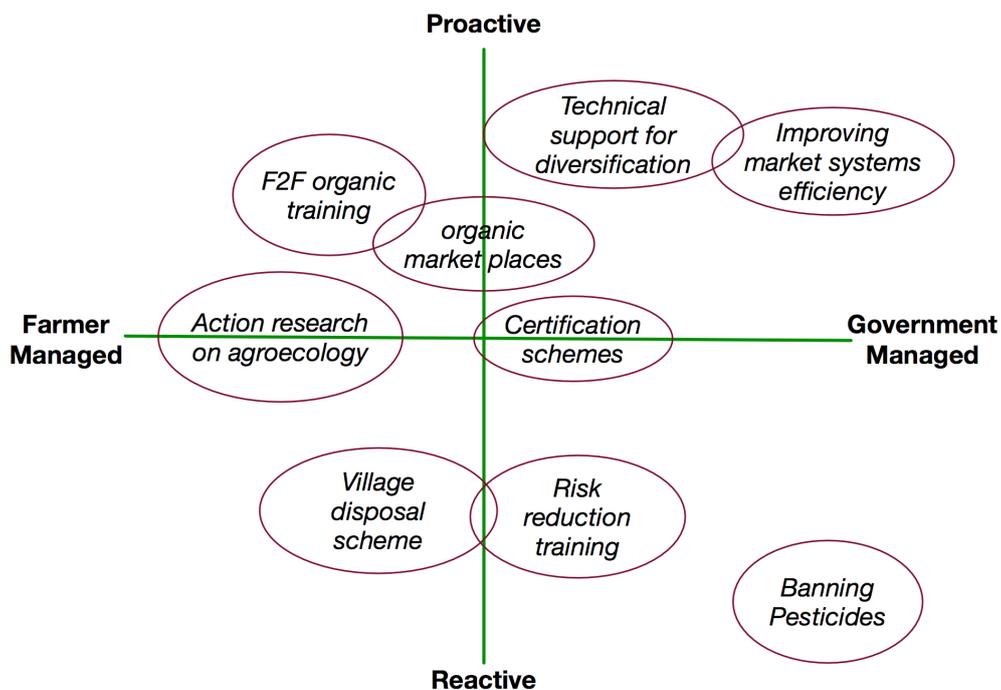


Figure 2: Policy options considered by different approaches

Policy Recommendations

In order to implement the policy for avoiding direct impacts to people – the health of producers and consumers – and for sustainable development, a systematic approach with a combination of both reactive and proactive policies and a multi-stakeholder approach with different actors playing different roles are needed.

Reactive policy: Reactive policies refer to efforts to reduce the negative impact of pesticides on health and the environment. Reactive policy options include:

- Issuing measures for management of pesticide such as government decrees, orders, decisions, guidelines and notices for management of pesticides use. These notices should be disseminated publicly at the local level, with MAF monitoring the implementation of those measures.
- Enforcement of existing law and regulations on pesticide import and use, including in foreign investments in agriculture.
- Increase individual farmer worker safety through trainings for farmers on proper techniques for pesticide use, protective equipment use, government policy on pesticide, and the health effects of pesticides. The DAFO and other technicians can provide knowledge and supervise farm households, especially for those who grow commercially.
- Farmer to farmer knowledge and experience sharing between model farmers and general framers about effective pesticide use and how to reduce pesticide use.
- Reduce pesticide residues on vegetables through training on harvest timing after spraying, proper quantities and integrated pest management.
- Develop community risk reduction guidelines to move from individual action such as protective gear use, to village level agreements on not spraying near water sources, homes and schools.
- Supporting MAF and Ministry of Natural Resources and Environment (MoNRE) efforts for safe pesticide container disposal.

Proactive policy: Proactive policies involve support for more green commercialization. This may include support for farmers to grow and market different crops and develop production systems that require less chemical use. Proactive policy options include:

- Develop policy and legal framework for Good Agricultural Practices (GAP) and Organic Agriculture (OA), support for organic and GAP certifications, with easier group development, and transparent, efficient certification processes to promote market trust.
- Promotion and development of locally unique produce to increase values linked to agro-ecotourism, export, and food security.
- To improve soil fertility and production, DAFO should also promote diversified farming and crop rotation to reduce soil degradation. Farmers should avoid planting the same crop for many years.
- Increase the efficiency of production by using clean agriculture (OA and GAP) and techniques that confer greater resilience to climate change.
- Improving the efficiency of market systems by enforcing fair contracts, reducing tax burdens, access to credit, and supporting crop storage and processing infrastructure.
- Support for crop diversification with technical advice and small infrastructure such as irrigation ponds, village processing facilities.
- Green extension approaches like farmer to farmer training.

Need for a multi-stakeholder approach: The implementation of proactive policy measures requires the involvement of public, private, and aid organizations working together throughout the planning and implementing process. Efforts that would benefit from such an approach include:

- Strengthening GAP and OA: Relevant organizations should advertise, disseminate, and promote commercial agricultural production following GAP and OA for sustainable and environment-friendly agriculture development. The GAP and OA certification process should involve public, private, and international organizations in order to gain confidence and acceptance in domestic and international markets.

- Building sustainable markets: To ensure a sustainable market for GAP and OA products, government agencies and aid organizations should work together to arrange the appropriate marketplace to distribute agricultural products, and set up discussion meetings among producers, entrepreneurs, distributors, consumers, and Government sectors in order to evaluate/estimate the market needs and the production capability of farmers and entrepreneurs.
- Better data sharing: Relevant organizations have to increase collaboration and work together to analyze factors related to the use of pesticides and ways to decrease their use, share experience and knowledge widely, and propose results to MAF leadership to issue appropriate policy support.
- Monitoring: There is a need for monitoring and evaluation of the use, management and disposal of pesticides.

References

- CEDAC, SAEDA and PANAP 2013. Illegal Pesticide Trade in The Mekong Countries: Case Studies from Cambodia and Lao PDR. Sustainable Agriculture and Environment Development Association (SAEDA), Cambodian Center for Study and Development in Agriculture (CEDAC), Pesticide Action Network Asia and the Pacific (PANAP).
- DOA 2017. Guideline on Monitor and Use of Pesticides in Lao PDR. Department of Agriculture (DOA): Vientiane Capital.
- GOL 2017. Decree on Pesticides Management No. 258/GOV, 24 August 2017. Government of Lao PDR (GOL): Vientiane Capital.
- LURAS 2018a. Briefing Note – Pesticide Use in Lao PDR: Health and Environmental Impacts. Lao Upland Rural Agricultural Services (LURAS) Project. Ministry of Agriculture and Forestry: Vientiane Capital.
- LURAS 2018b. Presentation on Summary of Kham-Thathom Study for SSWG-Agribusiness Workshop in Jul 2018. Lao Upland Rural Agricultural Services (LURAS) Project. Ministry of Agriculture and Forestry: Vientiane Capital.
- PAFO 2016. Pesticide Use Survey in Kham and Nonghad Districts. Provincial Agriculture and Forestry Office (PAFO): Xiengkhouang Province.

Acknowledgement

This policy brief has been prepared by Department of Policy and Legal Affairs, Ministry of Agriculture and Forestry in collaboration with Helvetas Lao Upland Rural Agricultural Services (LURAS) Project. Acknowledgement is given to the LURAS for financial support and to DAFO of Kham District, Xiengkhouang Province and Thathom District, Xaisomboun Province for administrative support and facilitation of the interviews with relevant local stakeholders. Also, thanks to the village authorities and farmers for their collaboration.

Contacts

Department of Policy and Legal Affairs
 Ministry of Agriculture and Forestry
 PO. Box 811, Vientiane Capital, Lao PDR
 Tel/Fax: + 856 21 417198
 E-mail: dopla.maf@gmail.com