



Food and Agriculture Organization
of the United Nations



Strategic Foresight Planning

Formulating Crop Story Maps and building Climate Resilient Pathways

Part of the Land Resources Information Management System (LRIMS)

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RESEARCH PROGRAM ON
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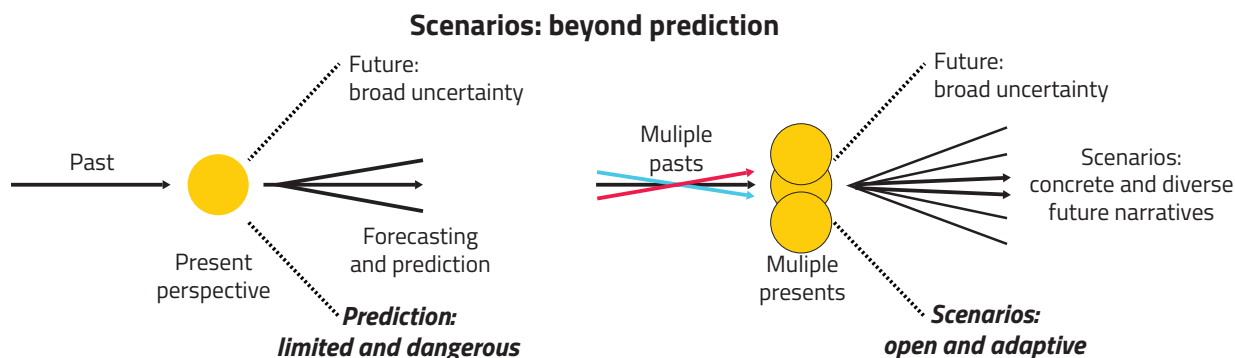
What is foresight?

Foresight is the ability to predict or the action of predicting what will happen or be needed in the future. Foresight uses a range of methodologies, such as scanning the horizon for emerging changes, analyzing megatrends and developing multiple scenarios, to reveal and discuss useful ideas about the future. It is an approach that aims at making sense of the future, understanding drivers of change that are outside of one's control, and preparing for what may lead to success or failure.

Story map development using contextual foresight scenarios

Climate change is projected to impact human and natural systems, with differential consequences across regions, economic sectors and time. The magnitude and extent of future impacts depends not only on the dynamics of the earth system but on socio-economic developments too and current resilience of systems. Exploratory scenarios gave an understanding of how systems interact and what changes might occur in years, decades to come. Anticipatory scenarios or decision support scenarios, develop path to predetermined futures that vary according to desirability. Scenarios offer a way to address uncertain-ty about the future by creating "coherent, internally consistent storylines that explore plausible future states of the world or alternate states of a system" (adapted from Intergovernmental Panel on Climate Change 2013).

The agro-ecological zoning (AEZ) suitability and yield maps form excellent scientifically approved support for robust and future resilient policy formation for adaptation planning and complement the use of foresight and scenarios. To make use of this information in the best possible way, it is essential to find a way to convey the results and key messages to decision-makers and other stakeholders in a professional, convincing, and understandable manner. This is where effective science communication becomes important. To convey the results of the AEZ maps as well as key actions and policy recommendations, foresight analysis tools and the concept of "story maps" are used. For four national priority crops, story maps have been produced including in-depth analysis of production systems and adequate suggested actions based on contextual scenarios.



Predicting one future (left) versus anticipating multiple futures (right). Source: Adapted from Noortmann, M., Koning, J., Vervoort, J., & Hoofd, I. (2019). Imaginative scenario planning for security and law enforcement organisations. A Report on practicing with uncertain security futures.

How policy narratives and storylines be of use?

The preparation of policy narrative was designed specifically for officials of the Department of Agricultural Land Management (DALAM) and of the National Agricultural and Forestry Research Institute (NAFRI) to present first key concepts and methods around science communication to then produce strategic story maps, from spatial analysis to future resilient policy recommendations. The narratives are detailed in-depth analysis of the current state of maize, cassava, coffee and banana production, as well as projections of future developments of the agricultural system. The policy recommendations and advised actions in the document can help policy makers to establish a resilient future-proof production system.

Process for developing policy narratives

- Training on foresight analysis with development of contextual scenarios and selection of the priority crops;
- Story map preparation with multi-sector participatory iterative design of maps, graphs and plans;
- Field missions to test the robustness of the recommendations and the future pathways in the crop production areas;
- National workshop for approval and awareness raising.



How storylines are generated

1. Input

Defining theme and boundaries and stakeholders mapping.

2. Analysis

Trend analysis and horizon scanning to analyze the outputs of the AEZ future crop suitability maps, the adaptive capacity maps and the contextual scenarios developed in the foresight analysis course. Hotspot maps are being developed to indicate the highest priority locations for increasing adaptive capacity, based on future crop suitability and livelihood maps.

3. Interpretation

Multi-stakeholder system mapping maps all institutions, the private sector and other important shareholders in the production system.

4. Plan

Links between barriers and causes of issues are identified using a causal analysis.

5. Prospection

The contextual scenarios analysis forms a means to examine possible other future states of the production system and helps determine opportunities and possible issues that arise from these scenarios.

6. Reflective strategy

The results of all analyses are used to formulate new transformative actions and policy recommendations that complement agricultural policies, therefore steering the agricultural system towards a more robust and future-resilient system.



The generation process

SAMIS Contextual Scenarios

1. Input

What is the scope of the work?

2. Analysis

What is happening?

3. Interpretation

What is happening?

4. Plan

**What do we want to explore in the future?
What are the key barriers?
What could be done to overcome the challenges and embrace development opportunities?**

5. Prospection

What might happen that we didn't plan for?

6. Reflective Strategies

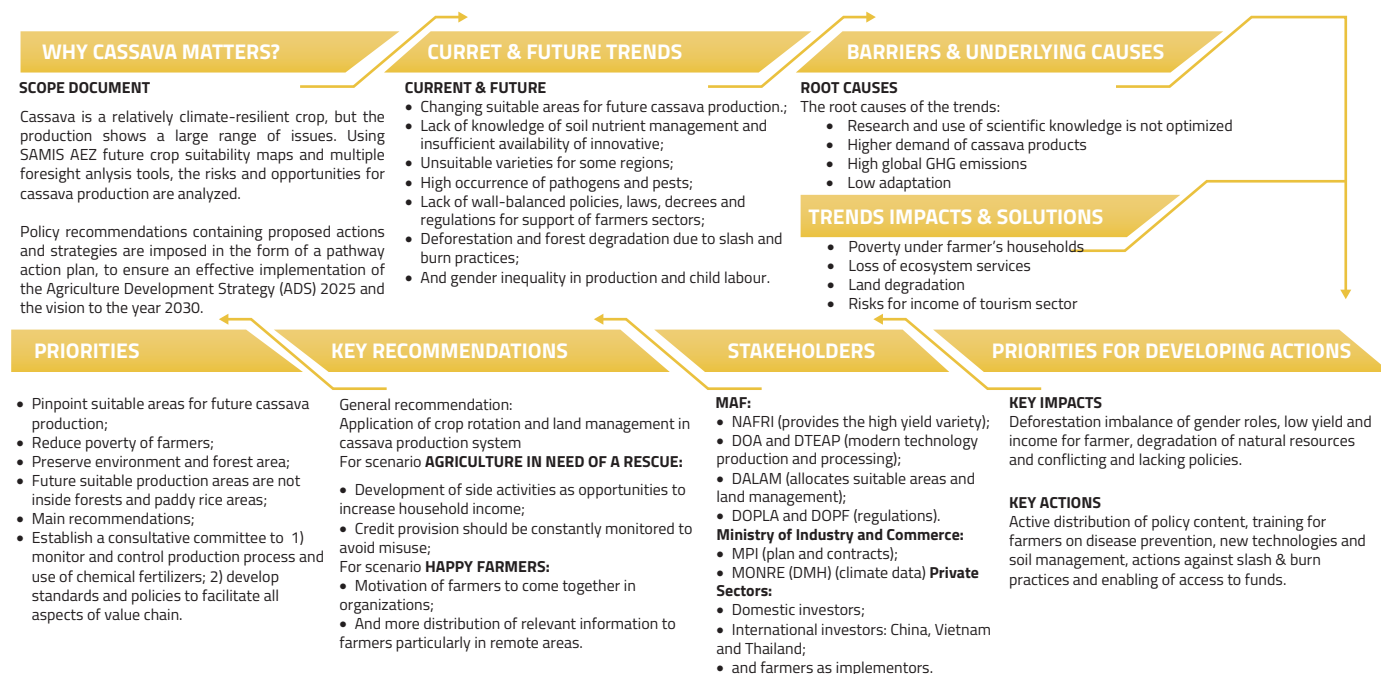
What we like to do differently in our pathways?

Process for developing policy narratives

At national level, the story maps can form as a means of communication for technical spatial teams to formulate priority areas for investments in an understandable manner. Experts from Ministry of Agriculture and Forestry (MAF) can use the results of the analyses to base policy-related decisions on agriculture land planning. The story maps can also be used to communicate results in between departments and teams of the Ministry of Agriculture and Forestry.

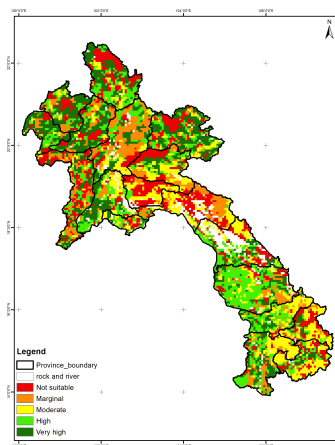


Use case: the cassava story map



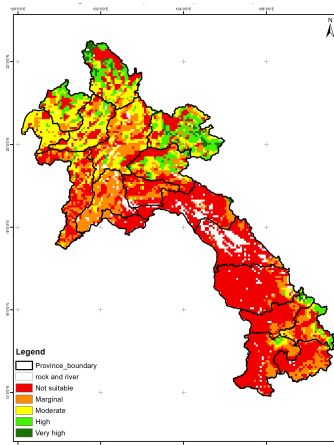
PRESENT

Suitability cassava short cycle variety medium input level/2010–2019



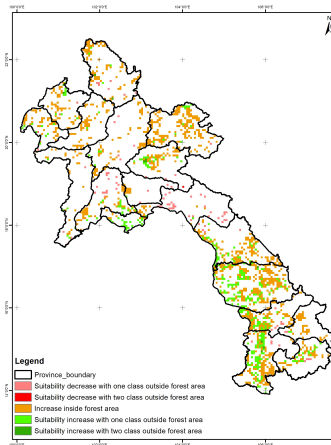
FUTURE

Suitability cassava short cycle variety medium input level/2041–2050/RCP8.5



DIFFERENCE PRESENT AND FUTURE SUITABILITY

Difference between present and future (2041–2050/RCP8.5) cassava suitability, short cycle variety, at medium input level

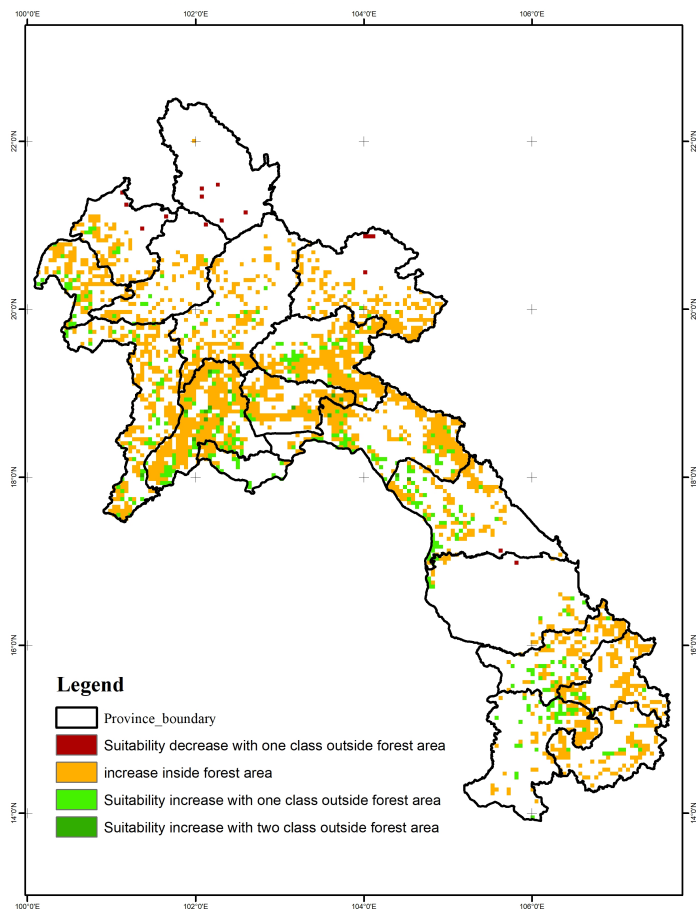


Cassava suitability and hotspot map by Department of Agriculture Land Management, Ministry of Agriculture and Forestry, 2022.

Source: <https://irms-dalam.net/?thematic=sar>

Administrative boundaries of Lao People Democratic Republic, National Geographic Department, 2013.

Current & future suitability Arabica coffee



Coffee suitability and hotspot map by
Department of Agriculture Land Management,
Ministry of Agriculture and Forestry, 2022.

Administrative boundaries of Lao People Democratic Republic,
National Geographic Department, 2013.

Source: <https://irms-dalam.net/?thematic=sar>

The boundaries and names shown and the designations used on this/these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

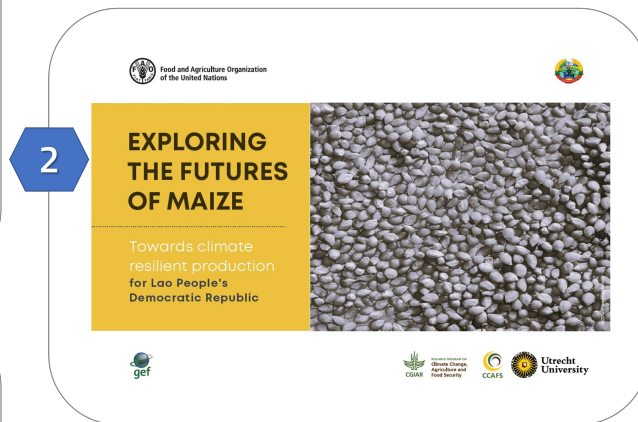
Key trends

- Changing suitability for coffee production due to climate change;
- A lack of labor during harvest season;
- Technologies, machinery and equipment for post-harvesting processes are insufficient;
- Lao coffee is not well accepted by the global market yet;
- Coffee varieties are not climate-resilient;
- Lack of monitoring system from national level to farmers and lack of coordination within the value chain from farm to processing to market.

Key impacts

- Changing future yields and production volumes;
- Land use conflicts such as hydropower projects on coffee land;
- Labor cost is high due to a lack of labor supply;
- In cold season, coffee trees tend to die during cold chills;
- Low to zero productivity;
- Some farmers do not know that there is a policy to promote organic coffee and special coffee;
- And impacts on not being accepted by the global market = not being able to achieve full export potentials and thus affecting the socio-economic growth potential of the country.

Story maps for four priority crops



The team

- Overall implementation: Department of Agricultural Land Management (DALAM), National Agricultural and Forestry Research Institute (NAFRI);
- Coordination and financial support: Strengthening Agro-climatic Monitoring and Information System (SAMIS), and Sustainable Productivity in agriculture (in the context of CSA and Agro-ecology) (FMM sub-programme 5.1), FAO Lao PDR;
- Official consultation and approvals: Policy Team of the Department of Planning and Cooperation, Ministry of Agriculture and Forestry;
- Technical expertise and finalization support: Dr Rathana Peou Norbert Munns, FAO & University of Utrecht;
- And regional coordination: FAO Regional Office for Asia and the Pacific.



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Further information

Further information on LaCSA and the overall SAMIS project can be found on the respective FAO page: <http://www.fao.org/in-action/samis/en/>. Individual story maps for cassava, coffee, maize and ba-nana are published in the project web page. All data is available in the Land Resources Information Management System.

Funding proposals and concrete inquiries can be directed at the Department of Agricultural Land Management (DALaM, www.dalam.org.la) under the Ministry of Agriculture and Forestry (MAF), which can be reached by telephone under +865 21 770201.



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