

A large center pivot irrigation system is shown in a field at sunset. The system consists of a long metal structure with multiple wheels, supported by a series of vertical poles. The structure is positioned over a field of dark, tilled soil, with rows of furrows visible. The sky is a mix of orange and blue, and the sun is low on the horizon. In the background, there are some trees and distant hills.

Innovation Model in Agriculture and Rural Development in Lao PDR

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Introduction

- Approximately 70% of the population work in the agriculture sector, despite contributing only 16.4% to the GDP in 2021.
- 9th NSEDP, the government strongly promotes the application of science, technology, and innovation to generate value added in production and services.
- Several research exploring the influence of innovation on enhancing productivity, adoption of innovative agricultural practices, and the impact of agricultural innovation extends to various aspects of rural development



Introduction

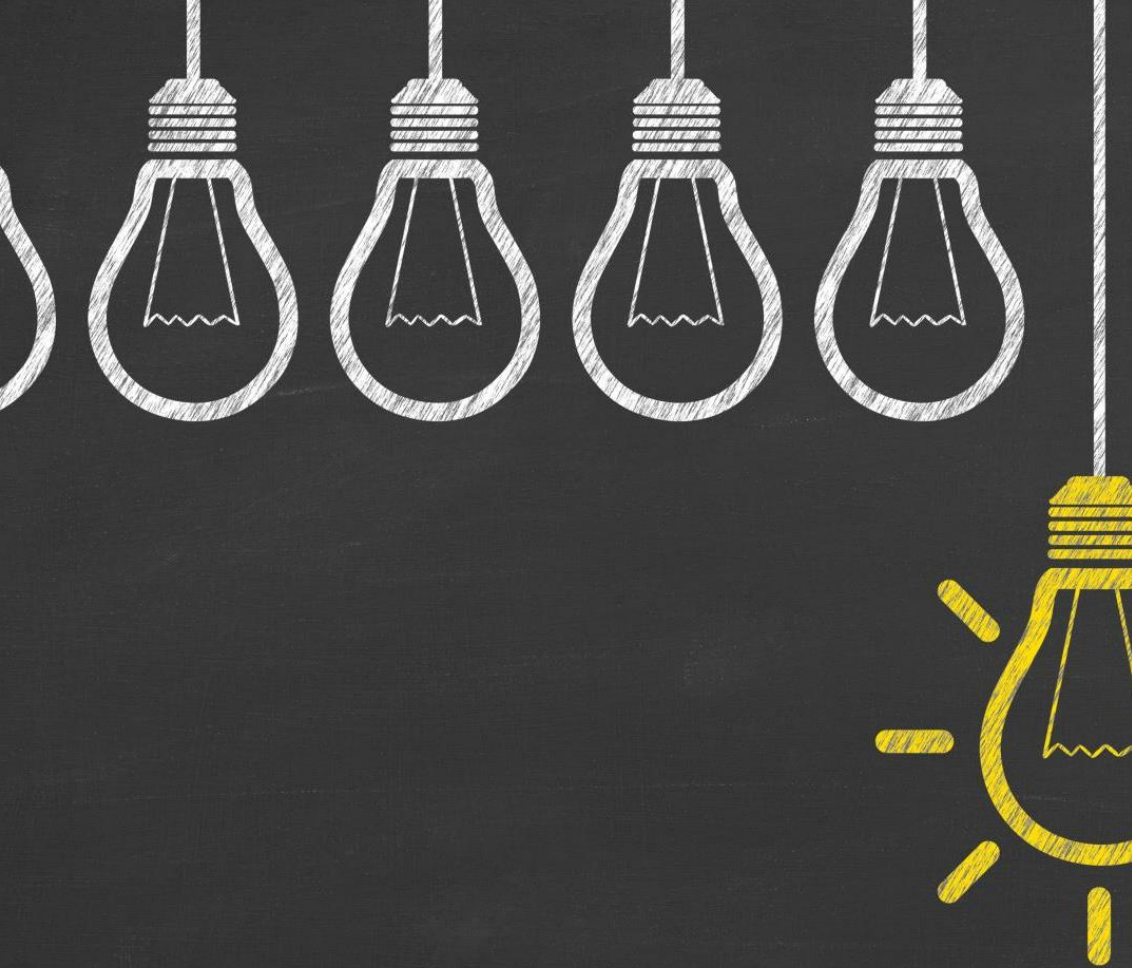
- Despite the critical role of innovation and technology in Lao PDR's agriculture and rural development, limited comprehensive studies exist on this subject.
- Existing research often focuses on specific products and technologies rather than providing broad coverage across agricultural products and geographic areas.



Introduction

- Agriculture and rural development in Lao PDR face numerous challenges, including climate change, high production costs, low productivity, pest infestations, market limitations, and financial constraints.
- Innovation emerges as a potential solution but the scarcity of information on innovation in Lao PDR impedes the dissemination of agricultural technologies.





Innovation

Agricultural innovation, as defined in this research, encompasses the process by which individuals or organizations introduce new or existing products, processes, or organizational methods into a specific context (FAO, 2018)



Objectives

- ❑ The primary objective is to thoroughly examine the innovation processes and evaluate their impact on agriculture, rural communities, and government policies.
- ❑ Specific objectives include analyzing the historical context of innovation and technology, comprehending the processes involved in innovation development, and assessing their effects on farmers, communities, and government policies.

Methodology

- ❑ Qualitative research methodology was utilized to examine agriculture and rural development innovations.
- ❑ Before conducting field surveys, a structured interview guideline was formulated.
- ❑ Approximately 30 innovation models were interviewed, encompassing the areas of Vientiane Capital, Luang Prabang, and Champasak provinces.
- ❑ This paper focuses on presenting ten models that have demonstrated tangible impacts on farmers while ensuring validity and sustainability.



Networks and Cooperative



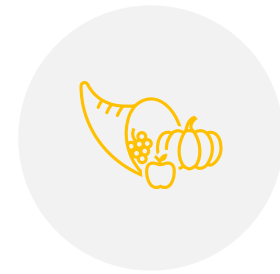
LAO FARMER
NETWORKS



JHAI COFFEE FARMER
COOPERATIVE



BOLAVEN PLATEAU
COFFEE PRODUCERS
COOPERATIVE



THONG MUNG
AGRICULTURAL
COOPERATIVE



Lao Farmer Network (LFN)

- LFN was founded with a membership of 164 individuals, representing 42,685 people across 16 provinces.
- LFN assists farmers in establishing connections with business partners, such as Mueng Lao Food for vegetable sales, Phoun Nguen for rice sales, and Gentera for asparagus sales.
- LFN lent a total of 200,000 USD to the JCFC with 3% interest for 6 months.
- Providing new technology and innovation to members is challenging since they are accustomed to traditional production methods



Bolaven Plateau Coffee Producers Cooperative

- CPC currently employs approximately 36 staff and has over 1,800 household members from 55 villages across three provinces, namely Champasack, Saravan, and Sekong
- Lao Best Coffee Exporter 2012 award for quality and price from the Ministry of Industry and Commerce, Fairtrade, and organic products that have enabled its products to reach global markets
- The organization supports farmers in producing organic coffee, which presently covers an area of more than 4,000 hectares.



Thong Mung Agricultural Cooperative

- TMAC starts with 12 family members 1.5 hectares of production areas, and 15 greenhouses.
- TMAC had to borrow money from microfinance institutions with a high-interest rate of 36% annually, but with government support, it can now borrow from banks at a lower interest rate of 6% per year.
- In 2022, the number of members was 33, and the production area was 30 hectares
- TMAC regularly shares their expertise in managing cooperatives with various groups across the country, including the Lao Women Union, Production Group, and Cooperatives, benefitting more than 200 production groups and over 1,000 farmers

Jhai Coffee Farmer Cooperative

- JCFC was established in 2000 in response to the traditional coffee-growing practices employed by farmers in the region
- JCFC's membership has grown significantly since its inception, with over 450 members across 19 villages in the Parksong district
- JCFC has emerged as one of the most prosperous cooperatives due to the innovation on variety selection, processing, and quality improvement.



Research Center



Beef Research and
Development Farm



Rice Research Center



Living Aquatic Resource
Research Center



Beef Research and Development Farm

- BRDF developed Various formulas for cattle feed, using local by-products from the agriculture processing industry such as maize, cassava, and by-products from beer factories. This has helped reduce the cost of cattle feed from USD 0.5 per Kg to USD 0.2 per Kg.
- Apply free-range technique which reduces animal feed costs for farmers.
- BRDF developed a mineral cake for cattle which can be used to prevent the loss of cattle weight during the dry season.

Rice Research Center



- They have stored nearly 14,700 native rice varieties, the second largest number of conserved rice varieties in the world, after India.
- The Research Center has also produced many new crop varieties that are highly resilient to diseases and climate change.
- The center has also developed new crop varieties, such as cassava, which is resistant to a mosaic virus that is common in neighboring countries.
- The center has developed new production techniques to fight against weeds and climate change

Living Aquatic Resource Research Center

- LARReC has focused on developing aquatic feeds using locally available inputs, which could lower production costs and reduce dependence on imports.
- New feed formula can grow fish nearly the same as with commercially available fish feed, but at a 20-30% lower cost.
- LARReC introduce the use of pond liners and fish species that can thrive in a low-water environment in the northern part of Lao PDR.



New products and processes



Buffalo Dairy
Farm



Saffron



Agro Vege Farm

Buffalo Dairy Farm

- Only four households contributed their buffalos to the milking process, but now over 150 households participate.
- All farmers received a total revenue 40,000 per year from renting buffalo to the farm.
- Various products from buffalo milk such as mozzarella cheese, ice cream, yogurt, and cheesecake.



Saffron



- Saffron grows coffee in the forest using organic methods, with shade trees that provide environmental benefits such as soil nitrogen fixation, erosion reduction, and conservation of native plants and animals.
- Saffron Coffee aims to minimize waste in coffee processing. They use the fruit of the coffee berry to make coffee tea, jam, soap, and fertilizer.
- Saffron has formed partnerships with various non-governmental organizations and charitable institutions to further promote coffee cultivation to farmers in the northern regions of Laos, which encompasses 4 provinces, 36 villages, and over 800 farmers.



Agro Vege Farm

- Agro Vege Farm is not only a hydroponic farm but also a popular tourist destination.
- Visitors can enjoy outdoor flower gardens, rose gardens, cacti, strawberries, and iconic buildings.
- The farm produces nearly 200 varieties of vegetables for both domestic and foreign markets, reducing the need for imported vegetables.
- Agro Vege Farm is not just a hydroponic farm; it serves as a demonstration farm where farmers can learn about innovation and technology in the agricultural sector

Conclusion

- In the past decade, there has been notable progress in the use of innovation and technology in agriculture and rural development.
- LFN has the potential to serve as a national platform for information sharing and collaboration among cooperatives and production groups.
- CPC is an exemplary model for connecting domestic producers with foreign consumers.
- Saffron represents an innovation that reduces waste from coffee processing while also creating new products from coffee byproducts.
- BRDF has created various formulas of animal feed that substantially reduce costs, but their use is limited.
- Two rice-growing techniques developed by a rice farmer model at research center are only used in the Vientiane province.

Conclusion

- Despite the numerous successful innovations, some struggle with various challenges such as
 - insufficient investment,
 - unsuitable environment,
 - limited market.
- The hydroponics vegetable requires significant investment and specialized knowledge and skills that may not be suitable for smallholder farmers.

Conclusion

Policy implications as the following:

- Collaboration between public and private sectors
- Facilitating Access to Innovations
- Supporting Government-backed Networking Platforms
- Ensuring Environmental Sustainability.
- Facilitating Market Access for Innovative Farmers

