



Promoting Agricultural Cooperative for Livelihood Development among Smallholder Farmers in Cambodia



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ARTICLE INFO

Editorial responsibility: Prof. SOK Serey
Received: 07 November 2022
Revised: 20 April 2023
Accepted: 20 May 2023
Published online: 31 December 2023
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Keywords:

Agricultural cooperative,
Ministry of Agriculture,
Forestry and fisheries,
Small holder farmer,
Sustainable livelihood,
Resilience.

សារគន្លឹះ:

- ចាប់ពី ឆ្នាំ ២០០៣ ចំនួន សហគមន៍ កសិករបាន កើនឡើង រហូត ពោលគឺ ពី ចំនួន ១ នៅឆ្នាំ ២០០៣ ដល់ ១២១៧ នៅឆ្នាំ ២០២១។ លទ្ធផល សិក្សានេះ បាន បង្ហាញ ថា ការ ចូល រួម យ៉ាង សកម្ម នៃ សមាជិក សហគមន៍ កសិករ គឺ បាន លើក គុណភាព ការ រស់នៅ ជាពិសេស គឺ ការកសាងជំនាញ ការផ្ទេរ បច្ចេកវិទ្យា ការទទួលបាន ធាតុ ចូលកសិកម្ម ។ ក្នុង នេះ ផង ដែរ សមាជិក សហគមន៍ ក៏មាន លទ្ធភាពទទួលបានផលទាន និងប្រាក់កម្ចី សម្រាប់ការវិនិយោគលើ ការងារ កសិកម្ម។ ដូច្នេះ ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និង នេសាទ និង អាជ្ញាធរ ពាក់ព័ន្ធ សហគមន៍មូលដ្ឋាន ឬ កសិករ ដៃដៃទៀត ដែល មិនទាន់ជា សហគមន៍ កសិករ គួរ ពិចារណាក្នុង ការ បង្កើត និងដំណើរ ការ របស់សហគមន៍ កសិករ ព្រោះ វាអាច ធានា បាននូវ ការ ចិញ្ចឹម ជីវិត ប្រកប ដោយ និរន្តរភាព។
- ការលើកកម្ពស់ជីវភាពរបស់កសិករខ្នាតតូចនៅតែជាបញ្ហាប្រឈម ជាពិសេសនៅពេលដែលកសិករ មិនទាន់ មាន ធនធានចិញ្ចឹម ជីវិតទាំងប្រាំគ្រាប់ គ្រាន់ ពោលគឺ រូបវន្ត ហិរញ្ញវត្ថុ មនុស្ស ធម្មជាតិ និងសង្គម។ កសិករខ្នាតតូច មាន ធនធាន រូបវន្ត និងហិរញ្ញវត្ថុក្នុង កម្រិត មធ្យម ចំណែក ធនធាន មនុស្ស ធម្មជាតិ និងសង្គមគឺ នៅមានការខ្វះខាត ដោយ អន្លើ ៗ។
- បើធៀបនឹង កសិករខ្នាតតូច មិនមែនជា សមាជិក កសិករ ខ្នាត តូចនៃ សហគមន៍ កសិកម្ម មានជីវភាពរស់ប្រសើរ រវាង ដោយ សារ គាត់ ទទួល បាន ធនធាន ទាំងប្រាំច្រើនជាង។
- នៅកម្ពុជា ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់ និងនេសាទ អង្គការ មិនមែនរដ្ឋាភិបាល ជាអ្នក បង្កើត និង ដំណើរ ការ សហគមន៍

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<https://www.doi.org/10.61945/cjbar.2023.5.2.08>

កសិកម្ម ហើយក៏ ជួយជាបច្ចេកទេស និងហិរញ្ញវត្ថុ។ កសិករខ្នាតតូចដែលចូលរួមក្នុងសហគមន៍កសិកម្ម អាចទទួលបានការកសាង សមត្ថភាព ការអភិវឌ្ឍន៍ សេដ្ឋកិច្ច លទ្ធភាពទទួលបានទីផ្សារ ធាតុចូលកសិកម្ម និងសេវា ដឹកជញ្ជូនផលិតផលកសិកម្ម។

- កសិករខ្នាតតូចមានទស្សនៈស្តីពីនិយមចំពោះប្រតិបត្តិការរបស់សហគមន៍កសិករ ដោយជឿថា សហគមន៍កសិករ អាចបង្កើនផលិតភាព បង្កើនប្រាក់ចំណូល កាត់បន្ថយភាពក្រីក្រ កែលម្អសន្តិសុខស្បៀង និងផ្តល់សិទ្ធិអំណាចដល់ស្ត្រី។ ទាំងកសិករខ្នាតតូចជាស្ត្រី និងបុរសទទួលបានអត្ថប្រយោជន៍ស្មើគ្នាពីសកម្មភាព និងសេវាកម្មរបស់សហគមន៍កសិករ។
- សហគមន៍កសិករ នឹងដើរតួនាទីយ៉ាងសំខាន់ក្នុងការធានាការអភិវឌ្ឍន៍សង្គម និងសេដ្ឋកិច្ចទាំងមូលនាពេលអនាគត ដូចជាការផ្តល់សិទ្ធិអំណាចដល់ស្ត្រី កាត់បន្ថយហានិភ័យ (រួមទាំងហានិភ័យនៃការប្រែប្រួលអាកាសធាតុ) និងការធានា បាននូវសន្តិសុខ ស្បៀង។ ទោះជាយ៉ាងណាក៏ដោយ យើងត្រូវលើកកម្ពស់ប្រតិបត្តិការរបស់សហគមន៍កសិករ ដោយ ការ បង្កើន ការ គាំទ្រពី រដ្ឋាភិបាល ទំនើបកម្ម ផ្នែកបច្ចេកវិទ្យា និងការអភិវឌ្ឍផ្សេងៗ សមាជិក សហគមន៍កសិករ។

Key Messages

- The number of agricultural cooperatives (ACs) has increased gradually from 1 in 2003 to 1,217 in 2021. This study clearly reveals that AC operation has been essential for their livelihood development in terms of skill building, technology transfer, provision of inputs, and access to credits and loans for agricultural investment. Therefore, the Ministry of Agriculture, Forestry, and Fisheries (MAFF), relevant government agencies, communities, and smallholder farmers should close attention to establishing and operating ACs to support sustainable livelihoods.
- Improving the livelihood of smallholder farmers remains challenging, especially when they cannot access all five assets: physical, financial, human, natural, and social. Smallholder farmers have moderate access to physical and financial assets, but they are constrained by the sufficiency of human, natural, and social assets.
- Compared to non-agricultural cooperative members, the AC members have improved smallholder farmers' livelihoods by giving them access to five key assets.
- In Cambodia, agricultural cooperatives (ACs) operate with technical and financial assistance from the MAFF, non-governmental organizations (NGOs), and communities. Smallholder farmers participating in ACs can gain capacity building, economic development, market access, agricultural inputs, and transportation for their agricultural products.
- Smallholder farmers have optimistic views of AC's operation, believing it can improve their productivity, increase their income, alleviate poverty, improve food security, and empower women. Both female and male smallholder farmers benefit equally from AC's activities and services.
- ACs will play a significant role in ensuring overall social and economic development in the future, such as empowering women, mitigating risks (including climate change risks), and achieving food security. However, we must promote ACs' operation by increasing government support, technological advancement, and market facilitation.

1. Introduction

In the last few decades, the agriculture sector has played a crucial role in the socio-economic development of rural dwellers, employing over 37.0% of the total workforce in 2017 and contributing approximately 16.3% of the country's Gross Domestic Product (GDP) (MoP, 2018, ASEAN Secretariat, 2019). In February 2020, the Ministry of Agriculture, Fishery and Forestry developed the Agricultural Sector Master Plan 2030 (ASMP 2030) to enhance Cambodia's agricultural development and convert it into a competitive, inclusive, modern, climate-resilient sector (MAFF, 2020). The Master Plan has also recognized the importance of Agricultural Cooperatives (ACs), and it became one of the government's efforts to shift the widespread traditional subsistence agricultural system to promote production, develop value-added agricultural goods, and enhance the quality of the agricultural value chain. This Master Plan has recognized the importance of agricultural development for

promoting farmers' income, well-being, and prosperity (MAFF, 2030).

In rural Cambodia, ACs have been established to increase income and promote livelihood development. The ACs have supported smallholder farmers to enhance their knowledge, skills, technology transfer, access to loans, financial savings, and exchange crops and agricultural inputs (Chhinh, et al., 2022). For ACs management, the Royal Government of Cambodia issued the Royal Decree in 2001 and formulated a law in 2013. The Royal Decree on the establishment and functioning of ACs, the union of the ACs, and the pre-agricultural cooperatives were enacted on 16 July 2001 to restart the inactive ACs' operation during the demise of the Khmer Rouge regime (17 April 1975-7-January 1979) (Nou, 2006). Since 2013, the ACs must register with the Ministry of Agriculture, Forestry and Fisheries (MAFF) under the Law on Agricultural Cooperatives. This law was enforced to support smallholder farmers in increasing agricultural

Table 1: Summary of the Royal Decree and Law on ACs establishment and operation.

<i>The Royal Decree on the establishment and functioning of ACs, the union of the ACs, and the pre-agricultural cooperatives</i>
<ul style="list-style-type: none"> The purpose of the Law is to promote the participation of every Khmer citizen whose primary occupations fall within the framework of agricultural production, agro-industry, agribusiness, or services related to agricultural production systems in establishing and developing agricultural cooperatives in order to augment economic and social and cultural status of members as well as to contribute to the national economic development. This Law regulates the establishment, functioning, and management of agricultural cooperatives, agricultural cooperative unions, and Cambodian agricultural cooperative alliances and provides supportive mechanisms for them. Agricultural Cooperative provided for in this law refers to the private legal entity and agricultural-based economic enterprise which is voluntarily established by natural entities with their joint investment, joint ownership, and joint democratic management in order to improve agricultural production capacity, agro-industry, agri-business, or services related to agricultural production aimed at enhancing the economic, social and cultural status of members in line with fundamental principles as follows: (1) Voluntary participation and open membership; -Democratic management by all members; -Economic participation of all members; (2) Autonomy and independence; -Education, -training and dissemination of information; -Cooperation with other agricultural cooperatives; and (3) Concern for communities.
<i>The Law on Local Associations and Non-Government Organizations (NGOs), the establishment of Farmer Associations (FAs)</i>
<ul style="list-style-type: none"> Under the government policy, all three agricultural cooperatives have genuinely embraced the sustainable farming movement and have started their business with the same initial services that provide farm members with credit, high-resistance seeds, and natural fertilizers. According to Table 1, CC AC offered additional marketing to its members by buying crops from them and selling to middlemen or exporting to neighboring countries, such as Vietnam. At the same time, SS AC provided additional services to its members by purchasing paddy, offering dry and milling facilities, producing organic rice wine and animal feeds, and selling organic goods to five natural stores in Phnom Penh. These existing and new businesses have benefited farm members in many ways, motivating them to utilize more natural-based agricultural inputs than agrochemical products (Bunthan and Ryuichi, 2019).

Sources: Authors compilation from various sources

production and establishing job alternatives, empowering them to improve their livelihood development and self-reliance (MAFF, 2013).

The ACs have been a long-term government investment with the purpose of promoting agricultural development. It has been an auspicious approach for advancing agriculture, as stated in the Agricultural Sector Master Plan 2030 (ASMP 2030). Since 1965, the ACs have been established in different regimes to enhance local engagement, agricultural productivity, and income generation activities (Chhinh, et al., 2022). Ofori et al. (2019) confirm that ACs helped diversify the agricultural horticulture of smallholder farmers and increase rural income. The RGoC and development partners are working to mobilize resources for establishing and operating ACs. Both RGoC and development partners are confident that the establishment of ACs is the best alternative to contribute to smallholder farmers because ACs are responsible for operating different types of business scopes falling under the agricultural sector, such as agri-business, the agri-industry and support services for smallholder farmers (ADB, 2021).

2. Research Methodology

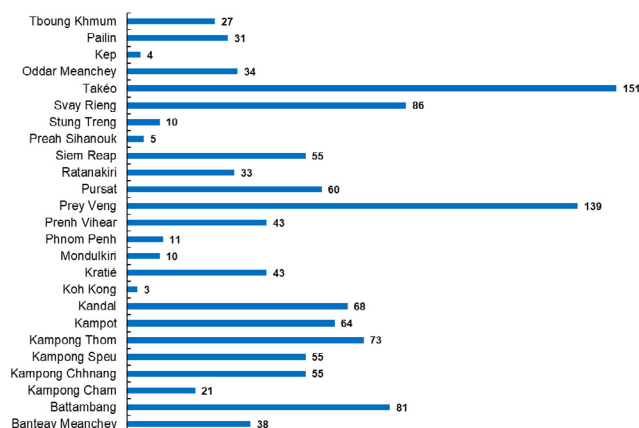
This policy paper has been written from fieldwork between February and May 2022 among smallholder farmers in the Barseth district of Kampong Speu province and the Bakan district of Pursat provinces. The selection of the two provinces was informed by discussion with

NGOs, boards of directors of ACs, and local authorities of the two provinces. Structured questionnaires were used in the surveys for quantitative data. A total of 421 smallholder farmers were selected for the interviews, derived from 212 in the Barseth district and 209 in the Bakan district. Moreover, qualitative data was also collected to complement quantitative data from the survey, including focus group discussions and key informants. A group discussion among smallholder farmers was organized in each study district to discuss and get consensus regarding ACs operations to support the livelihood of smallholder farmers. Key informants were made with the Department of Agricultural Cooperative Proportion (DACP) within the MAFF, Phnom Penh, Cambodia, Preah Mlu Mean Chey Agricultural Cooperative (Boeng Khnar Commune, Bakan district, Pursat province), Toul Ampil Agricultural Cooperative (Barseth district of Kampong Speu province), Heifer International Cambodia, Phnom Penh, Cambodia, and ACs member, Bakan district, Pursat province for qualitative data and information. The Barseth district and the Bakan district were recruited for this research.

3. Results and Findings

3.1 Establishment and operation of ACs in Cambodia

Fig. 1 records a total number of 1,217 ACs in 2021 across Cambodia. The number started from only one AC in 2003, which has gradually increased from 1 ACs in 2003



Source: MAFF, 2021.

Fig. 1: Number of ACs in Cambodia by provinces in 2022.

to 2017 ACs in 2021. Out of the total, Takeo province counted as the highest share of ACs number (151 ACs), followed by Prey Veng (139 ACs) and Battambang (81 ACs). Some provinces recorded with few ACs; they included Koh Kong, Kep, Preah Vihear, Stung Treng, Monduliri, and Phnom Penh. The discussion among smallholder farmers in the Barseth and the Bakan districts reveals that ACs were mainly established with the MAFF and NGOs; they provided technical and financial assistance for the establishment and operation. A district officer in Bakan district mentioned that most ACs focused on saving and credit services. Some of them also supplied agricultural inputs, for example, seeds and fertilizers, to their members. Smallholders provided their feedback that ACs operations are significant for local livelihood income generation activities, but their activities and services remained in small scope and not competitive with private companies.

An officer from MAFF mentions that the agriculture sector plays crucial roles in increasing economic growth, creating jobs, guaranteeing food security, and helping develop the rural economy, as it is also rooted in the country's National Strategic Development Plan (NSDP). To adhere to the national plan, the MAFF launched a Prakas on Procedures for Formation and Registration of the Agricultural Cooperative Union, where Cambodia Agricultural Cooperative Alliance (CACA) was to be established as the supreme organ of agricultural cooperatives. At the same time, the MAFF has worked to assist the rural communities in establishing and operating ACS across the country to improve production, guarantee markets, and maintain agricultural prices. Moreover, the MAFF has received support from development partners; some key projects to support ACs establishment and operation were Accelerating Inclusive Markets for Smallholders (AIMS) and Agricultural Services Programme for Innovation, Resilience and Extension (ASPIRE). Smallholder farmers confirm that NGO development

projects have helped support AC's operation. The projects have established ACs and provided technical assistance and grants to smallholder farmers to consolidate and improve agriculture production systems, upsurge their livelihood development, and boost their food security and nutrition. The projects also have supported market integration that promotes sustained incomes.

An AC head was optimistic that private companies have difficulty working with many smallholder farmers individually to collect agricultural products. As a result, middlemen had opportunities to control agricultural products from local communities; they could set the prices and volumes required. Therefore, smallholder farmers agree that ACs help promote their livelihoods. If smallholder farmers are involved in ACs, they can negotiate with an organized network, which has many benefits. In recent years, private companies have been increasingly interested in working with ACs and saw the value of joint ventures with ACs. NGOs like the German Cooperative and Raiffeisen Confederation (DGRV) view that the number of ACs involved in agricultural supply chains was still small. Out of the total, approximately one-tenth of the registered ACs presently had farming contracts with private sector companies. It is a fact that private companies care for quality control, certification, and traceability of agricultural products, which many ACs and individual smallholder farmers were challenging (DGRV, 2023).

3.2 Access the five livelihood assets among smallholder farmers

Chambers and Conway (1992: 7) point out that a livelihood comprises the capabilities, assets (stores, resources, claims, and access), and activities required for a means of living; a livelihood is sustainable and can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term. Sufficient access to livelihood assets among smallholder farmers contributes to food security, reducing dependency, mitigating risks and vulnerability, and increasing local self-reliance. Based on sustainable livelihood farmwork, smallholder farmers require five livelihoods: human capital, social capital, physical capital, natural capital, and financial assets. An NGO officer believes that access to five assets helps improve their capacities and increase the activities needed to make their living. The survey result in Fig. 2 reveals that small-scale farmers had little chance to access human assets (15.7%), natural assets (34.2%), and social assets (36.1%). Almost half claimed access to physical assets (46.5%) and financial assets (41.9%).

The interview with small-scale farmers reveals that

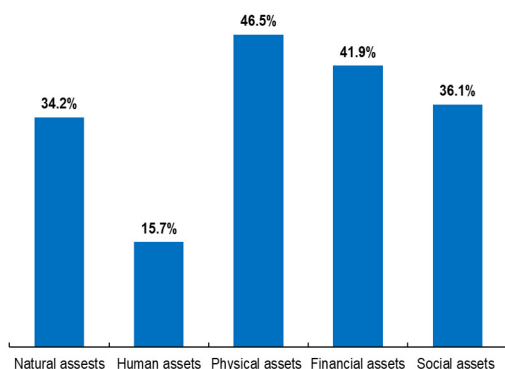


Fig. 2: Percentage of respondents report on access to the five livelihood assets by small-scale farmers.

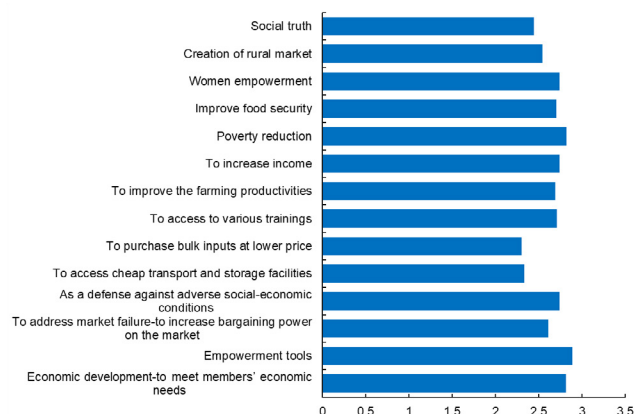


Fig. 3: Respondents report on the Scale of benefits obtained from ACs by small-scale farmers.

they could participate in events regarding agricultural activities and development organized by government agencies, NGOs, commune councils, and ACs. However, stallholder farmers participated in capacity building and awareness raising; they had minimal power to be involved in decision-making. In general, smallholder farmers are mainly involved in activities available by government agencies, NGOs, commune councils, and ACs. The available budget has been the only reason because government agencies, NGOs, commune councils, and ACs could not support the demand of small-scale farmers. For example, small-scale farmers need water for their rice production, but it has been too expensive for local governments to invest in water supply among small-scale farmers.

While commune councils and NGOs are the main actors working with small-scale farmers closely, they only have the budget for the construction of supplementary irrigations such as ponds, dykes, and well. Supplementary irrigation has played a significant role in supplying some water for rice production, but they are insufficient. At the same time, local trust and unity are insufficient to maintain the physical assets for long-term use. When ponds built by NGOs or commune councils are dried out, small-scale farmers cannot mobilize resources to rehabilitate them. They wait for work from NGOs or commune councils. An AC head claims that smallholder farmers preferred participating in activities ACs operate regarding capacity building, awareness raising, and field visits. Smallholder farmers were less interested in contributing financially or physically to make ACs move smoothly.

Regarding physical assets, roads in the two study districts were well connected to district or provincial towns. While roads in Pursat are newly built with well connecting to Battambang and Phnom Penh, roads in Barseth district are well connected to the provincial town of Kampong Speu and the capital city of Phnom Penh. Better road conditions help to connect ACs to the markets

and private companies to buy agricultural products from smallholder farmers. An officer from MAFF believes that better roads and other related infrastructures in the province create more opportunities for ACs to grow occasionally. On the other hand, smallholder farmers were sufficiently accessible to financial assets because of the widespread operation of microfinance institutions and commercial banks. The access to credits helped smallholder farmers to expand their agricultural investments. At the same time, ACs established saving groups where smallholder farmers could collectively deposit and take loans for agriculture-related activities.

3.3 Contribution of ACs on livelihood development among smallholder farmers

The operation of ACs has benefited smallholder farmers' livelihood because they earned assistance for accessing the five assets. ACs have operated with technical and financial support from NGOs and government offices at the provincial and district levels. The survey shows that around 50% of the smallholder farmers received support from ACs, including capacity building, economic development, market access, agricultural inputs, and transportation means of agricultural products (Fig. 3). In the Barseth district, a collection center was established.

Smallholder farmers received support from ACs to some extent if they were members. However, ACs recently could not generate much revenue to support their activities and services sufficiently; they received financial support from NGOs for the establishment and operation. An officer from MAFF learns that ACs have been long-term investments; government and NGOs are working together to empower smallholder farmers to access agricultural inputs, increase productivity, and access the market for stable prices through contracts or agreements with private sectors. An AC head appeals for help to reduce the roles of middlemen and connect

to markets with private companies through mutual agreement and relationship. The NGO officer also agrees that the market for stallholder farmers remained small and uncertain because few private companies made agreements or contracts with ACs. While ACs could not guarantee the volume of agricultural products supplied, private companies viewed that agricultural products produced by ACs were not yet well controlled with quality and quantity.

Smallholder farmers positively perceived ACs support for improved productivity, increased income, poverty, and alleviation of food security. Smallholder farmers also believe ACs empower women; female smallholder farmers could benefit from their activities and services. A group discussion finds that AC's operations are giving smallholder farmers access to cheaper agricultural inputs, transportation, and infrastructure and obtaining a broader market for better prices of agricultural products. Stallholder farmers, who were ACs members, could have better strategies, techniques, and investment plans for their agricultural activities because they were well-equipped with knowledge and skills. Moreover, AC members learned about markets and prices to sell their reasonably priced agricultural products. Officers from other governments and NGOs agree that smallholders benefited greatly from ACs through technology transfers. When government agencies and NGOs introduce new technology and techniques among smallholder farmers, they do so through ACs.

3.4 Conclusion and Implication for Planning and Policy

The livelihood of smallholder farmers consists of the capabilities, assets, and activities needed for a means of living. The establishment and operation of ACs are essential to increase access to smallholder farmers' livelihoods. Based primarily on findings from quantitative and qualitative analysis in the Barseth district of Kampong Speu province and the Bakan district of Pursat provinces, we can conclude that the establishment and operation of ACs are very beneficial to smallholder farmers' livelihood. The survey reveals that (1) the number of ACs has increased gradually from only one AC in 2003 to 2017 ACs in 2021. The study has revealed that ACs operation has been essential for their livelihood development in terms of skill building, technology transfer, the provision of inputs, and access to credits and loans for agricultural investment. Therefore, the AC's establishment and operation must be paid close attention by the MAFF, relevant government agencies, communities, and smallholder farmers for sustainable livelihood. (2) The livelihood of smallholder farmers remains challenging to achieve, which satisfied the outcome when they could not access the five assets. However, smallholder farmers are moderately accessible

to physical and financial assets; they are constrained to access the sufficiency of human, natural, and social assets. (3) the operation of ACs has been beneficial to the livelihood development of smallholder farmers because they earned assistance for accessing the five assets. (4) In Cambodia, ACs are operating with technical and financial assistance from the Ministry of Agriculture, Forestry and Fisheries (MAFF), Non-governmental Organizations (NGOs), and communities. Smallholder farmers can gain capacity building, economic development, market access, agricultural inputs, and transportation means of agricultural products when participating in ACs operation. (5) Smallholder farmers have optimistic views of AC's operation regarding improved productivity, increased income, poverty, food security alleviation, and gender empowerment. Female and male smallholder farmers are equally beneficial to their activities and services by ACs operation.

In the future, all the key stakeholders from government, NGOs, communities, and smallholder farmers should continue to work together to expand and sustain the establishment and operation of ACs in Cambodia. First, the MAFF should continue to work with NGOs and ACs to register new ACs and sustain their operation. The MAFF should support ACs with legal assistance and provide small-scale seed grants within a 3-year or 5-year period from the establishment. At the same time, MAFF should provide timely coaching and regular follow-up to ensure ACs perform well. ACs should not be given up after their establishment; they should be provided with financial and technical support until they can operate independently. Second, donors and NGOs should continue to assist ACs with seed grants, capacity and skill building, and outreach services to ensure that ACs can generate sufficient revenues for self-operation. Both donors and NGOs should seriously consider the sustainability of AC's operation. NGOs and the government should assist ACs in establishing market networks and agreements with the private sector for long-term cooperation and stable prices of agricultural products. In addition, donors and NGOs should work with MAFF from national to sub-national levels to assist AC's operation. Third, ACs and smallholder farmers should also mobilize local resources from members and communities to reduce external dependency on AC's operation. The ACs should increase their productivity, quality, timely supply, and trust among private sectors to gain agreement with them for long-term business activities.

Acknowledgements

The authors would like to thank HEQCIP of the Ministry of Education Youth and Sport, Cambodia for funding Chhinh Nyda to do his PhD at Flinders University, Adelaide, Australia. The first author also owed thanks to Flinders University for support Nyda Chhinh conducted his fieldwork in 2014.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported. All authors have read and approved the final, published version of the manuscript.

Credit authorship contribution statement

Chhinh Nyda: Conceptualization, data interpretation, visualization, drafting, reviewing, and editing. Rath Sethik: Data interpretation, visualization, reviewing, and editing. Choeun Kimseng: Data interpretation, visualization, reviewing, and editing. All authors have read and agreed to the published version of the manuscript.

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References

- ASEAN Secretariat (2019) ASEAN Key Figures 2019. Jakarta: ASEAN Secretariat. Retrieved from <https://www.aseanstats.org/publication/asean-key-figures-2019/> on 01 March 2023.
- MoAFF (2013) Law on Agricultural Cooperative (Unofficial Translation). Phnom Penh: Ministry of Agriculture, Forestry and Fisheries.
- Chhinh, N., Sok, S., Sou, V., & Nguonphan, P. (2022). Local Engagement in the Agricultural Cooperatives (ACs) Operation in Cambodia. *Sustainability*, 14(24), 16515.
- MoP (2018) Cambodia Socio-Economic Survey 2017. Phnom Penh: Ministry of Planning.
- MAFF (2022) Agricultural Sector Master Plan 2030 (ASMP 2030). Phnom Penh: Ministry of Agriculture, Forestry and Fisheries.
- Nou, K. (2006). Emerging structures of agricultural cooperatives in Cambodia. *Cambodia Dev. Rev*, 10, 9-12.
- MAFF. (2011) Law on Agricultural Cooperative (Unofficial Translation). Phnom Penh: Ministry of Agriculture, Forestry, and Fisheries (MAFF).
- Chhinh, N., Sok, S., Sou, V., & Nguonphan, P. (2022). Local Engagement in the Agricultural Cooperatives (ACs) Operation in Cambodia. *Sustainability*, 14(24), 16515.
- Ofori, E., Sampson, G. S., & Vipham, J. (2019, November). The effects of agricultural cooperatives on smallholder livelihoods and agricultural performance in Cambodia. In *Natural Resources Forum* (Vol. 43, No. 4, pp. 218-229). Oxford, UK: Blackwell Publishing Ltd.
- ADB (2021) Cambodia Agriculture, Natural Resource, and Rural Development Sector Assessment, Strategy and Road Map. Manila: Development Bank.
- Bunthan, S. and Ryuichi, Y. (2019) The development of sustainable farming through agricultural cooperative in Cambodia-case study in Prey Kabbas, Takeo province. Tokyo: Tokyo University of Agriculture
- DGRV (2023) The Potential of Cooperatives in Agricultural Supply Chains in Cambodia. Phnom Penh: The German Cooperative and Raiffeisen Confederation (DGRV). Retrieved from <https://www.dgrv.coop/publications/the-potential-of-cooperatives-in-agricultural-supply-chains-in-cambodia/> on 15 February 2023
- Chambers, R., & Conway, G. (1992). Sustainable rural livelihoods: practical concepts for the 21st century. Institute of Development Studies (UK).