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Article

A Social Innovation Model for Sustainable Development: A Case Study of a Malaysian Entrepreneur Cooperative (KOKULAC)

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Abstract: In Malaysia, social innovation programs are fully supported by the government. However, reports and findings on the related matter have yet to be comprehensively collected due to the current interest. Therefore, the aim of this paper was to provide a better insight and understanding on how social innovation projects could assist in achieving the SDG agenda. Since social innovation is emerging and has just recently been embraced in Malaysia, we present the study as a case based on an entrepreneur cooperative, named KOKULAC, with a grounded theory analysis as a core approach. The findings suggest that there are five sustainability development goals that are very closely related to KOKULAC's agenda. These goals are no poverty, zero hunger, decent work and economic growth, responsible consumption and production, and partnership for the goals. In addition, the case also presented how the values of sustainable development spur greater social benefits of shared prosperity. We conclude that the proposed model contributes to the expansion of innovation capability theory by shaping the innovations within the scope of social needs, which could be applied in other settings. For future research, we recommend a higher integration between the social innovation model and dynamic capabilities of the networking structures.

Keywords: social innovation and sustainable development; United Nations' Sustainable Development Goals; social innovation and shared prosperity; grassroots innovation; innovation capability; social innovation in Malaysia



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1. Introduction

Sustainable development is a global agenda. The United Nations has developed 17 goals that are aimed at the world's sustainable development, known as SDG2030. Ending poverty, improving health and education, reducing inequality, and spurring economic growth are the essence of the agenda (United Nations 2017).

Sustainable development is understood as a dynamic process of change in which the exploitation of resources, the direction of technological development, and institutional changes are aligned with the current needs without compromising the ability of future generations to meet their own needs (Rogers et al. 2008). There are three dimensions of sustainable development: economic, environmental, and social, known as the triple bottom line (Rogers et al. 2008). For a result to be sustainable, all of the above dimensions must receive equal attention. At the international level, many countries are embracing the goals and committing to comply with the sustainability indicators by improving administrative governance (Aina et al. 2019) and strengthening the public–private partnership to improve

the interactions of economic activities (van Zanten and van Tulder 2021). In addition, one of the significant strategies in achieving sustainable development goals is by involving people at all levels in social and economic actions, and designing solutions based on social innovations (Cunha et al. 2022; Ravazzoli and Valero 2020; Eichler and Schwarz 2019). Various programs have been designed, more strategies have been developed, and quintuple linkages between the government, industry, academia, and community have been aggressively enhanced.

One strategy in which sustainable development can be nurtured is through innovation (Novikova 2022). Recently, the United Nations has acknowledged that social innovation approaches are significant as mainstream tools for achieving sustainable development (Joel and Nel-Sanders 2021). In addition, the significance of social innovation is also growing in study and practice. Social innovation has been extensively researched and debated in a variety of contexts including economic, social, and environmental studies. However, although there has been increased interest among researchers in this field, it can be claimed that there is not much agreement between them, in terms of social innovation and its benefits to society. Adro and Fernandes (2021) highlighted the difficulty in analyzing how far social innovation can help develop sustainability to meet the economic, social, and environmental challenges arising in the 20th century. This is an imperative debate if one considers the various effects caused by the process of capturing social and economic value, particularly when social innovations are targeted at resolving environmental, societal, or economic issues.

Nevertheless, studies by Eichler and Schwarz (2019) and Cuntz et al. (2020) have stated that social innovation is believed to be an effective way of addressing problems. Social innovation is also seen as a new approach in which the intention is to improve the welfare of human beings and communities to meet the social needs (Nicholls and Dees 2015). Social innovation involves collaboration with and the empowerment of the service user or beneficiary to build their capacities, change their social interactions and increase their access to resources and power, helping to meet social needs such as education or health care. As a result, social innovation is widely seen as a crucial part of the innovation framework required for sustainable development. A recent study by Al-Qudah et al. (2022) investigated the impact of social innovation on sustainable economic development and suggested that researchers explore how social innovation would influence sustainable economic development.

Therefore, how social innovation programs and initiatives are conducted to achieve sustainable goals is worth understanding. Likewise, it is imperative to acknowledge the relationships among the stakeholders that shape the success of the social innovations and the outcomes produced. This will allow for reporting the best practices, establishing new knowledge, and making continuous improvements (Ahmad and Karim 2019).

Social innovation is addressing social needs, social problems, social challenges, and social issues via new and innovative solutions that transpire as products, services, processes, or models (Eichler and Schwarz 2019). Drawing upon a bibliometric analysis of social innovation literature, Martins et al. (2022) proposed social innovation as “a process of change, social collaboration, and interaction, aiming at organizing ideas and inventions to tackle social problems and to improve quality of life and collective well-being through mechanisms of community governance”. The topic of social innovation and sustainable development started to emerge in early 2000 and a considerable number of publications started to garner attention around 2015 (Eichler and Schwarz 2019). Social innovations are recognized as social solutions, supported by policies granted by global institutions. The European Commission supports social innovators around the world by facilitating the inducement, uptake, and scaling-up of social innovation solutions with numerous programs on networking, funding, competitions, ecosystems, and incubations. Information on the initiatives can be found on the EU portal at https://ec.europa.eu/growth/industry/strategy/innovation/social_en (accessed on 28 June 2022). The provision of support for social innovation is also shared by the Organization

for Economic Co-operation and Development (OECD). Since 2000, the Forum on Social Innovations, OECD has organized activities in various member and non-member countries.

In Malaysia, social innovation is an emerging concept. The Malaysian government currently recognizes innovation as a tool in dealing with challenges by making efforts to nurture an innovation culture in society including the establishment of several agencies to carry out initiatives to improve social well-being via innovation. The government fully supports the initiative as an alternative solution to addressing social issues and needs. The Ministry of Science, Technology, and Innovation (MOSTI), through one of its arms, Yayasan Inovasi Malaysia (YIM), has been a beacon for social innovators in the country. YIM has been working closely with other government agencies, industry players, academic institutions, and local communities to support early-stage social innovation ideas facilitating the ecosystem. The main goal is to shape the betterment of society, inspired by SDG2030. With these efforts, social innovators in Malaysia have found good ground to spread ideas and make real changes in society with non-profit incubators, social accelerators, and social enterprises leading the role (<https://www.yim.my/en/>) (accessed on 28 June 2022). The application of social innovations to promote sustainability could signify their presence as mechanisms to achieve the various targets of the SDG agenda. However, there are very few available reports and findings on this topic from the Malaysian perspective. Therefore, the aim of the paper is to provide better insights and understanding of how social innovation projects could assist in achieving the SDG agenda. The work was based on an empirical analysis of a case, KOKULAC, a cooperative based on the social innovation model. This study aimed to fill the gap in the literature by examining the practices of the social innovation model by KOKULAC toward the sustainable development agenda. The research objectives and questions were developed to fill the gap in the social innovation literature. The study sought to answer the following questions: (1) What are the sustainable development agendas being addressed by KOKULAC social innovation project? and (2) How does the KOKULAC social innovation project improve shared prosperity and enhance the social capital as a general sustainable development agenda? These findings could help establish a social innovation model for sustainability, which could serve as a framework for engaging multiple stakeholders to work together for the betterment of society.

The rest of this paper is organized as follows. Section 2 presents the literature review covering social innovation for substantiality and social innovation in Malaysia. Section 3 addresses the research method implemented, and Section 4 depicts the results and discussion. Finally, Section 5 presents the conclusions of this study.

2. Review of Literature

2.1. Social Innovation for Sustainability

Social innovation is a vital component of the innovation framework that is essential for sustainable development. It has been gaining acceptance and is becoming embedded in many developing countries (Iqbal and Piwowar-Sulej 2021). Osburg and Schmidpeter (2013) claimed that innovation is a crucial driver for today's societies and how the different types of innovation could result in productive collaborations among different stakeholders. From the business viewpoint, Osburg and Schmidpeter further concluded that companies that link social innovation and corporate sustainability would become leaders over the next decades (2013). Likewise, the United Nations (UN) has also acknowledged social innovation as a mainstream instrument to deliver sustainable development through collaborative efforts that can meet the social needs of people such as education and health service. Sustainable development for the UN means meeting the needs of the present without denying the needs of future generations. Sustainable development is based on the three dimensions of economic development, social development, and environmental development. These dimensions are the guiding principle of balanced global development in the long-term. Thus, if one of the dimensions is inadequate, it would imply an unsustainable development (UN ESCAP—Economic and Social Commission for Asia and Pacific 2015).

When [Osburg and Schmidpeter \(2013\)](#) concluded from the business viewpoint that companies who link social innovation and corporate sustainability will be leaders over the next decades, this implies the responsibility of higher education institutions as the key organization, contributing in the form of teaching students and researching sustainability, knowledge dissemination, and integration with industry ([Bayuo et al. 2020](#); [Martins 2019](#); [Iqbal and Piwowar-Sulej 2021](#)). A proper selection of university leaders would inspire social innovation through a collaborative work environment involving stakeholders as well as implementing educational programs to develop future sustainable leaders ([Iqbal and Piwowar-Sulej 2021](#)). Time, financial resources, facilities, university expertise, managers, and government are significantly associated with social innovation to build the culture of partnership, knowledge management, and the society's enthusiasm to innovate ([Cunha and Benneworth 2020](#); [Iqbal and Piwowar-Sulej 2021](#)).

In addition, [Millard \(2018\)](#) emphasized that social innovation and sustainable development should go hand-in-hand. A project should be developed through a partnership, involving the government or the private sector, while retaining its focus on easing the lives of the poor ([Baptista et al. 2019](#)). Henceforth, this novel approach involves collaboration and empowerment of the service user or the beneficiary, making them active recipients who can develop their capabilities by simultaneously improving social relations and access to power and resources ([Millard 2018](#); [Millard et al. 2016](#)). A good example is the building of cisterns in Brazil to capture rainwater to provide rural families with safe drinking water year-round, regardless of rainfall. This project was conducted using the local knowledge and support from local authorities, universities, and companies for technical assistance. Consequently, aside from providing safe drinking water, this project was able to empower the farmers' families, women, and local organizations to influence public policy ([Nogueira et al. 2022](#)).

The global society, whether urban or rural, is facing familiar challenges and issues such as climate change, an aging population, unemployment, migration, and economic uncertainty. This trend has caused the public sector to cut down on public spending while the private sector has failed to satisfy the citizens' needs ([Wackernagel et al. 2017](#)). Accordingly, the emergence of social innovation and sustainable development communities has helped chart future policies and the principles of societal development at all levels ([Vasconcellos Oliveira 2021](#); [Žičkienė and Tamasauskiene 2021](#); [Ravazzoli and Valero 2020](#)). It has become the driving force in recognizing society as a crucial source of innovation and interaction with others.

However, the impact of social innovation in the context of sustainable development for Malaysia is still relatively lagging, specifically in the ecosystem sustainability component, which is crucial for closing the gaps in the social sector. Recently in the Twelfth Malaysian Plan 2021–2025, with the objective 'A Prosperous, Inclusive, Sustainable Malaysia', aside from targeting the current issues, the plan also aims to restart and rejuvenate Malaysia's socioeconomic development for long-term sustainability and prosperity ([Twelfth Malaysia Plan 2021–2025 2021](#)). Much of the sustainability focus on environmental issues related to sustainable development via social innovation is linked to small medium enterprises (SMEs) in Malaysia, which serve as the base for the knowledge, commitment, importance, and contribution of innovation ([Mokthsim and Salleh 2014](#)).

2.2. Social Innovation in Malaysia

[Balamatsias \(2020\)](#) highlighted that social innovation in Malaysia is seen as a 'gateway' to tackling social challenges and barriers that conventional government policies and business practices are unable to address. The study listed eight (8) impactful initiatives of social innovation targeted at achieving a measurable, positive, social, and environmental outcome. Five (5) such initiatives are:

1. The Social Outcome Fund: Established in 2017 to address social challenges;
2. Education: Promotes distance learning striving to educate thousands of children across the country who are unable to afford tuition fees;

3. The Social Innovation Lab: Functions as a catalyst to help children and youth reach their full potential by creating new impactful ventures;
4. Hati.my: The largest open directory providing centralized information among NGOs, social organizations, non-profit movements, and underprivileged communities;
5. Protect and Save the Children: Malaysia's first social innovation project focusing solely on the prevention, intervention, and treatment of child sexual abuse.

Nasir and Subari (2017) reviewed the implementation of socially innovative initiatives in Malaysia that promote the socio-economic well-being of the society, specifically aiming at low-income and marginalized groups. Their findings describe four (4) main forms of social innovation initiatives for socio-economic well-being in Malaysia, which are microfinancing, social entrepreneurship, public service delivery, and grassroots innovation concentrating on science and technology-based innovations. In Malaysia, the government has also recognized innovation to be the key tool in dealing with the current economic landscape, especially during the COVID-19 pandemic. To encourage an innovative culture in society, several agencies were established to carry out initiatives such as the introduction of new and innovative ways of delivering services. In addition, private sector and non-profit organizations, together with non-governmental organizations (NGOs) including private individuals, also play a role in addressing the needs of society.

In addition to the above discussion, a research synthesis on social innovation in Malaysia was also conducted. Using Scopus as the publication database, the researchers searched the documents by entering the keywords "social innovation in Malaysia." Forty-five (45) documents were retrieved, and the researchers screened each article to ensure that they met the criteria of social innovation. Based on the evaluation and screening, ten articles were used to assess the state of social innovation study in the country. A summary of the research findings is presented in Table 1. Published research on the topic started in 2017, which discussed social innovation's role in social enterprise success (Zulazli et al. 2017). In addition, different topics have been investigated on issues such as poverty reduction (Jetony et al. 2021), collaboration and partnership (Noor et al. 2020; Ng et al. 2019), technology advancement (Salleh and Daud 2019; Zamin et al. 2019), and process orientation (Belayutham et al. 2019). It was concluded that the findings on the relationship between social innovation and sustainable development have yet to be established. Hence, this gap offers an opportunity for this study to be conducted.

Table 1. A summary of the research findings on social innovation in Malaysia.

Social Innovation Topic	Description	Main Findings	Method	Authors
Poverty alleviation	Identification of factors that motivate a community's participation in the livelihood enhancement program coordinated through the Malaysian Knowledge Transfer Program and the Ministry's social innovation program.	Participation was driven by financial support, community enhancement, facilities readiness, the opportunity for employment and cultural recognition	Qualitative study	Jetony et al. (2021)
Partnership and collaboration	Exploration of the roles of public research institutes (PRIs) in supporting community social innovation projects.	Three elements that drive sustainable social innovation in agriculture: (1) quality research by PRIs; (2) efficient extension agency in disseminating knowledge; and (3) recipient's productivity in delivering outcomes.	Case study	Noor et al. (2020)

Table 1. Cont.

Social Innovation Topic	Description	Main Findings	Method	Authors
Public policy intervention	Examination of socio-technical elements of grassroots innovations (GRIs) and lessons learnt for public policy intervention by accounting for the contextual nature of the GRIs.	Three key uptakes: (1) level-specific policy instruments facilitate GRIs transition; (2) policymakers should avoid generalized, oversimplified and one-fit policy approaches; (3) strengthening the stakeholder-innovator partnership in co-developing and co-delivering adds value to the grassroots innovators and society at large.	Case study	Ng et al. (2019)
Social innovation process through experiential learning	Development of a dual-functional university-enabled social innovation process model on the subject of low-cost houses that addresses the distinct elements of social obligation and university teaching-learning.	Three sub-innovations have been highlighted in the developed social innovation process model, which are the collaboration process, teaching-learning, and design-construct innovation.	Longitudinal study	Belayutham et al. (2019)
Technology adoption	Determination of Internet of Things adoption among grassroots innovators	Antecedents of IoT adoption were captured based on technology acceptance model (TAM); perceived usefulness (PU) and perceived ease of use (PEOU), unified theory of acceptance (UTAUT); performance expectancy, effort expectancy, social influence, facilitating conditions) and diffusion innovation theory (DOI); relative advantages, complexity, observability, compatibility.	Survey	Salleh and Daud (2019)
Health care innovation for disabled persons	Development of a personalized app for people with cerebral palsy to communicate with people around them.	Mobile apps are an alternative solution for improving social relationships and engagement for people with cerebral palsy.	Experiment	Zamin et al. (2019)
Impacts on social enterprise	Investigation of social enterprise capabilities in enhancing social innovation for sustainability and eliminating the social barriers.	Social enterprise capabilities for earning generation, replicating, and stimulating had a positive relationship with scaling social innovation.	Survey	Zainol et al. (2019)
Social innovation acceptance	Revisit social innovation values that exist among youths who are keen to create social change.	Young people were keen to improvise their careers by responding to the shifting needs and opportunities when they are engaged in social innovation	Survey	Zainudin et al. (2017)
Social innovation acceptance	Examination of the extent and trends of social innovation movement among youths of marginalized communities.	Both tacit and explicit entrepreneurial values are important in building social innovation moves	Survey	Raja Suzana et al. (2017)
Business performance	Assessment of social innovation impacts on enterprise success.	The success depends on the supporting ecosystem.	Survey	Zulazli et al. (2017)

3. Research Method

An inductive research methodology was chosen since the study of the growing demands of social innovation is still in its infancy stage. More specifically, a qualitative exploratory research methodology was used. This study was conducted using field-based research methods and a single case study design. As mentioned, the study was designed as case study research to explore social innovation projects (KOKULAC) and which sustainable development agenda is being addressed by this project as well as to study how this social innovation initiative improves shared prosperity among communities. Following Hays (2003) suggestions and guidelines, the approach is appropriate as the main aim of the study is to seek answers on a focused topic by producing descriptions and interpretations over a relatively short period. In addition, the study also investigated contemporary cases for illumination, understanding, and discovering uniqueness, which fits with the goal of a case study (Hays 2003). Furthermore, according to Yin (2011), a case study involves a program, organization, or individual. Similar approaches in reporting case study research include Kripa et al. (2021); He and Luo (2020); and Lombardi and Costantino (2020). In addition, a case study involves several parameters surrounding the case. In this study, the parameters were set as (i) KOKULAC or mushroom industry; (ii) established by a cooperative formerly known as Kelantan Mushroom Entrepreneur Cooperative; (iii) located at Kg Melor, Kota Bharu, Kelantan, which is on the East Coast of the Malaysian Peninsular (refer to Figure 1 for its location). Kota Bharu is about 445 km away from Kuala Lumpur, the capital city of Malaysia.



Figure 1. The location of KOKULAC.

In strengthening the understanding of KOKULAC as a case study, the researchers followed the below procedure:

1. Develop an underpinning model based on the current trends of social innovation in Malaysia and the literature synthesis. Hence, a preliminary investigation was carried out. A discussion with Yayasan Inovasi Malaysia brought to light the need to investigate the proposed context of social innovation and sustainable development.
2. Develop research objectives to (1) identify the sustainable development agenda that is being addressed by KOKULAC social innovation project and (2) to examine how the

project improved the shared prosperity and enhanced the social capital as a general sustainable development agenda.

3. Apply for research ethical approval. The approval was granted with the reference number REC122021 (MR1011).
4. Develop the interview and observation protocol based on the research objectives.

Interviews and observations were conducted as the method for collecting the data during two different periods, which were from 17 to 19 November 2021, and from 1 to 3 December 2021. There were four groups of informants:

1. The supporting government agencies officers from the Malaysian Nuclear Agency, and Yayasan Inovasi Malaysia (YIM);
2. KOKULAC top management;
3. KOKULAC cooperative members;
4. Mushroom growers and distributors.

The researchers also visited the mushroom complex, the seed lab, the center for mushroom block production, and the waste recycling center. KOKULAC produced an average of 24,000 mushroom blocks/month to be sold not only to the members, but also to growers. Likewise, some members participated in the mushroom block production, and their overall yield was more than what KOKULAC produced monthly. The researchers were also shown the mushroom houses, operated by the members at their homes.

3.1. About KOKULAC

KOKULAC was officially registered on 31 May 2010, but only became active in the mushroom business in 2018. Its mission is to improve the economic and social well-being of its members and community as well as knowledge advancement through technology transfer, training, and education via collaborations with government and non-government agencies. Its mushroom operation complies with the environmental sustainability agenda that aims for the zero-waste concept. Mushrooms were chosen as the primary product because it is a good source of nutrients that can be grown within a contained space and harvested in a very short time. Mushrooms are known to be one of the oldest foods known to man, have a high number of antioxidants, and are a natural immunity boost. Aside from being consumable as a meal, mushrooms also have healing effects on several human diseases and illnesses (Shirur et al. 2021). KOKULAC's main pillar is social innovations along the production and supply chains. KOKULAC has worked closely with partners from government agencies, academic institutions, and the food industry by adopting an innovative collaboration model from the beginning of seed production to the marketing strategy. A diagram of how the system operates is shown in Figure 2.

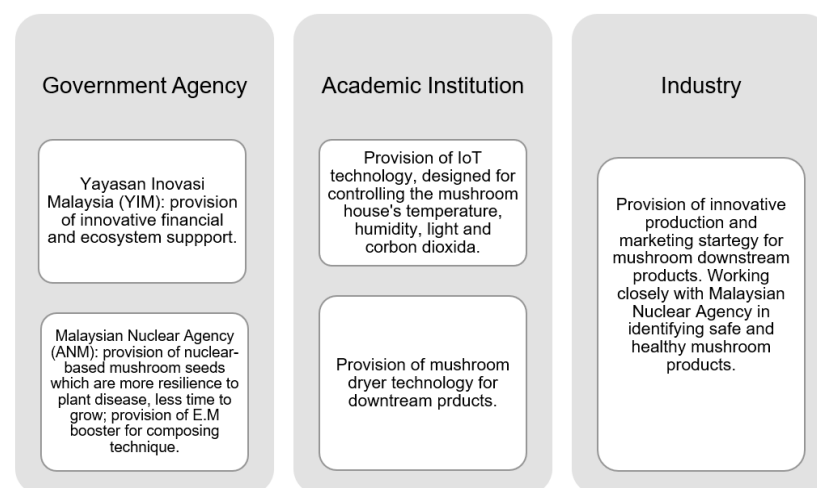


Figure 2. The KOKULAC partners and collaboration.

The KOKULAC operational system is based on the zero-waste concept (see Figure 3). The commitment to recycling waste was evident as early as when the blocks were prepared. Their forward-thinking mindset helped in the design of blocks that can be reused after the growing season ends or when they can no longer be used to grow mushrooms. The compost will be processed for other crops. With the advice from the Malaysian Nuclear Agency (ANM), three types of plants were identified as the most appropriate, which were pineapples from the MD2 variant, ginger, and corns. Similarly, the unused waste could be repacked, added to the booster, and sold to villagers to grow their crops. Furthermore, to tackle the issue of unsold fresh mushrooms, the community, growers, and members have received training on downstream products. The products include mushroom burgers, pickled mushrooms, mushroom seasoning powder, mushroom soup, and fried rice paste.

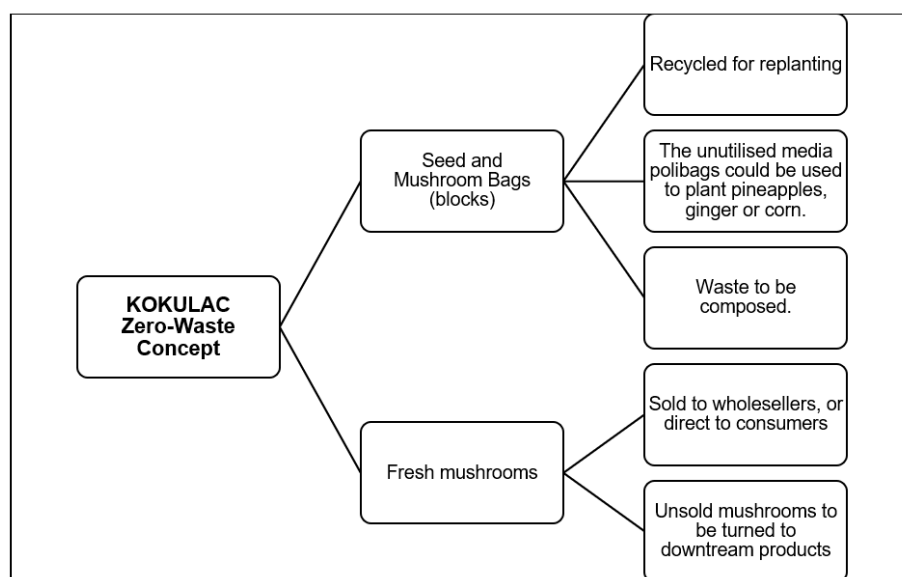


Figure 3. The KOKULAC zero-waste operational system.

3.2. Data Analysis Elaboration on Data Categorization

All data were categorized according to code, sub-code, and main code. The data collected from the fieldwork were based on two data analysis procedures, namely, constant comparisons and analytic induction. Boije (2010) emphasized two procedures that could be used by qualitative researchers.

The first procedure is constant comparison, which compares segments within and across categories. The constant comparison procedure refers to the development of constructs that are linked together by a theory (Merriam and Tisdell 2015). Boije (2010) stated that there are four phases involved in the constant comparison procedure.

The first phase of the constant comparison procedure is exploration, and this phase aims to discover the concepts. This phase involves coding the data with codes. Coding is the process by which categories of responses are established for open-ended questions (Merriam and Tisdell 2015). Coding means “categorizing segments of data with a short name that simultaneously summarizes and accounts for each piece of data” (cited in Charmaz 2006; Boije 2010, p. 95). The researcher needs to distinguish themes or categories in the research and name them by attributing a code, which is a label that describes the core topic of the study. For this reason, the selection attributes that describe the code are required as it leads to the concept that later constitutes a theory. This is supported by Corbin and Strauss’s (2014) three types of coding: open, axial, and selective.

Open coding is a process of “breaking down, examining, comparing, conceptualizing and categorizing data”. This is illustrated in the first column of the discussion in Table 2. The code that reflects from the quotation are: Additional source of income, Generate additional income, and Earn more money. The second type of coding is known as axial

coding and is referred to as a “set of procedures whereby data are put back together in new ways after open coding by making connections between categories” (Corbin and Strauss 2014). This coding is more of an abstract process and consists of coding around several single categories or axes. Axial coding is also called focus coding because the coding is based on categories and moves to subcategories, and it is more specific (Charmaz 2006). The main purpose of axial coding is to determine which elements in the research are the dominant ones and which are not. Therefore, in the context of the study, the axial coding was “income”, and finally, all the sub-code were categorized into selective coding. Thus, in this study, the selective code can be seen as main code or theme or is known as the ‘economic impact.’ An example of the data categorization is shown in Table 2.

Table 2. The data categorization.

Code	Sub Code	Main Code
KOKULAC <ul style="list-style-type: none"> • An additional source of income; • Generate additional income; • Earn more money. Members/Growers <ul style="list-style-type: none"> • Additional source of income; • Generate additional income; • Earn more money. 	Income	Economic impact
Growers <ul style="list-style-type: none"> • Grower: own farm/mushroom house rather than renting, and no restriction in how to sell, who to sell; • At own pace and time, but with hedonic motivation and enjoyment; thus, improving the quality of life. 	Independent ownership	Social impact
KOKULAC <ul style="list-style-type: none"> • Support from the government and state agencies; • Provision of technical support, financial assistance, and business growth; • Grant matching and community-university-private partnership knowledge sharing and transfer. Growers/Members <ul style="list-style-type: none"> • Provision of training, guidance, assistance, support, and monitoring; • Clan-based support; • Knowledge of farming, innovation, and technique; • Knowledge of product diversification; • Knowledge of business operation and sustainability. 	Knowledge advancement	Social impact
KOKULAC <ul style="list-style-type: none"> • Source of community inter-dependence; • Catalyst to local social and economic development. Members/Growers <ul style="list-style-type: none"> • Make new acquaintances for business and social needs; • Expands the social relationships and community building; • Good bond with the community. 	Social experience and sense of belonging	Social impact

4. Findings and Discussion

4.1. KOKULAC and Its Responsiveness to Sustainable Development Agenda

This section discusses the findings of the first research question, which is “What is the sustainable development agenda that is being addressed by the KOKULAC Social Innovation Project?” Upon analysis of the data, five United Nations sustainability goals were found to be related to KOKULAC operations: SDG1 for poverty reduction; SDG2 for zero hunger; SDG8 for decent work and economic growth; SDG12 for responsible consumption and production; and SDG17 for the partnership for the goals. KOKULAC’s responsiveness to each SDG target is shown in Table 3.

Table 3. The KOKULAC and Sustainability Agenda.

SDG2030 Goals	SDG Targets	KOKULAC'S RESPONSIVENESS TO SDG2030
SDG1: No poverty	1.1 Eradicate extreme poverty 1.5 Build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters 1a Mobilization of resources from a variety of sources including through enhanced development cooperation	1. Housewives' participation in income generation (grower, distributor, or product downstream); 2. Turning farmers into entrepreneurs; 3. Contract farming.
SDG2: Zero Hunger	1.3 Double the agricultural productivity and incomes of small-scale food producers, in particular women, Indigenous peoples, family farmers, pastoralists, and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment 1.4 Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, help maintain ecosystems, which strengthen capacity for adaptation to climate change, extreme weather, drought, flooding, and other disasters and progressively improve land and soil quality 2a Increase investment including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular, least-developed countries	Food safety and food security. 1. Mushroom is easy to grow, does not require a complex system and care, and large farm. 2. Mushroom is high in nutrients, antioxidants, and a source of natural immunization. 3. High-quality mushroom genetic based on nuclear innovation. Research on mushroom genetic and seed by Malaysian Nuclear Agency. 4. The nucleus will be able to absorb nutrients and facilitate digestion, hence greater well-being. 5. Mushrooms are grown in easy to control environment, known as the IBIS room. Hence, less stressful to grow and care for. 6. Mushroom is a cheap protein alternative and is able to secure food supply in a shorter period due to its short harvest period.
SDG8: Decent work and economic growth	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading, and innovation 8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity, and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services 8.6 Reduce the proportion of youth not in employment, education, or training	1. Product downstream and business model. 2. YIM monitoring for product quality, community participation, business advancement. 3. Upgrade from village cooperative level to national cooperative level. 4. Training opportunities for various employment (self) prospect. 5. Entrepreneurial opportunity as agro-entrepreneur, distributor, or food business. 6. Opportunity for local products development. 7. Constant demand and collaboration with burger kiosks.
SDG12: Responsible consumption and production	12.2 Sustainable management and efficient use of natural resources. 12.3 Reduce food losses along production and supply chains, including post-harvest losses 12.5 Reduce waste generation through prevention, reduction, recycling, and reuse	1. Zero-waste operation. 2. High-quality cubes and refundable. 3. Oxygen and CO ₂ (trees and plants) for the environment. 4. Mushroom blocks recycle program. 5. Product downstream
SDG17: Partnership for the goals	17.7 Encourage and promote effective public, public–private and civil society partnerships, building on the experience and resourcing strategies of partnerships	1. Partners and Collaborators between government (YIM, ANM) and community. 2. Community–university partnership (KOKULAC–UiTM Pulau Pinang). 3. Community–private partnership (KOKULAC–OEM). 4. Future plan for expansion to other communities and states that will involve various stakeholders.

In general, the sustainable development agenda is not a single-party effort. To achieve these goals, establishing collaboration and partnership are essential. The top-down approach, driven by various assistance from the government administration, is the key to social and economic commitment. The linkage starts from the partnership for the goals. The important role of public research institutes and government agencies in supporting social innovations has also been highlighted by [Noor et al. \(2020\)](#). All stakeholder input, engagement, and resource sharing lead to decent work and economic growth. Diversification and an agile business model that emphasizes the zero-waste concept, technology adoption, and innovation help to support productive activities. In addition, KOKULAC is a community-oriented organization that creates equal job opportunities for many involved; from housewives to school leavers, and people who have lost their employment due to the COVID-19 pandemic. There is a vast potential for employment that includes agro-entrepreneurs, distributors, or food business operators. Hence, KOKULAC has also taken on the responsibility to reduce the proportion of youth not in employment, education, or training. Next, the partnership, decent work, and economic growth allow for innovative solutions that promote responsible production and consumption. Zero-waste is the key, along with reducing losses in the production and supply chains, from the beginning to the end. The sustainable development chain continues with zero hunger and then no poverty. The zero hunger goal is aimed at improving food safety and food security. Finally, the no poverty-eradication plan is realistic without any employment provision and income generation. Financial independence builds resilience among the poor and those in vulnerable situations.

4.2. Shared Prosperity and Social Capital

This section discusses the findings of the second research question, which is “How does the KOKULAC Social Innovation Project improve the shared prosperity and enhance the social capital, as a general sustainable development agenda?” Shared prosperity is a global agenda that focuses on the promotion of economic growth as a poverty mitigation strategy with income as one of the main indicators ([Basu 2013](#)). In examining shared prosperity in Europe and Central Asia, [Bussolo and Lopez-Calva \(2014\)](#) found that there was a direct link between shared prosperity and sustainability for society, the economy, and the environment. Similar work was carried out by [Kassim et al. \(2020\)](#) in analyzing the linkage between social-related work and sustainability. Hence, it is worth measuring how KOKULAC operational system promotes prosperity and social capital, which is meant to complement the sustainable development goals. The findings suggest that there are four shared prosperity dimensions: income, independence ownership, knowledge advancement, social experience, and sense of belonging. While [Basu \(2013\)](#) placed importance on income as a source of prosperity, his study suggested that the concept could be expanded upon with other means of being independent. For example, the member’s participation is very flexible, according to their own pace and time. However, they can obtain motivational support from the other growers. Thus, hedonic motivation keeps the spirits high when facing difficulties. In addition, the provision of many types of training improves the participants’ knowledge of many aspects, from how to grow mushrooms to how to diversify the products through effective marketing strategies. These skills and knowledge could help the participants to become agile in work or self-employment.

Next, the findings also suggest that KOKULAC’s social innovation approaches have helped to improve social capital, which consists of four domains. The first domain is inter-social and business innovations. KOKULAC has introduced innovations that are beyond mushroom and genetic development, which is assisted by the Nuclear Agency. Their partnership and networking has allowed them to develop innovative solutions for zero-waste items and think about product diversification across groups and stakeholders. Next is the sharing economy, which is the sharing of resources. It benefits not only KOKULAC as an organization, but its values are spread across the chain of stakeholders—members, community, growers, distributors, and suppliers. The third domain is social inclusion.

This is the provision of greater social ownership, especially for participating women and housewives. Their involvement allows for greater access to the right to own, right to work, and right to be healthy. Finally, there is social empowerment. With the ability to improve on income and financial ownership, the participants feel a greater self-autonomy and confidence, which is extremely fundamental in the development well-being. The key to social empowerment is to act collectively within the business ecosystem, but with the freedom to decide on financial independence. The four components of social capital are parts of the various social innovation values that have been characterized in past research including the work of [Grilo and Moreira \(2022\)](#). Based on the findings and discussion, the following model for social innovation and sustainable development is proposed (see Figure 4).

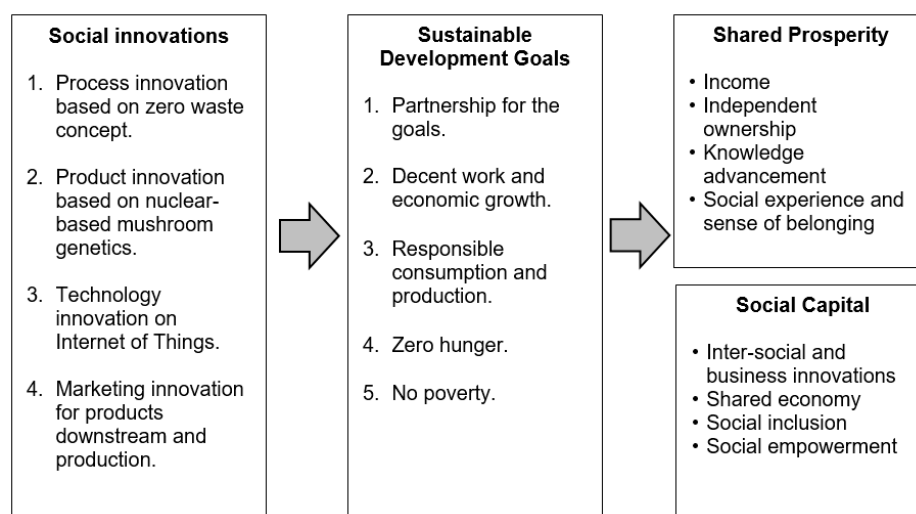


Figure 4. The social innovation model for sustainable development and greater social values.

4.3. Practical Implications

The findings from this study have several implications. Primarily, the government needs to support social innovation. Policy support from the government is the key to social value achievements for small bottom-up initiative projects ([Baptista et al. 2019](#)). Social innovation implementation might aid in removing obstacles to sustainable development in the researched locations. The literature on sustainable development indicates that Malaysia's social innovation is still in its infancy. As a result, different initiatives must be conducted to support social innovation projects everywhere, especially in rural regions. Second, social innovation contributes to the empowerment of the community and society while improving societal well-being in a variety of areas. The findings show that social innovation can improve sustainable development goals such as goal partnership, decent work and economic growth, responsible consumption, and production, zero hunger, and no poverty. This finding is consistent with [Nasir and Subari's \(2017\)](#) success in adopting the social innovation approach in addressing the needs of society in Malaysia and have shown an improvement in raising the income of the people. Third, social innovation boosts social capital, as revealed in the findings of this study, which includes inter-social and commercial innovations, the shared economy, social inclusion, and social empowerment. The development of social capital with a focus on social innovation and social entrepreneurship is anticipated to be more successful in creating an innovative society capable of closing the income gap and ensuring a sustainable community that can achieve the status of an inclusive developed nation.

4.4. Theoretical Implications

This study contributes to the body of knowledge by integrating social innovation topics and sustainable development in an entrepreneurial context. Next, the findings of

the study prove that the social innovation model supports the Sustainable Development Agenda. Therefore, further studies need to be developed that acknowledge this model. The next implication of this study is that it has expanded the understanding of the theory of social innovation as well as its role in achieving the goals of sustainable development in entrepreneurship. Finally, from an empirical point of view, the study fulfils the consistency of qualitative study to understand the mechanism of how social innovation influences sustainable development. Researchers may use these research assumptions and methods to extend the current state of knowledge in organizations other than business entities such as educational institutions.

5. Conclusions

Poverty and lack of access to employment are social issues that can be addressed through an innovative social approach. In this paper, we reported on how an organization, KOKULAC, addressed these issues by engaging with partners at different levels. Based on the case study analysis, a social innovation model for sustainable development is offered. There are 17 sustainable development goals outlined by the United Nations, out of which five are very closely related to KOKULAC's agenda. These goals are no poverty, zero hunger, decent work and economic growth, responsible consumption and production, and partnership for the goals. In addition, the values of sustainable development spur greater social benefits of shared prosperity and higher social capital. From the theoretical viewpoint, the proposed model contributes to the expansion of innovation capability theory by shaping the innovations within the scope of social needs. In addition, we also suggested how the capabilities are linked to sustainable development goals and greater social values. In addition, the findings offer knowledge enhancement in the emerging field of social innovations. From the managerial perspective, the study provides evidence on how social innovation projects play a key role in improving quality of life, advancing agriculture with the latest technology innovation, and promoting shared values. The social innovation model that tackles the sustainable development agenda assumes different structures and the capacity for partnership. Therefore, the researchers recommend a higher integration between the innovation model and dynamic capabilities of the networking structures and most importantly, the community or the end recipient within the ecosystem. This is to allow for the measurement of other success and achievement indicators.

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