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Leveraging local assets: Empowering Langsa's community through mushroom cultivation on palm oil waste

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Abstract:

Langsa City, a significant palm oil producer in Aceh Province, generates approximately 724,185 tons of waste annually, with empty fruit bunches (EFB) being the primary type of waste. This significant amount of by-side product coexists with a persistent regional poverty rate (10.23%), creating a critical challenge but also a unique opportunity. This article addresses the issue of unexploited economic potential and unemployment by examining the potential of EFB waste as a valuable resource for community empowerment. The initiative applied the Asset-Based Community Development (ABCD) model through a community service program titled "The Langsa Local Community Mushroom Project." The method involved three key stages: 1) an initial survey to assess community needs, 2) stakeholder socialization to build commitment, and 3) a comprehensive workshop for 40 participants. The workshop provided theoretical and practical training in cultivating mushrooms using EFB as the primary growth medium, utilizing a local waste asset directly. The program yielded significant outcomes. Pre- and post-test assessments revealed a dramatic 37-point increase in participant knowledge, with average scores rising from 45% to 82%. This research demonstrated a successful transfer of skills. Furthermore, the project yielded tangible results, including a functioning community mushroom cultivation site, and fostered a clear behavioral change. Hence, the initiative confirms that the ABCD model is highly effective in transforming a local waste problem into an economic opportunity.

Keywords

Asset-Based Community Development; Economic aspect; empowerment; resilience; social aspect; palm oil waste

Abstrak:

Kota Langsa, sebagai penghasil kelapa sawit utama di Provinsi Aceh, menghasilkan limbah sekitar 724.185 ton per tahun, dengan Tandan Kosong Kelapa Sawit (TKKS) sebagai limbah utama. Kelimpahan produk sampingan ini beriringan dengan tingginya angka kemiskinan daerah (10,23%), yang menciptakan tantangan kritis sekaligus peluang unik. Artikel ini membahas masalah potensi ekonomi yang belum dimanfaatkan dan pengangguran dengan mengeksplorasi penggunaan alternatif limbah TKKS menjadi sumber daya berharga untuk pemberdayaan masyarakat. Inisiatif ini menerapkan model *Asset-Based Community Development (ABCD)* melalui program pengabdian masyarakat berjudul "Projek Jamur untuk Komunitas Lokal Langsa." Metode yang dilakukan melibatkan tiga tahap utama: 1) survei awal untuk menilai kebutuhan masyarakat, 2) sosialisasi kepada pemangku kepentingan untuk membangun komitmen, dan 3) workshop komprehensif bagi 40 peserta. Workshop ini memberikan pelatihan teoritis dan praktik mengenai budi daya jamur dengan menggunakan TKKS sebagai media tumbuh utama, yang secara langsung memanfaatkan aset limbah lokal. Program ini menghasilkan luaran yang signifikan. Hasil *pre-test* dan *post-test* menunjukkan peningkatan pengetahuan peserta yang signifikan sebesar 37 poin, dengan nilai rata-rata yang naik dari 45% menjadi 82%. Hal ini menunjukkan keberhasilan diadopsinya keterampilan yang baru. Lebih lanjut,

proyek ini menghasilkan luaran berupa lokasi budi daya jamur komunitas yang berfungsi dan mendorong perubahan perilaku yang nyata. Dengan demikian, program ini menegaskan bahwa model ABCD sangat efektif dalam mengubah masalah limbah lokal menjadi peluang ekonomi.

Kata Kunci
Asset Based Community Development; aspek ekonomi; pemberdayaan; ketahanan; aspek sosial; limbah kelapa sawit

1. Introduction

Aceh is a province that the central government has granted extensive authority to manage local governance through special autonomy funds, the technical aspects and implementation of which are outlined in Aceh Qanun Number 2 of 2008. The Special Autonomy Fund (OTSUS) is a significant benefit for the local community in Aceh, as it is expected to contribute to achieving equitable economic and social welfare for all segments of society (Ramzani, 2020). Through the practical and efficient management of the OTSUS funds, the province of Aceh is expected to recover from the social and economic backwardness caused by conflicts and disasters that occurred several decades ago.

As the substantial amount of OTSUS allocated by the central government to Aceh, the provision of OTSUS is considered by some economists to be a solution for addressing the economic disparities and developmental challenges that have persisted in Aceh (Alfiady & Dewi, 2019; Kadafi & Murtala, 2020; Maulana et al., 2018). However, ironically, by 2022, these funds had yet to make a significant impact on alleviating the economic and social issues faced by the community (Arispen et al., 2021; Budiratna & Riatu, 2020; Rahayu & Febriaty, 2021). Data collected by BPS Aceh indicate that as of September 2021, the province of Aceh still had a population of 850,260, accounting for 15.32% of individuals living in poverty. With this figure, Aceh ranks as the fifth poorest province in Indonesia, as well as the poorest province in Sumatra (Badan Pusat Statistik, 2020). It stands in contrast to the total of OTSUS distribution, which has been allocated since 2008. By 2022 alone, the total amount disbursed had reached 82.7 trillion, and it is estimated that by 2027, the total of the OTSUS budget will amount to 173 trillion (Ananto et al., 2018).

Figure 1. Percentage of Poverty Rates by Province in Sumatra in 2019
Sources: Badan Pusat Statistik, 2019

The distribution of the fund in Aceh has been ongoing for 14 years, with only 5 years remaining until 2027. Therefore, the remaining funds should be utilized effectively by the Aceh government to create a more significant impact on improving the social and economic conditions of the community, particularly in reducing poverty and unemployment rates through creating economic independence. This preparation is crucial to prevent Aceh from becoming a bankrupt province, as many economists and political observers have expressed concern about (Putri, 2018). According to Aceh Governor, Nova Iriansyah, stated that one of the ways to address the insignificant impact of OTSUS allocation is to promote investment across various sectors, aiming to achieve development objectives (DPMPTSP, 2022).

In Aceh province itself, the investment sector that the government aims to develop and enhance continuously is the palm oil sector (Safrina, 2022). The position of palm oil cultivation is critical within the agricultural and plantation sectors in this province, as by 2022, the total area dedicated to palm oil plantations in Aceh reached 535,000 hectares. Out of this total, 44 percent, which accounts for 235,400 hectares, is owned by individuals, small and medium-sized enterprises, and larger cooperatives in Aceh (Maulizasari et al., 2023). Given the size and area of palm oil plantations, it is not surprising that many people in Aceh Province rely on this sector as their primary source of economic income.

Palm oil not only provides benefits in the form of direct products, such as Crude Palm Oil (CPO), but also generates economic advantages through the initiative of transforming waste into valuable products and creating economic opportunities for the broader community. Among all the forms of waste generated from the harvest and the processing of fresh palm oil, empty fruit bunches (EFB) represent one of the highest outputs. The annual production of EFB waste reaches approximately 25 million tons per year (Sudiyani & Hermiati, 2010). The waste generated from processing one ton of palm oil yields several by-products: 6.5% or approximately 65 kg of shells, 13% or around 130 kg of fiber, 4% or 40 kg of palm oil mill effluent, 23% or 230 kg of EFB, and 50% in the form of liquid waste (A. Haryanti et al., 2014; N. Haryanti & Marsono, 2021; Nadhif & Rajagukguk, 2021).

This significant amount of EFB waste poses environmental challenges, as it is not widely repurposed by the community. According to Haryati (2014) and N. Haryanti & Marsono (2021), EFB is often discarded or burned. When it is utilized, it is typically limited to use as fertilizer in vacant areas surrounding palm oil mills. Since the potential of palm oil extends beyond the acquisition of CPO as the primary product, it requires harnessing the value of all by-products through effective waste management, thereby creating economic value and promoting self-reliance for the broader community.

Reflecting on these potentials and the community self-reliance concept, which many scholars argue is vital in achieving economic and social independence (Ennis & West, 2010; Lester et al., 2023; Maclean et al., 2014), the Asset-Based Community Development (ABCD) model serves as an ideal approach. This method is considered a promising solution as it seeks to facilitate change through programs focused on strengthening community resilience. By adopting this positive approach, ABCD emphasizes the strengths and assets of the community rather than its weaknesses (Maclean et al., 2014). This initiative is oriented towards sustainable community growth, where the changes typically stem from the resources or assets possessed by the community itself. These assets are then developed and utilized to their fullest potential, enhancing the community's capacity and effectiveness (Ennis & West, 2010; Lester et al., 2023). Consequently, the asset-based approach can be articulated as a strategy that emphasizes the enhancement of existing social networks to facilitate "change" within the community (Ennis & West, 2010; Lester et al., 2023)

Aligning with this concept, the significant palm oil industry in Langsa City also generates waste that can be strategically leveraged to create direct economic opportunities and address persistent issues of poverty and unemployment. As Langsa City is home to a Palm Oil Mill, which has been operating since 1986 with a capacity of 30 tons of fresh fruit bunches per hour, it also contributes to one of the regions that significantly produces palm oil in Aceh. This palm oil mill in this area generates waste amounting to 724,185 tons per year (M. Faisal & Mahidin, 2013). Given the substantial volume of empty fruit bunches, it is essential to utilize this waste to provide economic benefits to the community, particularly those residing near the plantations or the PKS. Moreover, as the poverty rate in this area remains relatively high at 10.53% in 2024 (BPS Kota Langsa, 2024) and the open unemployment rate by cluster age from 15 to 24 also represent as the highest group of unemployed demographic in Indonesia in 2024 (BPS-Statistics Indonesia, 2025), this condition poses an ironic condition as this age range is supposed to be crucial as it encompasses the productive years for individuals to work and achieve self-sufficiency in meeting their personal and families' needs.

As one of the solutions in harnessing the potential of EFB wastes derived from palm oil mills, utilizing them as the primary substrate for cultivating edible mushrooms is highly promising. It is due to the ability of highly valuable types of edible mushrooms to thrive well on

EFB waste, such as valuable types of edible mushrooms, including straw mushrooms, oyster mushrooms, ear mushrooms, and wood mushrooms (Damris et al., 2021; Rusdi Hidayat dan Asmawit, 2015). Mushrooms that grow on EFB are rich in various nutrients and minerals, which, when consumed, offer numerous health benefits for the human body. The nutritional value and advantages of these mushrooms have become increasingly recognized by the broader community, leading to a rising demand for mushrooms among the public (Mareko Giawa, 2023). Most importantly, as a healthy food source, the mushrooms cultivated on EFB have low fat content, making them well-suited to support the healthy lifestyles of modern society (Santoso et al., 2021).

Another advantage of mushroom cultivation is its ease of implementation. The cultivation model is especially suitable for engaging the Local Community as it does not require extensive land, can be started on a small scale, produces a product with high market potential, and can be adapted to the climate throughout Indonesia. The potential of cultivating mushrooms on EFB lies in the fact that the mushrooms produced can not only be sold fresh but also be processed into high-value derivative products, such as meat substitutes for high-quality meatballs and nuggets. Fresh mushrooms can be processed into mushroom sticks or crispy mushrooms (Afriani, 2024; Hidayat, 2022).

This condition presents a high potential to be utilized as a solution for the social and economic challenges promoted by the ABCD model, as EFB is consistently produced as waste from fresh oil palm plantations each year. If effectively maximized, these resources can significantly support the process of addressing social and economic issues faced by the local community, the Langsa community, as well as creating community resilience (Maclean et al., 2014). This approach aims to address the challenges of poverty and unemployment, as the palm oil industry is labor-intensive and plays a significant role in the economy, both in Langsa, Aceh, and throughout Indonesia (N. Haryanti & Marsono, 2021).

The implementation of an ABCD model focused on EFB-based mushroom cultivation presents as a viable means of generating community resilience and empowerment by increasing the income for the local community, particularly for those living near the PKS and palm oil plantations in Langsa. Utilizing the abundant EFB as a substrate for mushroom cultivation will create new job opportunities for the local community, and it can subsequently reduce the poverty rate in Langsa and Aceh province as a whole.

In light of the above discussion, it is essential to undertake efforts to achieve resilience through community empowerment by empowering the Local Community of Langsa city involved in the Asset-Based Community Development program. This initiative will involve providing socialization and education on the understanding of mushrooms and their potential, as well as promoting mushroom cultivation based on the utilization of local resources, specifically the waste generated from EFB in palm oil processing. Ultimately, this initial effort aims to enhance the economic conditions of the local community in Langsa city, Aceh.

2. Methods

2.1 Community Empowerment, Social Resilience and Asset-Based Community Development.

Community Empowerment is the process of enhancing a community's capacity to control its own life and surroundings through collaborative action (Ahmad & Abu Talib, 2015). It involves leveraging local assets, organizing for social change, and redistributing power to foster equitable transformation and improve quality of life (Hur, 2006; Kamelia et al., 2023). Ultimately, empowerment enables communities to pursue their collective goals and achieve long-term socio-economic welfare.

Empowered communities are better positioned to build Social Resilience, the ability to adapt, self-organize, and withstand disturbances while maintaining core functions (Adekola & Clelland, 2020). This resilience is characterized not just by resistance and recovery, but also by creativity in responding to challenges (Maguire & Hagan, 2007). It is supported by key community attributes, such as knowledge, strong networks, participatory governance, and diverse economies, which together enable a community to navigate change effectively (Maclean et al., 2014).

A primary strategy that offers to foster both empowerment and resilience is the Asset-Based Community Development (ABCD) approach. ABCD focuses on mobilizing a community's existing strengths, skills, and assets, such as individual talents and local associations, to drive sustainable, internally-led development (Cunningham & Mathie, 2002; Ennis & West, 2010). The approach is built on principles of internal change, relationship-driven action, and the utilization of existing capacities (Healy, 2005). By identifying and leveraging these internal "building blocks," communities can cultivate self-reliance, enhance social and economic welfare, and build resilient livelihoods (Kamelia et al., 2023; Lester et al., 2023).

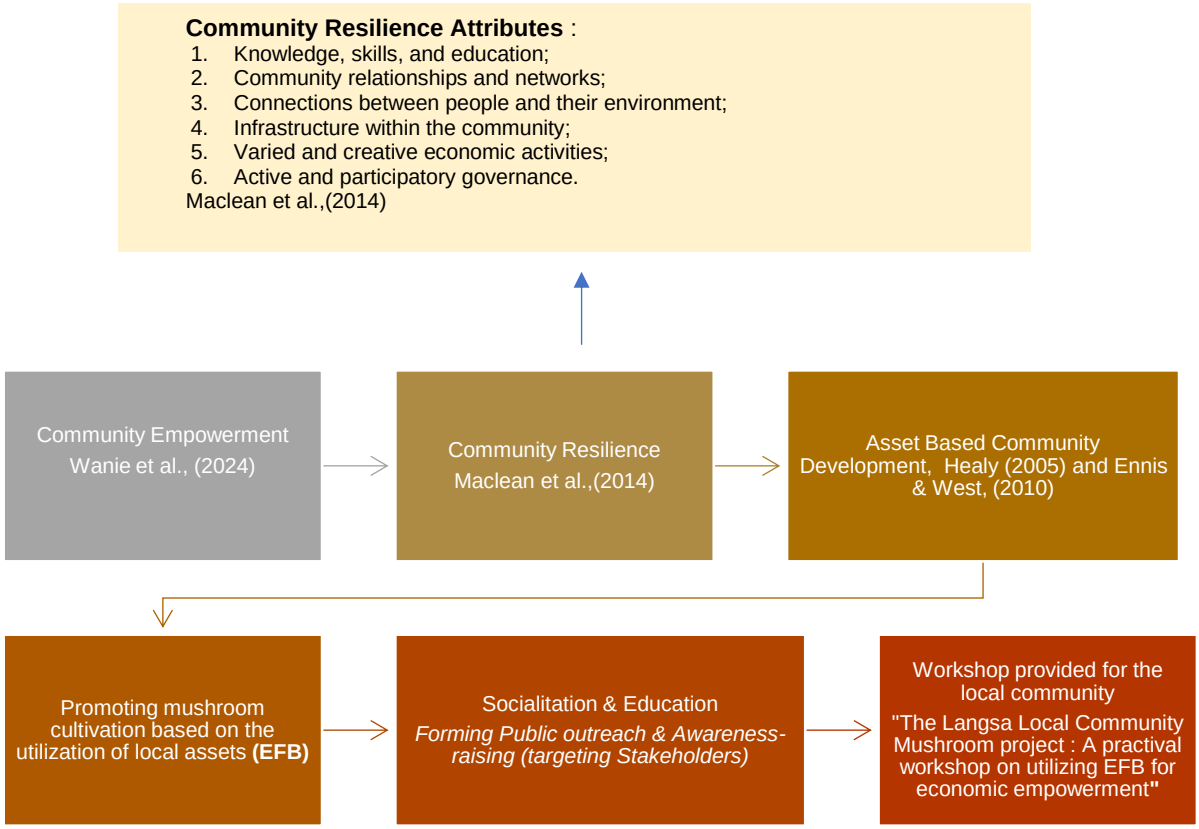

Figure 2. Theoretical Framework

The theoretical concepts of community empowerment, social resilience, and the Asset-Based Community Development (ABCD) model, as detailed above, collectively form the foundational framework for designing and implementing this Community Service initiative. To operationalize these interconnected principles, the program of "The Langsa Local Community Mushroom Project: A Practical Workshop on Utilizing EFB for Economic Empowerment" was conceived. This initiative is not merely an activity but the direct, practical adoption of the framework, translating theory into a structured community intervention. The following section describes how each element of the framework was explicitly integrated into the program's methodology.

Table 1. Integration of Community Empowerment, Community Resilience on the ABCD Model Framework

Community Empowerment	Community Resilience	Asset-Based Community Development Model		Community Service Program on: "The Langsa Local Community Mushroom Project: A Practical Workshop on Utilizing EFB for Economic Empowerment"
The process of enhancing the capacity of local individuals (Wanie et al., 2024)	Six Resilience Attributes Maclean et al. (2014)	4 key Priciples (Healy, 2005)	Building Blocks (McKnight & Kretzmann, 1996)	

According to Ahmad & Abu Talib (2015) and Wanie et al. (2024), Community empowerment refers to the process of enhancing the capacity of local individuals and groups to take control of their own lives and surroundings. This approach is fundamentally based on fostering collaborative efforts among all community members, ensuring that everyone has a contribution in shaping their collective future.	Knowledge, skills, and education →	a) Change must originate from within the community,	Primary building blocks are assets found within the community itself, including the skills and abilities of community members (their "gifts") as well as the resources of organizations and associations	1. Socialization and Education Forming Public outreach and Awareness-raising (targeting Stakeholders); 2. A workshop was held for the local community to explore the potential of mushrooms harvested from empty palm oil bunch waste.
	Community relationships and networks →	c) driven by relationships,	Secondary building block: Assets available within the community but managed by external entities.	1. Socialization and Education Forming Public outreach and Awareness-raising (targeting Stakeholders)
	Connections between people and their environment →		The third building block: potential building blocks refer to assets that come from outside the neighborhood and are controlled by external sources.	1. Socialization and Education Forming Public outreach and Awareness-raising (targeting Stakeholders); 2. A workshop was held for the local community to explore the potential of mushrooms harvested from empty palm oil bunch waste.
	Infrastructure within the community →	b) Utilizing the existing capacities and resources available, development efforts should be built on these internal strengths.	Primary building blocks: Assets found within the community itself, including the skills and abilities of community member (their "gifts") as well as the resources of organizations and associations.	1. Socialization and Education Forming Public outreach and Awareness-raising (targeting Stakeholders); 2. Workshop provided for the local community on the potential of mushrooms harvested from empty palm oil bunch waste.
	Varied and creative economic activities; →	d) focused on fostering long-term, sustainable growth for the community	The third building block, potential building blocks, refers to assets that come from outside the neighborhood and are controlled by external sources.	1. Socialization and Education Forming Public outreach and Awareness-raising (targeting Stakeholders)
	Active and participatory governance (stakeholders) →			

As detailed in Table 1, the program methodology was structured to integrate the core components of the framework systematically. Each stage of the program was designed to activate specific aspects of community empowerment, build social resilience attributes, and adhere to the key principles of the ABCD model. In terms of implementation, this program is conducted over 2 months, with one month (March 2024) allocated for surveying and 5 days (April) for socialization, an inauguration ceremony, and a workshop. In terms of the beneficiaries, the program involved 40 participants with an age range of 17 to 35 years old, originating from 4 villages located around the palm oil plantation area in Langsa City, Aceh. The implementation of the program was carried out in 3 main stages, namely:

3. *Survey*

An initial survey was conducted to assess the economic well-being of community members who are part of the SMEs in the villages and to gauge the interest of the residents in villages located near palm oil plantations in Langsa City regarding the proposed program.

Figure 3. Initial survey and confirming the utilization of the mushroom growing house
Source: Survey Documentation (2024)

4. *Socialization and Inauguration Ceremony*

The socialization phase is designed to provide comprehensive information regarding the planned series of training sessions, along with the necessary materials for the participants. This session brings together key stakeholders, including the Palm Oil Plantation Fund Management Agency of Indonesia, the press, local government officials, and participants, to ensure a unified understanding and shared commitment towards fostering social and economic resilience by empowering the community for improved livelihoods.

Figure 4. Socialization and Inauguration Ceremony of the Langsa Local Community Mushroom Project: A Practical Workshop on Utilizing EFB for Economic Empowerment
Source: Program Documentation (2024)

5. *Workshop Implementation at the Mushroom Cultivation Site*

This workshop serves as the core of the program, aiming to harness, appreciate, and mobilize the community's local assets by emphasizing their strengths, as highlighted in the Asset-Based Community Development (ABCD) model (Ennis & West, 2010; Healy, 2005). It plays a pivotal role in activating local resources to drive sustainable development and community empowerment.

This workshop is constructed as an In-class Workshop. This two-day session will focus on delivering knowledge and basic concepts related to mushroom cultivation and mushroom identification. A pre-test, conducted via questionnaire distribution to 40 participants, was administered before the in-class workshop commenced. This test is conducted to gather data on the basic knowledge of mushrooms, their potential, and the cultivation methods of

mushrooms. After completing the two days of foundational training, the following two days will involve practical fieldwork at the mushroom cultivation site. Participants will engage in hands-on practice, from preparing palm oil empty fruit bunches (EFB) to inoculating mushroom seeds, managing the growth environment, and performing daily maintenance tasks such as watering and growth monitoring. Facilitators will guide and provide practical direction throughout the mushroom cultivation process. Moreover, a post-test was administered to measure and gather data on the participants' basic knowledge and practical skills after attending the in-class and on-site workshop.

Figure 5. In class and on-site Workshop
Source: Program Documentation (2024)

3. Results

Following the sequence of implementation, the results are organized around the three main stages: the initial survey, socialization and inauguration, workshop implementation, as well as pre- and post-test analyses.

3.1 Initial Survey: Profiling Community Needs and Opportunities

An initial survey was conducted in March to assess the socio-economic context and gauge community interest. The survey targeted residents and small-to-medium enterprise (SME) owners (n=40) in four villages surrounding the palm oil plantations in Langsa. The survey results revealed two key findings. First, the data collected confirmed a significant economic vulnerability, with 85% of respondents aged 17-35 citing a lack of diverse local employment opportunities as a primary concern. This context of economic uncertainty created a latent demand for alternative income sources. Second, awareness and openness: while awareness of the potential of palm oil waste (EFB) was low (<10%), there was considerable interest in learning new, practical skills for income generation. With 92.5% (37 of 40) of individuals expressing enthusiasm for the mushroom cultivation program. This survey validated the program's premise that an asset-based skill development initiative could align with community-identified needs.

Table 2. Initial Survey Results on Key Socio-Economic Perceptions (n=40)

Survey Statement	Strongly Agree/Agree	Neutral	Disagree/Strongly Disagree
“There is a lack of diverse job opportunities here."	85%	10%	5%
"I am interested in learning new skills for income generation."	92.5%	5%	2.5%
"I was previously aware of the economic potential of palm oil waste (EFB)."	7.5%	12.5%	80%

Source: Primary data (2024)

3.2 Socialization and Inauguration: High Engagement as a Catalyst for Empowerment

The socialization and inauguration ceremony, held in April 2024, successfully convened key stakeholders, including representatives from the Palm Oil Plantation Fund Management Agency of Indonesia, Langsa government officials, community leaders, the press, and the 40 participants. The primary outcome of this stage was the establishment of a shared commitment and a unified vision. Speeches from The Palm Oil Plantation Fund Management Agency of Indonesia and local government officials highlighted the program's alignment with regional economic development goals. The event served as a public declaration of support, which was crucial for building trust and ensuring the community felt that the initiative was legitimate and fully supported by the institutions. The active participation of the press also amplified the program's visibility, generating broader public interest.

3.3 Workshop Outcomes: Knowledge Transfer and Immediate Outcomes

The core of the program was a four-day workshop designed to empower participants economically through mushroom cultivation using Empty Fruit Bunches (EFB). The workshop was divided into two complementary phases: an in-class session to establish the theoretical foundations of mushroom and cultivation techniques, and an on-site session where participants applied their knowledge by cultivating mushrooms using EFB as the primary growth medium. This program is designed to operationalize the ABCD model by building upon local curiosity and willingness to learn. The program's immediate success is evident in the significant improvement in knowledge scores and confidence, as shown in the table below.

3.3.1 Pre- and Post-Test Analysis

To measure the workshop's effectiveness, a pre-test was administered before the in-class session, and a post-test was administered after the on-site workshop. The tests evaluated knowledge of mushroom cultivation, identification, and the economic potential of using EFB. The results demonstrated a significant increase in participant knowledge and confidence. The average pre-test score was 45%, which rose to an average post-test score of 82%.

Table 3. Pre-Test and Post-Test Score Distribution of Participants (n=40)

Score Range (%)	Number of Participants (Pre-Test)	Number of Participants (Post-Test)
90 - 100	0	12
80 - 89	2	18
70 - 79	3	6
60 - 69	5	4
50 - 59	8	0
40 - 49	10	0
30 - 39	8	0
20 - 29	4	0
Average Score	**45%**	**82%**
Score Improvement		**+37 percentage points**

Source: Processed by the author based on field survey data (2024)

The 37-point average increase ($p < 0.001$, as determined by a paired t-test) confirms the effective transfer of technical knowledge. Qualitatively, participants' ability to articulate the cultivation process and its economic benefits evolved from mere notions to precise, confident explanations. For instance, one participant noted in an informal interview, "Before, I saw EFB as just smoke from burning. Now I see it as a potential medium for growing money." This shift in perception is a critical cognitive step towards leveraging local assets, a core tenet of the ABCD approach.

3.3.2 Practical Outputs and the Foundation for Economic Activity

The on-site workshop yielded tangible outputs that directly applied the ABCD model. One key outcome was the activation of Local Assets, where the community provided a shared space for the cultivation site, demonstrating the mobilization of a primary building block (local

infrastructure). Another outcome was the development of hands-on skills, as participants successfully prepared EFB as a growth medium, inoculated mushroom spores, and established a functional mushroom cultivation unit. This process transformed a perceived waste product (EFB) into a valuable community asset, representing a direct translation of knowledge into a tangible, income-generating asset.

Figure 6. The cultivation process done by the participants
Source: Program Documentation (2024)

3.3.3 Addressing the Gap: Linking Outputs to Short and Long-Term Impact

This initiative successfully demonstrates the "adoption" phase, the transfer of knowledge, and the creation of initial assets. Nonetheless, the critical "adaptation" and "utilization" phases, which lead to self-sufficiency and economic stability, require a follow-up assessment that addresses aspects such as:

1. Measuring Economic Impact: To address this, a follow-up survey is planned for 6 and 12 months post-intervention. This survey will track key economic indicators, including: a). The number of cultivation units still actively maintained, b). The volume and sales revenue generated from mushroom production, c). The number of participants who have started a small business or generated supplemental income, and d). Basic production cost and profit margin analyses.
2. Measuring Empowerment and Resilience: This follow-up will use a simplified scale to assess perceived empowerment, such as increased confidence in solving community problems, a sense of control over economic future, and resilience indicators, such as the number of households reporting a new or supplemental income source, which enhances their ability to overcome economic issues.

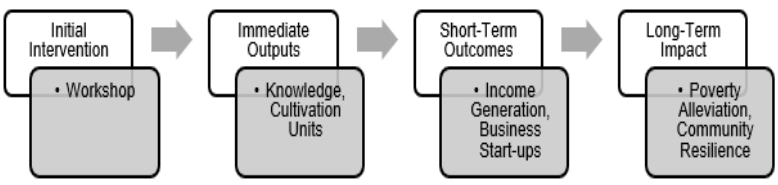

Figure 7. Proposed Framework for Measuring Long-Term Impact post-intervention

4. Discussion

The results of this community service program demonstrate the practical effectiveness of integrating the Asset-Based Community Development (ABCD) model in achieving community empowerment and social resilience. First, the successful application of the ABCD model is apparent. The program began by identifying and mobilizing existing community assets: the curiosity and willingness of the local community (a primary building block), the support of local institutions like the community hall (a secondary building block), and the utilization of EFB from nearby plantations (a potential building block). Instead of focusing on the shortfall, the program was built based on these strengths, which are directly linked to the high levels of engagement and ownership observed, consistent with the findings of Cunningham & Mathie (2002) and Ennis & West (2010). Second, the significant improvement in knowledge scores from the pre- and post-tests directly correlates with the enhancement of a critical social resilience attribute: Knowledge, skills, and education (Maclean et al., 2014). By supplementing participants with new skills, the program enhanced the community's capacity to adapt. This newly acquired skill set enables them to respond to economic challenges with a creative and innovative mindset, leaving traditional livelihood options behind and adopting "varied and creative economic activities" that Maclean et al. (2014) argue are essential for creating resilience.

Furthermore, the availability of a core group of participants and the collaborative atmosphere during the on-site/ practical workshop underscore the development of "community relationships and networks", which is another key resilience attribute. This self-organization is a feature of both empowerment (Kamelia et al., 2023) and resilience (Adekola & Clelland, 2020), suggesting that the program initiated a sustainable. Finally, the active involvement of stakeholders, such as the Palm Oil Plantation Fund Management Agency of Indonesia and local government, during the inauguration was crucial for establishing "active and participatory governance." This support not only legitimized the program but also established a basic framework for potential future collaboration, ensuring that the community's efforts are recognized and leading to long-term economic and social benefits, as argued by Hur (2006) and Wanie et al. (2024).

Therefore, the findings outline a critical pathway from intervention to potential impact. The significant knowledge acquisition and the fundamental shift in participants' perception of local assets, from waste to a source of livelihood, demonstrate the successful activation of the ABCD model's core principles. These outcomes represent the essential initial conditions for economic empowerment, which is the capacity and the mindset for change. While the ultimate metrics of poverty reduction and sustained employment are long-term goals, this initiative conclusively demonstrates that the foundational prerequisites for achieving those goals have been firmly established. Future follow-up is a crucial next step to assess how the foundational capacity translates into tangible socio-economic outcomes.

4. Conclusion

This program, embodied in the 'Langsa Local Community Mushroom Project' initiated by the Faculty of Islamic Economics and Business, IAIN Langsa, reconfirms the transformative potential of the Asset-Based Community Development (ABCD) approach. The project demonstrates that by leveraging existing assets, specifically community willingness and palm oil waste, it is possible to advance economic, social, and environmental objectives simultaneously. Through the program, participants achieved more than just skill transfer; it triggered a fundamental shift in community perspective, empowering participants to see themselves as active agents of change capable of creating value from the waste present within their living environment. The establishment of cultivation units marks a critical step from theory to practice, creating a platform for generating potential income and enhancing economic resilience. While long-term socio-economic outcomes have yet to be fully quantified, the project has successfully laid an essential foundation. By equipping the community with practical tools, relevant knowledge, and a collective will to pursue a more sustainable and self-reliant livelihood, this model therefore offers a valuable blueprint for building community resilience from within.

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