



# Entrepreneurial tendency of Indonesia remote rural communities: Are the existence of community-based mini-grids matters?

Hafidz Wibisono<sup>1\*</sup>, Siti Suryani<sup>2</sup>, and Shafa Widad Safina<sup>1</sup>

<sup>1</sup>Universitas Gadjah Mada, Indonesia

<sup>2</sup>Wira Wacana Christian University, Indonesia

\*Correspondence email: [hafidzwibisono@ugm.ac.id](mailto:hafidzwibisono@ugm.ac.id)

## ARTICLE INFO

### ► Research Article

#### Article History

Received 17 September 2024

Accepted 5 December 2024

Published 15 December 2024

#### Keywords

entrepreneurial tendency;  
rural businesses; rural  
electrification; Sumba

#### JEL Classification

L26; O18; R20

## ABSTRACT

Community-based mini-grids have emerged as a promising solution to deliver electricity to areas where extending the grid is considered too costly. Such mini-grids utilise locally available resources and are managed by the community, offering a more democratic and inclusive decision-making process. However, such systems' operational and maintenance costs often burden the community, particularly in cases where electricity demand and financial capacity are low. It poses a significant challenge to the sustainability of mini-grid systems in rural areas. While there is an assumption that access to electricity promotes entrepreneurship among rural communities, evidence from studies exploring the roles of electricity in this topic varies. This research contributes to the debates on the nexus of electricity and rural enterprises focusing on people's entrepreneurial propensity. By interpreting the general entrepreneurial tendency test (GET2) exercised to electricity beneficiaries in remote rural Indonesia, we observed limited evidence on how electricity promotes entrepreneurship among rural communities. Therefore, we argue that people's propensity to be entrepreneurs needs to be stimulated holistically rather than merely by providing electricity.

**To cite this article:** Wibisono, H., Suryani, S., & Safina, S. W. (2024). Entrepreneurial tendency of Indonesia remote rural communities: Are the existence of community-based mini-grids matters? *Journal of Socioeconomics and Development*, 7(2), 205-217. <https://doi.org/10.31328/jсед.v7i2.6507>

ISSN 2615-6075 online; ISSN 2615-6946 print  
©UWG Press, 2024



## INTRODUCTION

The global agenda in achieving SDG7 leads to substantive efforts in electrifying rural areas. Globally, 775 million people still lack access to electricity, making it a significant challenge to ensure universal access to affordable, reliable, and modern energy services (Cozzi et al., 2022). Relatedly, community-based electricity, primarily as a form of mini-grid that is locally generated, transmitted, and distributed, emerged as a solution due to its ability to overcome

geographical hurdles by using locally available resources that are locally managed and operationalised (IRENA, 2018). Such a system is crucial in countries where grid expansion has been slowed down due to a limited fiscal capacity, particularly in the global south (Cozzi et al., 2022).

In the past decade, community-based mini-grids have significantly provided electricity to remote rural communities. It is due to their ability to generate electricity from locally available resources, which makes them a cost-effective solution for such areas

(IRENA, 2018). Compared to extending centralised grids, mini-grids offer lower generation costs which potentially cheaper for remote rural communities (Bhattarai & Thompson, 2016; Ortega-Arriaga et al., 2021). Additionally, they provide a solution for addressing two challenges in electrification: energy poverty and reducing emissions from the generating process (Hivos, 2012). As one of the countries that struggles to deliver inclusive electricity due to geographical hurdles, the role of mini-grid in Indonesia is pivotal. Relatedly, the Indonesian government formally acknowledge mini-grid as the solution to electrifying thousands of islands in its territory. Fortunately, the government has received significant support from various development organisations, such as donors and multi-level NGOs, through financial and capacity-building assistance. According to Aid Data (2016) dataset, Indonesia received USD 5.8 billion from 22 foreign donors to fund renewable-energy-related projects from 2005 to 2013.

Developing community-based electricity system often burdens its beneficiaries financially as operational and maintenance expenses are self-covered. It leads to the increasing necessity for entrepreneurs who utilise electricity for income-generating activities (World Bank, 2008). Such a situation underlies the majority of energy for development projects (Fingleton-Smith, 2020). Most mini-grids in remote rural areas are established and funded externally then handed over to the community once they are developed, leaving the community a significant burden to maintain and operate unfamiliar technology (Numata et al., 2020). Consequently, some even conclude that enabling income-generation activities is the primary indicator for assessing the project's success (Obeng & Evers, 2010). In some cases, the impact of rural electrification on micro-enterprises is measured in terms of its impact in triggering income-generating activities. Research suggests that the availability of electricity in rural areas leads to longer working hours, reduced production costs due to the use of electric appliances, and ultimately more profits for micro-enterprises (Akpan et al., 2013; Obeng & Evers, 2010; Rao, 2013). However, these enterprises' success largely depends on the socio-cultural and environmental context in which they operate. For example, Kooijman-van Dijk & Clancy (2010) and Wibisono et al. (2023) state that a lack of access to larger markets forces these enterprises to rely on a local market, which may be

stagnant and saturated, hence causing limited and constantly decreasing profit.

However, researchers revealed that productivity and income do not always be positively correlated and depend on various variables such as market situation (Kooijman-van Dijk & Clancy, 2010), infrastructure (Barnes, 2019), people behaviour (Cieslik & D'Aoust, 2018), and political supports (Smith & Urpelainen, 2016). Literature around electricity and rural entrepreneurship also presents diverse conclusions on how electricity practically supports rural businesses. Some argue that electricity increases the revenue of rural businesses through the extension of working hours and business diversification (Kirubi et al., 2009; Obeng & Evers, 2010), while others show limited evidence on how directly electricity plays a role in growing rural businesses and instead contributes to non-financial aspects of rural inhabitants (Kooijman-van Dijk & Clancy, 2010; Winther, 2008).

The examples above show a multi-dimensional link between electricity access and rural enterprises. Specifically, as some researchers revealed, productivity and income do not always be positively correlated and depend on various variables such as market situation (Kooijman-van Dijk & Clancy, 2010), infrastructure (Barnes, 2019), people behaviour (Cieslik & D'Aoust, 2018), and political supports (Smith & Urpelainen, 2016). Literature around electricity and rural entrepreneurship also presents diverse conclusions on how electricity practically supports rural businesses. Some argue that electricity increases the revenue of rural businesses through the extension of working hours and business diversification (Kirubi et al., 2009; Obeng & Evers, 2010), while others show limited evidence on how directly electricity plays a role in growing rural businesses and rather contributes to non-financial aspects of rural inhabitants (Kooijman-van Dijk & Clancy, 2010; Winther, 2008). Therefore, it is crucial to have a nuanced and detailed understanding of the rural system to determine the extent of electricity's influence on rural businesses (Fingleton-Smith, 2020; Riva et al., 2018).

As part of this effort, this research examines the relationship between the need to sustain mini-grid systems and people's propensity to be entrepreneurs, along with other influencing factors. This research focuses on mini-grid beneficiaries and their likelihood of fulfilling entrepreneurial expectations, particularly related to their general motivation, behaviour, and contributing circumstances. By doing so, this research

is expected to contribute to the existing knowledge, which primarily focuses on enterprises as the main unit of analysis. (e.g., Akpan et al. (2013); Banerjee et al. (2017); Khurana & Sangita (2022); Kooijman-van Dijk & Clancy (2010); Obeng & Evers (2010); Osunmuyiwa & Ahlborg (2022); Rao (2013); Robert et al. (2021)). The specific question this research seeks to answer is: How community-based electricity affects the entrepreneurial drive of its beneficiaries?

In order to discuss the topic clearly, this article is structured as follows: First, an introduction is given. Then, an overview of research methods and case description are presented. Further, the results and discussion section outlines the findings of the GET2, which are further elaborated upon in the research implication section. Finally, the article ends with a concluding section answering the research question.

## RESEARCH METHOD

This research utilises both quantitative and qualitative approaches simultaneously. These approaches aim to allow triangulation from multiple data sources (Piekkari et al., 2010). Such approaches are generally known as mixed methods. Despite the definition of the term 'mixed method' being openly discussed, Tashakkori & Creswell (2007 p.4) generally define a mixed method as "research in which the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches or methods in a single study". Both methods are integrated to generate cohesive and interconnected narratives in addressing the research question. By incorporating information from different sources and using multiple steps of analysis, the robustness of the research can be increased. In this case, we employ quantitative analysis primarily using the General Entrepreneurial Tendency Test (GET2) to provide general entrepreneurial propensity as a departure point for a further exploration using qualitative approaches.

### General Entrepreneurial Tendency Test

The General Entrepreneurial Tendency Test (GET2) is a tool that assesses an individual's inclination towards entrepreneurship. Originally created at Durham University, the test converts a series of entrepreneurial descriptions into a measurable test (Caird, 2013). GET2, which takes about ten minutes to complete, provides insights into

an individual's potential to be enterprising. Importantly, the results of GET2 are not definitive but indicative, as an individual's entrepreneurial tendencies may change due to various constraints and challenges, they face throughout life (Caird, 2013, 2024). Thus, this test allows researchers to explore potential situational challenges and constraints that shape people's enterprising tendencies, bringing up the discussion on the dynamic role of surrounding environments on entrepreneurial propensity.

The GET2 was initially designed as a paper-based tool for classroom educational research (Caird, 2013). Although it is a self-assessment test for individuals (Caird, 2024), researchers have used it to obtain a general tendency of groups of people. For example, Yusrin (2023) applied this test in the original context of college students to develop an educational system based on the variable 'locus of control'. Bannor et al. (2021) exercised the GET2 outside the educational context by applying the results among non-timber farmers as a basis to support reforestation policies in Ghana. Moreover, Smith (2021) applied the GET2 in the context of law enforcement to highlight methods of implementing entrepreneurial policing. Conversely, this research applies GET2 in the context of off-grid renewable beneficiaries in remote rural Indonesia. As people's situational challenges and constraints construct the entrepreneurial tendency, we expect the results to be used to understand people's obstacles to becoming entrepreneurs, as expected by electricity providers, and the extent to which electricity plays a role in people's entrepreneurial tendencies.

Practically, GET2 assesses enterprising people based on five characteristics, each translated into an entrepreneurial variable. The first characteristic is having a high motivation and commitment to achieving their goals, leading to a focus on personal achievement and optimism (Caird, 2024; Ha et al., 2011). It is associated with the variable 'needs for achievement'. The second variable, the 'need for autonomy', is associated with independence and freedom, especially in running businesses (Dawson & Henley, 2012). Enterprising people with this characteristic prefer to work independently and can lead a team. The third characteristic is a 'creative tendency', especially in problem-solving (Caird, 2013). It helps them create innovative products and new businesses, making them more resilient to failure. Enterprising people are also calculative at risk assessment and aware of potential setbacks in time,

money, and personal relationships (Caird, 2024). Lastly, enterprising people possess an internal locus of control, believing in themselves and their ability to control situations. It makes them more likely to associate their success or failure with their efforts (Caird, 2013).

### Data Collection and Analysis

The data utilised in this research is acquired through two steps: firstly, questionnaires were distributed to 120 community-based mini-grid beneficiaries selected randomly representing all the hamlets, ages, sexes, and educational levels. Additionally, further in-depth exploration was done by conducting interviews with a diverse range of informants including government officials, villages stakeholders, NGOs, rural business owners and local academicians. The data obtained by distributing questionnaires is the primary source on which we rely for GET2 analysis. The questionnaire distribution was done in villages where community-managed mini-grids

were established and still running during data collection in April 2021. We selected three villages namely Kadumbul Village (approx. 0.2 kW of wind powerplant), Waimbidi Village (22 kW micro-hydro powerplant), and Lukuwingir Village (within the same system as Lukuwingir), all in East Sumba Regency on the Province of East Nusa Tenggara Indonesia (see Figure 1 for the location). The locations were selected due to the massive establishment of off-grid renewable electricity systems in the areas due to the determination of Sumba Island as an iconic island that will be electrified with 100% renewable generators (Lomi, 2016). In achieving such an ambition, numerous projects funded by organisations such as national governments, NGOs, and donor organisations were developed on the island. However, despite the success in delivering electricity, some of the systems were last for a short time and no longer working due to a mismatch with the community's needs (Dagi Consulting, 2018).



Figure 1. Research area location

We generally follow the GET2 guidelines published by (Caird, 2013). The test consists of 54 questions in which respondents are asked to answer whether they agree or disagree with the statements. Each of the questions is associated with one of the general entrepreneurial variables, i.e., the need for achievement (12 questions) to assess people's capacity for hardwork in achieving their goals, the need for autonomy (6 questions) to assess people's control over themselves, the creative tendency (12 questions) to assess people's propensity to develop ideas in solving problems, and calculated risk taking (12 questions) to assess people's tendency to assess before taking risks (Caird, 2024). For each of the agreements expressed by respondents to questions in an even number, the answer will be coded as '1'; otherwise '0'. Contrarily, if the respondents disagreed with the questions in odd numbers, the answer will also be coded as '1'; otherwise '0'. The difference in coding the answers between odd and even numbers is due to the tendencies to be entrepreneurs being aligned with the even questions while the tendencies against entrepreneurial characteristics are asked in the odd questions.

Furthermore, in-depth interviews were also done to clarify and develop potential interpretations of the findings. In total, 20 people were involved in a separate individual face-to-face interview consisting of 16 end users, lecturers and the alumni of the local university and the municipal government of East Sumba Regency. Generally, the interview process lasted around 30 minutes and took place in agreed places primarily in the informant's office or at home. The first and the second authors did the interviews by using Bahasa Indonesia (Indonesian language). However, for village-level informants, we were assisted by the local youths who speak Bahasa Indonesia and Sumbanese local language. It was done to anticipate the use of the local language with which the authors are unfamiliar.

## RESULT AND DISCUSSION

### Characteristic of Respondent

The GET2 involves 120 respondents from 3 villages which are evenly distributed among villages. Table 1 presents the demographic distribution of the respondents. In order to maintain gender representativeness, half of respondents are female.

The respondents can also be categorized based on their age group, jobs and educational level. All categories, except for people's jobs, were selected to explore the relationship between age education, and entrepreneurial tendency. In this phase, the jobs variable is excluded due to respondents, and so are the communities in rural Sumba, which are dominantly farming laborers; hence, there is limited evidence for comparing the results among job categories. Generally, respondents are primarily elementary graduates or below (58%) and within the age group of 20-35 years old (35%) and 36-50 (38%). Despite the effort to maintain representativeness among age groups, jobs and educational levels, there are limited numbers of respondents categorized into groups, i.e. only 3% of respondents have completed their diploma or bachelor, only 5% of respondents were younger than 20 years old, and only 11% of them are entrepreneurs. It is due to the limited number of rural inhabitants who are university graduates and below 20 years old when the fieldwork was conducted. It is worth noting that the inclusion of under 20 respondents aims to capture the tendency of high school students to choose their career paths once they graduate in which becoming entrepreneurs is one of the options.

Table 1. Characteristic of Respondent

Demographic variables	Frequency	Proportion
Origin villages		
Kadumbul	40	0.33
Waimbidi	40	0.33
Lukuwingir	40	0.33
Educational level		
Primary/below	70	0.58
Secondary	46	0.38
Diploma/above	4	0.03
Jobs		
Sewers	1	0.01
Farm-owners	4	0.03
Farm-labours	93	0.77
Entrepreneurs	13	0.11
Unemployed	9	0.07
Age group		
<20	6	0.05
20-35	43	0.35
36-50	45	0.38
>50	26	0.22
Sex		
Male	60	0.50
Female	60	0.50

Sample size 120 people



Table 2. GET Values and Categories of Rural Sumba Communities

Variables	General entrepreneurship variables <sup>a</sup>					Total value	Categories
	Need for achievement	Need for autonomy	Creative tendency	Calculated risk taking	Locus of control		
Total average	7.24	2.81	5.99	7.24	7.10	30.38	Med
Education level <sup>a</sup>							
Primary/below	7.14	3.06	5.96	7.34	7.26	30.76	Med
Secondary	7.41	2.54	6.04	7.13	6.91	30.04	Med
Diploma/above	7.00	1.50	6.00	6.75	6.50	27.75	Med
Age group							
<20	7.17	1.50	5.17	7.00	6.83	27.67	Med
20-35	7.58	3.03	6.05	6.98	6.77	30.40	Med
36-50	7.07	2.74	6.13	7.56	7.29	30.78	Med
>50	7.00	2.95	5.85	7.19	7.38	30.73	Med
Sex							
Male	6.92	2.80	6.17	7.37	7.03	30.28	Med
Female	7.57	2.82	5.82	7.12	7.17	30.48	Med
GET categories	0-6.0 low 6.1-9.9 med 10-12 high	0-2.0 low 2.1-3.9 med 4-6 high	0-6.0 low 6.1-9.9 med 10-12 high	0-6.0 low 6.1-9.9 med 10-12 high	0-6.0 low 6.1-9.9 med 10-12 high	0-26 low 27-43 med 44-54 high	

<sup>a</sup> Primary education refers to elementary school, while secondary education is associated with both junior and senior high school. Diplomas refer to vocational school, and above diplomas mean bachelor, master, and other higher-level education.

### The General Entrepreneurial Tendencies

Table 2 shows that respondents have a medium entrepreneurial tendency. The results reflect their entrepreneurial practices, which aim for survival rather than growth-oriented but, to some degree, have the willingness and strength to be involved in businesses (Caird, 2013). The results also suggest no significant difference in the total value of each of the sub-variables of respondents. However, a detailed exploration of entrepreneurial variables provides interesting findings. In general, respondents have a low tendency to be creative, and their scores are categorised as low (5.99). According to Caird (2013), low creative tendency means that respondents generally tend to look for other business ideas and feel content with the proven yet traditional entrepreneurship approach.

Furthermore, comparing each entrepreneurial variable among different respondent categories provides a variation of GET2 findings and is potentially usable in formulating relevant interventions (see Figure 2). GET2 results show that the relationship between entrepreneurial variables and people's age groups is not substantially observed. Figure 3 shows no specific pattern related to age. Similarly, we found no sensible differences in entrepreneurial tendency patterns between different gender groups. Despite gender-related issues in Sumba communities (see Atahau et al. (2021); Hendrastiti & Kusujiarti (2020); Susilorini et al. (2021); Vel (2008)), this research

shows that all entrepreneurial tendency variables have similar values among different gender groups (see Figure 4). Therefore, we argue that gender is not a significant determinant of entrepreneurial tendencies among respondents.

Lastly, GET2 results on different educational levels show interesting findings. The overall GET2 score decreases as people's educational level increases. It indicates that people's interest in becoming rural entrepreneurs declines as they achieve higher levels of education. Furthermore, as depicted in Figure 2, the higher the level of education, the lower the values are in three categories: need for autonomy, calculated risk-taking, and locus of control. Among these three variables, 'need for autonomy' and 'calculated risk-taking' exhibit a substantial decrease, even among university graduates, whose 'need for autonomy' value is categorised as 'low'. This finding suggests that university graduates prefer working as employees and have risk-averse behaviour.

### The Influence of Socio-Economic Circumstances

Communities in rural Sumba are mostly traditional farmers with limited equipment and predominantly have a survival orientation rather than capital. In rural Sumba, being a farmer is associated with their cultural identity and part of their marapu belief (Ngongo & Ngongo, 2021).

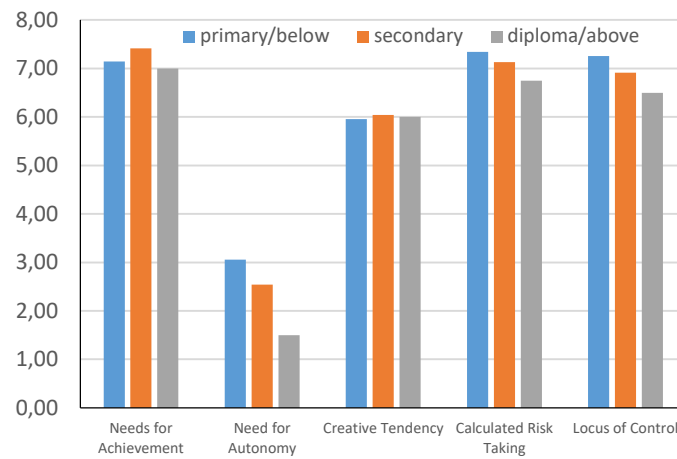


Figure 2. Distribution of GET variables based on the level of education

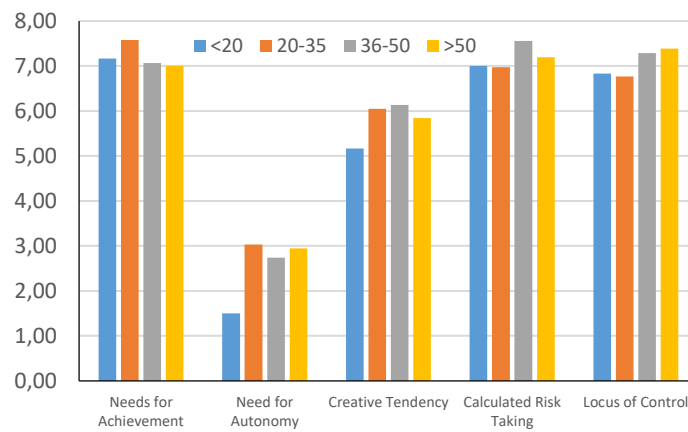


Figure 3. Distribution of GET variables based on the age groups

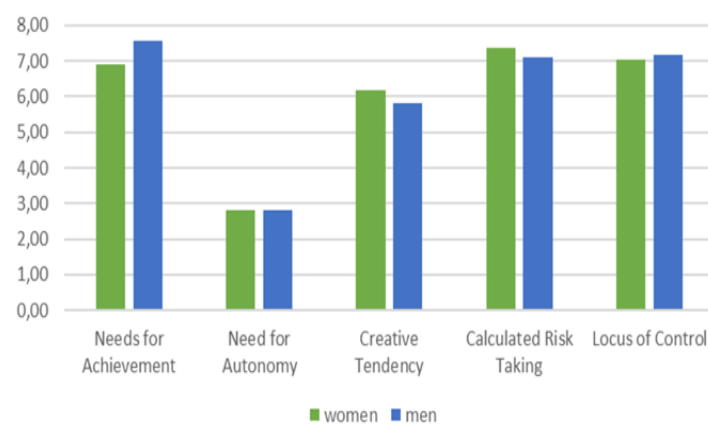


Figure 4. Distribution of GET variables based on the respondent's sex

Adherence to traditional farming practices and community businesses as another source of livelihood has existed in rural Sumba. The establishment of the State of Indonesia in 1945 formally brought money into the area. As a result, people in rural Sumba had to adapt and find ways to earn money instead of relying solely on agricultural commodities for exchange (Vel, 1994). Such a situation gradually encourages people to get involved in trading activities by selling consumer goods and culturally unrelated agricultural products such as mung bean (Vel, 1994).

Following the long-existed trading activities in remote areas of rural Sumba, medium GET2 results indicate challenges in running rural enterprises. Caird (2013) explained that a medium score of GET2 indicates that respondents are willing to establish a non-agricultural business despite being unlikely to be a growth-oriented one. We argue that in rural Sumba, where the accessibility in terms of infrastructure, access to market and capital is lacking, the primary orientation of establishing businesses is to survive and obtain services. It is observed in interviews when informants emphasised two general reasons for running enterprises, i.e. to have an alternate source of income in case of crop failure due to a locust outbreak and to access services such as education and electricity.

*"We did not plant a lot, only enough for food necessity, [and] we frequently failed to harvest due to locust attacks; so, business [kiosk business] is extremely advantageous to our family."*

*"We did not buy food and vegetables; we took them from the farm so the money could be used to fund my child's tuition fees and pay for the electricity tariffs."*

While Caird (2024) highlights the high need for achievement as a primary characteristic of enterprising people, respondents' survival and service goals generally lead to limited orientation over capital achievement (Wibisono, Lovett, & Suryani, 2023). Other researchers have also supported the survival and service orientation of people's businesses in rural Sumba. For example, Kusumastuti et al. (2017) stated that Sumbanese, particularly in East Sumba, quickly feel content, even if they can afford daily food. It further impacts their performance in sustaining businesses and leads to a high reliance on the continuous assistance of external parties (Tehik & Hudang, 2016).

Additionally, GET2 finding shows the low category of 'creative tendency', which is observed by the limited types of businesses in the villages, with kiosks selling consumed goods, women selling tenun (a traditional weaved fabric), and furniture manufacture are the most common enterprises (Wibisono, Lovett, & Suryani, 2023). End-user interviews reveal that furniture manufacturing is the only enterprise that fundamentally uses electricity. In other words, no electricity means no work for the furniture manufacturer. Otherwise, using electric appliances extends their operational hours and diversifies their products. The following statements support this finding:

*"If there is no electricity, I finished working before sunset" – woven products seller*

*"If the electricity is off, our kiosk will still be operating but not until nighttime and we could not sell any cold beverages" -- kiosk owner*

*"We often experienced blackout, sometimes it takes hours waiting for the electricity to work, so in this case I could not work" – furniture manufacturer*

This result indicates 'lock-in' practices in running enterprises in a subsistence market where people tend to do what has been proven and exhibit risk-averse behaviour (Cieslik & D'Aoust, 2018). The interview findings support this argument when people were asked about their business expansion plan. Respondents were primarily keen to keep their business running, emphasising increasing the quantity of their current product. In contrast, there was no statement on a novel approach or strategy for doing business.

*"We bought our products from the farmers, and we sold them again, so this business has to keep running, perhaps we want to make it bigger" – kiosk owner*

*"I just want to keep sewing and sell the products so the business can keep running" – woven products seller*

*"I want this product to be sold quickly so I can use the money again" –woven products seller*

In the long run, a lack of business innovation can result in market saturation as more similar businesses emerge with stagnant demand. This situation has been observed in countries such as Bolivia, Tanzania, and Vietnam, where profit per enterprise has gradually decreased due to an unorganised value chain and a



saturated rural market. (Kooijman-van Dijk & Clancy, 2010).

Moreover, the low results of the "need for autonomy" among the educated respondents are potentially associated with the risk of having businesses due to financial insecurity. Conceptually, Caird (2013) refers to a high value of "need for autonomy" as a person who has a high need for autonomy is motivated to do things their way, or in other words, being independent. This case shows that the higher education people obtain, the less likely they are to be independent. We argue that most of respondents have risk-averse behaviour; hence, despite being categorised as medium risk-takers, their risk calculation is relatively against being a rural entrepreneur due to a potential risk that could endanger their households' survival (Cieslik & D'AoustD'Aoust, 2018). In this case, being an employee with a regular income is a favourable option. This argument is supported by the statement obtained through interviewing the alumni and lecturer from the local university:

*"They want to be a government official. Here, in Sumba working for government give people a high social status due to having better financial situation and standard of life" – interview with university lecturers*

*"Because for my family, obtaining higher education means working as an employee (on the reason of why he does not want to be an entrepreneur). For me family support is essential so if they do not support me (to be an entrepreneur), I could not choose that step" – interview with university graduate*

The statements show that the primary orientation of higher education is to participate in the broader labour market; hence, the aim is to be employed by the government or companies. Since Dutch colonialism, education for the Sumba people has been essential to increase their economic and social status (Vel, 2008). Even in the early period, the Sumbanese had an 'unnamed law' to compromise education and ceremonial necessities. Practically, such a law enabled people to "justify spending precious items of ceremonial wealth on a modern education" (Vel, 1994, p.13). Since then, being an employee inside or outside the island has provided more financial contributions to the villages through remittance and, hence, is considered more prestigious. In the context of this research, being an employee is perceived as having

less risk and has proven to bring more financial security. In contrast, rural businesses are risky and have yet to be proven to bring financial security despite being a long-existing practice.

The results above show the limited role of electricity in people's businesses. The increasing need to pay electricity tariffs has created more economic pressure on respondents to be involved in non-agricultural businesses. However, despite such pressure being a common factor that motivates people to become entrepreneurs (Callanan & Zimmerman, 2016), the degree to which respondents match the criteria of the enterprising person (as stated by Caird (2024)) is constructed to the underlying environment of rural Sumba. Relatedly, high dependence on a stagnant local market makes it difficult to achieve economic scale. Moreover, the physical isolation of this study locations due to distance, inadequate road infrastructure, and limited access to skilled labour further limit economically feasible options. It leads to limited feasible options regarding the types and approaches to doing business.

### Research Implication

This research reveals the influence of socio-economic circumstances on communities' propensity to be entrepreneurs. The findings show that community-based mini-grids, although increasing financial necessities, do not automatically motivate Sumbanese to be entrepreneurs. We echo the argument stating that rural entrepreneurship is a result of an intentional choice made by individuals; hence, the overarching socio-economic context significantly constructs their decision (Krueger, 2007; Obschonka et al., 2010). The interplay between people's entrepreneurial propensity and the socio-economic practices in which people are embedded varies among contexts. While in this case, the socio-economic circumstances influence people's entrepreneurial intention in limiting innovation and creativity, so people prefer proven traditional practices over innovative practices, the interplay between entrepreneurial propensity and its overarching situation varies among the contexts. For example, for Midwestern State University alumni, becoming entrepreneurs in rural contexts is preferred due to unattractive salaries for rural workers and low opportunity cost compared to the urban setting (Yu & Artz, 2019). Meanwhile, in rural tourism in rural Norway and Chile, the path dependence on long-

existed patron-client social relationships between males and females constrains female entrepreneurs from flourishing (Nordbø, 2022).

In the nexus of electricity and rural economy, exploring both macro- and micro-variables of businesses and entrepreneurship is essential in providing a holistic understanding of the phenomena. Macroeconomic analysis of the role of electricity in stimulating rural small and micro enterprises is vital to provide a bird-eye view of the phenomena, enabling exploration in a wider context. For example, Kooijman-van Dijk and Clancy (2010) scrutinise the role of electricity in supporting rural businesses in Bolivia, Tanzania, and Vietnam. At the same time, Akpan *et al.* (2013) explore the relationship between electricity and rural enterprises by comparing electrified and non-electrified communities in Nigeria. On the other hand, the micro-scale analysis, as this research does, complements the mentioned exploration by providing the in-depth contextual understanding and particularity that certain cases provide. We argue that GET2 analysis enriches the discussion by assessing the extent to which groups of individuals match the general characteristics of entrepreneurs (Caird, 2024).

Selecting a community-based rural electricity system is also relevant to highlight the multi-scale development challenges. On one side, the community-based mini-grid enables the delivery of electricity services to remote rural communities where extending the grid system is considered unaffordable. It also offers a more democratic decision-making process by decentralising authority to the people, encouraging inclusive decision-making and minimising the possibility of conflicts (Simcock, 2016; Stephens, 2019; Van Veelen, 2018). However, on the other side, the burden of operational and maintenance costs (O&M) and monthly electricity tariffs often becomes a bottleneck issue for the beneficiaries (Numata *et al.*, 2020). This causes financial difficulties for the community, leading to an inability to sustain the established mini-grid system. Such a challenge has been observed in Indonesia (DAGI Consulting, 2018), Bangladesh (Rahman *et al.*, 2013), and Brazil (Winkler *et al.*, 2011).

The findings of this research indicate challenges in promoting entrepreneurship in a rural context where more than just electricity provision is needed. In this case, the establishment of a community-based electricity system needs to be complemented with interventions aiming to enhance the entrepreneurial

ecosystem, such as access to microfinance, professional assistance, and increasing accessibility so rural inhabitants might potentially lead to the improvement of rural entrepreneurial activities, expanding market opportunity, and providing access to information. We also call for the involvement of a diverse range of actors to provide electricity through the development of mini-grid systems and to expand the intervention in stimulating productive uses of electricity, including business establishment, despite the limited power capacity. A learning space conducted by professionals, NGOs, governments, or even local business owners could enable peer-to-peer sharing and assistance. It would enable rural communities to share insight, adapt to the market dynamics, and create an innovative strategy for their entrepreneurial challenges collaboratively instead of sporadically competing. Such activities also potentially stimulate rural entrepreneurs to calculate risk possibilities and creatively formulate strategies to overcome the challenges.

## CONCLUSION AND SUGGESTION

The results show that respondents generally have a medium GET score. The variable of 'creative tendency' tends to be lower than the others (5.99). It is observed by the fact that the business types of businesses in this study areas are limited in which kiosks selling consumed goods, and traditional fabrics dominate. Such a finding also indicates the lock-in behaviour of respondents preferring proven-traditional practices over innovative approaches.

This article presents empirical evidence on the complexity of entrepreneurship in rural areas through GET2 analysis. The study of Rural Sumba's mini-grid beneficiaries reveals that establishing off-grid community-based electricity to stimulate rural economies through enterprises needs to be nuanced. The research shows that the need for money to pay for electricity tariffs triggers economic pressure on the community, as the locust outbreak did. However, this does not necessarily lead to increased entrepreneurial activity. We have identified several variables that shape the entrepreneurial behaviour of respondents, including limited access to broader markets, risk-averse behaviour favouring the "proven approach" over innovation, and the employee-oriented mindset of higher-educated individuals. The findings echo that promoting entrepreneurship in rural regions requires a

comprehensive and nuanced approach that considers rural communities' unique challenges and opportunities.

The challenges mentioned earlier are crucial for policymakers to address to promote rural entrepreneurship, not only to afford the operational and maintenance of the established mini-grid but also to provide economic security and trigger broader impacts on the rural economy. By reducing the physical, informational, and market isolation of rural areas like Sumba and offering capacity building, policymakers can increase the creative tendency of rural communities. It can potentially widen the range of opportunities for novel types and methods of community businesses. Providing continuous assistance in capacity and finances can potentially lead to a more favourable position for educated young people to become rural entrepreneurs. Lastly, the GET2 is a general tool that indicates people's entrepreneurial tendencies. Therefore, an in-depth exploration of how each of their entrepreneurial behaviour is constructed and exercised in their business practices, as well as broader impacts of such tendencies towards rural economy, are the limitations of this research. Therefore, it needs further exploration

## REFERENCES

- AidData. (2016). AidData Datasets. AidData Datasets. <http://dashboard.aiddata.org/#/advanced/project-list>
- Akpan, U., Essien, M., & Isihak, S. (2013). The impact of rural electrification on rural micro-enterprises in Niger Delta, Nigeria. *Energy for Sustainable Development*, 17(5), 504–509. <https://doi.org/10.1016/j.esd.2013.06.004>
- Atahau, A. D. R., Sakti, I. M., Huruta, A. D., & Kim, M.-S. (2021). Gender and renewable energy integration: The mediating role of green-microfinance. *Journal of Cleaner Production*, 318, 128536. <https://doi.org/10.1016/j.jclepro.2021.128536>
- Banerjee, M., Rehman, I. H., & Tiwari, J. (2017). Solar-Based Decentralized Energy Solution—A Case of Entrepreneur Based Model from Rural India. In W. Yan & W. Galloway (Eds.), *Rethinking Resilience, Adaptation and Transformation in a Time of Change* (pp. 341–356). Springer International Publishing. [https://doi.org/10.1007/978-3-319-50171-0\\_22](https://doi.org/10.1007/978-3-319-50171-0_22)
- Bannor, R. K., Ros-Tonen, M. A. F., Mensah, P. O., Derkyi, M., & Nassah, V. F. (2021). Entrepreneurial behaviour among non-timber forest product-growing farmers in Ghana: An analysis in support of a reforestation policy. *Forest Policy and Economics*, 122, 102331. <https://doi.org/10.1016/j.forpol.2020.102331>
- Barnes, D. F. (2019). *Electric Power for Rural Growth: How Electricity Affects Rural Life in Developing Countries*. Routledge.
- Bhattarai, P. R., & Thompson, S. (2016). Optimizing an off-grid electrical system in Brochet, Manitoba, Canada. *Renewable and Sustainable Energy Reviews*, 53, 709–719. <https://doi.org/10.1016/j.rser.2015.09.001>
- Caird, S. (2013). General measure of Enterprising Tendency test. <https://doi.org/10.13140/RG.2.1.4243.7520>
- Caird, S. (2024). What is an enterprising person? [Web post]. <http://www.get2test.net/>
- Callanan, G. A., & Zimmerman, M. (2016). To be or not to be an entrepreneur: Applying a normative model to career decisions. *Journal of Career Development*, 43(5), 447–461. <https://doi.org/10.1177/0894845316633525>
- Cieslik, K., & D'Aoust, O. (2018). Risky business? rural entrepreneurship in subsistence markets: evidence from Burundi. *The European Journal of Development Research*, 30(4), 693–717. <https://doi.org/10.1057/s41287-017-0100-9>
- Cozzi, L., Wetzel, D., Tonolo, G., & Hyppolite II, J. (2022, November 3). For the first time in decades, the number of people without access to electricity is set to increase in 2022 – Analysis. IEA. <https://www.iea.org/commentaries/for-the-first-time-in-decades-the-number-of-people-without-access-to-electricity-is-set-to-increase-in-2022>
- DAGI Consulting. (2018). *Monitoring & Evaluation Sumba Iconic Island Program 2018*. <https://sumbaiconicisland.org/wp-content/uploads/2015/09/Laporan-Akhir-Monev-SII-2018-Bahasa-Indonesia.pdf>
- Dawson, C., & Henley, A. (2012). "Push" versus "pull" entrepreneurship: An ambiguous distinction? *International Journal of Entrepreneurial Behavior & Research*, 18(6), 697–719. <https://doi.org/10.1108/13552551211268139>
- Fingleton-Smith, E. (2020). Blinded by the light: The need to nuance our expectations of how modern energy will increase productivity for the poor in Kenya. *Energy Research & Social Science*, 70,

101731.  
<https://doi.org/10.1016/j.erss.2020.101731>
- Ha, L. M., Ling, E. L. A., Muniapan, B., & Gregory, M. L. (2017). General Enterprising Tendency (GET) and recommendations to boost entrepreneurship education in Sarawak. In *Entrepreneurship: Concepts, Methodologies, Tools, and Applications* (pp. 448–465). IGI Global. <https://doi.org/10.4018/978-1-5225-1923-2.ch021>
- Hendrastiti, T., & Kusujiarti, S. (2020, August 31). Hidden Narratives: The Struggle of Sumba Women in Saving Fresh Water. The Proceeding Book Presented the 3rd International Conference on Gender Equality and Ecological Justice. International Conference on Gender Equality and Ecological Justice, Salatiga, ID.
- Hivos. (2012). Sumba: An Iconic Island to Demonstrate The Potential of Renewable Energy. Hivos. [www.hivos.nl](http://www.hivos.nl)
- IRENA. (2018). Off-grid renewable energy solutions. [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jul/IRENA\\_Off-grid\\_RE\\_Solutions\\_2018.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jul/IRENA_Off-grid_RE_Solutions_2018.pdf)
- Khurana, T., & Sangita, S. (2022). Household access to electricity and non-farm business in rural India: A panel data analysis. *Energy for Sustainable Development*, 67, 125–134. <https://doi.org/10.1016/j.esd.2022.01.008>
- Kirubi, C., Jacobson, A., Kammen, D. M., & Mills, A. (2009). Community-based electric micro-grids can contribute to rural development: evidence from Kenya. *World Development*, 37(7), 1208–1221. <https://doi.org/10.1016/j.worlddev.2008.11.005>
- Kooijman-van Dijk, A. L., & Clancy, J. (2010). Impacts of electricity access to rural enterprises in Bolivia, Tanzania and Vietnam. *Energy for Sustainable Development*, 14(1), 14–21. <https://doi.org/10.1016/j.esd.2009.12.004>
- Krueger, N. F. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice*, 31(1), 123–138. <https://doi.org/10.1111/j.1540-6520.2007.00166.x>
- Kusumastuti, R. D., Viverita, V., & Rachmawati, R. (2017). A policy framework to support household-based snack food industry in East Sumba Regency for poverty alleviation. *Journal of Business and Economics Review*, 2(3). <https://papers.ssrn.com/abstract=3010027>
- Lomi, A. (2016). The role of renewable energy: sumba iconic island, an implementation of 100 percent renewable energy by 2020. In F. Pasila, Y. Tanoto, R. Lim, M. Santoso, & N. D. Pah (Eds.), *Proceedings of Second International Conference on Electrical Systems, Technology and Information 2015 (ICESTI 2015)* (pp. 173–184). Springer. [https://doi.org/10.1007/978-981-287-988-2\\_19](https://doi.org/10.1007/978-981-287-988-2_19)
- Ngongo, Y., & Ngongo, M. (2021). Marapu and farming: how tourism shape rural development and ancient tradition of Sumba indigenous community – Indonesia. *E3S Web of Conferences*, 316, 04004. <https://doi.org/10.1051/e3sconf/202131604004>
- Nordbø, I. (2022). Female entrepreneurs and path-dependency in rural tourism. *Journal of Rural Studies*, 96, 198–206. <https://doi.org/10.1016/j.jrurstud.2022.09.032>
- Numata, M., Sugiyama, M., & Mogi, G. (2020). Barrier analysis for the deployment of renewable-based mini-grids in Myanmar using the Analytic Hierarchy Process (AHP). *Energies*, 13(6), Article 6. <https://doi.org/10.3390/en13061400>
- Obeng, G. Y., & Evers, H.-D. (2010). Impacts of public solar PV electrification on rural micro-enterprises: The case of Ghana. *Energy for Sustainable Development*, 14(3), 223–231. <https://doi.org/10.1016/j.esd.2010.07.005>
- Obschonka, M., Silbereisen, R. K., & Schmitt-Rodermund, E. (2010). Entrepreneurial intention as developmental outcome. *Journal of Vocational Behavior*, 77(1), 63–72. <https://doi.org/10.1016/j.jvb.2010.02.008>
- Ortega-Arriaga, P., Babacan, O., Nelson, J., & Gambhir, A. (2021). Grid versus off-grid electricity access options: A review on the economic and environmental impacts. *Renewable and Sustainable Energy Reviews*, 143, 110864. <https://doi.org/10.1016/j.rser.2021.110864>
- Osunmuyiwa, O. O., & Ahlborg, H. (2022). Stimulating competition, diversification, or re-enforcing entrepreneurial barriers? Exploring small-scale electricity systems and gender-inclusive entrepreneurship. *Energy Research & Social Science*, 89, 102566. <https://doi.org/10.1016/j.erss.2022.102566>
- Piekkari, R., Plakoyiannaki, E., & Welch, C. (2010). 'Good' case research in industrial marketing: Insights from research practice. *Industrial Marketing Management*, 39(1), 109–117. <https://doi.org/10.1016/j.indmarman.2008.04.017>
- Rahman, Md. M., Paatero, J. V., Poudyal, A., & Lahdelma, R. (2013). Driving and hindering factors for rural electrification in developing countries:

- Lessons from Bangladesh. *Energy Policy*, 61, 840–851. <https://doi.org/10.1016/j.enpol.2013.06.100>
- Rao, N. D. (2013). Does (better) electricity supply increase household enterprise income in India? *Energy Policy*, 57, 532–541. <https://doi.org/10.1016/j.enpol.2013.02.025>
- Riva, F., Ahlborg, H., Hartvigsson, E., Pachauri, S., & Colombo, E. (2018). Electricity access and rural development: Review of complex socio-economic dynamics and causal diagrams for more appropriate energy modelling. *Energy for Sustainable Development*, 43, 203–223. <https://doi.org/10.1016/j.esd.2018.02.003>
- Robert, F. C., Frey, L. M., & Sisodia, G. S. (2021). Village development framework through self-help-group entrepreneurship, microcredit, and anchor customers in solar microgrids for cooperative sustainable rural societies. *Journal of Rural Studies*, 88, 432–440. <https://doi.org/10.1016/j.jrurstud.2021.07.013>
- Simcock, N. (2016). Procedural justice and the implementation of community wind energy projects: A case study from South Yorkshire, UK. *Land Use Policy*, 59, 467–477. <https://doi.org/10.1016/j.landusepol.2016.08.034>
- Smith, M. G., & Urpelainen, J. (2016). Rural electrification and groundwater pumps in India: Evidence from the 1982–1999 period. *Resource and Energy Economics*, 45, 31–45. <https://doi.org/10.1016/j.reseneeco.2016.05.004>
- Smith, R. (2021). Models for implementing entrepreneurial policing. in entrepreneurship in policing and criminal contexts (Vol. 12, pp. 127–145). Emerald Publishing Limited. <https://doi.org/10.1108/S2040-724620210000012006>
- Stephens, J. C. (2019). Energy democracy: Redistributing power to the people through renewable transformation. *Environment: Science and Policy for Sustainable Development*, 61(2), 4–13. <https://doi.org/10.1080/00139157.2019.1564212>
- Susilorini, R. M. I. R., Lika, R. R., Sriyana, Angghita, L. J., & Sinaga, J. I. (2021). Gender mainstreaming in drought disaster risk reduction. *Journal of Physics: Conference Series*, 1811(1), 012109. <https://doi.org/10.1088/1742-6596/1811/1/012109>
- Tashakkori, A., & Creswell, J. W. (2007). Editorial: The New era of mixed methods. *Journal of Mixed Methods Research*, 1(1), 3–7. <https://doi.org/10.1177/2345678906293042>
- Tehik, Y. K. N., & Hudang, A. K. (2016). Peternak sapi dan jebakan kemiskinan. *Jurnal Transformatif Unkriswina Sumba*, 6(1), Article 1.
- Van Veelen, B. (2018). Negotiating energy democracy in practice: Governance processes in community energy projects. *Environmental Politics*, 27(4), 644–665. <https://doi.org/10.1080/09644016.2018.1427824>
- Vel, J. (1994). *Uma Economy: Indigenous Economy and Development Work in Lawonda, Sumba*. Thesis Wageningen.
- Vel, J. A. C. (2008). *Uma politics: An ethnography of democratization in West Sumba, Indonesia, 1986–2006*. Brill. [https://doi.org/10.26530/OAPEN\\_393150](https://doi.org/10.26530/OAPEN_393150)
- Wibisono, H., Lovett, J. C., & Suryani, S. (2023). Expectations and perceptions of rural electrification: A comparison of the providers' and beneficiaries' cognitive maps in Rural Sumba, Indonesia. *World Development Sustainability*, 3, 100102. <https://doi.org/10.1016/j.wds.2023.100102>
- Winkler, H., Simões, A. F., Rovere, E. L. Ia, Alam, M., Rahman, A., & Mwakasonda, S. (2011). Access and affordability of electricity in developing countries. *World Development*, 39(6), 1037–1050. <https://doi.org/10.1016/j.worlddev.2010.02.021>
- Winther, T. (2008). *The Impact of Electricity: Development, Desires and Dilemmas* (1st edition). Berghahn Books.
- World Bank. (2008). *The Welfare Impact of Rural Electrification: A Reassessment of the Costs and Benefits*. The World Bank. <https://doi.org/10.1596/978-0-8213-7367-5>
- Yu, L., & Artz, G. M. (2019). Does rural entrepreneurship pay? *Small Business Economics*, 53(3), 647–668. <https://doi.org/10.1007/s11187-018-0073-x>
- Yusrin, N. (2023). Implementasi General Enterprising Test (GET2) dan kontribusinya untuk mendorong sistem edukasi Gen-Z Indonesia berdasarkan locus of control. *Jurnal Bina Manajemen*, 12, 528–555. <https://doi.org/10.52859/jbm.v12i1.486>