Here Comes the Sun

Imagination, Development, and Technology in Malawi

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TKAM02 - Spring 2022	

Abstract

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This paper explores how electrical appliances, together with the idea of attaining energy access in the near future, create hope in a northern village in Malawi. Even though less than one per cent of the rural population has energy access, some of these locals already own solar systems. Nevertheless, their solar equipment is not powerful enough to generate the large amounts of energy required to run electrical appliances, such as fridges and TVs, some of the electric devices they already own. Through autoethnography and ethnographic accounts of everyday life in the village over two months, the following research aims to defy western concepts of development and poverty and questions: How are development and technology visible in the northern village? How is energy desired to be used? What is the rationale? In addition, the available material comprises observations at residents' households, fishermen's workplaces, and interviews with shop owners, students, alumni, staff, and teachers at a solar academy. Drawing on theories of material culture, emotional practices, time, and agency, I will present two arguments. Firstly, locals already use and adapt solar technology to their needs, which foreign involvement could support. Secondly, education, objects, and the act of owning them represent the hope of a near-future within a low-income community. Both arguments are relevant to solar businesses and foreign involvement projects to implement technology.

Keywords: Applied Cultural Analysis, Development, Energy access, Imagination, Malawi, Solar technology, Technology.

Abstrato

Aqui Vem o Sol: Imaginação, Desenvolvimento, e Tecnologia em Malawi

Catarina Santos

A presente investigação visa explorar como os eletrodomésticos e a ideia subjacente à obtenção de acesso à energia, num futuro próximo, cria esperança numa aldeia do norte do Malaúi. Mesmo com menos de um por cento da população rural com acesso à energia, esses residentes já possuem sistemas solares. Contudo, apesar de já disporem de eletrodomésticos como frigoríficos e televisões, o equipamento solar não é suficientemente capaz de produzir a energia elétrica necessária para os alimentar. Através do uso da autoetnografia e descrições etnográficas de eventos experienciados durante dois meses na já mencionada aldeia do norte, esta investigação pretende desafiar conceitos ocidentais relativos ao desenvolvimento e à pobreza. Assim, questiona: Como é que o desenvolvimento e a tecnologia são visíveis nesta aldeia do norte? Para que fins os residentes desejam utilizar a energia? Por que visam essa utilização? O material utilizado acarreta observações, focadas não apenas nas casas dos residentes como também no local de trabalho dos pescadores. Adicionalmente, e de modo a complementar e diversificar o material utilizado, a presente investigação conta também com entrevistas feitas a gerentes de lojas, estudantes, ex-alunos, staff, e professores de uma escola profissional focada na educação em energia solar. Atendendo a teorias de cultura material, práticas de emoções, temporalidade, e agência, dois argumentos são sugeridos. O primeiro, foca-se no facto de os residentes desta aldeia do norte já utilizarem e adaptarem a tecnologia de acordo com as suas necessidades- algo que o envolvimento estrangeiro pode apoiar. Já o segundo, prende-se por possuírem tanto a educação como os objetos- representando esperança para um futuro energético não longínquo desta comunidade que vive ainda num contexto de baixo rendimento económico. Ambas as conclusões são de enorme relevância tanto para negócios em que o foco seja a tecnologia solar, como para projetos de envolvimento estrangeiro que visem a implementação de tecnologia.

Palavras-chave: Análise de Cultura Aplicada, Desenvolvimento, Acesso à energia, Energia solar, Imaginação, Malaúi, Tecnologia.

Acknowledgements

Table of contents

List of figures

1. Introduction

1.1. Objective

During two months of fieldwork in a northern village in Malawi, I experienced living off-grid. As rural areas in Malawi continue struggling with energy access, the government of Malawi is currently venturing into solar technology due to the abundant solar resource. Consequently, there is a focus on educating the young generation in solar technology regarding the installation and repair of solar systems. Therefore, apart from cities such as Lilongwe, the capital of Malawi, which has seen growth in solar education due to the creation of solar schools, rural areas have seen the rise of solar schools. For instance, the school I was in during the year 2021, located in the north of Malawi, was recently built. Moreover, after engaging with a North American solar company focused on providing energy access to off-grid communities, I embarked with the company to explore and understand how locals from the northern village use solar technology. While in the village, I met the company's development partner, a local solar school, where I enquired about energy access with the school's staff and locals. Therefore, I realised that people owned electrical appliances despite having limited energy access. In a place where less than one per cent of the rural population has access to electricity, how can one own and run appliances such as fridges or TVs? Therefore, the research argues that education and ownership of electrical appliances represent a hopefully near-future imagined by the community to attain energy access. In addition, this research aims to answer the following questions: How are development and technology visible in the northern village of Malawi? How is energy desired to be used by the locals? What is the rationale? In attempting to answer these questions, the present research defies western concepts and indexes of development and poverty by providing personal accounts of experiences from the field that reveal how people adapt and create technology to their needs.

1.2. Background

In 1949, Harry Truman, the president of the United States, gave a speech regarding the fair deal and the solvation of hunger and poverty on a global scale:

> "We must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas. More than half the people of the world are living in conditions approaching misery. Their food is inadequate. They are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas" (Truman 1949 in Escobar, 2012).

The intention to economically elevate "more prosperous areas" can be interpreted to serve those countries better positioned in a capitalist world. Consequently, based on industrialization, urbanisation, and technology, a division between developed and undeveloped countries was created, and a new understating of world affairs began to legitimise interventions (Escobar, 2012).

Therefore, a division between developed and undeveloped countries and traditional and modern economies and societies established the world. Moreover, the concept of development was created in a western perspective of dualism by the economist Arthur Lewis, arguing that underdeveloped economies had a dualistic nature, meaning that modern sectors coexisted alongside traditional sectors. In addition, the economist Walt Rostow conceptualised development as linear stages of economic growth, thus having a unilinear progression from traditional to modern economies (Binns, 2014). Therefore, the economic models of growth created a blueprint for industrialisation and modernisation theories which claimed that undeveloped countries that predominantly relied on agriculture as subsistence, could reach economic progress if models of developed countries were implemented. Therefore, I question: What was the outcome of implementing those models to achieve development?

According to Escobar (2012), until the 1970s, Asia, Africa and Latin America were the focus of development discourse since poverty became "an organizing concept and the object of a new problematization" (Escobar, 2012:24). Even though governments designed interventions in development plans, people's conditions did not improve, leading to failure. Nevertheless, Indian economist Amartya Sen

in *Development as Freedom* (1999), argued that development should be imagined as the increasing freedoms that people most desire and value. Therefore, by using freedom as an essential contributing factor, the idea that development should not only be based on economic growth began. Therefore, there was an integration of a human approach, which contributed to the decay of the idea that development and poverty existed in the Global South exclusively because of insufficient economic growth, which led to the creation and adoption of the Human Development Index (HDI) that better-defined levels of development (Northover, 2014). For instance, the HDI measures levels of health, education, literacy, and poverty. Therefore, in 2000, the United Nations (UN) developed eight Millennium Development Goals (MDGs), which ranged from diminishing poverty to reducing HIV rates (Rig, 2014). However, since MDGs did not reach their goal until the deadline of 2015, the MDGs were re-packed and re-arranged into the current UN Sustainable Development Goals (SDGs) that aim to achieve a globally sustainable future.

Nevertheless, the gap between the Global North and South have not ceased. Even though foreign organisations have made efforts in implementing ways to achieve development, these were not sufficient to close the gap. Therefore, as the world becomes tangled in global connections and technological advances, new ways to implement change have been created. In Malawi, for instance, electrification has been the focus due to the lack of energy access in rural settings. However, how can the Global North positively impact countries in the Global South? What must be considered? Post-development theorists such as Arturo Escobar are critical of western models of change for development and argue the Global South should be the one finding ways of development with the use of traditional knowledge (Escobar, 2012). Nevertheless, modernization privileged modern over traditional knowledge to achieve change. For instance, western science has been more applicable due to its applicability on a global scale, whereas traditional knowledge is specific to a place. Therefore, modernity led to the creation of new knowledge in technology. For example, Barrett (2003) explains the concept of Appropriate Technology (AT) as "an approach to community development consisting of a body of knowledge, techniques, and an underlying philosophy" (2003:1). In addition, Dunn (1978) describes it as a "method [that] attempts to recognise the potential of a particular community and tries to help it to develop in a gradual way" (1978:3). Nevertheless, who knows more about a community's way of living if not the locals themselves? Indigenous knowledge is "any understanding rooted in local culture

and includes all knowledge held more or less collectively by a community that informs interpretations of the world" (Sillitoe, 2002:108). Therefore, if AT focuses on a specific community while attending to their ways of living, could it not benefit from traditional knowledge to create and implement technology based on how locals interpret the world?

As such, this research attends to how development and technology are visible in the northern village in Malawi to demonstrate how people adapt technology to their needs and project the use of technology in the future. Therefore, this research shows the importance of being in the field, observing, and conversing to gather information from the locals' perspective. In short, as Escobar (2012) claims, the Global South should find its ways of development. Therefore, this research is relevant to development studies and adjacent fields since it can benefit from empirical knowledge of what is happening on the ground level to assist the Global South in a complementary and local way.

1.3. Structure overview

This thesis has five main chapters. Firstly, a historical contextualization of Malawi aims to understand the current socio-economic situation in the country. In addition, literature on development theory and technology for development aims to comprehend how the west has grasped concepts of poverty, development and technology. Therefore, as an example, the section attends to the Sustainable Development Goals (SDGs) and indexes such as the per capita income (PCI) and the gross national product (GNP). Secondly, after engaging in those theories and concepts, the following section provides an autoethnographic account of events that demonstrate how development and technology are visible in the field rather than seen in the previous chapter. Thirdly, a depiction of four ethnographic moments: the journey to the solar school, the locals' rhythms according to the sun, half a day spent in Lawg'inya, a remote village, and the climax of the material, an episode on electrical appliances. The fifth chapter analyses technological objects by exploring emotions, temporality, imagined futures, and agency. In addition, the concept of aspirational purchases is discussed to illustrate a phenomenon that occurred during the exploration of objects. Therefore, the analysis begins a dialogue with the material previously provided by the comprehensive sections on autoethnography, and thick descriptions of the scenery, that incorporate interviews

and observations, and theories of material culture (c.f. Miller, 2010; Ellen, 1998; Ahmed, 2010), emotional practices (c.f. Scheer, 2012; Pétursson, 2018), temporality (c.f. Appadurai, 2004; Archambault, 2014), imagination (c.f. Mauss, 2001; Motz, 1998; Willim, 2017; Benedict, 1983; Jasanoff, 2015; Escobar, 2014; Mudimbe, 1998; Said, 1971) and agency (c.f. Bennett, 2009; Laed and Mol, 2000; Wicklein, 2004; Marion, 2018). Lastly, the applicability section addresses how the insights present in this analysis are relevant to solar businesses and foreign organisations that aim to assist in ways of implementing technology in the Global South. Additionally, a conclusion is provided to bring together these topics and summarise the discussion.

1.4. Ethical considerations

In attending to the participants' privacy while conducting this research, their names were altered, and their identities were anonymised. Nevertheless, the content of the interviews was maintained and used with permission. In addition, considering the theme of this research regarding topics related to development, poverty, ways of changing the Global North, and community's imagination, this thesis draws on the voices of theorists and intellectuals from the Global South to emphasise the second ethical consideration present in this work, appropriate literature regarding the theme in the discussion. Even though methods of cultural analyses, a field grounded in western theories, are used, I found it to be essential to complement western theories with voices that can enhance the present discussion by providing additional perspectives closer to the context studied. In short, I ethically considered drawing voices from the Global South akin to the theme discussed in this thesis, as it is suitable and relevant to the discussion.

2. Frameworks

2.1. Historical account of Malawi

> *On my way to Malawi, I had a connection flight in Italy, at Rome-Fiumicino Leonardo da Vinci airport. While I was waiting to board, an older gentleman asked me to look over his backpack while he went to the restroom. When he got back, he thanked me and began to talk about his job as an anthropologist in Uganda. I told him I studied Applied Cultural Analysis and asked more about his job. He told me about his research on wedding traditions followed by enquiring where I was heading. I told him I was going to Malawi to research solar energy and technology with a solar company. He smiled and said: "I have been to Malawi. It's a beautiful place with great people! It has money you know, but a lot of structural problems. Before I could ask anything else, it was time to board* (fieldnotes 2021).

Malawi is a landlocked country located in Southeast Africa. It is known as one of the poorest countries in the world where access to energy does not seem to reach most villages. Nevertheless, to introduce the current socio-economic situation in Malawi, I invite the reader to 1964, when Malawi gained independency from Great Britain and rose as one-party state under the governance of the Malawi Congress Party (MCP) and its chairman Kazumu Banda (Kaunda, 1998). The MCP created a Manifesto which aimed to arrange the economy and serve as the guideline for the basis of development until the culmination of Banda's autocracy in 1994. The MCP manifesto included changing the structure of government departments, and the provision of social services such as education, health, and information. Nevertheless, the manifesto did not aim to transform the political and economic order left by colonialism, but to reform it through electoral approval. Therefore, the manifesto was formulated by the party elite, leading to a deepening of political and administrative centralisation by implementing a one-party state (Kaunda, 1998).

In short, the one-party state perpetuated the structural features of the colonial economy by centralising political and economic power amognst the MCP party members, which maintained small scale and subsistent agriculture. Consequently, by the

late 1980s, small scale farmers were the main providers of subsistence food, which increased rural poverty and marginalised them from the productive economy (Kaunda, 1998). Furthermore, agriculture remained the principal generator of economic wealth in the following years, while economic structural imbalances remained. Malawi's government policies exploited the small-scale agriculture sector to subsidise and support the owners of the land, that were now fellow Malawians and members of the government. Other sources of economic growth such as mining and industrialization were not explored by Banda and the MCP, which continued to make the country dependent on agriculture.

Internal dissatisfaction with Banda's autocracy and economic state of the country, lead to the creation of new manifestos and the union between Alliance for Democracy (AFORD) and the United Democratic Front (UDF), which ended Banda's rule in 1994. Therefore, the new manifestos by the AFORD and UDF were created to promote development, however, ethnic, linguistic, and regional divisions between the party leaders and their parties emerged, which contributed to the end of the alliance, leading to further political instability (Kaunda, 1998). Even though manifestos of both parties were written to promote national development, the major differences from the MCP Manifesto were the account of democratic governance, community empowerment, environmental protection, and liberation of the economy. This last policy had the effect of accelerating the devaluation of Malawi's currency, increasing inflation, worsening living conditions, education, and unemployment. Consequently, transport, electricity, and water infrastructures collapsed "in a country where only four percent of the population has access to domestic electricity. The road transport network has also been allowed to deteriorate, especially following the heavy rains of the past years" (Kaunda, 1998:62). The difficult road access is still seen today in remote villages in Malawi. For instance, in the section *4.3. Half a day in Lawg'inya* of this analysis, I describe how floads due to the heavy rains, are an impass to transiting in and out of the village of Lawg'inya.

Moreover, after Banda's autocracy, Bakili Muluzi from the UDF party was elected president of Malawi. Muluzi advocated freedom of speech, promising to end government corruption and reduce poverty, which was met with limited success (Kalinga et al., n.d.). Muluzi stablished good relationships with Arab countries, a matter that positively impacts Malawi today as it will be seen on section *3.1 Ethnographic context* of this research, as I was told that an Arab country financially contributed to the

making of a solar school in the northen village of Malawi, where much of the enthographic fieldwork was conducted.

However, between 2001 and 2002, Malawi suffered from a severe food shortage, leading to famine. Even though Muluzi was establishing good relations with foreign countries, international aid came slowly since it was believed that government mismanagement and corruption contributed to the food shortage. After Muluzi's term, he was arrested for pocketing millions of dollars' worth of donations (Kalinga et al., n.d.). Consequently, Bingu wa Mutharika was elected the new president and chairman of UDF. Mutharika improved government operations in eliminating corruption and contributed to a political reform which was positively seen by international donors who resumed foreign aid. However, in the early 2000s, Malawi was heavily impacted by HIV, which compounded with a lack of economic resources, education and infrastructures kept the country reliant on external aid. Nevertheless, during Mutharika's term, economic growth was stable, the agricultural sector improved, and food insecurity was reduced. Even though the population supported Mutharika's governance for a second term, autocracy returned once again, and the country faced new economic and political challenges. Despite national protests of discontentment, the Malawian army dealt harshly with the situation by injuring civilians. Consequently, foreign aid was redrawn due to upholding human rights and the country lost financial aid once again (Kalinga et al., n.d.).

After Mutharika's death in 2012, Joyce Banda was nominated president of Malawi and became the first female to reach presidency not only in Malawi but also in Southern Africa. She was affiliated with the Democratic Progressive Party (DPP) and counteracted Mutharika's governance by restoring diplomatic relations with Great Britain and other doners. Banda also lifted the economy by doubling the country's economic growth during the first two years of her term. In addition, the president was also set to eliminate government corruption, a current issue since Banda's rule in 1964 (Kalinga et al., n.d.). However, while Paul Mphwiyo, the Ministry of Finance, was investigating government corruption, he suffered an assassination attempt. In 2014, evidence showed that more than 30 million dollars were stolen by senior-level management officials and the matter was taken into court. Even though new elections followed, there were complaints of voting irregularities and falsifications of votes. Despite Banda's effort to annul the elections, the High Court ordered the Malawian Electoral Commission (MEC) to release the results. Afterwards, Peter Mutharika who

was standing for the DPP succeeded Banda's presidency. During the 2019 elections, allegations of vote tampering were brought up again. The matter was taken into Malawi's Constitutional Court and serious irregularities were detected. Therefore, the results were annulled and a new election took place in 2020. Therefore, Chakwera from the MCP won and is the current president of Malawi (Kalinga et al., n.d.).

In conclusion, the political and economic centralisation stemming from the MCPs reign limited the economic growth of Malawi, creating differences between classes, provoking discontentment stagnating the educational system and the creation of infrastructures contributing to Malawi's reliance on agriculture as seen today. Furthermore, the political instability after Banda's rule from 1964 to 1994 contributed to a lack of organisational structure and a disbelief in the government due to corruption resulting in extreme wealth inequality. Even though Malawi had leaders who pushed the country forward in combatting poverty and corruption, episodes of famine, HIV, and the lack of foreign aid during periods of political instability contributed to Malawi's poor socioeconomic situation. Over this time, corruption has been an endemic problem, continually contributing to increasing poverty, leading to a lack of international support. In short, the colonial legacy, the lack of structure in governance, and permanent cases of corruption restrained Malawi from progression in, for instance, education, health, infrastructures, and economic development. Based on the country's history, I reflected on how advanced Malawi is based on its past. Comparisons with the Global North would surely point to Malawi's lack of consistent and reliable government, and yet I would like to highlight how much the country has evolved in addressing corruption, mistrust in its government, and the lack of common infrastructure.

2.2 Development theory

Parties such as the MCP, AFORD, and UDF created manifestos which aimed to serve as guidelines for the basis of development (Kaunda 1998), in which foreign monetary aid contributed significantly. Therefore, the concept of *development* is put into question. What is it and how can it be attained?

Until the 1980s, economic growth was the main factor in achieving development and distinguishing developed from underdeveloped economies using indexes such as per capita income (PCI) and the gross national product (GNP) to determine poverty. Consequently, modernization theory was used at the time to argue that the Global South should follow the Global North's ways of growth by focusing on unilinear progression and stages of growth from traditional to modern societies and practices (Desai, V., & Potter, R. (Eds.), 2014). Therefore, industrialization and technology present in the Global North defined the terms of *development* and *modernity* as perspectives of linear progression that would increase economic growth and eradicate poverty. As a result, development discourse toward progress and reaching modernity contributed to the creation of new channels for change to achieve development in the Global South (Escobar, 2012). Therefore, modernisation did not take into account how the local population lived. Rather, it assumed that since the technology of the Global North worked for their advancements, it would work for the Global South. However, how can one approach fit all if there are such different societal practices between the two?

After the 1980s, a shift from a purely economic perspective to a social one occurred through the creation of the Human Development Index (HDI) since it includes rates on, for example, natality, education, deaths, and literacy, providing a humanistic view of development. Moreover, in the early 2000s the United Nations (UN) reformed the Millennium Development Goals (MDGs) that mainly focused on eliminating poverty and created the Sustainable Development Goals (SDGs) in 2015 to achieve global development based on sustainability, which made development a holistic endeavour. For instance, the SDGs are part of the 2030 Agenda, a blueprint that comprises 17 goals, including ending poverty, providing affordable and clean energy, and creating sustainable cities and communities on a global scale. Even though SDGs include the economic, social, and environmental spheres, has it narrowed the gap between the Global North and South? Has it improved people's lives in the Global South?

Development discourse have been criticized by post-development theorists such as anthropologist Arturo Escobar, who argue that even though the Global North designed interventions for development plans, people's conditions in the Global South did not improve, encouraging the perception of these endeavours as failures. Therefore, post-development theory is critical of western models of change for development and argues the Global South should be the one finding its ways of development while

elevating but not romanticizing traditional knowledge (Escobar, 2012). For instance, taking into account Malawi's history on corruption since Banda's rule in 1964, will foreign monetary aid be a solution? Perhaps a local approach to development based on local knowledge, needs, and desires could be the start of finding new ways of development.

Therefore, due to the lack of expected improvement in the living conditions in the Global South, I question several aspects of the development discourse. Firstly, has the Global North seen if development is visible in the Global South? Secondly, has the Global North reflected if the implementation of a "global development" takes into account the way of life in the Global South as well as their needs, and opinions, regarding ways of changing to achieve development? In short, have the ways of changing to reach development adjusted to different realities or is change being imposed?

2.3 Technology for development

Agriculture constitutes a significant economic and subsistence role in Sub-Sahara Africa (SSA), since most countries are agrarian and depend on natural resources to live, such as Malawi. In addition, the agricultural sector is seen as a means for eradicating poverty, improving the standard of living, and meeting the SDGs (Omoju et al, 2020). However, as present in Malawi's historical accounts, the focus on agriculture limited the country's exploration of economic growth in other industries and led to an agrarian dependency, and stagnation of progression into industrialization in the rural areas. Even though agriculture is the principal generator of economic wealth, it might seem logical to financially assist the Global South to invest in rural industrialization, but what are people from the Global South saying?

Malawi is currently venturing into solar technology due to the abundant solar resource. Solar energy "increases possibilities for rural industry. Some common uses of energy in villages are grinding grain, illuminating homes, and operating radios or related electronic devices" (Newell, 2003:157). Mohanty (2004) argues that a correlation between rural poverty and energy access exists since electricity is a requisite

for productive activities. Therefore, by improving energy access, productivity will increase due to a boost in the means of production. In addition, energy access applies to households since it allows people to produce more by working for longer hours, using the surplus from increased production to enter the market (c.f. Torero, 2015). In short, electrification provides socio-economic development in rural areas. Therefore, to achieve electrification, the implementation of technology becomes necessary, but how can it be effectively implemented?

Appropriate technology (AT) is an attractive concept to achieve change for development in the Global South as the necessity to modernize rural areas by implementing technology continues. AT was initially developed as "intermediate technology" by the economist Ernst Friedrich Schumacher in *Small Is Beautiful* (1973) on how to achieve development despite economic factors. Later the concept was reformulated as AT, which can be understood as "an approach to community development consisting of a body of knowledge, techniques, and an underlying philosophy" (Akubue, 2000:6). In addition, Dunn (1978) distinguishes the two terms by arguing that intermediate technology is concerned with techniques, whereas AT covers social aspects of development. Moreover, according to Wicklein (2004), AT is a concept that meets human needs while considering sustainability, natural resources, and communities. Therefore, it is a combination of the environment, the ways of life in a community and the implementation of lasting technology that will improve the quality of life and combat poverty, which could suit both developed and developing countries. Even though the concept is suitable for both, it can bring more advantages to people in the Global South since AT is "small scale, energy-efficient, environmentally sound, labor intensive, and controlled by the local community" (Barrett, 2003:1), as well as maintained by the people using it. However, if "the Appropriate Technology method attempts to recognise the potential of a particular community and tries to help it to develop in a gradual way" (Dunn, 1978:3), could the Global North implement technology and electrify agricultural production since this plays a large role in the economic wealth of Malawi and it is seen as the priority for poverty eradication and development? Would that work?

Madubansi and Shackleton (2006) analyse data from five rural villages in South Africa regarding changes in energy consumption patterns during an electrification program. They argue that energy was being used to power entertainment appliances instead of replacing fuels currently in use for thermal purposes. They concluded that

"electricity is simply viewed as an additional energy, rather than an alternative" (2006:4081). If energy increases rural industry due to productivity, why do consumers view energy as additional? Consequently, if energy is seen as "additional", will people from the Global South be eager to replace their ways of living, including work in the agricultural sector, to integrate electricity? What are people using or expecting to use energy for? What do they desire?

3. Autoethnography

3.1 Ethnographic context

In 2021 I engaged with a North American solar company through a network on sustainability. The company is focused on renewable solar energy, and took part in the United Nations Office for Project Services (UNOPS) incubator programme to continue developing their new solar product and meet some of the SGDs, such as affordable and clean energy, decent work and economic growth, and partnership for the goals. UNOPS is a self-funded operational arm of the UN that aims to provide an infrastructure to assist businesses in implementing practices to meet the SGDs globally.

When I first met the solar company in the network on sustainability, I frowned when the company expressed the desire to enter the Global South market, by providing off-grid energy to improve living conditions and combat poverty with the implementation of their new solar product in Malawi, one of the poorest countries in Sub-Saharan Africa, that is venturing into solar technology. The solar company claimed that in 2018, they had created a solar product capable of being both direct drive, harnessing energy directly from solar while increasing productive use during the daytime, and solar battery charger to be used as an energy source at night and as a backup in case of a grid outage. The device does not require batteries to run, which is the most expensive part of solar systems, according to the company. They also state the cost of transportation, manufacture and purchase is significantly lower than other products currently in the market, making it sustainable and suitable for the Global South.

Nevertheless, I kept reflecting on their intentions. If the solar product has dual capacity, and a significant lower cost of manufacture, why not stay in the North American market? Why the Global South? Are they looking for profit, or can a business be altruistic? The solar company and I exchanged articles on interventions in the Global South, and their intentions were clear to me when we discussed Perdikaris et al. (2020) *Seduction, Promises and Disneyfication of Barbuda post Irma,* an article sent by them. Briefly, the article explores how foreign financial aid helped re-construct Barbuda after the Irma hurricane in 2017. However, the intervention by the Global North led to a promise of a recovered Barbuda to locals that turned into the construction of attractive spaces for tourists and putting locals into work on those installations while prioritizing economic growth and disregarding the locals of Barbuda needs. Therefore, after the solar company critiqued the method of intervention seen in Barbuda as an example of how post-disaster development by the Global North can be dishonest, I was reassured that development discourse positively shaped the solar company to not follow an alien intervention to locals, but to better respect them, their ways of living, and necessities. As we continued to engage, the company informed me about their development partner, a solar academy located in a northern village in Malawi. Therefore, a few months later I embarked with the solar company to their development partner to assist on understanding the locals' views regarding solar energy to better implement the new product of the solar company.

When I arrived in Malawi, I had the opportunity to engage with the local solar academy. At the solar academy I met Samuel, one of the Malawian directors. Samuel explained to me that the solar academy focuses on innovation with classes on entrepreneurship and business, and solar technology education to prepare the young generation (between 19 and 24 year olds) in installing and repairing solar equipment during a three-year programme. Samuel mentioned that in the past, the solar school had a programme devoted to older women that have brough light into the village. This episode will be further discussed on section *4.3 Half a day in Lawg'inya* of the present research.

Samuel continued the conversation by adding that:

> Samuel: *"After finishing their studies, all students will be able to either join a solar business as technicians or start their own businesses to*

> *create new ways of income and installing lights in the rural areas of Malawi"* (fieldnotes 2021).

In addition, Samuel also told me that the solar academy was first built with prize money from an Arab country in 2014 with the goal of training local people as skilful technicians to install and maintain solar energy systems. Malawi's electrical grid does not have sufficient capacity to respond to the population's needs, especially in rural areas. The Malawi government is venturing into solar electricity due to the abundance and consistency of the natural resource. Previously, the energy was hydroelectric, which brought many challenges to the country since there are only two seasons during the year; the rainy and dry seasons. Therefore, during the dry season, the water levels remain low, leaving those who own a hydroelectric system without power (a significant portion of the population). After the successful start of the solar academy in providing jobs, and lighting homes with small LED lights, other organisations such as the EU pledged money to continue to develop the academy. After knowing that an Arab country began financing the school, I wondered if the good relationship between Malawi and Arab countries established by Muluzi in the late 1990s had a role in securing the initial investment for the academy, and the reasons why the EU also decided to contribute. However, the EU flag is on the front door of the school, but the Arab country's flag is nowhere to be seen even thought it kickstarted the solar academy.

After the introduction of the solar academy's origins and aim by Samuel, two other Malawians join us. First, Henry introduced himself as the financial director, followed by James, an alumni and current teacher at the school. Furthermore, I was introduced to a third director of the school. This time it was not a Malawian but a foreigner named Gabriel. After enquiring about the connection between them, the solar company and he explained me that they met in North America a couple of years ago before the Gabriel moved to Malawi. The foreign person was one of the co-founders and responsible for designing the school with a EU fund dedicated to helping develop solar academies in the region. Lastly, I was introduced to a few female students and participants of this research. Therefore, I will highlight four main participants.

Grace, a final year student and employee at a UK charity organisation that provides affordable lights such as LED lights and lamps charged by sunlight. I spent most of my time with Grace which allowed me to understand the way of life in the northern village, a matter that will be explored in section *4.2 Energy landscape*.

In addition, I met Annie, Emily, and Alice, second year students that agreed to conduct interviews and share their motivations to be enrolled at the school. Some of these female students were from the northern village, and others had their home in Lilongwe, the capital of Malawi, and Blantyre, the biggest city in the south of Malawi. At the same time, I also engaged with other members of the school's staff such as Raphael, the driver of the solar academy who was a local of the northern village. The solar company and I also spent a lot of time with Raphael since he was knowledgeable of the area and the people living there.

Even though our visit was expected since everyone already knew our names before us having introduce ourselves, we were greeted with big smiles, handshakes, and photographs taken by some of the students, followed by a big *"thank you for coming"* from the directors Samuel and Henry. Nevertheless, I was challenged to adapt myself to the participants ways of speaking and expressing themselves. Even though English is not my native language, it is one of the official languages in Malawi due to being a British colony until 1964, and most people speak it. However, I could notice differences in the speech's style that I have encountered in American, British, and Australian english. For instance, when Annie told me how she got to know the existence of the solar academy she said, *"I see on newspaper at a neighbour"* (fieldnotes 2021). Most participants did not conjugate verbs or used words that would not fit into the context of the conversation. Therefore, I began to record interviews, listen to them repeatedly, followed by transcribing them. Even though, I wonder how much I missed from the first casual conversations I did not record, the more time went by, the more I adapted myself and the easier it became to understand my participants. However, could I have misinterpreted something during my process of adaptation?

3.2 Reflections on methodology

Grace: *"Most of the houses in Malawi do not have electricity. They depend on candles, small torches, and most of them don't have complete anything, they use grass to lit houses on because here in Malawi we have difficulties with electricity. Many people are still struggling but as coming of*

companies that are selling solar the small lanterns, it's working better, it helped a lot, as many of them are using candles that can cause accidents like fire, but of now when they have the lanterns that can be affordable to them, that can make them better for their lives to go on" (fieldnotes 2021).

I have decided to leave this and the following interviews untouched to give the reader a better sense of the speech's style of my participants for the purpose of this section regarding how methods re-directed my focus.

Energy access in Malawi was described early in my fieldwork by Grace, at the local solar academy. She described how the situation has positively changed through the introduction of small sun-charged lamps in the household. In addition, after Grace's description of the energy landscape in Malawi, I began to imagine the energy landscape in rural areas as a transitional phase to solar electricity, and pictured households with either no light or small LED lanterns. Even though the main priority for the locals is lighting, the solar company and I continued to enquire about the local's perceptions of what more powerful solar technology could bring them.

Grace: *"People ask for batteries, big batteries, that can run fridges because in Malawi there are a very small percentage that has access to electricity, yeah, most of us we live in the dark, yeah, so most of people they go to South Africa to look for things like solar panels and batteries, so that when they are coming they can have a better house, fridges, TVs so they can be able to use it"* (fieldnotes 2021).

After paying close attention to transcriptions, and understand information given by participants, I began to realize small details on Grace's speech. Therefore, the use of autoethnography (Wall 2008), was key to analyse how "objective" my first conclusions were and highlights how my understanding of the subject matter changed with an analysis of transcriptions since the act of transcribing is not to write everything down, but to summarise and highlight what was being stated and the meaning during interviews since it can illustrate how participants feel and think about the subject matter. This method can also be, as Benjamin (1997) suggests, a technique that allows reading between the lines by finding the intention in the language used. By doing so, interpretation becomes a powerful issue since, as Bucholtz (1999) states, "all transcriptions take sides, enabling certain interpretations" (1999:1440). Moreover, as

O'Dell and Willim (2013) point out, transcriptions concern issues of power since the transcriber chooses how pauses, grammatical errors and other matters are transcribed. Nevertheless, what happens when the transcriber, the one who holds the power, misinterprets the material? I decided to leave the above-mentioned and further interviews untouched by keeping grammatical errors and colloquialisms to demonstrate how I misinterpreted information and deliver a sense of presence in the field. For instance, when Grace mentions that: *"most of the houses in Malawi do not have electricity"* (fieldnotes 2021), followed by *"people want big batteries that can run fridges"* (fieldnotes 2021), I interpreted the desire to run fridges as something in the distant future. In other words, I thought Grace meant that once they have big batteries, they would afterwards purchase those appliances, but it turned out to be the opposite. Therefore, after realising this detail, I could not help but to question: Do people really have fridges? Why? How?

The misinterpretation happened due to my understanding of development and poverty. As previously mentioned, development is a western construction seen with stages of growth. Therefore, my western perception did not expect people to own electrical appliances prior to acquiring sufficient energy to run them. Moreover, poverty also contributed to my idea that a Malawian household would not have big electronic appliances. Therefore, inspired by the "morellian method" (Ginzburg, 2013) present in history of art which draws attention to trivial details such as earlobes or fingers, and in small living ecosystems such as fungi (Tsing 2010), close attention to details of speech was given. The art of noticing, together with Queneau's (2009) styles in writing and his attention to different ways of conveying meaning, influenced a closer look into my interviewers' speech. Even though Malawi was a British colony until 1964 and most people speak English, different styles in speech are noticeable, leaving room for misinterpretation when talking to the participants and analysing transcriptions. Once these interviews were carefully analysed, and a reflection made on the self understanding of development and poverty, it was clear that people did not want to purchase electrical appliances if they had a powerful enough system. In fact, they already owned these appliances before having the required energy to run them.

After understanding that people owned electrical appliances with the use of close examination in transcriptions as a breakthrough in the style of speech and having a better sense of how people express themselves, I began to reflect on how visible development is in the field.

3.3 Development in the field

"I had imagined arid land and bumpy roads, but I was pleasantly surprised by the greenery, the recent tar coated roads, and the size of the Lake Malawi that could be seen from kilometres away without distinguishing its beginning or end, resembling the sea" (fieldnotes 2021).

Prior to arriving in Malawi, my idea of that place was based on a western gaze on poverty drawn from the economic indexes previously mentioned such as PCI and GNP, and the development narrative socially constructed on how African countries are. Similarly, Edward Said in *Orientalism* (1979), reflects on how the western perspective imagines, creates, and describes the East as exotic, which made me reflect further on my imagined fabrication of how Malawi would look like. In addition, according to Escobar (2012), poverty became: "an organizing concept and the object of a new problematization" (2012:24), but what is to be poor? What is poverty, and according to who? I imagined people to be gaunt due to the lack of food. After all, I was in of the poorest countries in the world. However, during my fieldwork, I could see vast fields of cassava and rice as illustrated in *figure 1* and *figure 2* correspondently.

Figure 1

Cassava Fields

Note: Personal photography. Malawi, 10/17/2021.

Figure 2
Rice field

Note: Personal photography. Malawi, 10/20/2021

"*Every single house had a small garden where cassava, a root vegetable, was planted in abundance. During walks and drives in the northern village, I noticed vast fields of cassava and rice, and every Saturday there would be a market not far from the solar academy which would sell tomatoes, potatoes, greens, rice, beans and usipa, a freshwater sardine-like fish*" (fieldnotes 2021).

After spending weeks in the field, I began to reflect if poverty was a concept based on financial income since the northern village's community is self-sufficient. Post-development theory differentiates two types of poverty: frugality and destitution (Escobar, 2012). Frugality refers to a state where basic needs such as food, water and shelter are guaranteed, but people have low or no income. A situation of destitution happens when basic needs are at stake due to financial income. I recall at the beginning of my stay that Grace mentioned how *"in Malawi, we are never hungry, there is always food"*, followed by John's smile and comment *"yes, never hungry in Malawi"* (fieldnotes 2021). Therefore, the community in the northern village is frugal since, despite low-income levels, basic needs are met. Consequently, my notion of development to eradicate poverty began to change since poverty has types and locals of the village only lack financial income but have their basic necessities met.

"Everyone was excited about the mango season. It was just around the corner. People keep talking about how mangos ripe around rainy season" (fieldnotes 2021).

As a frugal society, the northern village valued nature and anticipated the new seasonal fruit with excitement. However, during a conversation with the foreign Gabriel I realized that he did not know that mangos would ripen around rainy season despite locals mentioning it frequently over the course of two weeks as we were quickly entering the new season. How much did Gabriel interact with locals? Even though he advocated that I should interact with the locals to understand their needs, I was also asked to speak to them in a *"very slow way, as you do to kids, otherwise, they will not understand you"* (fieldnotes 2021), which I felt as condescending toward the locals on Gabriel's part. One night, while I was talking with John, the night guard at the solar school, John mentioned him and said *"mean, we don't like [Gabriel]"* (fieldnotes 2021), followed by a sigh.

By moving from the Global North to the South, I saw Gabriel's action as altruistic but the lack of engagement with the locals made me reflect on the development discourse based on western perspectives and stages of growth to reach progression. For instance, Gabriel implemented stages of growth by helping build the school that brought education to young girls and is currently contributing to a future with energy. However, could this person represent the actors who post-development criticizes? Have the techniques used for 'sustainable' development changed if the locals are not being considered as equal players? Will the school be sustainable in the long run without integrating the community's values?

3.4 Technology: adaptability and resilience to darkness

"A couple of electrical cables could be seen far away in the village. There is no streetlight but the solar school and dormitory where I am in have solar panels and a generator that provides energy to use the lights in the buildings" (fieldnotes 2021).

However, two weeks before my departure, I began to experience living in the dark since the girls' dormitory that I was in began to have frequent blackouts. Even though the dormitory had a power generator charged by solar panels during the day, it was not powerful enough to feed lighting and charge the tenants smartphones at the same time. As we continued to experience blackouts at the dormitory, the girls knew what to do and Grace proceeded to handed me a small lamp to see at night. During the two weeks me and the girls would all eat with those lights across the room since it kept attracting all kinds of bugs, including mosquitos which could be carriers of malaria, a common disease in Malawi. Nevertheless, during those nights, the scarcity of light was replaced by gleaming stars and every night after dinner was dedicated to follow the phases of the moon, constellations, and listening to sounds of the cicadas.

The unreliability of solar technology made the female students prepare by charging the LED lamps during the day with solar energy. In addition, while I could not understand how a solar academy could experience blackouts since the dormitory was a recent facility with new solar equipment, the female students were not surprised by the blackouts. Grace confessed that *"solar equipment is old. Comes from China. It's not good, it doesn't last"* (fieldnotes 2021).

Figure 3

Fisher men's invention

Note: Personal photography. Malawi, 10/26/2021

Another example of resilience to the darkness and adaptability of technology could be seen with fishermen. *"Fishing is a man's job"* (fieldnotes 2021), told me Raphael on our way to the Lake Malawi. During that afternoon, I engaged with local fishermen who showed me a device they had created as seen on *figure 3*.

This device was made of two aluminium discs with small

LED lights to attract fish in nights without moonlight. During the day, the fishermen would charge the LED lights with a solar panel and a battery as ilustrated on *figure 4* and *figure 5*.

Figure 5
Fishermen's invention with batteries

Note: Personal photography. Malawi, 10/26/2021

Figure 4
Solar panel

Note: Personal photography. Malawi, 10/26/2021

Regarding adaptability of technology, one day Samuel invited me to his house and showed me a window-like object where he dried leaves for tea. Despite having a solar system, the object used to dry leaves was not electric in any way, instead using direct sunlight amplified with glass. Solar energy clearly exists in many forms, shown by its use for enabling objects created for a specific purpose, such as charging lights to combat darkness during blackouts or LEDs for fishing, even being applied without technology to accelerate the process of drying leaves. Nevertheless, I experienced seeing solar heat being used to dry fish collected by the fishermen, as seen in *figure 6*, but a system such as Samuel's was not being used to accelerate the process of drying fish. Why did the fishermen not do it?

In short, the locals will adapt technology depending on their needs. The girls at the dormitory used LED lamps and charged them every day because electricity was unreliable. Furthermore, fishermen adapted LED lights to meet their necessity to fish at night. Lastly, Samuel used an object that allowed him to fasten the process of drying

because he has an interest in permaculture and it was beneficial for him to have those dry plants for tea. Therefore, solar energy is used in different moments depending on the necessity of individuals and groups. Nevertheless, the resilience to the environment by adapting solar energy to their needs, reveals the different ways technology will be imagined and adapted.

Figure 6
Drying racks of 'usipa'

Note: Personal photography. Malawi, 10/20/2021
'Usipa' is a sardine-like fish from Lake Malawi

4. The scenery

Following Clifford Geertz's (1973) thick descriptions, a qualitative research technique, this section provides detailed descriptions and interpretations of situations observed during my fieldwork to immerse you as the reader into several experienced moments. In this section, four moments are meticulously described based on notes from fieldwork compromising the journey to the solar academy, local's rhythms according to the sun, half a day spent in Lawg'inya, a remote village, and electrical appliances.

4.1 Heading to the solar academy

When I landed in Lilongwe, the capital of Malawi, the solar company and I got picked up by Raphael, the solar academy driver, and headed to the northern village. I sat in the backseat of the car and started noticing small instructions next to the windows and safety belts wrote in Japanese. Once Raphael started the car, a Japanese electronic voice became audible, and I got puzzled. Was I inside of a Japanese car in the middle of Africa? When I questioned Raphael about it, he answered that many are secondhanded cars imported from Japan. As we kept driving on the left side of the road, I began to reflect on other countries that also drive on the left side besides Japan, and the United Kingdom (UK) immediately came to my mind. I noticed the first trace of colonialism, but I could not stop thinking if I was indeed in the middle of Africa in the 20th century or in a Japanese-like location during the 90s.

As we continued our four-hour trip to the solar academy, the landscape was mesmerizing. Gigantic fields of rubber tree plantations covered both sides of the road, as seen in *figure 7* and *figure 8*, and young children would spread their arms, wave, and shout "rubber ball!" while trying to sell some near the road. Motorbikes were parked in the shade of the trees while a few cars drove past us, and electric cables had not replaced the vast fields of trees, allowing the greenery to be predominant as seen in *figure 9*.

Figure 7
Rubber plant tree plantation
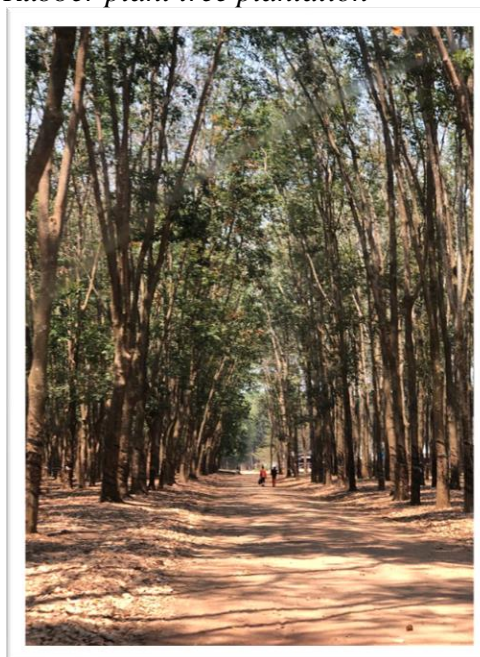
Note: Personal photography. Malawi, 10/27/2021

Figure 8
Rubber plant tree

Note: Personal photography. Malawi, 10/27/2021

Figure 9
Road to the solar school

Note: Personal photography. Malawi, 10/27/2021

As we reached the solar school, its structure was the most distinctive in the village. Two tall pillars supported small billboard with the school's name, and the stars of the EU. As previously mentioned, the school received an EU fund to continue expanding the school and its aims. Regarding the structure of school, it was surrounded by tall trees and small households, and the campus had four components. First, the female dormitory where I stayed with students from different parts of Malawi, such as the northern village, Mzuzu, Blantyre, and Lilongwe, the three biggest cities in the country. The second building of the school is the oldest structure on campus. It was the original solar academy since it held the first class of solar technology students about six years ago in a small classroom made of bricks and a blue sheet-metal roof. On the door of this building, I could see once again the starts of the EU flag painted on it. The third space is the new and current classroom complex and electrical tool shop. The last and most recent building is where offices, conference room meetings, and eating areas are located. It is a two-story building, as tall as mangos and palm trees around, perfectly camouflaged with the use of brown-reddish bricks, the same used in the surrounding houses. Even though most rooms in the building were empty, only the school staff, the solar company and I were allowed to use the premisses. Despite the noticeable height, the building shined as bright as the sun, illuminating the massive structure during the night, since the light ran by a generator charged by solar panels during the day, while most of the village remained in the dark once the sun was down at 6 pm.

I found myself thinking about how globalization was visible in the form of Japanese cars, how industrialization had not taken over the rubber plantation fields and the notorious greenery on my way to the solar school. Nevertheless, what I could not grasp and persisted in my mind was the fact that the school was illuminated while the rest of the village was in the darkness. To whom was the school trying to show itself to? Is the school not meant to assist and provide the locals of the northern village with light instead?

4.2 Sunny rhythms

The generator broke again at the girl's dormitory. We are again in the dark but at least the girls were prepared and charged the LED lamps battery during the day with the use of sunlight (fieldnotes, 2021).

During the nights when the power generator at the girl's dormitory would fail, leaving us in the dark with some LED lamps charged druring the day; the scarcity of light was replaced by gleaming stars and every night after dinner was dedicated to follow the phases of the moon, constellations, and listening to sounds of the cicadas. As I continued to spend time in the northern village, I drew more attention to people's rhythms during the day and observed how students and locals would accompany the sun in their everyday life. The sound of people singing, swiping the floor, cleaning, and greeting each other would start around 6 am and would diminish as the sun would set around 6 pm until the village became pitch black, except for a few houses with small lamps or LED lights and the solar academy.

Besides daily rhythms, the sun would also have a practical function by nourishing food. For instance, fish, another key ingredient in the Malawian diet of this region, would be caught by fishermen early in the morning, and left to dry on high stools near the lake, as seen in *figure 6*. In adittion, cassava would follow the same process of being collected from the field by farmers and left to dry. After all, *"Everyone eats nsima!"* (fieldnotes 2021), Samuel told me, as I continue to notice small cassava lots next to people's homes. Cassava is eaten in all forms, boiled, fried, raw, or transformed into *nsima*, a staple dish when adding maize or cornflour, as illustrate in *figure 10*.

Figure 10
Nsima and chambo fish dish

Note: Personal photography. Malawi, 11/05/2021
Traditional Malawi dish with nsima, chambo, peppers, and onion.

Samuel, one of the directors of the solar school, showed me his small garden with cassava, greens, tomatoes, and mango trees waiting to be ripe amongst other fruits. Samuel had taken a course in permaculture and pointed to a plant called "bitter leaf", which helped prevent malaria. I tasted the bitterness of that leaf and immediately drank some water to take the flavour off my tongue. Samuel laughed and showed me a window-like object where he dried leaves for tea, as described in the section *3.4 Technology: adaptability and resilience to darkness*. In short, despite having a solar system, Samuel's object used to dry leaves was not electric in any way, just the use of direct sunlight amplified with glass. Therefore, the process of drying food with the sunlight is present in the everyday life of locals in the northern village.

Even though there are the sun provides sunny rhythms when people follow it in their routines, the sun can drain one out. While with Samuel, he invited me to his house since it was particularly hot that day. Inside he had a minifridge capable of bearing at most five or six bottles. His fridge was the only working fridge in the village and ran with solar power. After meeting with Samuel, the solar company and I decided to explore the area and grab a cold drink. After walking 30 minutes, we found a handful of

convenience shops with snacks and soft drinks. We began chatting with Jason, a local shop owner. Jason had a solar system and two fridges inside his shop. However, his fridges would stop running at night since the battery was not strong enough to run them after the sun went down, leaving his products unrefrigerated until morning. *Figure 11* illustrates one of Jason's fridges.

Figure 11

Fridge at Jason's shop
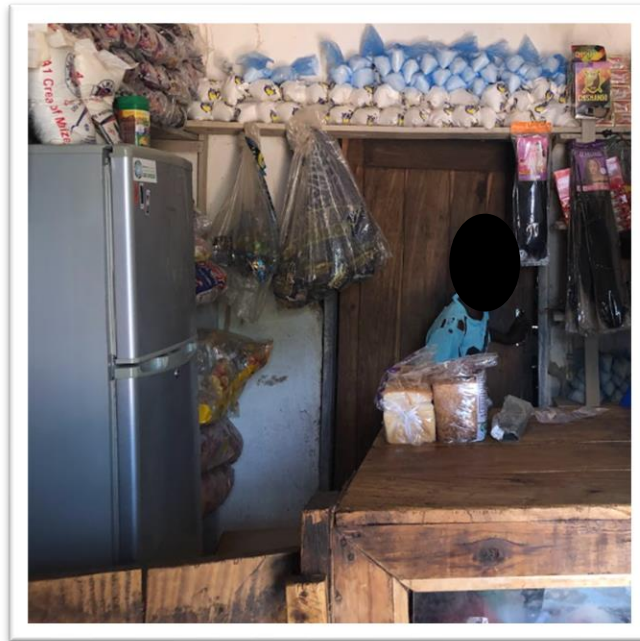
Note: Personal photography. Malawi, 11/10/2021

As we continued to assess other shops in the area, we soon realised that most stores did not have a solar system and consequently, refrigeration. Accessing a cold drink was a luxury since one had to walk 30 to 40 minutes from the northern village. I began to ask myself: is having access to a fridge a luxury?

4.3 Half a day in Lawg'inya

After a few days, the solar school took me to Langw'inya, a nearby village, to meet a group of female entrepreneurs who focused on learning about solar technology, selling, and installing small LED lamps for households. We left early in the morning

since Langw'inya did not have any electrification cables and we would have to return before the sunset so the road could be easily visible.

To reach the remote village, we passed through asphalt roads, followed by rocky and sandy paths. Raphael, the driver, told us that during the rainy season one could only access the village with a motorbike since the space would be filled up with water and it was impossible to go over. This event resonates with Kaunda's (1998) comment that "the road transport network has also been allowed to deteriorate, especially following the heavy rains of the past year" (1998:62), previously mentioned on *section 2.1 Historical account of Malawi*. Even though we were on the dry season, Raphael had difficulties driving the car since sand would get into the wheels, causing the car to drift as seen by the dust lifted on *figure 12*. The challenging access to the remote village was confirmed due to the non-existence of electric cables in the area.

Figure 12
Smoke

Note: Personal photography. Malawi, 10/20/2021

Once we reached the remote village, the women were inside of a small church waiting for us. After greeting each other and introducing ourselves, Henry, one of the executive directors and teacher at the solar school, made a speech mainly in Chichewa and finished in English by saying how these women were changing Malawi by bringing light into the village and the hope of: *"Having a better Malawi tomorrow than today"* (fieldnotes 2021). The women smiled and immediately stood up while clapping their

hands. I could sense how motivated and hopeful those people were to create a future with light and move Malawi forward in using solar technology. This moment reminded me of the female students at the solar school when they expressed the desire to *"bring light to her village"* (Emily, 24yo), *"make a difference"* (Alice, 21yo), and *"show girls from other villages they can study and be a technician like me. I see girls getting married and having kids at 17. Nah too early"* (Annie, 20yo).

After meeting the women of Langw'inya, I talked to people who purchased their LED lights and conducted a focus group interview (Fallon, G., & Brown, R. B., 2002) with six people. Raphael assisted me in translating English to Chichewa and vice versa. The group informed me that LED lights could provide a better environment for their children to study at night rather than using kerosene candles. I continued the focus group interview by questioning what would they do if they had a more powerful system than LED lights. Immediately after, a participant replied that:

> Focus group participant 1: *"If I had enough power, I would like to have more power to run TVs, irons, fridges, the electric irons"* (fieldnotes 2021).

The remaining people of the group nodded in agreement and, other participant with a bright smile added that:

> Focus group participant 2: *"Some of the people in the village here are in the village but have electrical appliances, some of them cookers, they have their children in South Africa and they send those appliances and they keep them. So if there would be that access, some can even use the cookers"* (fieldnotes 2021).

I continued by asking if it was common for people to purchase or have relatives bring equipment from South Africa to which Raphael replied:

> Rapahel: *"For those appliances, when they send it to their home for their own usage when they come back to the village but the one in the village like me, I have my sister in South Africa, she sends stuff to her house but I am keeping. For the time being, if there is power, I am going to use it"* (fieldnotes 2021).

After the half a day spent in Lawgi'nya, Rapahel invited me to his house and showed me the electronic appliances he was keeping from her sister's while she was in South Africa, such as the TV seen in *figure 13*. Even though Rapahel had a solar system

and could run the TV, I continued to be puzzled once more. Why would people have electrical appliances if they have limited energy access?

Figure 13
Raphael's TV

Note: Personal photography, authorized by Raphael. Malawi, 11/03/2021

4.4 Electrical appliances

We exited the village of Lawg'inya, and once we were back to the solar school, I began to transcribe the interviews of the day and go over the material again. I kept questioning in my mind about what more powerful solar technology could bring to the locals of the northern village and how common it was to own electrical appliances. Therefore, I re-analysed the following interview with Grace:

Solar company: *"For what do people ask power for?"*

Grace: *"People ask for batteries, big batteries, that can run fridges because in Malawi there is a very small percentage that has access to electricity, yeah, most of us we live in the dark, yeah, so most of the people they go to South Africa to look for things like solar panels and batteries so that when they are coming they can have a better house, fridges, TVs so they can be able to use it.*"

Catarina: *"Why would people go to South Africa?"*

Grace: *"Malawi is very poor, people go to Tanzania or South Africa to work"* (fieldnotes 2021).

Then, a few hours later I began to chat with James, one of the teachers at the solar school, about electrical appliances and South Africa. He informed me that:

James: *"In a few good cases, family members buy equipment in South Africa and send them over to Malawi. Thus, they might damage the equipment"* (fieldnotes 2021).

When James stated the possibility of damaged equipment, I recalled a visit to a resident's household not far from the northern village. The resident had a solar panel attached to a battery inside his house and owned a fridge. However, after careful examination, the solar company concluded that due to the poor installation of the system, the fridge did not work. The resident had purchased the fridge three months ago, but it only worked for one month. An unsuitable charge controller was the cause of failure since it could not handle the power generated by the solar panel. The resident kept scratching his head and shrugging his shoulders while the explanation of malfunction was being given to him.

After the conversation with James, the lack of knowledge regarding solar systems allied with foreign technology made me wonder how people view foreign solar products compared to possible Malawian products in the market. I reached out to Grace since she works for an international UK based charity focused on selling and distributing solar lights to remote communities in Africa at a fordable price. Therefore, I inquired Grace about the views of Malawian solar products, to which she replied:

Grace: *"A solar from Malawi? *laughs* They would not respond it, they would say ah can Malawi produce good thing? *laughs*"* (fieldnotes 2021).

I continued by asking if there would be positive feedback with a foreign product, to which she replied by saying:

Grace: *"Yeah like US, Europe, Germany. Not China because here we receive the most lowest grade, they just produce very very fast things. They are not strong"* (fieldnotes 2021).

After talking to Grace, I continued to be curious regarding the view on technology, ownership, and the perception of modernity. Why do people have electrical appliances that do not work? Why are products from the Global North seen as better? What do electrical appliances represent to them?

5. Technological objects: emotions, imagination, and modernity

5.1 Emotional objects and temporality

Raphael: *"(...) I have my sister in South Africa, she sends stuff to her house, but I am keeping. For the time being, if there is power, I am going to use it"* (fieldnotes, 2021).

As described in the section *4.4 Electrical appliances*, people own appliances in their houses despite having limited energy access. Some, such as Raphael, keeps the TV of his sister currently abroad. Others, such as the resident not far from the northern village, owns a solar system but lacks the knowledge on how it works, hindering the use of the fridge he owns. In addition, shop owners such as Jason do not have powerful enough systems to run their equipment at night, leaving food products unrefrigerated until next morning. Therefore, electrical objects are unsuitable for use due to the current energy access, and the inadequate knowledge on how to operate the system that feeds the appliances. What happens then? What are these objects doing laying around spaces, especially in households? What do they represent?

Acknowledging that appliances in commercial stores do not fulfil the expected function due to lack of energy access at night, and have an effective use during the day, I invite the reader to draw onto an analysis of electrical appliances in the household,

with focus on fridges and TVs. Firstly, hope is represented in appliances since they point towards a future with electricity capable of running them. As Miller (2010) states, "wisdom has been accredited to those who claim that materiality represents the merely apparent, behind which lies that which is real." (2010:69). Following Miller's (2010) concept of "objectification", the theory that gives shape to the idea that objects represent a part of us, until there is no distinction between subjects and objects, together with Ellen's (1998) cognitive processes which cultural representations, such as the author's example on "fetish", depend on, and give a theoretical framework for the idea that fridges and TVs are a representation of hope. One of the processes presented by Ellen (1998) is "compression of meaning" (1998:220), suggesting that an abstract idea is associated with an object. If the process happens, the idea went through the "process of objectification" (1998:221). Despite the fact that the fridges and TVs owned by the locals are not locally produced, these objects are apt to show the concept and process of objectification since the abstract idea of hope is represented in these objects. In addition, using Ahmed's (2010) idea that we make objects happy by moving "towards and away from objects through how we are affected by them" (2010:24), people keep fridges and TVs close primarily because of their intended function to refrigerate, but mainly because they represent a hopeful future where people can run and use them, as seen by the focus group interview when the participants were eager to "*have more power to run TVs, irons, fridges, the electric irons"* (Focus group participant 1, fieldnotes 2021).

Furthermore, the focus group participants were expressing a desire in a near future. The future-oriented perspective is in tune with the temporality that Ahmed (2010) suggests since "objects become happiness pointers, as if to follow their point would be to find happiness". I suggest that happiness involves a specific kind of intentionality, which I would describe as "end oriented". It is not just that we can be happy about something, as a feeling in the present, but some things become happy for us, if we imagine they will bring happiness to us" (2010:26). Therefore, by keeping these objects and making them hopeful, people are doing, as Scheer (2012) coins it, an "emotional practice", which take place in a specific social, cultural, and historical context. For instance, Pétursson (2018) refers to emotional practices at an organic store by highlighting emotions as actions, something people do, rather than something people just have (c.f. Solomon, 2007), through sensorial aspects such as smell and touch. Moreover, "emotional practice" can also happen with material objects since practising emotions are acts of "speaking, gesturing, remembering, manipulating objects, and

perceiving sounds, smells and, spaces" (Sheer, 2012:209) and by speaking, owning, and keeping these appliances in their home, people are practising an emotion of hope.

Secondly, having appliances in the household represents how time is perceived. In addition of hope pointing towards a future, Jönsson's (2013) study on how the past influences the present in historical accounts of psychiatry, inspired the present analysis of how the present influences one's perception of the future. When dealing with questions of time, Evans-Pritchard argues that "the essence of rhythm is the demand, preparation and anticipation of something to come" (c.f. Archambault, 2014:363), oriented towards a near future. Additionally, Appadurai (2004) also pays attention to time and the near future, without disregarding the relevance of the past influencing the present, by arguing that aspiration is a cultural capacity, which is located in the future. For instance, Archambault (2014) analyses the role of money in the near future by focusing on how salaries serve other purposes than everyday subsistence in Mozambique through the making of "planos", specific objectives that people hope to achieve when they receive an expected sum of money. Common plans include the "purchase of building material, an electronic appliance such as television set or a freezer, a pair of shoes" (2014:136). Despite the concept of "planos" not being used by people of the northern village as described by Archambault (2014), the way people spend money is similar since, as previously stated, they live in a frugal society (c.f. Escobar, 2012), meaning that salaries are mainly not spent on everyday subsistence. Instead, people spend money to send fridges, and TVs to their relatives. Consequently, the growth paradigm seen in development theory and discourse becomes challenged since, in this case, people acquire the last object in the solar system ecosystem, instead of starting with the system itself. Therefore, if people do not follow a linear progression of acquiring appliances, how can development theory be adequate?

Moreover, by leaving the assumption that "poor people should address basic needs before tending to what is commonly seen as more frivolous forms of consumption" (Archambault, 2014:138 c.f. Douglas & Ney, 1998), and the perception of a "case of misguided priorities" (Appadurai, 2004:139), owning and buying appliances begins to shape the idea that owning these appliances is not unthoughtful. As Appadurai (2004) argues, it is a manifestation of "aspiration as cultural capacity" (2004:139), meaning that a culture has the capacity to aspire and the ability to read "a map of a journey into the future; A map is simply a document covered in unfamiliar

symbols and words unless we are supplied with the information and experiences required to read it" (2004:139).

Thirdly, this forward movement into the future is possible through the emotional weight people put into objects which, followed by the idea that a culture can collectively aspire to something, lead me to present the concept of *aspirational purchases*. Therefore, fuelled by hope of having energy access, people send and own appliances since they aspire to use them in a future with energy. In addition, by owning them, people are not simply anticipating a purchase they will have. Instead, people anticipate a future they believe will exist: a future with hope, a future with light. In other words, people have hope of reaching an electrified tomorrow and anticipate the arrival of energy by purchasing and owning objects, making *aspirational purchases*. Therefore, owning appliances is a sign of hope and an anticipation of the future.

5.2 Imagining tomorrow

> Henry: *"Having a better Malawi tomorrow than today, a Malawi with light"* (fieldnotes 2021).

During Henry's speech at Langw'inya, he expressed the belief of creating a better Malawi. As a financial diretor of the solar school, Henry sees the economic value in solar energy, however he was addressing to the female group of enterprenours, the change-makers. Therefore, belief in a future with energy access is imagined as a collective such as the women in Lawgin'ya, and those who own appliances. In addition, belief is also experienced in individuals, as seen by Henry.

Belief has often been described in the light of magic as something that adheres everyone to an idea (Mauss 2001) and one must believe in it in order for it to exist. Following this definition of belief, Motz (1998) presents Michel de Certeau's definition that it is "not as the object of believing (a dogma), but as the subject's investment in a position, the act of saying it and considering it as true" (1998:349). Therefore, a belief exists because a group of people believe in it, which makes it a process rather than an attribute to something (Motz 1998). Belief is something socially negotiated and located in a person, creating an individual experience. For instance, the community of The

northen village, as a collective, can imagine a *"better Malawi tomorrow"* because it is present in objects located in the household and solar technical education, making it a socially negotiated belief and individual experience. As Malawi's government has began to focus on solar energy through businesses, education and innovation in the field, solar students in the northen village and corresponding solar school, firmly believe in their capacities to bring light while using their knowledge and expertise.

In addition, other members of the community expressed their belief in a better future by owning electrical appliances, solar systems such as solar panels, and small home systems such as lamps in their households. What unites the community is imagining a future with energy access, which is expressed and visible in education and *aspirational purchases*. Therefore, the capacity to believe is also the capacity to imagine. Even though imagination has multiple definitions, the notion of a shared future makes the common ground (Willim 2017). For instance, Benedict (1983) argues that nations are "imaginaries communities" which are brought together by social imaginaries placed in the future. Moreover, as Willim (2017) states, "imaginaries can be seen as something that primarily homogenises, holds together, and forms congruity in social worlds and people's lives" (2017:55). Additionally, Jasanoff (2015) presents the idea of "technoscientific" and "sociotechnical" imaginaries as "collectively held, institutionally stabilised and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (Willim 2015:4 cf. Jasanoff 2015). Furthermore, Harris & Rapport (2015) define imaginaries as "a common practice, something to which human beings attend whenever they make sense of their environments and situate their life-projects in these environments: a human facility" (2015:xiii). Following these definitions and acknowledging that imaginaries are what brings a group together while pointing towards the future, solar technology and the solar school sprout the collective imagination of the community in the northen village in moving towards a bright future with the use of technology.

This collective imagination is akin to Escobar (2014) and Mudimbe's (1988) idea of social imaginaries regarding how the Global South see and imagine themselves. For instance, Escobar in *Encountering Development: The Making and Unmaking of the Third World* (2012), reflects how the creation of development discourse shaped the social imaginary by arguing that there is a type of: "colonization of reality which seeks to account for this very fact: how certain representations become dominant and shape

indelibly the ways in which reality is imagined and acted upon us" (Escobar, 2012:5). In addition, Mudimbe in *The Invention of Africa* (1988), questions Western images and discourses about Africa by reflecting on the power of anthropologists and missionaries, to analyse the influence in changing African systems of thoughts, and how Africa history has been portrayed and imagined. Even though it was discussed previously how the Global North imagines the Global South with reference to Said's work *Orientalism* (1979), I invite the reader to consider the perspectives of Escobar and Mudimbe on how the citizens of the Global South see and imagine themselves, by questioning how people from the northern village imagine themselves. For instance, while I was inquiring on how solar products made in Malawi would be seen by the residents, Grace replied:

> Grace: *"A solar from Malawi? *laughs* They would not respond it, they would say ah can Malawi produce good thing? *laughs*"* (fieldnotes, 2021).

While adding that products from USA and Germany were good. Even though solar education and technicians are inspiring and change makers, as seen in Henry's speech and by students at the school such as Annie who desires to*"show girls from other villages they can study and be a technician like me"* (fieldnotes 2021), local objects related to solar technology do not possess the same positive connotation. Therefore, if the Global South sees foreign products as better, could they also perceive them as a symbol of development and modernity? Could this lead them to acquire and send objects such as electrical appliances over to Malawi since the locals imagine them as part of a modern future they aspire to achieve?

5.3 Objects and agency: an image of modernity

> *"Once Raphael started the car, a Japanese electronic voice became audible, and I got puzzled. Was I inside of a Japanese car in the middle of Africa?" (...) Nevertheless, what I could not grasp and persisted in my mind was the fact that the school was illuminated while the rest of the village was in the darkness. To whom was the school trying to show itself to? Is the school not*

> *meant to assist and provide the locals of the northern village with light*
> *instead?"* (in *4.1 Heading to the solar school*).

The Japanese car and the lights at the solar school conveyed a sense of modernity since most people did not have access to it. Akin to this feeling was Samuel's mini fridge, the only one in the northern village. Furthermore, as solar technology becomes more popular due to enabling access to energy, and electrical appliances, a representation of modernity arises. Up to this point in the analysis, technicians were actors, and the change-makers by bringing light into rural villages. In addition, the residents of the northern village and people who own electrical appliances expressed hope for the future that is yet to come. Therefore, together both actors create an imagined community. Nevertheless, this section questions the agency of objects in determining and symbolising modernity to create hope and change that eagers people to act towards a future. As such, the present sections draw on non-human agency.

Bennett (2009) follows Deleuze and Guattari's concept of assemblage that reflects on groups of diverse elements of various materials. Bennett gives the example of an electrical power grid to understand assemblage because of the many materials (or bodies) that work together to produce an effect. The elements of the assemblage include human constructions and objects, and active non-human bodies. Therefore, Bennett (2009) limits human-centred theories of action by transcending them into the non-human. Similarly, in the light of this thesis, solar technology is an assemblage due to the many necessary components to produce energy. Akin to the idea of assemblage, electrical appliances are an assemblage of bodies, however, they do not work due to the lack of presence of one element, electricity.

In addition, Laet and Mol (2000) contribute to the category of non-human actors by giving the example of the Zimbabwe Bush Pump as a non-human entity and describing it as being attuned to its surroundings, engaging in the community, and changing the socio-economic landscape of Zimbabwe. Furthermore, due to the Bush Pump's effective implementation, the concept of Appropriate Technology (AT) is suitable to understand the success of the Bush Pump technology, since the pump tackled a community and adapted to the surrounding environment due to its durability and capability to provide a better quality of life with clean water. For instance, the Bush Pump dissolves into the surroundings due to its fluidness and adaptability, by having the local community repairing it with available local materials and integrating the pump

into their everyday life. Similarly, the solar company present in this analysis aims to develop the smart controller as adaptable, sustainable, and community oriented. However, since solar technology uses electrical technology rather than mechanical such as seen in the Bush Pump example, solar products are harder to be repaired by the community without having the required knowledge. Nevertheless, local technicians and students are currently culminating this shortcoming, but the technology is not being adapted to their environment. For instance, as previously stated, solar technology objects such as batteries are the most expensive component. In addition, the transport of, for instance, solar panels are also challenging due to cost. Even though solar technology is a useful technology in a country with abundant solar resources, and the community is currently educating technicians, the cost of the technology will remain to be a challenge. What will happen when a piece breaks? How can they repair it?

Regarding agency in technological objects and their purpose in a community, the concept of AT is a valuable lens. Wicklein (2004) argues that: "when the appropriate technology is designed for a developing country, there is a special criteria that must be recognized: an Image of Modernity. The citizens of many developing countries just as citizens of many industrialized countries want to perceive themselves as modern and progressive, at least within their context" (2004:3). Additionally, Marion (2018) suggests that objects are the mediators between the natural world and the experiences of people. Attending to the way of life in the northern village described in chapter *4. The scenery*, there are three mediators between people and the sun as a natural recourse. Firstly, Samuel had an object that is a mediator because it links the heat from the sun with the experience of having dry leaves through a non-mechanical object. Secondly, solar technology such as solar panels is a mediator between the sun and electrical appliances such as lamps, lights, fridges, or TVs through the electric current. Therefore, people will experience a house full of light and operational appliances. Thirdly, the fishermen's invention that involved the combination of LED lights with aluminium discs to attract and fish at night is also a local AT that brings people and the experience of fishing during nights of no moonlight. In short, the community already adapted technology to their environment and needs. In other words, the objects they adapted have agency and can be categorised as AT.

Nevertheless, the objects constructed by the people do not represent an "image of modernity" (Wicklen 2004) since they were not designed by the Global North for the Global South. Therefore, I invite the reader to reflect on the agency of solar technology

in giving an image of modernity due to providing access to appliances, which are a symbol of modernity itself. Moreover, if solar technology gives a sense of modernity, why do people have electrical appliances instead, and why are they a symbol of modernity? Willim's (2017) concept of "mundanisation" explains that technological systems, once thought of as ungraspable, are now brought to the commonplace and integrated into everyday practices. Even though energy is not visible, the locals of the northern village have electrical appliances that are present inside their homes and noticeable in their everyday. Therefore, the visibility of a physical body in the form of a fridge or TV and the understanding of its use is more easily grasped than a solar system and electricity. If one questions why people have electrical appliances without having the necessary energy access, one could also question why people would have solar systems if they do not have appliances or lights they can run. Therefore, appliances are part of the "mundane", meaning they are present in the daily life, easily acquired compared to a solar system, and their function better understood. Nevertheless, even though people own appliances and know their purpose, they lack the knowledge to know what bodies are necessary to make it work. In short, it is a matter of perception since with the introduction of solar technology, new technological objects can be visible, and their function better understood when compared to electricity and the bodies it requires to run.

However, if objects are an image of modernity due to being foreign and integrated in the everyday life of relatives in, for instance, South Africa, what will happen in 10 or 15 years? These appliances will be outdated, and the image will pass onto newer and modern objects. Will the space of the home in Malawi continue to be modern with old objects? Or will the visibility of modernity be alienated such as when I experienced being in a Japanese car from the 90s in a northern village in Southeast Africa?

6. Applicability

Even though Malawi is one of the poorest countries in sub-Saharan Africa, some locals of the northern village own electrical appliances or solar systems. However, people cannot operate their appliances due to the lack of energy access. In addition, some of those who own solar systems cannot use them either due to the poor installation of the equipment. Despite the local's lack of knowledge regarding solar technology, the northern village has now started to invest in solar education through the solar academy, allowing young people to gain expertise and knowledge to fight energy access poverty. Due to the popularity of relatives sending appliances to the village and corresponding family members, this matter is not simply a paucity of priorities. Instead, it is an understanding of people's desires and motivations to achieve a future with light. Therefore, the insights present in this analysis apply to rural settings in developing countries where the market and businesses often are perceived as inviable due to their current economic state. The cultural analysis applied in this research uses ethnographic methods such as autoethnography and ethnographic accounts of observations and interviews to present insights applicable to two sectors: solar businesses in the Global North and organisations of foreign involvements in the Global South.

Firstly, solar businesses can benefit from this analysis since there is a market in rural areas despite low-income levels. Since the community imagines a future together to bring light and improve their living conditions, solar businesses can assist in the growth of an ongoing technology that locals already value and are willing to invest their time and economic resources into. As such, when entering this market for solar technology, companies will be able to work with locals, both supporting and receiving support from them through labour and economic returns, as well as aiding to help with the development of solar infrastructural technology that is gaining popularity in Malawi. Secondly, the analysis is also applicable to foreign organisations that aim to create ways of changing the Global South to improve living conditions. For instance, by doing ethnographic work and being in the field, the analysis reveals how development and technology are visible in rural settings. Therefore, to change the way technology has been implemented and obtain a successful application to create a positive impact on the living conditions of the Global South, the present analysis contributes to the understanding of the needs of a target group. For instance, rather than giving technology

to people to improve their lives, it is necessary to start by understanding the locals' needs and observing what they have already accomplished, such as the existence of the solar school or the fishermen's invention to fish at night. Therefore, by being in the field and observing their ways of living, the Global North could assist by sharing knowledge and education on solar and working together with the locals to further adapt technology according to their needs. Moreover, as seen in the northern village, people already imagine a future and are motivated to change the narrative of lacking energy access by being part of the change and having the power of innovation to improve their lives.

In short, the present research provides insights into what local communities already possess and do regarding technology by being in the field. Therefore, the Global North together with the locals can add to what is already built by them and assist in moving forward to a brighter future. Additionally, the field of cultural analysis gives a new perceptive on issues to both sectors so they can positively contribute to an end. Cultural analysis does not see different things but sees the same things differently.

7. Conclusion

The present research explores how development and technology are visible in a northern village in Malawi. The investigation is grounded in several methodologies from cultural analyses, such as ethnography, interviews, observation, and autoethnography, as a qualitative method to reflect and challenge the concepts of development and poverty present in the Global North. In addition, the research engages with frameworks regarding modernization theory and indexes such as PCI and GNP to measure and define a country as poor and underdeveloped. Therefore, the autoethnography chapter draws on personal events that shaped my understanding of ways of living and sustaining a community. For instance, the northern village is a frugal society, meaning their basic needs are secured, suggesting their income does not go to food products but to solar home systems such as LED lamps. In addition, the locals of the village adapt technology accordingly to their needs, as seen with the fishermen's invention created to fish at night. This object is an example of development, innovation, and adaptability to the environment with appropriate technology (AT). Moreover, four

thick descriptions were chosen from several notes while being in the field for over two months at the northern village. Therefore, these four ethnographic accounts compromise thick descriptions of the scenery, the locals' rhythms according to the sun, a half a day event spent in Lawg'inya with female entrepreneurs and change-makers, and lastly, an account of electrical appliances, the core of this analysis. Furthermore, attending to autoethnographic and ethnographic accounts, an analysis of the material is given to explore how development and technology are visible with the ownership of electrical appliances and a reflection on a future with energy access that locals aspire to achieve. Lastly, the applicability section reflects how valuable these insights are to those in the solar businesses and actors of the Global North that aim to assist in ways of implementing technology in the Global South.

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