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Analyzing the Impact of a social businesses (AGT's) Sustainable Development
Project through Green Energy in rural Senegal and its Contribution to the SDGs:
A Comparative Study with EU Strategies

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Master in International Studies

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SOCIOLOGIA
E POLÍTICAS PÚBLICAS

History Department

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List of Acronyms:

- **ACP/APC** African, Caribbean, and Pacific Group of States
- **AEEP** Africa-EU Energy Partnership
- **AGT** Africa GreenTec
- **ANER** National Agency for Renewable Energy
- **ASER** Senegalese Agency for Rural Electrification
- **AU** African Union
- **COPERES** Business Council of Renewable Energy of Senegal
- **CRSE** Regulatory Commission of the Electricity Sector of Senegal
- **EIB** European Investment Bank
- **EEC** European Economic Community
- **EFSD** External Investment Plan Fund for Sustainable Development
- **ESG** Environmental, Social, and Governance
- **EU** European Union
- **GDI** Gender Development Index
- **GDP** Gross Domestic Product
- **GII** General Inequality Index
- **HDR** Human Development Report
- **HDI** Human Development Index
- **IFC** International Finance Corporation
- **IPP** Independent Power Producer
- **JAES** Joint Africa-EU Strategy
- **MDG** Millennium Development Goals
- **MIP** Multiannual Indicative Programme
- **MFF** Multiannual Financial Framework
- **MPI** Multidimensional Poverty Index
- **NDC** Nationally Determined Contributions
- **NDICI** Neighbourhood, Development and International Cooperation Instrument
- **OECD** Organisation for Economic Co-operation and Development
- **ODA** Official Development Assistance

- **PES** Emerging Senegal Strategy
- **PHDI** Planetary pressure-adjusted Human Development Index
- **PPA** Power Purchase Agreement
- **REPER** Association of Renewable Energy Professions Senegal
- **SDG** Sustainable Development Goals
- **UN** United Nations
- **UNEP** United Nations Environment Programme

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Abstract:

The global community is currently grappling with the challenges posed by the climate crisis, and the African continent stands particularly vulnerable to its impacts. Nations like Senegal continue to face issues related to underdevelopment, particularly in rural regions. This study illuminates that individuals aspire for personal advancement, yet the foundation for this progress rests upon securing access to fundamental necessities.

Addressing these concerns, Africa GreenTec (AGT), a social enterprise, has taken on the vital mission of providing sustainable electricity to rural areas. Simultaneously, the EU is committed to improving neighbouring continent's quality of life, mostly through large-scale renewable energy projects.

This study undertakes a comparative analysis of the distinct approaches in Senegal taken by the EU and AGT in pursuit of the United Nations' SDGs. Remarkably, EU projects, due to their large-scale financing and planning, often fall short of precisely targeting the SDGs and sometimes exhibit a superficial commitment to these objectives.

In contrast, AGT commences their work at the root of the predicament by electrifying villages lacking access to the national power grid. Nonetheless, field research reveals that challenges arise in coordinating efforts with local populations, resulting in inefficiencies during implementation that only partially address the intended SDGs.

This study sheds light on the divergent paths pursued by the EU and social enterprises in aligning with the SDGs, uncovering the complexities and nuances associated with their respective methodologies. The findings underscore the need for more holistic and integrated approaches to effectively address the multifaceted challenges faced by rural Senegal.

Keywords:

Development policies, energy policies, Senegal, sustainability, rural areas

1. Introduction

My interest in the topic of electrification in Africa emerged after various stays on the continent. During the rainy season in São Tomé, electricity cuts were frequent, and the generators running on fuel were not always turned on. The hotel was often a few hours a day without electricity. While staying in Togo, I rented an AirBnB in Lomé, and that is when I became aware of how high the electricity prices in Togo are. After our arrival, we noticed that the streetlight was turned on but when we were flipping the switch inside the house, the light stayed off. The landlord informed us that we must charge the electricity meter first to have electricity for light and air conditioning at the property. The owner explained that people simply would not book the AirBnB if he would include the electricity price in the official price on the website because it would be considered as too expensive. I had spent nearly half of the total apartment price on electricity during my stay. I began to investigate the prices of electricity in other West-African countries and found out that Senegal has a similar rate for electricity as Germany (Kamer, 2023). Unfortunately, the GDP per capita in Senegal is 1471\$ per year and over 30 times lower than in Germany which excludes many Senegalese households to afford electricity. Furthermore, 70 % of Senegal's population has access to the public electricity network which is above the average on the African continent but if you take a closer look, the cities keep the numbers up high. Only 38% of the rural area is connected to the public electricity network (Sustainable Energy for All, n.d.). The uneven level of development within Senegal brought me to look for initiatives that are trying to support rural areas to catch up with the urban areas. This transcends the mere advancement of rural areas; it necessitates embracing sustainable remedies, particularly in energy generation, as Senegal witnesses escalating climatic extremities.

1.1. Climate Change and Energy Access

Climate change is perhaps the greatest foreign policy challenge of the 21st century and billions of people are already affected in the year 2023 (German Watch, n.d.). In political rhetoric, the word climate increasingly appears with the word “crisis”. Global Governance Institutions made it their task to find the right measurements to prevent the “climate crisis” from proceeding. A crucial role

holds the European Union (EU) as they are among the institutions that see themselves increasingly confronted by the sociological consequences of climate change, clearly noticeable in the form of refugee waves from Africa in recent years. At least a million Sub-Saharan Africans moved to Europe since 2010 (Connor, 2018). Thereby it is very difficult to distinguish between climate refugees and economic refugees because the two come collectively. Especially in the rural regions where people are still very dependent on agriculture, poor climatic conditions can endanger the harvest which means that no income can be generated. In addition, the lack of development in rural regions does not offer alternative employment opportunities and leads people to migrate to places with greater opportunities.

In Sub-Saharan regions, the combination of the transformation of climatic attributes, the poorly developed infrastructure, and the lack of labour alternatives are among the strongest migration causes. People in the Sub-Saharan region are heavily dependent on agriculture.

“More than 60 per cent of the population of sub-Saharan Africa is smallholder farmers, and about 23 per cent of sub-Saharan Africa's GDP comes from agriculture” (Goedde, Ooko-Ombaka, & Pais, 2019).

To tackle the lack of labour diversity along with solving the climate crisis, cooperation between the EU and African states is required. Since sustainable development is a continental affair, the African states are often represented by the African Union (AU) during negotiations. Together the AU & the EU are working on various multilateral joint strategies and partnership programs to achieve sustainable development in Africa.

However, not only global governance institutions are trying to create an impact in the rural regions of Sub-Saharan Africa. Private sector enterprises engaged in rural development now include a growing number of social enterprises, among them: Africa Green Tec (AGT), a German social business, is following with impact investment an alternative strategy.

The concept, the social business starts crowd investments to create access to electricity and other basic needs. AGT is targeting people in rural villages, far away from the public electricity network. Access to those needs is a prerequisite for development. The focus of AGT's work lies on sustainability, the so-called *ImpactSites* provide electricity through solar energy without creating

any emissions while producing energy.

To further examine their project, my dissertation will be centred on a field study that will contain a visit to AGT's first *ImpactSite* in Senegal which brings sustainable development in the form of green energy to rural people. I came across AGT's project that installs *Impact Sites* for rural people. One of those *ImpactSites* is in the rural area of Senegal in the commune of *Ndiop*, roughly two and a half hours by car away from Senegal's capital Dakar.

Choosing AGT's *ImpactSite* in Senegal as the location for my field research has multiple reasons. Senegal is considered to have extremely high growth potential and is seen as a pole of stability in the region. The Senegalese economy has seen high growth in the last decade, nevertheless, the level of development between the capital Dakar and the rural areas in the hinterland differ a lot (Global Data Lab, n.d.). Hence, Senegal remains among the least developed countries in the world. However, we must divide the urban and the rural area. Senegal electricity access reached 88% of the population in urban areas, while in rural areas it is still limited to 38% even though Senegal can be classified as further developed in comparison to other West African countries, the difference between access to electricity is immensely dependent on the regional location within Senegal (Se4all, n.d.).

To evaluate the impact of the sustainable development project, a comparison will be drawn towards the EU's sustainable development strategies in Senegal and if their strategies differ or if they have congruent approaches as its part of the Agenda 2030 to strengthen least developed regions. The normative basis for the evaluation is the Sustainable Development Goals (SDGs) as both, the German social business, Africa GreenTec, and the European Union aim for these goals.

1.2. Research Question

This dissertation's main objective is to conduct an analysis of the impact of the social investment project that provides sustainable green energy in rural Senegal, comparing the EU's strategies in Senegal with their local impact. It should be noted that I do not want to measure impact in quantitative terms, with a treatment and control group. My approach is a combination of document research and ethnographic description. I start by analysing the EU strategies through official

papers. To understand the local impact of these strategies, I opted to conduct field research in the village of *N'diop*.

This double approach will lead me to answer the main research question:

“How can AGT’s ImpactSite and EU’s sustainable energy projects empower the people in rural Senegal and in which dimension do their approaches differ in order to contribute to the SDGs (Agenda 2030)?”

The study will also place significant emphasis on elucidating the inevitability of development for humanity, while concurrently providing a historical backdrop to the evolution of development which will support the main research throughout.

1.3. State of Research

Field research about AGT’s *ImpactSites* is particularly exciting because no other source besides AGT itself reported about their *ImpactSites* yet, there is also no publication of research of an external person to be found who visited an *ImpactSite* of AGT.

AGT itself is releasing interviews from time to time on its social media platforms with customers of AGT or of AGT employees. Furthermore, representatives of AGT, mostly the CEO Torsten Schreiber, were featured in broadcasts and podcasts to talk about their social business. Besides broadcasts, the social business is ubiquitous on all major social media outlets. Updates on the implementation and the continuation of their work are frequently posted on YouTube, Facebook, Instagram, and LinkedIn.

In contrast, the EU’s & AU’s joint strategies are widely discussed, and official documents of their agendas and their strategies can be found on official websites like the one of the European Investment Bank (EIB) or the EU commission. In addition, media outlets are continuously reporting about the implementation of new projects, and summits between the EU & AU are often live-streamed. However, the link between the state-funded and the private-funded projects is missing. That is the interface where I see myself being able to make my own contribution to this

topic.

My research aims to create awareness of an alternative development strategy that is financed through impact investment and should open room for discussions on how to empower people in rural Senegal but also in other less developed areas worldwide.

1.4. Dissertation Structure

This dissertation starts by discussing development theories. This theoretical work will also cover the question of why and how “development” became essential for global politics. This historical perspective will be followed by an overview of the development policy history of the EU and how sustainability became a part of the process. It will examine the EU’s cooperation strategies for Africa, and Senegal in particular. It will focus on the Senegalese investment for the green energy transition. That brings me to trigger the problem of sustainable development in the energy sector through impact investing which leads to the presentation of the social business Africa GreenTec. Onwards, I will present the methodology for my field research at the Senegalese village *N’diop*, where AGT is operating, which will be the centre of my dissertation. Based on field research, I present a perspective on the impact of social business and how it affects the everyday life of people in the village. My own impressions and the people’s opinion are central to this analysis. The field data will be analysed within the framework of the SDGs to find answers to how the social business is contributing to the SDGs.

Based on the field study, I will discuss the relationship between the sustainable development strategies of the social business AGT and Senegal’s and European Union’s approaches on sustainable energy. A comparison will be drawn of the methods of AGT with the European Union’s development approaches in Senegal. The dissertation rounds off with a conclusion.

2. Literature review

This literature review aims at defining the current state of the art of development studies as related to equal access to energy and is based in documentary research, including scientific literature, official documents of the EU and the AU, and media articles.

It starts by discussing different development theories, insisting on why development is needed. It then looks at the reinvention of the development notion in world politics and how sustainability became part of the progress. In a globalized world, development involves cooperation. I will end up by presenting how sustainability and development became the political rhetoric of the cooperation policies between the EU and AU.

After the high peak of the Covid-19 pandemic, the topic of climate change and sustainable development became more present than ever again. The worst recession for Africa in more than half a century was driven by the pandemic, and 2020 was the first year where the African continent was not able to continue its increasing economic growth but shrunk by 2.1 per cent (*Africa's Growth Performance & Outlook Amid the COVID-19 Pandemic*, n.d.). The EU has announced to act and will spend more than any other institution for joint initiatives to tackle the climate crisis in the low-developed regions in Africa. The EU is willing to spend over €150 billion to support the African continent through joint initiatives to prevent climate change from rapid progress and to support the SDGs.

Therefore, it is crucial to delve into the exploration of the newly implemented Multiannual Financial Framework (MFF) of the EU, which will be followed by a comprehensive discussion on the state of Senegal's readiness for achieving sustainable development through a green transition. Before we draw a comparison between the field study with the literature findings in the discussion, I will round up my literature review with the presentation of a new investment model of the private sector that challenges sustainable development through a different approach.

2.1. Development Theories

The international agenda began to focus on development in the beginning of the second half of the twentieth century. The first fields of economic research to study theories of development appeared in the 1950s. At that time, the broad concept of "International Development" created the idea that societies and countries have different levels of economic or human development, the international scale was mostly linked to the economic component of the gross domestic product (GDP) to classify if a country is a developed, developing or a least developed country. The main question: "Why are parts of the world further developed and some less?"

One of the pioneers in formulating a theory of development was the American economist Rostow. According to him, the degree of modernization of a nation is tied to the growth of that nation, which is a linear historical process with clearly defined stages.

Rostow's theory states each nation went through various phases of growth as it modernized. The importance of the state's involvement and its decision regarding monetary policy is therefore highlighted in the pursuit of development (Dorfman, 1991). On the other hand, dependence theories contend that development does not occur in stages that are sequential (Solivetti, 2005).

States still compete for many reasons, including control of territory, access to trade, and resources to further their competitive goals, states may also form alliances with other states, however, the methods differ from the past and become less transparent. In the past, the political direction of a country was determined by wars. Nowadays, to gain influence in a globalized world, you rather create economic dependencies.

The theories of dependency contend that the dominance of the industrialized countries, which have economies that are consequently not highly varied, has caused the dominated countries to be underdeveloped. Dependency theory builds upon Marxist thought, blaming colonialism and neo-colonialism for poverty within the world system. In short, the theory argues that development and underdevelopment are two sides of the same coin: wealth requires poverty.

While some people see the Cold War as an accelerator for decolonization in Africa and support the fact that the Cold War provided the possibility for African states to express their views internationally, it must be admitted that the Cold War more likely created the opportunity for the western superpowers to become intrinsically involved in the affairs of Africa, for example through

foreign aid. The West and the East entered Africa with ulterior motives, foreign aid would be used explicitly in the fight against communism or against socialism. Other socialist countries followed the United States in developing a foreign aid program, however, the US was the first state to make the provision of aid a regularised part of its foreign relations as an instrument for achieving both its broad economic and international goals, and the narrower goal of containing communism (Australian Broadcasting Corporation, 2013).

According to philosopher Oguejiofor, the chances for fair development progress stopped neither with colonialism nor through the neo-colonial motives of the West but already with the beginning of the slave trade.

“The number of able-bodied young males and females sold into slavery remains unknown. And the consequence of this is still visible all over Africa. Slave traders preferred their victims from the ages of 15 to 35 (which) were mostly in childbearing age brackets and generally productive ages, the active labour force of the continent. Their shipment abroad meant a massive loss to agriculture and all other economic sectors” (2001, p.30).

Oguejiofor has a reasonable opinion about inequality but as seen, the root for the lack of development in Africa cannot clearly be identified as beliefs differ and many reasons had an influence on the lack of development in the course of history.

2.2. Exploring the Purpose of Development

If we discuss development, we must specify what kind of development we are talking about. Development is generally attached to social, economic, environmental, and political progress. Various approaches to understanding development exist which makes a definition of development not simple.

Corresponding in various definitions is that “development” is a process that creates growth, progress, positive change, or the addition of physical, economic, environmental, social, and demographic components. The purpose of development is a rise in the level and quality of life of

the population, and the creation or expansion of local regional income and employment opportunities, without damaging the resources of the environment. Development is visible and useful, not necessarily immediately, and includes an aspect of quality change and the creation of conditions to continue that change.

A broad but well-fitting definition was brought forward by Kamal Malhotra in 1990:

“The ultimate aim of development is not or should not be to create more wealth or achieve higher economic growth. It is or should be to expand the range of choices for every human being” (Malhotra, 2004, p. 13).

Putting the human being first to achieve development has not always been the case as seen in the different development theories. However, Malhotra identifies that human choices are linked to two issues, on the one side, the human functioning and capabilities, and on the other the existing opportunities. The opportunities are defined by the economic, political, and social opportunities in one place. Human functioning and capabilities are enhanced through human resource development like good health and nutrition, education, and skilled training. For example, a healthy and well-educated person in a country with great opportunities has a wider range of choices in his life than a person with either fewer human capabilities or fewer opportunities.

As a result, development is needed if you have the aspiration to live a life with the opportunity for larger decision-making.

Abraham Maslow suggests that all individuals have an in-built need for personal development. His theory is called the “hierarchy of needs” which symbolizes a pyramid where the foundation contains the basic needs for survival, including access to food and water, followed by safety needs as the next layer. After two more layers, you find self-actualization at the top of the pyramid which would be the last goal of his “hierarchy of needs” (Maslow, 1970). Maslow's pyramid system and Malhotra’s approach are congruent. Both theories contain external factors (existing opportunities) that are vital for human development.

To achieve the highest level of the pyramid, the requirements must be set by the government, and access to clean drinking water, electricity, or security blossomed to satisfy the needs of the human being.

To achieve dignified and enjoyable life, the framework must be delivered by the state in which the people are living. Without the determination to satisfy essential needs, human development is not possible. Up to now, many states are not capable of offering the country's population demands of basic needs due to various reasons. Uncountable circumstances from the external or the internal side can be the reason for state failure, thereby it's not a single reason responsible for the state's inability but many reasons that multiply and the mix of processes is decisive for development to fail or to succeed.

The main goal for the global governance institutions is to provide global public goods, particularly peace and security, justice and mediation systems for conflict, functioning markets, and unified standards for trade and industry (Orback, n.d.).

One of those global governance institutions is the United Nations (UN) and is supported by the EU, their goals in world politics but also in their development policy are concurring (UNRIC, n.d.).

2.3. The Reinvention of the Development Notion

The notions of "development from below" first surfaced in the early 1980s and contend that poverty cannot always be eliminated through economic growth (Stohr & Fraser, 1981).

During that time, an understanding developed that economic growth did not necessarily lead to a rise in the level and quality of life for populations all over the world, there was a need to place an emphasis on specific policies that would channel resources and enable social and economic mobility for various layers of the population (Society for International Development Israel Branch, n.d.). The rethinking gave the people an active role in development which was also officially recorded a short time after by the UN.

1990 became a crucial year for what the notion of development should turn into. In that year, the UN defined people as the real wealth of nations in the Human Development Report (HDR). The main goal of development is to create an enabling environment for people to enjoy long, healthy, creative lives (United Nations Development Programme, n.d.).

Another novelty of the UN's HDR was also the introduction of the Human Development Index (HDI). The HDI is taking non-economic dimensions of human well-being into account which

revolutionized the idea of what was meant by countries becoming “more developed”. Economy, health, and education are the three main pillars of the HDI to classify the country's human development. The HDI has been wildly successful in changing the way people think about the development process. Nevertheless, the HDI is not free of criticism.

The HDI has the reputation of being inaccurate and especially unfair towards economically lower developed countries. Critics complain that the HDI fails to take factors such as inequality, poverty, and gender disparity into account. Human development always emphasises social justice more than economic growth. A country with a high value for GDP per capita would indicate a developed country, but what if that GDP is reached by marginalising certain genders or ethnic classes? What if that GDP is achieved by a small percentage of the population that is wealthy and therefore ignores the poor?

Over time, new indexes with increased indicators appeared to improve the accuracy of the categorization. By now, the Human Development Report Office releases six composite indices each year: the UN Human Development Index (HDI), the Inequality-Adjusted Human Development Index (IHDI), the Gender Development Index (GDI), the Gender Inequality Index (GII), the Multidimensional Poverty Index (MPI) and the Planetary pressure-adjusted Human Development Index (PHDI) (Human Development Report, n.d.).

Noticeably since the first release of the HDI, in each of those indexes, most low-performing countries are situated on the African continent. The majority of Sub-Saharan Africa is occupying the last place on the rankings scale (table 1).




























165		Rwanda	0.534	▲ 0.002	>	166		Benin	0.525	▲ 0.001	>
166		Uganda	0.525	▲ 0.001	>	168		Lesotho	0.514	▼ -0.007	>
169		Malawi	0.512	▼ -0.004	>	170		Senegal	0.511	▼ -0.002	>
171		Djibouti	0.509	▼ -0.001	>	172		Sudan	0.508	▼ -0.002	>
173		Madagascar	0.501	▲ 0.000	>	174		Gambia	0.500	▼ -0.001	>
175		Ethiopia	0.498	▲ 0.000	>	176		Eritrea	0.492	▼ -0.002	>
177		Guinea-Bissau	0.483	▲ 0.000	>	178		Liberia	0.481	▲ 0.001	>
179		Congo (Democratic Republic of the)	0.479	▲ 0.000	>	180		Afghanistan	0.478	▼ -0.005	>
181		Sierra Leone	0.477	▲ 0.002	>	182		Guinea	0.465	▼ -0.001	>
183		Yemen	0.455	▼ -0.005	>	184		Burkina Faso	0.449	▲ 0.000	>
185		Mozambique	0.446	▼ -0.007	>	186		Mali	0.428	▲ 0.001	>
187		Burundi	0.426	▲ 0.000	>	188		Central African Republic	0.404	▼ -0.003	>
189		Niger	0.400	▼ -0.001	>	190		Chad	0.394	▼ -0.003	>
191		South Sudan	0.385	▼ -0.001	>						

Table 1: HDI Table 2022

A major challenge for development is also the climatic conditions. In the last three decades, the largest famines have taken place, mostly through droughts, in Africa (Hasell & Roster, 2013). That brought another variable to the surface which had an influence on the people's development, and it was not just a question of rethinking how development should be done for the people in the future; nature was also brought into focus as the environmental danger has been a factor in development theories for many years and the idea of sustainable development has emerged as a result of this.

2.4. Sustainable Development in Global Politics

In April 1987, the Brundtland Commission, as it came to be known, published its ground-breaking report, "Our Common Future," which introduced the concept of sustainable development into the public discourse. It defined sustainable development in terms of both protecting resources and ensuring equality in distribution (Village Earth, n.d.).

To clarify in the beginning, sustainable development does not equal sustainability, despite they are often incorrectly used interchangeably.

The difference:

"Sustainability describes managing resources without depleting for further generations, (...) (while) "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs ("Sustainability vs. Sustainable Development," n.d.).

The revolutionary report took a couple of years to appear on the political agenda. According to the United Nations, the comprehensive recommendations put forth by the Commission directly paved the way for the United Nations Conference on Environment and Development in 1992. This landmark event, famously known as the "Earth Summit," introduced the issue to the public agenda in an unprecedented manner. During the Rio de Janeiro meeting, the "Earth Summit" embraced

"Agenda 21," which served as a blueprint for safeguarding our planet and promoting its sustainable development.

Agenda 21 marked the culmination of twenty years of concentrated efforts, which originated with the 1972 United Nations Conference on the "Human Environment." This conference's findings led to the establishment of the UN Environment Programme (UNEP), which emerged as the world's foremost environmental agency. By 1992, the global recognition of the interconnection between environmental concerns and development, along with the urgent necessity for sustainable development, had become widespread (Village Earth, n.d.).

Sustainable development is an organising principle for meeting human development goals while also sustaining the ability of natural systems to provide the natural resources and ecosystem services on which the economy and society depend. The desired result is a state of society where living conditions and resources are used to continue to meet human needs without undermining the integrity and stability of the natural system (Chichilnisky, 1997).

Eight years later, the UN saw it as necessary to move into action. In September 2000, the United Nations' objectives of human development were codified in the Millennium Development Goals (MDGs). After the MDGs were implemented, child mortality decreased, the proportion of people living with 1,25\$ per day decreased from 47% in 1990 to 24% in 2008, and also enrolment rates in primary schools increased from 58% to 76% in Sub-Saharan Africa (Fehling, Nelson, & Venkatapuram, 2013). However, the list got criticised for being too "simplistic, unachievable, and having too much of a managerial approach while not identifying who is accountable for achieving them. Furthermore, reducing development objectives to a list of eight artificially separated goals, risks ignoring their interconnectedness and subsequently reinforcing a vertical nature in programs, policies, research, and funding" (Fehling, Nelson, & Venkatapuram, 2013).

The described targets and indicators are often seen as 'unfair to poor countries', and for African countries in particular, because of the way they are constructed. MDGs are more difficult to reach for the worst-off countries and are, therefore, drawing a darker picture of the progress made in those regions. It is argued that measuring changes in proportions makes it harder for countries with worse baselines to show progress. Halving poverty rates from 10 to 5% in Latin America represents

more progress (50% poverty reduction) than ‘cutting poverty from 50 to 35%’ in Africa (only a 30% reduction) (Easterly, 2009).

Especially MDG 7 prompted authors to argue that the goal places too ‘little emphasis on environmental issues, in particular, climate change’ (McMichael & Butler, 2004, p.364).

The sub-goal of MDG 7, 7C repeatedly has been ridiculed: “Access to safe drinking water and basic sanitation” overlooks local challenges, including infrastructure, distance, security, costs, contamination as well as a basic understanding of hygiene and sanitation (Dar & Khan, 2011).

The MDG was set to be evaluated and adjusted in September 2015, for the next generation of global development goals to address these limitations (Fehling, Nelson, & Venka-tapuram, 2013).

As a result of the evaluation of the MDGs, the UN introduced the 17 Sustainable Development Goals (SDGs) under the Agenda 2030. Focus was set on targets in the economic, social, environmental, and governance areas to be achieved by 2030. Unlike the MDGs, where you got a strong impression that those goals mainly target the poor countries, to which rich countries were to add their solidarity and assistance through finances and technology, the SDGs must show a different character. “Sustainable development is eluding the entire planet. The SDGs should therefore pose goals and challenges for all countries—not what the rich should do for the poor, but what all countries together should do for the global well-being of this generation and those to come” (Sachs, 2012).

The EU was actively involved in the drafting of the 2030 Agenda, which set out a new global framework to help eradicate poverty and achieve sustainable development and includes the principles of "leaving no one behind" and "striving to reach first those who are furthest behind".

It is evident that the SDGs cannot be achieved if each nation looks after itself. Well-structured cooperation between global government institutions and single countries is required to achieve the goals (Parris & Kates, 2003). The SDGs encompass specific objectives that vary globally, both among different societies and within them. At present, there is no unanimous agreement regarding the trade-offs and synergies among the economic, environmental, and social objectives. Nonetheless, sustainable development is characterized by a collective emphasis on these three dimensions, signifying a broad consensus on which the world can build upon.

The idea of the SDGs has quickly gained ground because of the growing urgency of sustainable development for the entire world. People became more aware that the increasing frequency of extreme climate events is indicative of an underlying dangerous trend of long-term change.

Almost all the world's societies acknowledge that they aim for a combination of economic development, environmental sustainability, and social inclusion (also known as the “triple bottom line approach (TBL) captures sustainability's three central pillars: environmental protection, social justice, and economic development). To achieve the common goals, successful cooperation is indispensable.

2.5. Principles of Cooperation

Before the implementation of cooperation, classic “development aid” has been practised between Europe and the global south. The notion to include cooperation methods into the European strategies developed as a new approach to what development should turn into. At that time still referred to as development aid, it was seen as the bottleneck and was recognized and treated with development funds and help for self-help.

Western Institutions promoted development aid as a win-win situation for the poorer countries. Western organisations integrate developing countries into the world economy and create new markets while the people of poorer nations profit from the provided infrastructure which increases their living conditions. Development aid often conveys an impression of inviolability, as if its organizational structure cannot be questioned, presenting itself as an inherently positive force. This posture implies an underlying power dynamic, suggesting that development must be bestowed upon someone and is achievable solely through Western intervention. The emphasis on helping others suggests that Western organisations always have the power and capacity to provide what the recipient is lacking, and this also implies the assumption that Western people have the knowledge to give but it also provides the assumption that locals are ignorant.

With the rethinking of how development should be practised, the term “aid” was collectively seen as controversial and not up to date anymore. Therefore, the term ‘aid’ was replaced by “cooperation”.

The more comprehensive understanding of development led many institutions and organisations to redefine their names; the German Ministry for example has led to an expansion of the ministry's

name. Since 23 January 1993, it is called the Federal Ministry for Economic Cooperation and Development (Bundesministerium für wirtschaftliche Zusammenarbeit, n.d.).

However, to achieve successful cooperation it requires more than just having a more comprehensive understanding of development. Cooperation between organisations, states, or other parties must follow a few principles to achieve successful cooperation. Cooperation can be understood as an action or process of working together to the same end. In international politics, development cooperation is mostly used if a country is not able to deliver a dignified life for its people, then cooperation between other states or organisations can be a chance to transform the inner circumstances of the country.

Carried out by the Organization for Economic Cooperation and Development (OECD), the *Busan Partnership Agreement* complements the Accra and Paris Agreements and sets the principles for “Global Partnership for Effective Development Cooperation” between countries, the main principles include country leadership and ownership of development strategies, a focus on results that matter to the poor in developing countries, inclusive partnerships among development actors based on mutual trust, transparency and accountability to one another (Busan Partnership for Effective Development Cooperation, 2011). *The Busan Agreement* is seen as “insufficient to drive real reform” and unfortunately not very usable for the European Union and its development strategies.

“It contains much narrative but few clear targets or deadlines and has consequently failed to create a strong sense of urgency among European decision-makers and practitioners. With European decision-makers, this was predictable: at previous summits, the EU had explicitly called for ambitious and measurable actions, with a timetable for implementation, but for Busan it lacked these ambitions. Nor did it take a strong stand on EU priorities such as human rights and gender equity. As a result, the BPA is weaker in these areas than the EU’s own treaties and policy strategies” (Concord Europe, n.d.).

2.6. EU-AU History

“Since its foundation, the EU (previously the EEC) has been obliged to associate and provide economic support to non-European countries that have long-standing special relations with one of the EU member states (ACP-states)” (Weerth & Klein, n.d.). This objective has been at the heart of the EU's external policy since the establishment of the European Development Fund (EDF) under the Treaty of Rome in 1957.

In 1992, 35 years later, the Maastricht Treaty was the first treaty to create a unifying basis for the various dimensions of development cooperation. Development cooperation is characterised by the interaction of the EU and the member states as well as the cooperation of both levels with corresponding international organisations (Algieri, n.d.). The Maastricht treaty determined the pre-settings on what the EU's development cooperation should turn into in the future.

After “Africa's lost decade”, the regression became noticeable. The aid to Africa fell from \$28.6 bn in 1990 to \$16.4 bn in 2000, a decline of 43 per cent (Africa Renewal, 2002). As a result, “African countries and the “Organisation of African Unity”, have been pressing the EU for a high-level forum to allow discussion of issues of mutual concern. The EU agreed in 1997 to such a forum and the summit that took place in Cairo in April 2000 was the eventual outcome (Thomson, 2000). Since then, the EU has developed and elaborated several different policies for its trade, development, and political cooperation with the AU and its member states.

The inaugural EU-Africa Summit held in Cairo heralds the dawn of a fresh and strategic era in the global partnership between Africa and Europe for the Twenty-First Century. This momentous occasion has set the stage for the establishment of an effective framework, fostering a meaningful and constructive dialogue on matters concerning economic, political, and developmental cooperation.

Since this historic summit, numerous cooperative strategies have been set in motion between the European Union (EU) and the African Union (AU). Notably, the Joint Africa Europe Strategy (JAES) and the Cotonou Agreement which have emerged as pivotal pillars underpinning the development policy between these two esteemed institutions. With these momentous milestones, Africa and Europe solidified their commitment to shape a prosperous and mutually beneficial

future, driven by cooperation, shared vision, and a dedication to sustainable development. However, weaknesses of the two frameworks were quickly identified.

The Cotonou Agreement (2000) was implemented for a designated 20-year period and in 2022, the Agreement underwent extension under the new name of the Post-Cotonou Partnership Agreement. This landmark agreement serves as the overarching policy framework and should facilitate development cooperation between the EU and the African, Caribbean, and Pacific (ACP) Group. The Cotonou Agreement, built on the previous Yaoundé and Lomé Convention, includes heavier development cooperation which became one of the three pillars of the agreement (European Council & Council of the European Union, n.d.). The Post-Cotonou Partnership Agreement stands nowadays as a testament to the most advanced and fruitful collaboration among low-income countries. The agreement is built on three pillars, cooperation, economics and trade, political dialogue, and development cooperation.

At the Lisbon Summit in 2007, a Joint Africa Europe Strategy (JAES) was carried out with the goal to bring Africa and Europe closer together through the strengthening of economic cooperation and the promotion of sustainable development. With the stronger weighting of sustainable development, the EU and AU set concrete goals to protect the climate (European Commission, 2007).

However, JAES lost focus on the initial intention of addressing issues of common concern and promoting a system of effective multilateralism. Instead, its framework has given prominence to issues of peace and security at the expense of the economic and development aspects. Therefore, the EU's approach can be said to be currently based on the security–development nexus rather than the trade–development nexus (Venturi, 2021).

“Despite these ambitions, the JAES has lacked the means for implementation and, “for this and other reasons, it has lost momentum and significance. Consequently, “relations between the EU and sub-Saharan Africa related to aid and bilateral cooperation have, in practice, continued to rely on the Cotonou Agreement” (Resty, 2021, p. 5)

The European Union endeavours to collaborate with African nations through a strategic plan aimed at enhancing living standards via development partnerships. However, with the initiation of the Joint Africa-EU Strategy (JAES), the landscape of cooperation and partnerships has become

intricate. From 2008-2013, the first and second action plan was carried out. Those action plans started initiatives to prevent climate change from rapid progress in which sustainable development plays a key role but also the support of the MDGs. Regrettably, the JAES did not factor significantly in the realm of development cooperation. The Cotonou Agreement was used whenever it came to development cooperation.

“Likewise, since 2000, the CPA has lost focus and grip on trade and political debates and has become highly focused on aid. While the demand for a “partnership of equals” was emphasised in the JAES, as evidenced by its ambitious goals, the JAES did not include an equally ambitious follow-through strategy. The JAES was supposed to help affect a paradigm shift from relations based on the aid donor–recipient mind-set to a relationship based on economic growth and mutual interest. However, soon after the first action plan for the operationalisation of the strategy was approved, geopolitical intentions elbowed their way in. For this reason, foreign aid came to be viewed as a strategic tool – an outcome evidenced by the myriad of projects financed by the European Commission” (Resty, 2021, p. 6).

However, one partnership that has been installed under the JAES could let the joint strategy return to a greater development role again. Since the start of the first cooperative development summit, progress has proceeded very slowly. Over 20 years have passed since the first EU-Africa Summit and 490 million people are still living in poverty. That means that 490 million people are living on less than \$1,90 per day in Africa (United Nations Conference on Trade and Development, 2021). To change the unpleasant figures, the EU is putting increased emphasis on Africa-EU Energy Partnership (AEEP) again. The adoption of the AEEP partnership is still one of the main components of the JAES at the Lisbon Summit in 2007 and has been regularly updated since (Africa-EU Energy Partnership, 2017).

2.7. Africa-EU Energy Partnership (AEEP)

The partnership is a long-term framework for strategic dialogue aimed at knowledge sharing, setting political priorities, and developing joint programs on the most important energy issues. The agenda specifies that not only the green transition component but electricity transition, in general, should lead to development and is inescapable for the Africa-EU Energy Partnership (AEEP).

“The overall aim of the AEEP is to facilitate the achievement of universal access to affordable, sustainable and modern energy services in Africa, including in rural areas” (Africa-EU Energy Partnership, n.d.) and supports thereby the interest of Agenda 2030, the AU’s Agenda 2063 and the European Green Deal to become climate-neutral by 2050.

The partnership is there to support mainly the Sub-Saharan region. The SSA region “remains the world’s region with the largest “access to energy” deficit: about 600 million people are lacking access to electricity and 850 million do not have access to clean cooking facilities” (Delegation of the European Union to the African Union, 2021).

The AEEP is seen to have the “potential to accelerate the transformation of AU-EU relations from dependency to a real partnership. Both regions face the challenge of managing just transitions in their countries and developing sustainable societal models, and this presents opportunities for knowledge exchange. Moreover, the partnership should focus on sectors in which economic and sustainability benefits align. Green infrastructure and energy production create jobs and open business opportunities. If approached in the right way, cooperation on energy transitions has a great potential to facilitate sustainable development in Africa” (South African Institute of International Affairs, 2020).

The Abidjan Summit in 2017 marked the 10th anniversary of the Energy Partnership between the EU and the Africa. “Within those ten years, the AEEP helped to set the agenda, provided a platform for high-level political dialogue, and represented a shared voice for Europe and Africa” (Africa-EU Energy Partnership, n.d.). “The EU and its Member States are together the world's largest aid donor, providing a total of €66.8 billion in Official Development Assistance (ODA) in 2020” (European Commission, 2021).

However, AEEP's ability to mobilize sufficient financial resources to support the development and deployment of sustainable energy solutions in Africa has been a persistent challenge. The AEEP struggled after its implementation like many other development programmes of the EU, to have

access to adequate financing which is crucial for the successful implementation of green energy projects.

Those are not the only issues that occurred in the past. The EU has launched several projects in the frame of the AEEP over the last years, but the AEEP operates within a complex landscape of policies and regulations in African countries, which can pose challenges for project implementation. Inconsistent or outdated policies, bureaucratic hurdles, and regulatory barriers can hinder the deployment of green energy solutions and discourage private sector investment.

2.7.1. EU's Multiannual Financial Framework (MFF)

Up until the conclusion of 2020, the European Union's allocation for development cooperation was distributed across six distinct funds: the European Development Fund (EDF), the European Fund for Sustainable Development (EFSD), the Team Europe initiative, the Emergency Trust Fund for Africa, and the Bêkou EU Trust. Notably, these funds operated independently of the EU budget (Pouwels, 2021). The EU found it necessary to restructure its financial resources. The EU's new budget plan, Multiannual Financial Framework (MFF), promises to make better use of financial resources and to create clearness in the opaque fund system. In addition, the restructuring of the budget is expected to make the financing of the EU's external action more coherent, transparent, and flexible (European Commission, n.d.b).

The MFF is subdivided by seven categories. Category six is called “neighbourhood and the world”, Neighbourhood, Development, and International Cooperation Instrument – Global Europe (NDICI – Global Europe) (NDICI) which is responsible for the funding of the European Neighbourhood, Africa, and the Western Balkans, as well as on the countries that are most in need. NDICI promotes multilateralism and contributes to the achievement of international commitments, in particular the goals of the 2030 Agenda and the Paris Climate Agreement. It will cover security, migration, sustainable development, climate change and human rights (Pouwels, 2021, p. 8).

The instrument has a budget of €80 billion to spend between 2021 and 2027 where €29 billion are intended to be used on SSA (Pouwels, 2021). How much of the money is allocated to certain countries depends on the discretion of the EU Parliament. Countries that share similar morals and

values, who fit more in the portfolio of the European Union, are more likely to execute cooperation programs for development projects with the financial support of the EU.

The NDICI categories are not free of criticism. Category 4, which is called “migration and border management”, is supposed to only assist national authorities in receiving asylum seekers and migrants immediately after their arrival on the territory of the EU (European Commission, n.d.). Controversially, Category 6 “Neighbourhood and the World” aims to target migration in general. A subject where the EU has already drawn criticism from in the past. The financial resources are not clearly structured.

In 2015, the EU implemented the Emergency Trust Fund (EUTF) for Africa. About €5 billion in "emergency funding", largely diverted from existing development funds. The aim was to distribute funds as quickly as possible to address structural causes of unauthorised migration. Under the guise to fight the causes of migration, the EU was using development funds from the EUTF to push through its own domestic political interests and spend EUTF money rather for border security than for sustainable development within the country. Especially at the request of the German government, as the largest financier of the EU fund, pressure was exerted in some governments, e.g., on Ethiopia. For those countries, accessing resources of the EUTF fund was only possible if they cooperate in the repatriation of migrants (Schacht, 2022).

Another example from Senegal is the Support Program for strengthening the civil status information system and creating a national biometric identity file. Officially, the EU has announced that it will contribute to respect for the rights of individuals related to the recognition of their identity by setting up an efficient civil status information system and creating a secure biometric national identity file to enhancing the development of digitalisation. On the other hand, it is seen as a control system that is particularly useful for the EU when it comes to illegal immigration of Senegalese to the EU. The EU Trust Fund financed the €28 million program (Delegation of the European Union to Senegal, n.d.).

In a new attempt to better separate migration objectives from development objectives, the EU came up with a Joint Strategy with Senegal. The following EU-Senegal Joint Strategy was initially covered by the ESDP; this fund has been added to the MFF 2021-2027.

2.7.2. Contribution to sustainable development through green energy in the “EU-Senegal Joint Strategy 2018-2023”

The Joint Strategy serves as a comprehensive framework for cooperation between the EU and Senegal, encompassing various areas beyond just development assistance, including migration, among its three priorities.

The Joint EU-Senegal Strategy is built upon the principles and priorities outlined in the Multiannual Indicative Programme (MIP), a planning tool that involves political dialogue, security issues, and other strategic areas of mutual interest. Notably, the EU-Senegal Joint Strategy has replaced the EU's MIP for Senegal during the first phase of NDICI-GE (2021-2024). The budget allocation of €222 million for Senegal between 2021 and 2024 has been transferred from the MIP to the new Joint Strategy (European Commission, n.d.c).

As a consequence, the "EU-Senegal Joint Strategy 2018-2023" has overtaken the MIP targets to achieve the SDGs in Senegal. These objectives are categorized into three main areas, each subdivided into various sectors. The strategic plan encompasses all SDGs through its objectives within these categories.

The EU-Senegal Strategy comprises three key priorities: "Green and inclusive growth for job creation", "Development of Human Capital", and "Good Governance". This Joint Strategy, previously known as the MIP for Senegal, is currently being implemented within the framework of the new EU budget cycle for 2021-2027 (MFF) (European Commission. (n.d.c).

Interesting for this study, “Priority 1” as it focuses on renewable energy: “Green and inclusive growth for job creation”. The "Green and inclusive growth for job creation" priority aims to facilitate Senegal's infrastructural development and foster sustainable agro-industrial activities. Additionally, it focuses on promoting the private sector's role in generating decent jobs, encouraging entrepreneurship, improving financial access, enhancing the investment climate, digitizing the economy, and ensuring access to mobile services (European Commission, n.d.c).

For the EU to achieve sustainable development through green energy in Senegal, priority 1 targets the transition to agroecological practices and promotes sustainable production for local consumption. Furthermore, the plan seeks to improve the management of natural resources, including renewable energy sources, and foster the use of energy-efficient technologies and

practices within the agro-industrial sector. By developing and enhancing agropoles and agricultural value chains, the EU's efforts will contribute to sustainable development and economic growth, while also reducing the reliance on non-renewable resources and promoting environmental preservation. Thereby, EU and its Member States' aim to the energy sector through the Team Europe approach (the Team Europe initiative is a broader approach that aims to enhance the coordination and impact of EU development assistance by pooling resources and efforts from the EU institutions and its member states. It encompasses various development cooperation activities, humanitarian assistance, policy dialogues, and other forms of support provided by the EU and its member states to partner countries like Senegal) that involves under Sector 2: "Sustainable and resilient infrastructures and digitalisation" (European Commission, n.d.c).

Sector 2 included further goals: to increase electricity production capacity (promoting interconnections and renewable energies), achieve universal access to energy, promote energy efficiency, and popularize modern and climate-friendly cooking systems.

Renewable energies are a strategic priority for both the EU and Senegal, with a focus on increasing their share in the energy mix through the development of photovoltaic, wind, and hydroelectric power plants, as stated in the Nationally Determined Contribution (NDC). The goal is to continue the expansion of renewable energies while ensuring the stability of the electricity system, including developing storage and intelligent planning and management of the grid. Rural electrification is a major development focus in Senegal, with efforts to extend grids or support off-grid renewable energy solutions, especially solar, to provide affordable energy to rural populations. Several projects in energy efficiency are ongoing, targeting the reduction of greenhouse gas emissions, deforestation, and energy consumption in industries, private and public buildings (Document de Stratégie Conjointe EU-Sénégal, n.d., pp. 29-30).

Under Priority 1 in Sector 2, the EU hopes to achieve the following SDGs with the joint strategy in: SDG5, SDG7, SDG9, SDG11 and SDG13.

“The joint programming document has now been revised in line with the Team Europe approach. It is proposed that the first phase of the revised joint programming be aligned with the Emerging Senegal Strategy (PES) and thus cover the period 2021-2023” (Document de Stratégie Conjointe EU-Sénégal, n.d., p. 9). The PES was implemented in 2012 when President Macky Sall's government decided to switch to a new development strategy for Senegal to accelerate its path to emergence.

2.7.3. Senegal's Renewable Energy Plans for Sustainable Development

The PES serves as a long- and medium-term reference framework for the nation's economic and social policy (Presidency of the Republic of Senegal, n.d.). Senegal is currently in Phase II of the PES. The Plan consists of three main pillars, structural transformation of the economy, promotion of human capital, and enabling good governance. The PES II includes the Vision 2019 - 2024 with five major activities where only the “Green PES” (Plan for Sustainable Reforestation of the National Territory) targets the environment. A promotion of “Green Energy” is not directly included but Senegal announced that their strategy is concurrent with the plan of the EU-Senegal Strategy and goes along with its National Determined Contributions (NDCs).

“Senegal is committed to the Sustainable Energy for All (SE4ALL) (SE4ALL is an international organization working together with the UN to achieve sustainable development through renewable energy agenda) being electricity access in rural areas one of the key priorities of the “Emerging Senegal Plan” (PSE - Plan Sénégal Emergent

Under the chapter of Human Capital, sustainable development is set as a priority with the aim to increase access to electricity for the rural population from 41% in 2017 to 81% in 2023. A huge improvement as the rural population counts 55% of the total country's population which equals a total of 7,4 million people who were living in rural areas across more than 14.000 villages in 2013 (Gesto Energia, 2018, p. 25).

Those villages account for 744,000 households but if we add service customers, the total number of rural customers is estimated to be 237,151. So far, the electricity coverage rate of villages in rural areas is estimated at only 20.1% with 2,863 villages electrified out of the 14,235 villages existing throughout the territory (Gesto Energia, 2018, p. 32). Therefore, the government has rightly recognised the need to focus more on electrification in rural areas.

“(PSE) sets the target of achieving universal access in Senegal already by 2025 – 5 years ahead of the SE4ALL target date.” (Gesto Energia, 2018, p. 13)

In addition, the PSE promises to lower greenhouse gas emissions, extending and reinforcing the electricity grid, and improving electricity sector governance are considered critical to ensure energy independence and improve “access to all of energy of sufficient quantity and quality, at least cost, and sustainable and respectful of the environment (République du Sénégal, 2019a: 3)” (United for Efficiency, 2020).¹

However, no description on how it will be achieved nor are any planned or present projects listed in their agenda. Only the improvement of the national electricity network of *Senelec* is mentioned. Controversy, *Senelec* only obtains 32% of their energy from renewable energies (Financial Afrik, 2023) which leaves out if the current government wants to improve or obtain their percentual structure of renewable energy.

Responsible for the legal and regulatory frameworks and their implementation of PES II are multiple state actors, "the Ministry of Petroleum and Energy, the Regulatory Commission of the Electricity Sector (CRSE-Commission de régulation du secteur électrique), the Senegalese Agency for Rural Electrification (ASER-Agence Sénégalaise d'Electrification rurale), the National Agency for Renewable Energy (ANER), and Senelec. The objectives of these public actors are to ensure energy security and universal energy access” (Apfel, 2022 p.6).

“In 2018, *Senelec's* share amounted to 52 % of total capacity, followed by 39 % from Independent Power Producers (IPP), with 9 % imported. The electricity generated by the IPPs is sold to *Senelec* via power purchase agreements (PPA). However, these PPAs are based on long-term contracts lasting 20–30 years raising questions about the sustainability of such agreements” (Apfel, 2022 p.6). *Senelec* cannot significantly lower the price of electricity for Senegal's population as they are bound to the contracts. It represents some help for Senegal and its energy transition in the short term but not in the long term. A possibility would be to rely more on renewable energy and increase the rate of renewable energy plants to produce more solar or wind energy directly by *Senelec*.

The planning and distribution of sustainable energy production come from outside. The responsibility has been transferred to Western institutions. Senegal's renewable energy ratio increased in the last decade because donors or foreign states are developing those various projects, the Senegalese government does not have the vision and financial capacity to invest in those renewable big-scale projects themselves (Apfel, 2022 p.6).

¹ Original text: “renforcer l'accès de tous a une énergie en qualité et en quantité suffisantes à moindre cout, durable et respectueuse de l'environnement” (République du Sénégal, 2019a: 3).

Nevertheless, with the means available to the country, there are also signs that Senegal is trying to reduce its dependence on foreign investment with the purpose to count heavier on domestic investment. Two of those hints are the founding of the Business Council of Renewable Energies of Senegal (COPERES - Conseil Patronal des Energies Renouvelables du Sénégal) in 2015 or with the establishment Association of Renewable Energy Professions (REPER - Réseau des Professionnels des EnR du Sénégal) in 2019 under the task to bring together private firms actively in the renewable energy business (Apfel, 2022, p. 6).

AEEP Programmes that have been carried out within the MIP/Joint EU-Senegal Strategy could not be found. After enquiring at the EU direct contact centre, I was referred to the tasks of the MIP/Joint EU-Senegal Strategy, but they were also unable to name a project that runs currently under the MIP/EU-Senegal Strategy (as of 31.03.2023).

Despite not receiving any official confirmation regarding the projects currently running under the MIP/EU Senegal Strategy, in the subsequent chapter, I have decided to analyse a project that serves as an illustrative example of the EU's investments in Senegal.

2.7.4. EU project examples in Senegal

During my search for other EU-funded projects related to the green energy transition in Senegal, I came across the "Scaling Solar" initiative. This program, backed by the World Bank Group, aims to facilitate the swift procurement and development of large solar projects with private financing in various countries, including Senegal. Given Senegal's abundant sun exposure throughout the year, it presents an ideal location for solar power generation.

Through the "Scaling Solar" initiative, two solar photovoltaic (PV) plants were launched, promising to provide clean and affordable power to approximately 540,000 people in Senegal. The project has received funding from the International Finance Corporation (IFC) (the largest global development institution which focuses exclusively on the private sector in developing countries), the European Investment Bank (EIB), and Proparco (the private sector financing arm of Agence Française de Développement Group (AFD Group)), with sponsorship from private financing agencies Engie and Meridiam (International Finance Corporation, 2019). Currently, ENGIE,

Meridiam, and FONSIS are the owners and managers of four solar plants in Senegal, collectively generating 120 MW, which constitutes over 50% of the country's solar capacity in 2021 (African Review, 2021).

The Kael and Kahone solar plants, located in the Touba region, began operations in May 2021, following competitive tendering facilitated by Senegal's Energy Regulatory Commission and financed by various entities. These solar plants cost \$40.77 million which expanded Senegal's domestic power generation by 60 MW (Connor, 2022) and are providing electricity to around 540,000 people at an affordable rate of less than four cents per kWh (European Investment Bank, 2021). However, it's essential to note that while the project is marketed as providing cheap energy for the people of Senegal, the national electricity provider benefits from lower purchase costs, which may not directly translate to cheap electricity prices for end-users.

To grasp the role of the EIB as an investor in the Scaling Solar Project, it is imperative to gain an understanding of the institution's structure and its primary objectives. As one of the major investors of the European Union, the EIB plays a crucial role in financing various projects, including initiatives like Scaling Solar. The institution is a subsidiary organ of the EU and holds in a special status. All EU member states are members and shareholders (Schoening, n.d.). Outside the EU, the EIB supports the EU's global policy on development and cooperation (European Union, n.d.). That means that the EIB grants loans for the financing of projects that achieve the EU's objectives inside and outside the Union. The Bank's capital does not come from the EU budget and its financial resources are not part of the MFF.

However, the published operational plans of the European Investment Bank involve the support of EU policy priorities and working in partnership with other institutions, in particular the European Commission, to implement EU mandates under the Multiannual Financial Framework (MFF) for 2021- 2027 (European Investment Bank, 2022). Thereby, the EIB is typically investing in big scale projects (table 2), like the Scaling Solar project in Senegal.

Signature date	Title	Country	Sectors	Signed Amount
25 August 2022	GAMBIA RENEWABLE ENERGY	Gambia	Energy	€24,081,765
25 August 2022	GAMBIA RENEWABLE ENERGY	Gambia	Energy	€8,000,000
17 July 2019	SCALING SOLAR PV SENEGAL	Senegal	Energy	€6,840,000
17 July 2019	SCALING SOLAR PV SENEGAL	Senegal	Energy	€5,660,000
25 August 2022	GAMBIA RENEWABLE ENERGY	Gambia	Energy	€12,830,000
25 August 2022	GAMBIA RENEWABLE ENERGY	Gambia	Energy	€57,000,000
28 November 2017	SENEGAL ELECTRICITY MODERNISATION	Senegal	Energy	€12,830,000
28 November 2017	SENEGAL ELECTRICITY MODERNISATION	Senegal	Energy	€75,000,000
Total				€202,241,765

Table 2: EIB financed energy projects in Senegal & Gambia between 2017-2022

The Kael and Kahone solar power plants run under the Scaling Solar program and exemplify the EU’s commitment to supporting Senegal’s transition to cleaner, more affordable energy, while creating business opportunities for local communities with 400 direct and indirect local jobs creations (European Investment Bank, 2021).

Another example of the EU’s green energy investment in Senegal is the construction of the Taiba N’Diaye wind farm, the largest wind power plant in West Africa. The project received a €50 million loan from the European Investment Bank and generate 158 MW of electricity, providing clean and reliable power to over two million people in Senegal.

On paper the EU’s investment in green energy in Senegal is a positive example of international cooperation for sustainable development, highlighting the potential for renewable energy to provide clean and reliable power while also promoting economic growth and environmental protection on the short term, those renewable energy projects will provide directly affordable and clean energy (SDG 7). On mid-and long-term, the EU’s green energy projects will run under the EU-Senegal Joint Strategy (former MIP) to support all 17 SDGs.

However, EU’s large-scale investments are not free of criticism as they are seen to “extirpate” the local industry. Scaling Solar agreed with the Senegalese government to sell kilowatt-hours at a price that no one else could produce.

And the state of Senegal has set the purchase price for the kilowatt-hour at the price offered by Scaling Solar. This means that local producers cannot sell at their cost-covering price and Scaling Solar has also the advantage of accessing public funds. That bears the danger that more ownership

of energy sources will belong to foreign investors and damages the local market. Therefore, those large-scale projects are often seen as a benefit to actors from the Global North as they produce, and the Senegalese consume. A common pattern when it comes to foreign investments all over the continent is to create economic dependencies (Apfel, 2022).

Senegal's vision of national development and an "emerging" economy depends on the harnessing of domestic energy sources (wind, solar, natural gas) by local businesses. These businesses would become new bearers of value as they help to lower the price of power, reduce reliance on imported oil, and reduce carbon emissions and support the local economy. This is a long-term goal that will require real solutions, but it is essential for Senegal's future (van den Bold, 2021).

The EU Commission firmly believes that "Africa is a continent that still requires significant investments to ensure universal energy access for its population." It perceives that "private investments have fallen short of expectations," contributing to Senegal's classification among the least developed countries. To address this issue, the EU has introduced a program aimed at supporting private investments, especially through the External Investment Plan (European Commission, n.d.a).

However, despite these efforts, new and innovative avenues are emerging for investing in the sustainable development sector. In countries with lower development, social businesses for sustainable development are finding a niche. These businesses are stepping in to address the needs of rural areas where existing infrastructure fails to reach the people. Their primary objective is to support the local population with their fundamental requirements. In this context, impact investment has gained popularity within the private sector of social businesses to achieve positive social and environmental outcomes while generating financial returns.

2.8. Impact investment

Impact investment refers to investing in companies or organizations that aim to achieve both financial returns and positive social or environmental impact. Impact investors seek to generate measurable, beneficial outcomes while also earning a financial return on their investment. The concept of impact investment has gained popularity in recent years, as more investors seek to align

their investment strategies with their values and contribute to sustainable development. Impact investments can cover a wide range of sectors, including renewable energy, healthcare, education, and affordable housing, among others. Impact investments can take many different forms, the most common investment opportunities in the field of impact investment has become the equity investment and lending based crowd investment. Equity-based crowd investment involves investors acquiring ownership in a business or project, sharing in its profits and potential growth. Returns are tied to the success of the venture, and investors may have voting rights and participate in decision-making. Lending-based crowd investment, on the other hand, involves individuals lending money to borrowers and receiving repayment with interest. Investors in lending-based crowdfunding primarily focus on earning interest on their loans rather than owning a stake in the business. The risk associated with lending-based crowd investment is generally lower compared to equity-based crowd investment, as repayment of the loan takes precedence over profit-sharing. One of the key benefits of impact investment is the potential for positive social and environmental impact. By investing in companies or organizations that are working to address social or environmental challenges, impact investors can contribute to creating positive change and promoting sustainable development. It is safe to say that impact investment is a promising approach to investment that seeks to align financial returns with social and environmental impact. By investing in companies and organizations that are working to address some of the world's most pressing challenges, impact investors can contribute to positive change while also generating financial returns. As the demand for impact investment continues to grow, it is likely to play an increasingly important role in promoting sustainable development and social progress in the future. The majority of impact investment companies are working in the framework of the ESG issues (Environmental, Social, and corporate Governance issues). The ESGs are a label that has been adopted throughout the United States financial industry and can be used as guidance for responsible investment. The ESG issues are used as a rating system to evaluate a company's environmental, social, and governmental credentials. Following the ESG issues or the SDGs is one of the principles of impact investment enterprises.

3. Africa Green Tec - The Social Business

In my following field study, I am analysing a social business that attempts to generate impact while creating a profitable business model through impact investment. Under the name of Africa GreenTec (AGT), the social enterprise aims to provide sustainable and affordable energy solutions to rural communities in Africa. Enterprises and individuals can invest capital in an investment fund which is managed by the social business operators who set up an “*Impact Site*”.

The Green Energy Transmission is far away for the African continent, only 5% of Africa's energy is renewable. Thorsten Schreiber wants to bring the energy transition to Africa. Together with his wife, he founded AGT in January 2016. While visiting a diesel generator plant in Mali, AGT's CEO was in shock and inspired at the same time. His vision, to replace them through sustainable energy.

AGT pioneered in the field of rural electrification through container systems. Those systems generate green electricity but brings also other benefits like an internet connection through satellite, a water purification system or a cooling system that keeps food fresh. The container systems can differ from *Impact Site* to *Impact Site*, depending on the amount of invested capital of the project. The main advantage of solar containers besides their uncomplicated installation is the portability. AGT is operating in locations where conflict situations cannot be ruled out, the simple dismantling of the system is an advantage that the social enterprise can offer as a safety asset for investors.

AGT commenced in Mali with its first *Impact Site* and spread over three more countries, Niger, Madagascar, and Senegal. In total, AGT counts 30 *Impact Sites* that have a direct or indirect impact on 150.000 people (as of November 2022). The ambitious goal, providing renewable energy to three million people by 2030.

What has started as a project to protect the climate, turned into a mission with expanded ambitions as AGT is working now with the SDGs as an official framework.

Thorsten Schreiber wants the young continent to be able to take fate into its own hands, and for that, he recognizes the need for basic resources and electricity as the source. AGT created 200 jobs, mainly for Africans as the non-African employees count only 25. That is also part of the philosophy to create job opportunities in Africa. By empowering local communities and promoting entrepreneurship, the company is not only addressing the energy access gap but also supporting

economic growth and social development in some of the world's most marginalized communities. To create job opportunities, access to electricity is indispensable. Job opportunities and a higher living standard will also increase the peace which will lower the opportunities of conflict situations and as a result also the number of war refugees.

Important for Thorsten Schreiber is that the social business wants to get away from the narrative of “white saviourism”. The “white savior complex is a term that’s used to describe white people who consider themselves wonderful helpers to (...) people of colour. They believe it’s their responsibility to support and uplift communities of colour — in their own country or somewhere else, because people of colour lack the resources, willpower, and intelligence to do it themselves.” (Raypole, 2021). The phenomenon of “white saviourism” occurs mainly because the Western media displays Africa as a continent in need of help and people for the Western countries.

Regarding Africa GreenTec's presence in Senegal, it is the first country in Africa where the social business established not only an *ImpactSite* but also an office. As Senegal being a safe and stable country in the Sahel region, it provides a conducive environment for the social business to operate. With the inauguration of their first office on the African continent, the first *ImpactSite* on Senegalese ground followed, the social business started to operate in the commune of *Ndiop* in May 2022, financed through equity investment (Africa GreenTec, 2021). Consequently, AGT’s *ImpactSite* in *Ndiop* is still in its infancy. Despite the relatively short time period, the first outcomes should be visible in how the AGT attempts to empower the Senegalese village on the road to achieving its goals.

The concept is simple, the provided electricity should help people to help themselves, which will further influence other SDGs that are set for the mid-term and long term. However, through providing clean and affordable electricity (SDG 7), AGT promises to have a direct impact on the following SDG’s: 13,4,8,6,2. In the following methodology, I will outline how I intend to find answers if AGT will have a direct impact on the previous listed SDGs.

4. Methodology

To find concrete answers to my research questions, I decided as already anticipated, to include field research into my methodology in addition to the literature research.

The field research should assist in the understanding of how the social business empowers the local community and more importantly how it impacts the local community. Therefore, the case study involves qualitative research, that means direct engagement with the local inhabitants of the village to gain underlying reasons, opinions, and motivations of the participants of my field research. The research method allows us to include thoughts, feelings, reasons, motivations, and values of a participant to the research as “basic data come not from laboratories but from living cultures” (Lofland, David, Anderson, & Lofland, 1994, p.38).

I made myself aware that, in qualitative research, you can quickly end up from an ordinary observation role into a participant observation role, especially in my case where I plan to spend one month with daily visits while building up relationships with some of the locals. Although it is an unplanned scenario, I will not be afraid to dive into the role. It can be understood as a form of existing trust and respect between the participants and the researcher.

Important for the researcher here is that you feel comfortable and to notice what has happened, preferably after, when reflecting on the day while writing down the field notes. This could be an uncomfortable setting for reserved people, but I would not count myself among them.

During my ethnographic research I conducted 23 unstructured interviews with the locals from the commune of *Ndiop* from mid-November 2022 until middle of December 2022. I started with a little introduction of myself and explained what I was doing before interviewing the inhabitants of the village. Equipped with a notebook and a pencil, I wrote down their names, their age, and their profession. From there, the unstructured interviews took their course and they turned often into conversations as I was frequently including open questions (Bryman, 2016, p.246). In addition to the information gained from my interviews, I collected resisted countless impressions which I diligently maintained at the conclusion of each day during my field research.

Before I continue, I would like to clarify that interviews with only a small part of the local participants were not fully representative, but they allowed me to get opinions from individuals and evaluate them to find connections that can explain certain processes. One of the reasons why

I asked similar questions in the beginning and then went into more specific detail about individual answers were for the simple reason of getting a more differentiated picture of certain topics and thus presenting more than just a survey result.

In addition to paying attention to my interviewing techniques, I also considered the individuals I chose to interview. The goal was to gain the opinion of people of all ages, no matter their gender. Not only people from the village of *Bacco* but also people from around the village became my target.

4.1 Goals & Strategies

Before embarking on my fieldwork, I established a set of milestones that I consider crucial for accomplishing a successful research endeavour. These milestones are designed to enable me to comprehensively investigate the impact of the AGT's project on the local community in *Ndiop*.

Prior to accessing the *ImpactSite* and the village, it was essential to establish a prior agreement with Africa GreenTec for the visit. Additionally, the arrangement of a meeting with a village administrator involved in the sustainable development project was necessary. Besides my plan was to engage in conversations with the village residents to gather insights into their aspirations for the project and its discernible influence on their lives thus far.

It is obvious that during my field research, I couldn't have direct encounters with the whole village as it is believed that over 4000 people are living there (Annex 2: Interview Omar Ba) but I expect within one month to gather a general attitude of the people towards the project. I planned to use multiple registration methods for my field research, my field notes will be accompanied by photographs and audio records. The use of audio records only took place in case of a language barrier to translate unintelligible afterwards or during a structured interview to create a transcript. Intended was an interview that contains main questions which will come attached with other sub-questions to deepen the main questions. However, with the preparation of the field research, expectations and concerns emerged.

4.2 Expectations & Concerns

I set up some expectations regarding the impact of the project before my entrance into the field. Through the provided electricity, I expected the families in the village to generate an increase in their range of choices which will lead to a higher morality within the family. If the family is a business owner, then I expect the family to achieve a reliable income through the provided electricity by the social business. The availability of electricity could also become a pull factor for people to relocate from neighbouring villages which could lead to a growth of inhabitants in the village.

I am sure many more discoveries will be made during my observation which I do not have on the radar yet. Despite that, I also must be aware that as an outsider I cannot expect to reveal as much information about a completely different society as somebody who researches his society. (Lofland, David, Anderson, & Lofland, 1994).

Entering the field in a different society brought up some concerns as well. One of the main concerns would be the rejection of being an observer by the locals. A danger that could lead to a direct failure of my field research.

Other ethical issues could appear as well, a moral quandary could be that the inhabitants of the village expect compensation for their time and help in return. Would paying for interviews have an impact on the results? Could the social chasm become an issue between me and the locals? Is there a certain power relation between the researcher and participant?

How to leave the field after building up relationships or even friendships could be another challenge as I want to show my gratefulness to the locals after a successful field work (Hammett & Sporton, 2012).

5. Field research (*Ndiop/Bacco*)

To start my field research, I contacted the social business to inform them about the purpose of my visit. Unfortunately, I did not receive a response through the contact form on their website, so I decided to contact AGT on social media. In the beginning, communication was slow, and it took me various attempts to get in touch with somebody responsible for the Senegalese village. Through a direct message on one of the AGT's social media channels, I received an email address from an employee of the headquarters in Senegal.

After arriving in Dakar, I arranged a meeting at AGT's office where the final details were agreed on. They turned out to be surprisingly simple by deciding that it is a public place, and my research cannot be limited by them if I don't take pictures of the inside of the solar container plant which generates the electricity for the inhabitants of the village.

In the meeting with the general director of business operations in Senegal, Anna Ndiaye, I also received the number of the general secretary of the cooperative who is going to receive me on the first day of my visit to the village.

While I was in contact with the business, I already informed myself about the area in which the village is located. I booked accommodation in *Diourbel*, the next city, ten kilometres away from the village as it was the closest location away from *Ndiop* to find accommodation.

Furthermore, I also received the contact information of the technician, one of the two employees of AGT's *ImpactSite*, the other one is the night guard, an inhabitant of the village. The technician Mr. Cherif Fall lives in *Diourbel*, and I was advised to connect with him to pick me up from the hotel in the morning so we could drive every day to the village together. Three days after I arrived in Senegal, I took a minibus from *Dakar* to *Diourbel* where I arrived two and a half hours later.

During my first two days in *Diourbel*, I took my time to arrive as the climate was getting to me a little. The temperature reached 40 degrees during the day and leaving the hotel became uncomfortable the first few days. You had to make sure to wear some kind of sun protection as the sun was shining the whole time during my stay in *Diourbel* and taking enough water with you is essential. Despite the desert climatic conditions, I wanted to get to know the city of *Diourbel*. One of the hotel's employees, who introduced himself as "LG" offered to show me around. It was in front of the *Grande Mosquee de Diourbel* where I made my first encounter outside the hotel with one of *Diourbels* inhabitants. Khadim Diallo started to explain to us everything he knew about the

mosque. He conveyed that it's quite uncommon for foreigners to visit *Diourbel*, as he mentioned that there isn't much to engage in there. Upon sharing details of my fieldwork, he kindly extended his assistance for translation, noting that not everyone in the village is proficient in French. Furthermore, he knew the mayor of the commune *Ndiop* and offered me to introduce him to me. They both knew each other from an election campaign they organized together in 2012 as I found out later. I accepted the offer, however, I wanted to have my first encounter alone with the people in the village.

On Sunday, the 20. November 2022, the general secretary of the cooperative, Ousmane Badiane, organized a taxi for me to meet him. To my surprise, the solar plant and the houses connected with the *ImpactSite* were not in the village of *Ndiop* but only in the commune of *Ndiop*. AGT is operating in *Bacco*, another even smaller village about four kilometres away from the main highway and the village of *Ndiop*, luckily Mr. Badiane explained on the phone the way to the taxi driver. To arrive in *Bacco*, we drove on unpaved roads, consisting of sand without exception. It took around 25 minutes to cover the distance from *Diourbel* to *Bacco* by car, and by motorcycle even longer which I found out about the upcoming days when driving with the AGT's technician Mr. Fall to the village as his motorbike had a tough time driving through the sandy paths.

Getting in touch with the locals seemed to become a difficult task, no crowded areas or bigger gatherings of people took place. Therefore, I walked up and down the sandy paths to find people to talk to as I could not identify a real centre of *Bacco*, the *ImpactSite* however is located within in the middle of the village. Besides that, only the small mosque could have served as such a meeting place for the people of *Bacco*. While walking around in the village, I approached people without any fear of rejection, it certainly helped that I learned a few words in Wolof as people acted surprised hearing a European speaking their language. It was most of the time the can opener for my conversations.



Image 1: Road from *Bacco* to *Ndiop*

Most of the village people expected me to be an employee of the social business which I had to clarify that I am not, and I gained the impression that the people are used to strangers. The locals were welcoming and patient with me even though I sometimes had difficulties understanding their French dialect. To overcome the obstacle of misunderstanding, I used the translation application of the iPhone when needed which worked out well.

I set the parameters and made sure the participants only answered questions they felt comfortable with and had no problem answering. After they agreed to take part in my conversations, I left it up to the participants themselves to decide whether questions they would like to talk about and to answer.

After my introduction, frequently inserted questions into the conversations looked like the following: How do you profit from AGT's created infrastructure? Did the *ImpactSites* contribute to an increase in job opportunities? What is your opinion about AGT?

Those sub-questions will put the people of *Ndiop* into the spotlight and will support my conversations. However, I did not want to force anything and did not want to make conversations seem unnatural. Therefore, depending on the flow of the conversations, I only asked the questions that fitted the conversation. Thereby I expect to gain a more natural view of the matters.

During my stay I often became a participant observer, I was involved in cleaning up the *ImpactSite* with some of the locals for a possible visit of Senegal's Development Minister Mr. Abdou Karim Sall which in the end did not take place, or to help Mr. Fall on the *ImpactSite* with his work while conversing. I also bought food from the farmers directly and was often invited to eat with them during the day because there are no bars or restaurants in the village which brings us to one of the major reasons why AGT is operating. Through the provided electricity people should be able to open restaurants or other small enterprises.

5.1 Entering the village of *Bacco (Ndiop)*

Through my initial encounter with Ousmane Badiane, the general secretary of the cooperative, I began to delve into the cultural relativity embedded in the community's approach to development and energy access. With his enthusiastic guidance, I was led through the village's physical landscape while mentally navigating the intricate web of relationships and communication that

form the social business. As he explained the intricacies of how the social business installed electricity wires to connect houses, it became apparent that I was not merely witnessing infrastructure development; rather, I was immersing myself in a dynamic network of interactions and roles that shaped the village's energy narrative.

Badiane's role as an intermediary within the cooperative unveiled the cooperative's underlying ethos of collaboration and collective benefit. This insight aligned with the holistic understanding that ethnography demands, revealing that energy access goes beyond the technicalities of wires and outlets; it intertwines with local dynamics and socio-cultural values. Badiane's willingness to introduce me to cooperative members hinted at the interconnectedness that I would continue to uncover throughout my fieldwork. By embracing these assumptions, I recognized that every interaction, conversation, and observation offered a window into a complex cultural context, ultimately shaping the way energy was understood, negotiated, and utilized within the community." In this example, I've incorporated the assumptions of cultural relativity, holistic understanding, and participant observation by analysing the encounter with Ousmane Badiane within the broader framework of ethnography. The passage emphasizes that the interaction goes beyond surface-level observations, delving into the underlying cultural and social dynamics that inform the community's approach to energy access (compare: Geertz, 1973, Chapter 1&2).

Beforehand, none of my apprehensions materialized. The prevailing attitude towards me was consistently positive, with locals warmly welcoming me, resulting in numerous enriching interactions for which I am truly appreciative. The presence of previous Western visitors to *Bacco* via AGT undoubtedly facilitated these interactions. On my initial day, I engaged with five distinct families and even made a school visit, traversing the primary pathways that trace the 2km expanse of AGT's electricity network. Prior to concluding my activities for the day and returning to my hotel in Diourbel, Ousmane Badiane extended a gracious invitation to his house. There, he introduced me to his family,

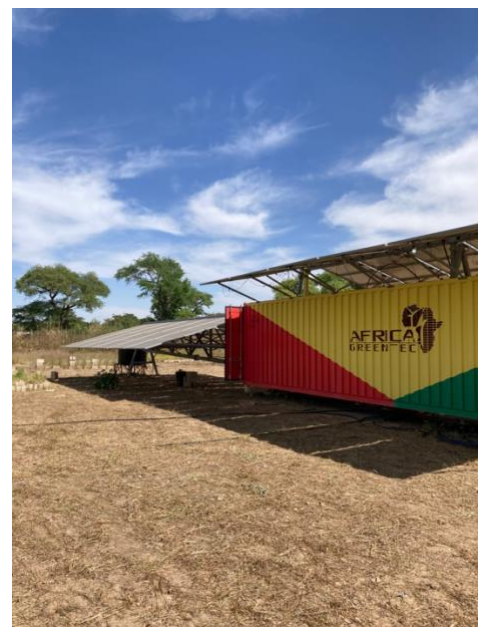


Image 2: Solar plant

including his wife and children, and offered a tour of his property. Ousmane Badiane falls under the category of "category 4" customers, granting his household the highest electricity capacity of 200 watts. He had set up several lamps and connected a fan to an available outlet within his residence. Additionally, his family enjoys access to three outlets distributed among their three rooms. Interestingly, the layout of the rooms required stepping outside to move between them, as they lacked internal connecting hallways.

He explained that the outlets were mostly used to charge the mobile phones of the family and to connect the television, unfortunately, the kids had accidentally thrown down the television from the table while playing the week before and it was out of order. With those few electricity-consuming objects the power line had already reached its capacity.

By charging his meter with 2000 CFA (less than 4 euros) he can provide his family with around one month of electricity. He is happy about AGT's provided infrastructure as it is by far cheaper than the national electricity provider *Senelec*.

I noticed some cut-up wires on the side of his house and wanted to know more about it. He clarified that solar energy is nothing new to the people in the village, most of them were using solar panels before, however, they installed them for each household themselves as the national electricity provider never had the intention to supply the village with electricity. Now that the solar plant of the social business also saves energy with batteries, people also have light during the night. Mr. Badiane and the mayor of the town, which I interviewed during my stay as well, recognized it as a big advantage, as it made the village a safer place to walk through by night. The safety aspect comes especially for women into play as they mentioned it a few times during our conversations. Unfortunately, there are some parts of the paths where the illumination is too weak, or the lanterns are too far distanced from each other.

I already noticed after my first day, there was nearly no cash flow within the village, I had to ensure that I always had the exact amount in cash, 10,000 CFA (approximately 15€), to pay for the taxi or make purchases at the lone village kiosk. Unfortunately, this issue persisted in every village I visited, as none of them had an available ATM.

I met Al-hadji Fall the next day. He is a farmer in *Bacco* and is not satisfied with the AGT-provided electricity because of its limitation of 200 watts maximum usage. He complained about not being able to connect devices to become productive, his connected devices, a fan, a TV, and some lamps only made life more comfortable but do not make him productive. The electricity boxes were supplied without a meter, leaving me curious about how one would know when to recharge before the lights went off. Upon inquiring, Mr. Fall informed me that AGT, the provider, offers an application to monitor consumption on a phone. However, to my dismay, the app wasn't functioning correctly, and the displayed numbers were inaccurate, as Al-hadji Fall demonstrated to me.



Image 3: Interviewing the locals of *Bacco*

As I continued my visits in *Bacco*, a pattern emerged and the answers began to repeat, highlighting a significant problem. Despite the availability of electricity, the majority of people opted for category four, providing only 200 watts. Unfortunately, this limited power capacity prevented anyone from connecting essential tools like a fridge, hindering the villagers' productivity.

Tidiane Sow complained that families already bought fridges which are useless now as they need a higher watt output power. I referred to the other possibility to store their harvests inside the *Cooltainer*. The social business offers a walk-in container that is cooled down to store the crops. People like Biam N'Bella Faye and Latyr Diouf explained to me that they are waiting for half a year for the *Cooltainer* to be active, Mr. Fall admits that the *Cooltainer* has technical problems with frosting. Others like Senjene Faye would not store their meat and vegetables and fruits inside the village as trust is not given between everybody in the village. Mr. Fall explained that the concept would be that you weigh your harvest before putting it into your basket inside the *Cooltainer* but Senjene Faye replied that people could also exchange cheaper crops for more expensive ones and the weight would be the same again. In the tapestry of these interactions, a conviction of AGT becomes evident, the conviction that traditions and modernity can coexist harmoniously. This assumption serves as a bridge between cultural heritage and contemporary

innovation, suggesting that even as technology finds its place, the foundational values of patience, trust, and balance remain unwavering (compare: Postman, 2011).

So far, fridges, freezers, and larger machines are not connectable to the outlets with limited power. Mamadou Faye elucidated without the cool storing possibility, you must drive to *Ndiop* or *Diourbel* to buy fish which is very costly. He identifies transport as the main problem, establishing a store in the village becomes challenging due to the arduous transportation conditions, he adds that there are only four car owners in the village: the mayor, two teachers and one is for commercial purposes only that can be rented to transport goods. Donkey carriages are the only option to transport goods or people. However, the long unpathed roads not only become obstructive when talking about business reasons but also for the children that want to attend secondary school. Students like Kiné Faye (15) and Amyne Diouf (14) struggle with leaving *Bacco*. Both girls attend school in *Ndiop* which is a tiring 45 min walk one way, especially walking through the sand is exhausting. Every child from *Bacco* that continues secondary school has at least a 90 minutes' walk per day. The two girls take that upon themselves because of their goals after school. Kiné would like to become a soldier and serve the Senegalese army, Amyne wishes to become a professor at the university which means both intend to leave the village at some point in life.

I continued to accompany Mr. Fall in the following days. He is an employee of the social business and the only technician of the *ImpactSite*. He showed me around the solar plant and talked with me about his career and his studies in the United States. He was the only person within the village that was able to talk in English to me, which facilitated everything whenever I was with him.

He explained to me the importance of the *ImpactSite* for Omar Ba. The mayor paid for a fence that surrounds the *ImpactSite* to protect the plant out of his pocket. While we were talking about the project, people came by from time to time to charge their phones at the outlet that AGT provides to Mr. Fall for free at his workplace. I was able to observe this scenario from time to time when spending time with him. People without an AGT contract were passing by to charge their phones at Mr. Fall's outlet. The availability of an outlet for charging phones at his workplace reveals a microcosm of uncontracted individuals benefiting from the service. Such impromptu interactions underscore the communal dynamics and resource-sharing practices within the village.

The locals also told me that they often charge their phones at their neighbour's place or on little self-installed solar panels during daylight which some of the villagers have. That people passing by Mr. Fall's outlet to charge their phones, and the use of solar panels for charging devices, implies also that technological solutions are a means of facilitating social interactions and connectivity within the community (Castell, 2010, p. 32).

Most of the people in the village were fluent in French, but there were some families who exclusively spoke Wolof. In situations where I needed translation from Wolof to French, I could always rely on Khadim Diallo. To communicate with villagers with whom I could not engage the previous day due to the language barrier, I had to decide the evening before whether I would take a taxi so that Khadim Diallo could accompany me. Fortunately, Mr. Diallo was retired, and available always, a fact for which I was immensely grateful. The reliance on Khadim Diallo as a translator and facilitator for communication underscores the importance of intermediaries in bridging language barriers and enabling effective interaction between the researcher and the local community (Köksal & Yürük, 2020, p. 329).

Mr. Diallo also took the initiative to arrange a meeting with the village mayor, Omar Ba, on my behalf. Unfortunately, I only received a very short time slot for the interview as the mayor was extremely busy during the week. The interview lost a little of its structure due to the time limitation. Fortunately, he made me aware of his time shortage the day before and I was able to restructure the interview in the evening. I had to prioritize questions over others but was able to obtain all the information I was looking for. The interview with the mayor of the commune of *Ndiop* is also the only fully structured interview that took place in the field.

His house is centred in the middle of the village, roughly 200 meters away from AGT's *ImpactSite*. Mr. Ba invited me to his reception room at his house where the interview took place. His statements with those of the residents of *Bacco* coincided. He recognized the same problems but also referred that life through AGT got more comfortable for the inhabitants.

Yet, the project is still in its infancy, and he is sure that the impact of AGT will increase. He admitted that productive energy is missing for people to start a micro-business that will advance the development of the village. He pointed out that many other villages in the commune of *Ndiop* are already electrified by *Senelec*, the national energy provider. The difference in *Bacco*, the provided energy comes only through solar energy which he seemed to be very proud of when we talked about it. In contrast, *Senelec* is producing 70% of its energy through non-renewable energy

(International Trade Administration, 2023). However, energy independence is up on top of the list of the mayor and AGT's agenda as they are already testing solar pumps for *Baccos* farmers. Omar Ba is convinced that green energy can have a huge impact on the rural area. Not only through the *ImpactSite* but also in all kinds of work sectors he hopes his village will function with renewable energy. By replacing petrol and diesel pumps with solar pumps the autonomy of the population and the environment are put into focus.

He continued to elucidate the intricacies of his sustainable vision, one that resonates with the essence of transforming the village into a harmonious 'green village'. Rooted in a dynamic interplay of traditions and modernity, the village embarks on a multifaceted transition, a reflection of its evolving cultural tapestry (compare: Bessière, 2002).

Besides replacing petrol pumps, he is looking to launch sustainable agriculture with crops that are not in need of chemical pesticides like organic fertiliser. Furthermore, *Bacco* is working on reforesting several thousand plants on the roads, both in houses and in public places. The key to success is to equip the women of the village with stoves that are running on sustainable energy and not with the previous method of felling trees and using them as the source of energy to cook. Also, environmental education must start in school.

After I left Omar Ba's house, I could hear a loud machine running, it was a grinding machine where the farmers of *Bacco* come to grind. It was running on petrol, it seemed like it belonged to the whole village however it had to be filled up with petrol. Mr. Badiane told me that it is expensive to grind with petrol, but they do not have another possibility at the moment. I got reminded of my interview with the mayor a few minutes earlier where he told me of his vision to turn *Bacco* into a "green village" to trigger exactly the problem of fuel dependency.

5.2 Leaving the Field

Before I left the field, I was confronted with the complexity of reciprocity in the context of my research interactions. The warm reception and generosity I experienced throughout my stay in the village raised questions about the role of giving back to the community that had welcomed me so openly. In this cross-cultural exchange, I observed the intricate dynamics of gratitude and the challenge of expressing it appropriately. While I couldn't individually compensate all those who

contributed to my research, I recognized the significance of demonstrating my appreciation in a meaningful way. This led me to engage in a form of reciprocal giving by providing equipment for the primary school, a gesture that aimed to extend the relationship beyond the boundaries of my fieldwork (compare: Willer, Flynn, & Zak, 2012).

During my last week in Senegal, I made it my task to talk with people outside of *Bacco*. I identified *Ndiop* as suiting, the village I was passing by every day when going to *Bacco*, 4 kilometres away. The location alone gives *Ndiop* advantage over *Bacco*, as the road from *Diourbel* to *Fatick* is passing through. *Senelec* has been operating in the village for a long time already. That became visible when I saw various shops and little restaurants inside the village. People were predominantly satisfied with the national electricity provider. The connection is great and there are rarely electricity cuts as Adama Ndaye told me, only the prices should be less expensive. She owns a restaurant and profits from AGT before as she cooked for the workers that took care of the installation of the solar plant and the electricity network construction in *Bacco*, the people that took care of the installation were hired people from a *Kaolack* company and nobody from to commune of *Ndiop*.

5.3 Analysing the collected Data

The findings during my research provide a diverse portrayal of a community that embraces the confluence of tradition and innovation, finding resonance in shared values. The field research not only reveals the impact of technology on social interactions but also unveils the human intricacies of cross-cultural exchange. From the warm reception to the tapestry of interactions, from technological facilitation to acts of gratitude, the story speaks to the profound interplay between culture, tradition, and the forces that shape them.

Concerning my set up expectations before entering the field, I was confused. During my stay in *Bacco* with the people of the village, a big deficiency in my expectations became noticeable. The goal of the operating business is to create business opportunities sustainably, but I could not see any stores or other retail businesses emerging through the provided electricity. Mr. Badiane and the majority of the inhabitants of the village expressed themselves and said that is due to the low number of watts the electricity provider is offering. In the case of Mr. Bidiane and his family, an

increase in choices is visible, life got slightly more comfortable. Going to the toilet at night or walking on the streets is not a problem anymore due to the electrification of the paths. However real business opportunities did not emerge in Mr. Bidiane's family or in any other family I talked to. Without the possibility to gain a regular income, development is unfeasible.

He continued to explain that over 95 percent of the inhabitants of *Bacco* are farmers. For farmers it is essential to have the possibility to keep their crops in refrigerated storage, unfortunately, the number of watts is not sufficient to plug in a refrigerator and their *Cooltainer* was not active yet. Most of the people I talked to see it as more convenient to have a refrigerator or a cool trunk at home anyways and do not want to walk to the *Cooltainer* to have access to their food. Others said that the trust between the people in the village is not given to store their food in a community storage where everybody has access to. However, half a year after the beginning of energy distribution the storage facility was still not active for the usage of the AGT customers. Therefore, it remains to be seen whether the *Cooltainer* will be accepted by the villagers in the way AGT envisages. The illumination of the village already offers the possibility to be productive even during the night, missing only the machines with which could be worked.

Omar Ba sees productive energy as crucial for the development of the village. The energy must be sufficient enough for the inhabitants of *Bacco* to create their macro-businesses and the mayor is insisting that they are working on it. Those macro-businesses can be based on their agriculture activities to sell their harvests or to open a restaurant. The energy will also offer an increase in the range of choices, unlock new skills, and create various businesses for the locals. Yet, life got already gotten more comfortable for the inhabitants. Television and radio give people easier access to gain information and do not have to leave their houses. More comfort can also be seen through the cool breezes of the ventilators during the day inside the houses. The cooled air makes working less tiring and the illumination makes working possible also after the sun sets.

People who did not sign a contract with AGT are still profiting from the illumination of the paths in the village which agreeably supports the safety within the village. Also without a contract, access to electricity is given as neighbours allow them to charge their phones at their places or at Mr. Fall's outlet at the *ImpactSite*.

Repeatedly has been mentioned that the poor transport accessibility holds back the development of the village. To leave and to return to the village is costly if you want to do it efficiently.

In case AGT's customers can start a business within the village, whether people are able to create a business with the imitation of watts or in case AGT is able to increase the number of watts, quality roads are needed to ease access to the village to transport and resell their products within but also outside the village. That means without a cooling system the people have no choice of starting their own business like a restaurant or to store food and sell it in other villages of the commune of *Ndiop* or even in the city of *Diourbel*. Omar Ba explains that *Bacco* is part of a road programme which will connect the whole commune of *Ndiop*, a date of completion was not mentioned.

I also included an increasing attractiveness of the village in my expectation. A reason to ask people from the neighbouring village about their thoughts on *Bacco* and AGT's infrastructure project. I asked people in *Ndiop*, a village that was already electrified by the public electricity provider about the AGT project. The security guard of my hotel in *Diourbel* lives in *Ndiop* and he was not aware of what has been happening in the neighbouring village as well as many inhabitants in the village of *Ndiop*. So far, the AGT's project has had no impact on neighbouring villages as I never heard that somebody moved to *Bacco* due to the available solar electricity.

The project did not get much of a hearing outside of *Bacco*, perhaps because the impact of the operating business is not yet decisive and has a lot of space for improvement, otherwise, the project would be certainly more known.

When I questioned the inhabitants of *Ndiop* about their electricity provider, they expressed satisfaction, the only common complain I witnessed about *Senelec* is the cost of electricity.

On the other side, the locals in *Bacco* never complained about the price of AGT's electricity as it is affordable for the locals.

The importance of sustainable energy has hardly been considered, only the favourable price had priority. That solar energy can bring those two advantages combined looks like a nice side effect for the people of *Bacco* but for Omar Ba it is the only future that will determine *Baccos* development.

Energy independence is still not given even though it is on the mayor's bucket list to change that. As for now, people are still relying on fuel-running machines and generators. The only "high-tech" machine I saw within the village was a diesel-powered machine used to grind grain for the farmers, an expensive, insufficient, and non-sustainable way to process the grain.

I perceived the people as not being dissatisfied with the presence of AGT, yet they expected the project to have a more direct and faster impact.

Therefore, we must inspect the energy provider. Can AGT be satisfied with their work so far? AGT is working with the SDGs as their official framework. Therefore, I would like to measure their success on their contributions to the SDGs. As AGT is only operating for half a year in *Bacco*, I will only take their promised direct effects into analysis.

AGT is providing Goal 7 and promises to have a direct impact on the following SDG's: 13,4,8,6,2 (Africa GreenTec, n.d.).

Goal 13 "Climate Action " can be acknowledged as achieved as climate protection measures are taken by reducing emissions within the village. Even though some locals already had solar panels installed, the whole paths of the village are now illuminated through solar energy and the houses of all AGT costumers are connected to green energy, also the mayor's concepts for becoming a green village are aimed at SDG 13 and could lead to further impact in the future.

Goal 4 concerns "Quality Education". AGT connected the primary school of *Bacco* without any charge to the electricity network and allows the school to use helpful tools like a copy machine, to connect a router that provides internet and other on electricity running devices. The classrooms are now equipped with lamps which provide a good view for the students of the board.

Goal 6 "Clean Water and Sanitation" was not yet targeted as the water purification plant is still not active after half a year of AGT's presence and its easily to say that AGT did not have direct impact on Goal 6.

Goal 8 is targeting "Decent Work and Economic Growth". The teachers' condition at the primary school have improved and teaching became visible easier and more efficient through the provided electricity. Beside the teachers, also two other persons gained a job through AGT, the night guard and the technician. Also, Diene Faye's brother who is working for *Orange* has now constantly the possibility to top up people's phone with credit as he has electricity at his house. Nevertheless, economic growth was not visible. The power is simply not sufficient to be productive energy.

Goal 2 "Zero Hunger" is difficult to evaluate because I did not have the impression that hunger was a problem in *Bacco* as nearly everybody self-supplying themselves with food, however I could not see how AGT should have had direct impact on that through their *ImpactSite* as the *Cooltainer* was not active during my field work.

In conclusion, after half a year of AGT's presence in the village, direct impact was not visible on all the promised goals. Some of the SDGs received greater success and some could not be targeted at all.

6. Discussion

After analysing AGT's impact within the village, the following discussion will focus on the main research question: "How can AGT's *ImpactSite* and EU's sustainable energy projects empower the people in rural Senegal and in which dimension do their approaches differ in order to contribute to the SDGs?".

The collected field data displays many indicators of why profitable rural development for two parties is challenging. Unlike the EU who is not dependent on the project's success for their existence, AGT needs to be self-sustaining in the long term to recoup investments. The limited supply of wattage per household may be a result of the calculation to ensure profitability for AGT's *ImpactSite* investment. This decision can potentially impact various system variables of the power generator. Although we cannot currently analyse the profitability or revenue success of the investment, one approach to reducing costs is to offer less storage capacity for the generated electricity or install fewer solar panels. While this may limit choices for the inhabitants, it can ensure the financial stability and continuity of the social business, which is crucial for its ongoing operation.

Thereby, the statement that "a minimum of electric energy should be a right; (...) (and) only 100Wh of daily electric energy per household (would) (...) bring real business opportunities and create jobs" (Diouf, Poda, & Osei, 2013) was refuted as even double the number of watts contributed in a remote Senegalese village to a more comfortable and dignified but not more productive life.

While some families in the village had self-installed solar panels, AGT's electricity supply made them redundant, providing 24-hour access to electricity. However, this limitation significantly restricts people's activities. Even essential equipment like the grain milling machine, which typically runs on diesel, cannot be replaced with an electricity-based one due to the insufficient power supply. As a result, the current electricity capacity poses significant challenges and constraints on the villagers' daily lives and productivity.

The explicit goal of the EU and Africa GreenTec is to supply the rural population with electricity. However, in large-scale projects such as *Scaling Solar*, the aim is not to supply regions that are not connected to the grid, but to offer cost-effective sustainable electricity. As part of the PES, reducing energy costs is a key objective, and *Scaling Solar* as well as AGT *ImpactSite* are align with this goal (van den Bold, 2021).

AGT's *ImpactSites* gain a distinct advantage in this context, operating in areas entirely devoid of electricity connections. The objective aligns seamlessly with the pursuit of clean and affordable electricity for all, a shared goal underscored by SDG 7. The company's social enterprise model is built on the principle of complementing, rather than competing with, national electricity providers. Its unwavering focus remains on extending electricity access to the marginalized segments currently disconnected from the national grid.

The remarkable claim by AGT that their investment of only 20 million will impact 150,000 people is reminiscent with the *Scaling Solar* project. The EU, with an investment of 40 million, asserts that their project will have an impact on 500,000 people but besides the potential for lower costs in the long run, which is not assured for the population through *Scaling Solar*, there seems to be limited direct impact on other Sustainable Development Goals (SDGs). A direct sequence of how the *Scaling Solar* project will contribute to the 17 SDGs in the medium and long term is not comprehensible. It raises questions about the nature of the direct impact on job creation, especially considering that the affordability of cheap electricity relies on the national electricity provider selling it significantly below the average price per kWh. The extent of tangible benefits and direct effects on various SDGs remains uncertain under these circumstances.

The successful tender, however, let themselves be celebrated after the they set a new benchmark in the region, offering electricity at prices under 4 US cents per kWh, making it the most cost-effective energy source in Senegal (*Scaling Solar*, n.d.). In contrast, the average price per kWh in Senegal stands at 34 US cents.

Unlike AGT, these large-scale investments also pose a potential risk of destabilizing the national market. National providers might lack the financial resources to undertake comparable projects, leaving local contractors with minimal chances of securing contracts due to their limited financial capacities. This situation could lead to an uneven playing field and hinder the growth of local businesses in the energy sector.

The World Bank Group, under which the Scaling Solar project is operating, indicates that “the planned Scaling Solar project underscore Senegal’s commitment to integrating renewable energy resources into its energy mix” (Scaling Solar, n.d.).

In this dissertation, it becomes evident that Senegal is not the initiator of these projects. Instead, it is the EU and other Western organizations that are driving and funding these initiatives. The contrasting priorities and opportunities between Senegal and the EU come to the forefront, emphasizing the influence and role of external actors in shaping sustainable development projects in the country. The imprecise design of Senegal’s Green PES is another indicator.

As a member of the Africa Union, Senegal is following Agenda 2063 which gives strong priority to poverty reduction and climate adaptation, whereas the European Green Deal, which is an ambitious agenda to transform Europe into a carbon-neutral continent by 2050, has a limited social dimension. Green transition combines the climate agenda with an innovative socio-economic project for job creation and sustainable growth, which are interests shared by the two continents. Both AU and EU are committed to implementing the 2030 Agenda for Sustainable Development and the Paris Climate Agreement.

EU and AU approach green transitions from very different angles. Whereas the EU has a major historic responsibility and continues to have very high per capita emissions, African countries have contributed little to climate change but are severely affected by its consequences. The AU’s Agenda 2063 gives strong priority to poverty reduction and climate adaptation, whereas the European Green Deal, which is an ambitious agenda to transform Europe into a carbon-neutral continent by 2050, has a limited social dimension (van Hove et al., 2021). In comparison to the European Green Deal, Agenda 2063 has a stronger social dimension, which is no surprise as the development rate is under the European one.

Climate change is a bigger challenge for the EU’s political agenda, while Senegal is struggling to provide the basic needs to all Senegalese people. As noticed, the locals from *Bacco* and in the commune of *Ndiop* have set their priorities differently. If the provided energy is cheap, the source of energy is secondary.

Currently, the most cost-effective and straightforward method of electricity production in Senegal, particularly, involves harnessing the existing resources, notably gas. Senegal has even discovered new gas fields, which has contributed to the escalating trend in gas production in the country and

has direct impact on the percentage of the energy mix (Krämer, 2022). It is understandable that the foresight is not there when the basic needs are not even a matter of course.

People from the Global South could feel that the West is forcing the switch to renewable energy on Africa. Controversial, as some countries in Africa are pioneers when it comes to the use of renewable energy such as Kenya that produce 90 percent of their energy from green electricity (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung, 2023) while Germany produces just 44 percent of its energy from renewable sources (Die Bundesregierung, 2023).

One of AGT's primary goals is to discourage emigration, and to achieve this, the range of job opportunities must expand. An essential prerequisite for this is an unlimited power supply what unfortunately is not given yet. Migration and sustainable development are closely interconnected, as lack of opportunities for sustainable development can lead to migration. Therefore, it is crucial that green energy projects focus on job creation and other pull factors, providing the local population with compelling reasons to stay and actively participate in their domestic economy. This approach aligns with SDG8, which aims to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. It is indeed true that Scaling Solar contributes to job creation, particularly in plant maintenance. However, the assumption that the expansion leads to the automatic emergence of small consumer-oriented enterprises is not assured. Many individuals who were already connected to *Senelec's electricity* had the chance to establish their businesses previously. The expectation that reduced electricity costs will invariably facilitate increased business investments also lacks certainty. The predominant impact lies in a greener energy mix rather than a guaranteed economic stimulus.

A question that arises is whether the EU empowers people through large-scale projects like Scaling Solar? To empower people means to them stronger and more confident, especially in controlling their life and claiming their rights (Cambridge Dictionary, n.d.).

The idea that people will be empowered by Scaling Solar is misleading, as the project has limited impact on the population, unlike the AGT project. To empower people and to address the Sustainable Development Goals (SDGs) more effectively and precisely, it is advisable to pursue smaller yet more targeted projects. From the *Scaling Solar* project, the national energy provider *Senelec* is profiting in the first place. "If you want to make development aid sustainable, you have

to anchor projects locally in order to achieve something in the long term, Large organisations (...) must therefore work with local partner organisations that know better about the culture and needs of the recipient countries” (Schacht, 2022), this also applies to renewable energy projects. AGT tries to achieve this impact in a more focused manner, utilizing 30 *ImpactSites* to reach their targeted population.

The lack of communication has been identified as a problem between the inhabitants of *Bacco* and AGT which hinders the *ImpactSite* to empower the people. Mini grids like the *ImpactSite* in *Bacco* can be a workable solution overall. Nevertheless, the entire system must function effectively, considering the preferences and needs of the local population, including determining the optimal electricity requirement to enhance productivity in the village.

Moreover, it is essential to consider whether it is sensible to undertake projects that generate green electricity if the overall development is hindered due to the lack of connections to essential infrastructure, such as street networks. In some cases, it may be necessary to ensure that other vital infrastructure is available or created simultaneously alongside the green electricity project. This is notable for the case of AGT’s projects as they operate in areas where the infrastructure is generally weaker.

A pertinent example can be observed in the situation of the young people in *Bacco* who are compelled to endure a 90-minute walk daily to reach their secondary school. Implementing paved roads or public transport options would significantly reduce travel time and subsequently increase access to education, leading to a greater number of educated individuals in the community. Fast and easy transport of goods and people and to the connecting roads of the region would also lead to more effective economic activity within the village.

7. Conclusion

Human beings aspire to achieve personal development, but it is essential to ensure that their basic needs are met as a fundamental foundation for this journey. The SDGs set the direction, Senegal, unfortunately, cannot fulfil the basic needs for its people on its own, especially in the rural area. Senegal's state restricted capacity to fund extensive investments from the public budget necessitates a significant reliance on foreign direct investment to achieve its vision of enhancing necessities like affordable electricity access nationwide. The establishment of the SDGs places significant emphasis on ensuring the sustainability of energy, a priority that holds great weight within global governance institutions.

Therefore, Senegal sees the transition to renewable energy on the list of tasks of foreign institutions and is not actively promoting green energy which is concurrent with interests of the people of *Bacco*. Primarily, electricity must be cheap and should be available without limitation. While the mayor of *Bacco* is a pioneer with a green vision for the future, the local population lacks foresight, this is not to be condescending, they must address other challenges before prioritizing considerations of sustainability.

Senegal diligently works with the resources at hand, embracing any assistance brought in by foreign institutions with open arms. However, in their pursuit of progress, they might not always be fully aware of the potential negative side effects or, at times, deliberately choose not to acknowledge them, e.g. in the for large-scale investment projects.

Neither a large-scale project like *Scaling Solar* nor AGT's *ImpactSites* can have the imagined impact on the targeted SDGs. Min-grids like the *ImpactSites* from AGT can be a solution to provide electricity to people in rural areas to expand their choices in life with prospects of employment. The most important aspect of the implementation is the involvement of the local population and the fact that there is unlimited energy. This can also sensitise the population to green energy, which does not have to be expensive. In the example of AGT, the projects are not precise enough and not exactly measured to the people's needs, this can also be a problem for small-scale projects like the one of AGT. With good intentions but not perfectly executed.

The process of development and its associated standards remains an ongoing journey, prompting a reevaluation of Western paradigms. It underscores the vital significance of cultivating partnerships in a nuanced manner. This shift in perspective necessitates an increasing acknowledgement of the

imperative to engage with and comprehend non-European societies, incorporating local contexts into the fabric of collaborative ventures. This progressive outlook has given rise to a multitude of initiatives dedicated to prioritizing the cultivation of authentic partnerships (Büschel, 2020).

Overall, the SDGs are ambitious, one may say overambitious, and many places will remain poor, but no place should be destitute and unable to meet the basic needs.

8. Bibliography

- Africa-EU Energy Partnership.** (n.d.). *About the AEEP*. <https://africa-eu-energy-partnership.org/about-the-aEEP/>
- Africa-EU Energy Partnership.** (2017, November). *Ten Years of the Africa-EU Energy Partnership: Status Report 2017-18 and Future Perspectives* [Press release]. https://africa-eu-energy-partnership.org/wp-content/uploads/2020/04/05_aEEP_status_report_2017-18_and_future_perspectives.pdf
- Africa GreenTec.** (2021, November 17). *#We empower — Throwback Solartainer bleibt stecken Ndiob* [Video]. YouTube. <https://www.youtube.com/watch?v=vGp8SwGSBR4>
- Africa GreenTec.** (n.d.). *ImpactFacts – Scientific Impact measurement*. <https://www.africagreentec.com/home/impactfacts/?lang=en>
- Africa's Growth Performance & Outlook Amid the COVID-19 Pandemic.** (n.d.). https://www.afdb.org/sites/default/files/2021/03/09/aeo_2021_-_chap1_-_en.pdf
- Africa Renewal.** (2002, September). *A 'disappointing' decade for Africa*. <https://www.un.org/africarenewal/magazine/september-2002/disappointing-decade-africa>
- African Review.** (2021, June 01). *Engie, Meridiam and Fonsis Commission Solar Projects in Senegal*. <https://www.africanreview.com/energy-a-power/renewables/engie-meridiam-and-fonsis-commission-solar-projects-in-senegal>
- Algieri, F.** (n.d.). *Entwicklungspolitik der EU. Bundeszentrale für politische Bildung*. <https://www.bpb.de/kurz-knapp/lexika/das-europalexikon/176819/entwicklungspolitik-der-eu/>
- Apfel, D.** (2022). *Renewable Energy Transition in Senegal? Exploring the Dynamics of Emerging Paths to a Sustainable Energy System*. *Energy Research & Social Science*, 92(102771). <https://doi.org/10.1016/j.erss.2022.102771>
- Australian Broadcasting Corporation.** (2013, December 17). *The History of Foreign Aid* [Press release]. <https://reliefweb.int/report/world/history-foreign-aid>
- Bessière, J.** (2002). *Local Development and Heritage: Traditional Food and Cuisine as Tourist Attractions in Rural Areas*. *Sociologia Ruralis*, 38(1), 21-34. <https://doi.org/10.1111/1467-9523.00061>
- Bryman, A.** (2016). *Social Research Methods* (5th ed.). Oxford University Press. Chapter

- Bundesministerium** für wirtschaftliche Zusammenarbeit und Entwicklung. (2023, May 02). *Ausbau der Energieversorgung*. <https://www.bmz.de/de/laender/kenia/kernthema-klima-und-energie-just-transition-58008>
- Bundesministerium** für wirtschaftliche Zusammenarbeit und Entwicklung. (n.d.). *The History of BMZ*. <https://www.bmz.de/de/ministerium/geschichte>
- Busan Partnership for Effective Development Cooperation*. (2011, December 01). https://effectivecooperation.org/system/files/2020-06/OUTCOME_DOCUMENT_-_FINAL_EN2.pdf
- Büschel**, H. (Host) with Welty, U. (2020, November 01). More thoughts is being given to partnerships today [Audio podcast transcript]. In Deutschlandfunk Kultur. <https://www.deutschlandfunkkultur.de/entwicklungshilfe-als-koloniales-erbe-heute-wird-mehr-ueber-100.html>
- Cambridge Dictionary**. (n.d.). Empower. In *Cambridge.org*. Retrieved August 10, 2023, from <https://dictionary.cambridge.org/dictionary/english/empower>
- Castell**, M. (2010). *The Information Age: Economy, Society, and Culture* (2nd ed.). Blackwell Publishing. https://deterritorialinvestigations.files.wordpress.com/2015/03/manuel_castells_the_rise_of_the_network_societybookfi-org.pdf p.32
- Chichilnisky**, G. (1997). What is Sustainable Development? *Land Economics*, 73(4), 467-491. <https://doi.org/10.2307/3147240>
- Concord Europe**. (n.d.). *Making Sense of EU Development Cooperation Effectiveness*. https://concordeurope.org/wp-content/uploads/2016/08/AW_Special_Report_2012.pdf?1d6b43
- Connor**, E. (2022, June 03). *Senegal Expands Clean Energy Development Through Scaling Solar Projects*. Energy Capital & Power. <https://energycapitalpower.com/senegal-clean-energy-scaling-solar-program/>
- Connor**, P. (2018, March 22). *At Least a Million sub-Saharan Africans Moved to Europe Since 2010*. Pew Research Center. <https://www.pewresearch.org/global/2018/03/22/at-least-a-million-sub-saharan-africans-moved-to-europe-since-2010/>
- Corvaln**, C. F., Simon H., Anthony, J., Butler, C., & Sarukhn, J. (2005). *Ecosystems and human well-being: Health synthesis: A report of the millennium ecosystem assessment* (World Health Organization).
- Dar O. A.**, Khan M. S. (2011). *Millennium development goals and the water target: Details, definitions and debate*. Tropical Medicine & International Health. 16:540–544.

Delegation of the European Union to the African Union. (2021, November 17). *The European Union and the African Union — Green Transitions and Energy Access*.
https://www.eeas.europa.eu/african-union/european-union-and-african-union-green-transition-and-energy-access_en?s=43

Delegation of the European Union to Senegal. (2021, August 06). *EU Projects with Senegal*.
https://www.eeas.europa.eu/senegal/eu-projects-senegal_en?s=117

Die Bundesregierung. (2023, July 12). *Anteil der erneuerbaren Energien steigt weiter*.
<https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/faq-energiewende-2067498#:~:text=Wie%20hoch%20ist%20der%20Anteil,2024>

Diouf, B., Pode, R., & Osei, R. (2013). Initiative for 100% Rural Electrification in Developing Countries: Case Study of Senegal. *Energy Policy*, 59, 926-930.
<https://doi.org/10.1016/j.enpol.2013.04.012>

Dorfman, R. (1991). Review: Review Article: Economic Development From the Beginning to Rostow. Reviewed Work: *Theorists of Economic Growth From David Hume to the Present: With a Perspective on the Next Century*. by Walt Whitman Rostow, Michael Kennedy. *Journal of Economic Literature*, 29(2), 573-591. Published By: American Economic Association.

Duquet, S. (2022). *Facts and Figures*. EU Diplomatic Law (Oxford University Press), S. A1-A1.P182.

Easterly, W. (2009) *How the millennium development goals are unfair to Africa*. [Article] *World Development*. 37(1), 26–35.

European Commission. (2007). *A Joint Africa-EU Strategy*.
https://knowledge4policy.ec.europa.eu/publication/joint-africa-eu-strategy_en

European Commission. (2021, April 13). *Team Europe increased Official Development Assistance to €66.8 billion as the world's leading donor in 2020* [Press release].
https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1701

European Commission. (n.d.a). *Senegal*. https://international-partnerships.ec.europa.eu/countries/senegal_en

European Commission. (n.d.b). *Headings: Spending Categories*.
https://ec.europa.eu/info/strategy/eu-budget/long-term-eu-budget/2021-2027/spending/headings_de

European Commission. (n.d.c). *Document de Stratégie Conjointe EU-Sénégal 2018-2023 (révisé pour 2021-2023)*. <https://international->

partnerships.ec.europa.eu/system/files/2022-01/mip-2021-c2021-9362-senegal-annex_fr.pdf

European Council & Council of the European Union. (n.d.). *Post-Cotonou Agreement*. <https://www.consilium.europa.eu/en/policies/cotonou-agreement/>

European Investment Bank. (2022). *The EIB Group Operational Plan 2022-2024*. https://www.eib.org/attachments/publications/eib_group_operational_plan_2022_en.pdf

European Investment Bank. (2021, June 02). *Senegal: Scaling Solar - Two PV Plants bring Clean Energy to more than 500,000 people* [Press release]. <https://www.eib.org/en/press/all/2021-183-scaling-solar-two-pv-plants-bring-clean-energy-to-more-than-500000-in-senegal>

European Union. (n.d.). *European Investment Bank (EIB)*. https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/search-all-eu-institutions-and-bodies/european-investment-bank-eib_en

Fehling, M., Nelson, B. D., & Venkatapuram, S. (2013). Limitations of the Millennium Development Goals: a literature review. *Global Public Health*, 8(10), 1109-1122. <https://doi.org/10.1080/17441692.2013.845676>

Financial Afrik. (2023, January 12). *Sénégal : la Senelec réajuste ses tarifs et épargne les ménages vulnérables*. <https://www.financialafrik.com/2023/01/12/senegal-la-senelec-reajuste-ses-tarifs-et-epargne-les-menages-vulnerables>

German Watch. (n.d.). *Steinmeier: Klimapolitik ist vorausschauende Sicherheitspolitik*. <https://www.germanwatch.org/de/8107>

Geertz, C. (1973). *The Interpretation of Cultures*. Basic Books.

Gesto Energia. (2018, June). *Senegal's Se4all Rural Electrification*. https://gestoenergy.com/wp-content/uploads/2019/04/Gesto_Senegal_EN.pdf

Global Data Lab. (n.d.). *Subnational HDI (v7.0)*. <https://globaldatalab.org/shdi/shdi/>

Goedde, L., Ooko-Ombaka, A., & Pais, G. (2019, February 15). *Winning in Africa's Agricultural Market*. McKinsey & Company. <https://www.mckinsey.com/industries/agriculture/our-insights/winning-in-africas-agricultural-market>

Hammett, D. & Sporton, D. (2012). Paying for Interviews? Negotiating Ethics, Power and Expectation. *Area*, 44(4), 496-502. <https://doi.org/10.1111/j.1475-4762.2012.01102.x>

Hasell, J. & Roster, M. (2013). *Famines*. Our World in Data. <https://ourworldindata.org/famines>

- Human** Development Reports. (n.d.). *Human Development Insights*. United Nations Development Programme. <https://hdr.undp.org/data-center/country-insights#/ranks>
- International** Finance Corporation. (2019, July 18). *Two Scaling Solar Projects in Senegal Advance to Construction with IFC Financing Package* [Press release]. <https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=16849>
- International** Trade Administration. (2023, February 02). *Senegal — Country Commercial Guide*. <https://www.trade.gov/country-commercial-guides/senegal-energy>
- Kamer**, L. (2023, July 20). *Africa's Average Electricity Rates by Select Countries 2016*. Statista. <https://www.statista.com/statistics/503727/retail-electricity-prices-in-africa-by-select-country>
- Köksal**, O., & Yürük, N. (2020). The Role of Translator in Intercultural Communication. *International Journal of Curriculum and Instruction*, 12(1), 327-338. <https://files.eric.ed.gov/fulltext/EJ1249472.pdf> p.329
- Krämer**, N. (Host). (2022, September). #31 - AfricaGreenTec: *Wie ein Social Start-Up die Energiewende in Afrika vorantreibt- mit Torsten Schreiber* [Audio-Podcast]. finance4future. Spotify. URL:<https://open.spotify.com/episode/4GoMmGEBEwJpVxtfna9Wdh?si=1acb2ceae6f64f99>
- Lofland**, J., Snow, D. A., Anderson, L., & Lofland, L. H. (1994). *Analyzing Social Settings: A Guide to Qualitative Observation and Analysis* (4th ed.). Wadsworth Publishing.
- Malhotra**, K. (2004). The Purpose of Development. *Michigan Journal of International Law*, 26(1), 13-18. <https://repository.law.umich.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1213&context=mjil>
- Maslow**, A. H. (1970). *New Knowledge Human Values*. McGraw-Hill Contemporary.
- McMichael**, A. J., Butler, C. D. (2004) *Climate change, health, and development goals*. Lancet.
- Oguejiofor**, J. O. (2001). *Philosophy and the African predicament*. Ibadan: Hope Publications, Ltd.
- Oguntuase**, O. (2022). Partnerships for the goals in Africa: Impact investors and social entrepreneurs through the lens of the United Nations sustainable development goals, in *World Scientific Encyclopedia of Business Sustainability, Ethics and Entrepreneurship*. S. 263–91.
- Orback**, J. (n.d.). *Global Governance*. Global Challenges Foundation. <https://globalchallenges.org/global-governance/>

- Parris, T. M. & Kates, R. W.** (2003). Characterizing and Measuring Sustainable Development. *The Annual Review of Environment and Resources*, 28, 559-586.
<https://doi.org/10.1146/annurev.energy.28.050302.105551>
- Postman, N.** (2011). *Technology: The Surrender of Culture to Technology (reprint)*. Knoff Doubleday Publishing Group.
<https://books.google.pt/books?hl=en&lr=&id=gYrIVidSiLIC&oi=fnd&pg=PT8&dq=eve n+as+technology+finds+its+place,+t>
- Pouwels, A.** (2021). *The Integration of the European Development Funds into the MFF 2021-2027*.
https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/694414/IPOL_BRI%282021%29694414_EN.pdf
- Presidency of the Republic of Senegal.** (n.d.). *Emerging Senegal*.
<https://www.presidence.sn/en/pse>
- Raypole, C.** (2021, July 14). *A Savior No One Needs: Unpacking and Overcoming the White Savior Complex*. Healthline. <https://www.healthline.com/health/white-saviorism>
- Resty, N.** (2021, October). *The EU-AU Trade and Development Partnership: Towards a New Era?* <https://feps-europe.eu/wp-content/uploads/downloads/publications/211103%20policy%20brief%20aueu%20relations%20on%20trade%20and%20development.pdf>
- Sachs, J. D.** (2012). From Millennium Development Goals to Sustainable Development Goals. *The Lancet*, 376(9832), 2206-211.
[https://www.thelancet.com/journals/a/article/PIIS0140-6736\(12\)60685-0/fulltext](https://www.thelancet.com/journals/a/article/PIIS0140-6736(12)60685-0/fulltext)
- Scaling Solar.** (n.d.). [Article about Senegal's Electricity]. <https://www.scalingsolar.org/active-engagements/senegal/>
- Schacht, K.** (2022, April 14). *Wie Deutschland EU-Geld in Afrika verwaltet*. Deutsche Welle.
<https://www.dw.com/de/wie-deutschland-eu-geld-in-afrika-verwaltet/a-61445516>
- Schoening, S.** (n.d.). EIB. In *Gabler Wirtschaftslexikon*. Retrieved on August 9, 2023.
<https://wirtschaftslexikon.gabler.de/definition/eib-33062>
- SE4ALL.** (n.d.). *Senegal – At a glance* Retrieved on August 12, 2023. <https://www.se4all-africa.org/seforall-in-africa/country-data/senegal/>
- Sid Israel - Society for International Development.** (n.d.). *About International Development*.
<https://sid-israel.org/en/about-international-development>

- Solivetti, L. M.** (2005). W. W. Rostow and His Contribution to Development Studies: A note. *The Journal of Development Studies*, 41(4), 719-724. <https://doi.org/10.1080/00220380500092903>
- South African Institute of International Affairs.** (2020, September 25). *AU-EU Partnership to Promote Sustainable Energy Transitions*. <https://saiaa.org.za/research/au-eu-partnership-to-promote-sustainable-energy-transitions>
- Stohr, W. B. & Fraser, T.** (1981). *Development from above or below? Dialectics of Regional Planning in Developing Countries*. John Wiley & Sons.
- Suehrer, J.** (2019). The Future of FDI: Achieving the Sustainable Development Goals 2030 through Impact Investment. *Global Policy*, 10(3), 413-415. <https://doi.org/10.1111/1758-5899.12714>
- Sustainable energy for all.** (n.d.). *Senegal Electricity Statistics*. <https://www.se4all-africa.org/seforall-in-africa/country-data/senegal/>
- Sustainability vs. Sustainable Development: Examining Two Important Concepts.** (n.d.). Maryville University. <https://online.maryville.edu/blog/sustainability-vs-sustainable-development>
- Thomson, I.** (2000, April 08). Africa-EU Summit, Cairo, 3-4 April 2000. European Sources Online. <https://www.europeansources.info/record/africa-eu-summit-cairo-3-4-april-2000/>
- United for Efficiency.** (2020). *Un nouveau mécanisme pour faciliter l'accès aux réfrigérateurs et climatiseurs énergétiquement efficaces et respectueux de l'environnement au Sénégal*. News. <https://united4efficiency.org/un-nouveau-mecanisme-pour-faciliter-lacces-aux-refrigerateurs-et-climatiseurs-energetiquement-efficaces-et-respectueux-de-lenvironnement-au-senegal/>
- United Nations Conference on Trade and Development.** (2021, December 08). *Reaping the Potential Benefits of the African Continental Free Trade Area for Inclusive Growth*. <https://unctad.org/press-material/facts-and-figures-7>
- United Nations Development Programme.** (n.d.). *Defining and Measuring Human Development*. Human Development Report 1990 (pp. 9-16). United Nations.
- UNRIC.** (n.d.). *Wie Europäische Union und Vereinte Nationen zusammenarbeiten*. https://unric.org/de/wp-content/uploads/sites/4/2017/02/Leporello_EU-VN_d.pdf
- van den Bold, M.** (2021). In Pursuit of Diverse Energy Futures: The Political Economy of Electricity in Senegal. *Environment and Planning E: Nature and Space*, 5(4). <https://doi.org/10.1177/25148486211034808>

- van Hove, K., Farinha, C., Keijzer, N., & Yawson, F.** (2021, October 22). *Strengthening Africa-Europe Dialogue on Sustainable Development*. ECDPM.
<https://ecdpm.org/work/strengthening-africa-europe-dialogue-on-sustainable-development>
- Village Earth.** (n.d.). *A Brief History of International Development Theories and Practices*.
<https://villageearth.org/a-brief-history-of-international-development-theories-and-practices/>
- Venturi, Bernardo.** “AU-EU Relations on Peace and Security,” FEPS Policy Briefs, 2021
https://www.iai.it/sites/default/files/2021_feps_pb_venturi.pdf
- Weerth, C. & Klein, M.** (n.d.). Lomé Abkommen. In *Gabler Wirtschaftslexikon*. Retrieved on August 9, 2023. <https://wirtschaftslexikon.gabler.de/definition/lome-abkommen>
- Willer, R., Flynn, F. J., & Zak, S.** (2012). *Structure, Identity, and Solidarity: A Comparative Field Study of Generalized and Direct Exchange*. *Administrative Science Quarterly*, 57(1). <https://doi.org/10.1177/0001839212448626>
- The World Bank.** (n.d.). *GDP per Capita (current US\$) — Germany*.
https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=DE&name_desc=false

Annex A

Interviews:

Inhabitants of <i>Bacco</i>			Last stand: 7.12.2022
Name / Gender	Age	Profession	
Abdoulaye Faye	61	Farmer	<ul style="list-style-type: none"> • The house gets connected with the <i>ImpactSite</i>, after agreeing a contract with AGT you can charge your metre in order to have electricity • he is customer and has a TV, a Ventilator and lamps connected to the outlets, besides that, nothing changed • Minimum charging: 1000 cfa (1,80€) • He had to choose between 4 different categories 50w/100w/150w/200w, he chose the 3.th option of 150w because he has devices that have a usage of more than 100w
Ousmane Badiane	32	General Secretary of the Cooperative and Farmer	<ul style="list-style-type: none"> • His job as General Secretary is voluntary and unpaid. • In order to become a member of the cooperative, you need to do a one-time payment of 5000 cfa. Everybody of the cooperative has a contract with AGT, it is a pre-requirement. • Difficult to switch contract in case of larger output of electricity, it requires a change of contract with AGT • In case you have problems with your electricity connection, Mr. Fall is available at the <i>ImpactSite</i> to contact, it is free of charge • The training to become technician is free and anybody can apply
Monsieur Fall (from Diourbel)	48	Technician	<ul style="list-style-type: none"> • From Monday to Friday (8-17h) at the <i>Impact Site</i> • The furthest house is 2km away from the <i>ImpactSite</i> with the solar container away • Next to the solar container is a water

			<p>purification system which has not been activated yet</p> <ul style="list-style-type: none"> ● Internet connection yet to be available, satellite needed ● <i>Cooltainer</i> had problems with frosting, will soon be active ● There is a free power outlet for him to use while he works ● The mayor paid for a fence that surrounds the <i>ImpactSite</i> to protect it ● One man received a job through AGT as security guard who is protecting the <i>Site</i> at night after Mister Fall leaves ● There are many diesel generator within the village because 200w are not sufficient for many devices ● AGT connected the school without any charges for the students or teachers ● Lives in <i>Diourbel</i> and is working for one year for AGT ● Got in contact with AGT through a friend who told him about the project ● Studied in US at the University of Michigan ● Main tasks: maintenance and cleaning of the <i>ImpactSite</i>
Cheikh Gningue,m	35	Farmer	<ul style="list-style-type: none"> ● 90% are farmers ● The street lights and the electricity network was installed by people from Kaolack, not by the inhabitants ● AGT created only two jobs directly, the technician and the security guard ● Every 1-2 months sb. from AGT headquarters is visiting the <i>ImpactSite</i> and the village ● The electricity network cannot be extended because of the battery capacity ● Visited an <i>ImpactSite in Mali</i> which was equipped with an active water purification plant
Al-hadji Fall, m	56	Farmer	<ul style="list-style-type: none"> ● Not happy with the AGT provided electricity because it is limited ● On the metre you do not see how much

			<p>electricity has been used, AGT provides an application to check the consumption on the phone, but the App is not working properly, the numbers were not correct</p> <ul style="list-style-type: none"> ● He had his own solar panels and batteries installed before AGT ● AGT's solar pumps are in planning to increase the farmers productivity but have not been provided to the inhabitants yet
Tidiane Sow, m	54	Farmer	<ul style="list-style-type: none"> ● AGT Customer, category 4 (200watt) ● His house is supplied with six power outlets and 15 light bulbs ● His little fridge cannot be connected due to the limitation of the provided electricity ● Many locals bought already a fridge and were only realising afterwards that the connection is not enough to support the device with sufficient power, he would have wished to be better informed ● The people need a cooling place urgently to store the fruits and vegetables of the harvests ● He would like to grind flour with sustainable methods but that is unfortunately not possible at the moment ● 5000 cfa are too much for him to join the cooperative but he plans to do it ● SENELEC is better but their network is not extended until their village
Diene Faye, f	28	Farmer	<ul style="list-style-type: none"> ● Is farming peanuts ● she welcomes AGT's work, and she is especially happy with the installed light bulbs in her house, however she needs a fridge urgently ● The power limitation is the major issue ● She would wish for better communication between AGT and the people, nobody knows when the <i>Cooltainer</i> will be active ● Unfortunately, the AGT's provide infrastructure range was not ready to use at the same time, the people are still

			<p>waiting for water purification system and the <i>Cooltainer</i> as well as the satellite to provide internet</p> <ul style="list-style-type: none"> ● Her brother is the only one in the village who is working for Orange and is the only person within the village where you can top up your mobile phone credit, he is doing that for three months now, before you had to go to a neighbouring village to top up your phone credit
Mamadou Faye,m	52	Farmer	<ul style="list-style-type: none"> ● Has his TV and some lamps attached to the outlets ● You have to drive until <i>Ndiop</i> or <i>Diourbel</i> to buy fish (5000 cfa by car and 2000 cfa by motorbike) ● The transport is the main problem ● It is difficult to open a store in the village if the transport is so difficult ● Only 4 car owners in the village: the mayor, two teachers and one is offered for renting to transport people or goods
Ndeye Diouf, f	21	Farmer	<ul style="list-style-type: none"> ● Her dad has a work contract with AGT, he is employed security guard of the <i>ImpactSite</i> ● She feels safer through AGT's illumination of the paths in the village ● She is charging her phone at the neighbour place ● she does not know why her dad did not want to connect her house to AGT's electricity network
Kiné Faye (f) and Amyne Diouf (f)	14 15	Focus group (Students)	<ul style="list-style-type: none"> ● Her parents have a contract with AGT ● With the provided electricity they are using TV & lamps ● 20 people living at their two homes who are profiting from AGT's electricity ● They feel safer at night when going to the toilette through the AGT's illumination however many lanterns are too weak or too far distanced from each other ● People share electricity to charge phones

			<ul style="list-style-type: none"> ● Both attend school in <i>Ndiop</i> which is tiring 40 min walk one way, especially walking through the sand is exhausting ● They spend one and half hours per day walking because Bacco only has a primary school ● Not all the rooms in Amyne Dioufs house are equipped with light ● Amynes mom is a farmer who is farming <i>niébé</i> on the fields behind the house ● Her mom complained about the few possibilities to do grocery shopping within the village, the only shop is built on an area of roughly 10 m2 and only offers the very bare essential. ● Kiné would like to be a soldier and work for the Senegalese army and Amyne would like to work as a professor at univeristy
Fatou Kama, f	24	Housewife and farmer	<ul style="list-style-type: none"> ● She is farming <i>Bissap</i> and takes care of the children ● Light and ventilators through AGT in the house ● The TV existed already before because of a self-installed solar plant at the roof of the house, but they were only able to watch TV during daylight ● AGT did not ask what people really need ● No information about the <i>Cooltainer</i> and its implementation
Biam N'Bella Faye, m	69	Farmer	<ul style="list-style-type: none"> ● Without a contract, he wants to see first how the others are profiting and decides after if he is going to get his house connected ● If the <i>Cooltainer</i> would work, he would have signed a contract with AGT already
Senjene Faye	53	farmer	<ul style="list-style-type: none"> ● Between 4-6 in the morning the electricity is sometimes not sufficient, therefore he is using another lamp which

			<p>is connected to his own battery</p> <ul style="list-style-type: none"> ● He does not see the communal <i>Cooltainer</i> as a solution; he does not trust storing his harvests together with other villagers in one place. He wants his own refrigerator ● In the beginning, they were told that larger machines could be connected to the power grid ● he wishes that the installations like the <i>Cooltainer</i> and the water treatment would go faster but also understands that everything takes time.
Latyr Diouf	67	farmer	<ul style="list-style-type: none"> ● Has a contract with AGT ● The <i>Cooltainer</i> can be interesting for the domestic use to conserve food ● Especially during Ramadan, he can see the <i>Cooltainer</i> as useful ● It was communicated that the filtration of the water is inclusive and part of the contract, unfortunately out of order at the moment

Inhabitants of <i>Ndiop</i>			Last stand: 14.12.2022
Name, Gender	Age	Profession	
Ramatoulaye Ngom, f	24	Tailor	<ul style="list-style-type: none"> ● Knows about the social business operating in Bacco but could not remember their name ● All people in Ndiop have the possibility to connect their houses and shops with <i>Senalec</i>
Rokhy Dieng, f	41	sales assistant in her brother's shop	<ul style="list-style-type: none"> ● Her brother's shop exists for two years, is opened from 8-22 every day and is connected to <i>Senalec</i> ● She already saw the installation plan while passing by the village but did not know what exactly they were doing ● Happy about her job ● Because the shop is located right next to

			<p>the main road towards <i>Dioubrel</i>, people in cars stopping from time to time to make purchases at her store</p> <ul style="list-style-type: none"> ● Her brother has another store, also in the commune of <i>Ndiop</i>
Adama Ndaye, f	39	Restaurant owner	<ul style="list-style-type: none"> ● She knows AGT because she cooked for the worker who have laid the power grid in <i>Bacco</i> ● <i>Sanelec</i> is good but too expensive, a fridge, a ventilator and lamps are connected to her outlets ● Her restaurant consists of three rooms, one kitchen, one dining place and one room where she sales all kind of products for the daily use
Papa Latyr Ndiaye	72	Shop owner	<ul style="list-style-type: none"> ● he sales construction material & Household appliances and his shop exists for 20 years already ● Not too happy with the business and cannot afford to have electricity at his shop ● He does not know about AGT ● Uses <i>Sanelec</i> at home where ten other people are living with him
Boubacar Ba	20	Gear grinder	<ul style="list-style-type: none"> ● The two machines are running one petroleum ● He is employed by a friend ● Does not live in <i>Ndiop</i> ● Does not know AGT

Annex B

Interview with the Mayor of Bacco: Oumar Ba

Speaker 1

Comment était établi le contact avec Africa GreenTec ?

Speaker 2

Le contact avec Africa GreenTec a été établi avec, à partir de ANAGUE qui est actuellement la directrice générale de Africa GreenTec Sénégal. Donc c'était bien avant Africa GreenTec, on était dans d'autres projets, on était en contact dans d'autres programmes, on avait envisagé de faire un programme de développement qui intègre l'énergie, et donc on avait commencé à travailler avec d'autres partenaires.

Et c'est quand elle a pris contact avec Africa GreenTec qu'elle m'a parlé de Africa GreenTec et des possibilités, et quand je me suis rendu moi-même au Mali, pour aller voir un peu le conteneur qui est là-bas et voir un peu, personnellement j'étais là-bas, uniquement pour ça, pour voir un peu ce qu'ils offrent des solutions et à partir de cela on a commencé maintenant à faire, quand j'ai vu ce qu'ils ont fait à Bamako, j'ai commencé à travailler avec eux donc pour ce travail-là.

Speaker 1

Ok. Et Anna est aussi votre personne de contact à Africa GreenTec ?

Speaker 2

Voilà Anna est ma personne de contact, bien que j'ai de très bonnes relations aussi avec Torsten Schreiber, c'est mon ami et puis on s'entends très bien.

Speaker 1

Ok d'accord. Et étiez-vous, avant de Africa GreenTec, en contact d'autres organisations, ou peut-être avec le gouvernement sénégalais pour fournir d'électricité aux gens ou d'autres projets durables?

Speaker 2

Oui on était en contact avec d'autres structures, avec l'état qui a fait de l'électrification par réseau, ça s'était déjà fait, donc il y a certains villages qui sont déjà électrifiés à travers nos réseaux, mais c'est avec Africa GreenTec que j'ai initié le projet pour l'électrification à partir du solaire.

Speaker 1

D'accord. Depuis l'arrivée de Africa GreenTec, la vie est devenue plus confortable, croyez-vous qu'il a changé le sentiment de sécurité dans le village aussi, parce qu'il y a aussi de l'éclairage sur les chemins?

Speaker 2

Oui bien sûr. Donc c'est un village qui n'a jamais été électrifié, et qui a été en contact d'abord à l'électricité à travers la mairie centrale, et que naturellement il y a de nouveau, il y a un éclairage public avec les lampadaires solaires qui éclaire le village et qui renforce la sécurité, donc au niveau de la sécurisation de la population de manière générale et d'autre part il y a l'accès à l'électricité, donc qui permet l'éclairage interne et la connexion à des appareils pour renforcer le confort des populations dans la vie courante dans leur maison.

Speaker 1

Ok, merci. Le plus grand problème que j'ai remarqué jusqu'à présent, qu'il n'y a pas une connexion pour les frigos parce que la puissance est limitée. Sans les frigos, les gens disent que j'ai parlé avec, est difficile de créer une entreprise comme un kiosque ou une petite magazine dans le village pour générer plus de possibilités de revenus. Regardez-vous ça, demain ?

Speaker 2

Oui. C'est-à-dire que le problème principal qu'on est confronté aujourd'hui, c'est l'alimentation de puissance. Puisque l'énergie ne doit pas simplement servir à l'éclairage, il faut de l'énergie productive, qui permet aux gens d'initier de micro entreprises de formations, qui permettent aux gens d'entreprendre des entreprises dans le domaine de l'artisanat, qui leurs permettent de faire de l'irrigation, et c'est ça qui va porter le développement. Ce n'est pas seulement l'éclairage, mais c'est une énergie productive, une électricité productive capable de favoriser l'émergence d'entreprises artisanales, qui peut brancher des machines capables de favoriser l'irrigation avec les pompes solaires qui peuvent être branchées à...

C'est tout ça qui va conduire donc à la transformation sociale et c'est tout cela qui va conduire au développement économique, mais on est en train de travailler, pour renforcer la capacité, pour renforcer la puissance de la mairie centrale, pour qu'on puisse atteindre cet objectif.

Speaker 1

Ok, j'ai compris. Il y a un *Cooltainer* là-bas, mais pas encore actif, vous pouvez me dire combien de temps cela prend encore?

Speaker 2

Oui. On est juste en train de régler des problèmes de fonctionnement, de mettre en place donc les mobilisations qui impliquent, puisque nous voulons que ce soit une gestion inclusive, et que ça soit géré par les femmes du village. Et nous souhaitons qu'il en soit ainsi, et que par conséquent on est en train de discuter avec Africa GreenTec pour que le court terme puisse fonctionner le plus rapidement, c'est important pour les populations, on est dans une zone (dry) [inaudible 05 : 15] les gens ont envie de garder leurs productions pour qu'elles ne se gâtent pas, et je pense que pour cette saison, qui commence actuellement, nous dirait de refonctionner le plus rapidement possible.

Speaker 1

Ok. J'ai eu l'impression que l'autre problème est un peu le transport, c'est difficile en ce moment

pour jeter des choses et le revendre dans le village. Quel est votre avis ? Il y a des plans pour y faire face ?

Speaker 2

Je n'ai pas compris la question.

Speaker 1

Pour le transport de *Bacco à Ndiop* pour exemple, il y a un problème parce que la rue n'est pas très bien. Pour vendre des choses ici...

Speaker 2

Oui c'est un vrai problème, nous sommes dans un programme sur une route, on a des programmes de routes, on y travaille, il y a une rue qui doit quitter le goudron, qui quitte Gossas pour aller à Kaolack, on a fait un projet, une piste rurale qui va prendre là-bas, ce goudron-là, qui va traverser la commune de Patatt qui va venir à Ndiop qui va passer par Bacco et qui va continuer vers la commune de Patatt sin et qui va couper donc l'autre goudron qui quitte Bambe pour aller à Nihal. Donc ça sera une piste des enclavements, qui va traverser toute la commune et qui va passer par Ndiop. Le deuxième projet c'est que nous sommes aussi en train de travailler pour rallumer le goudron à partir du village de Som, vers le côté nord, pour qu'on puisse accéder au goudron qui quitte là-bas pour venir ici.

Speaker 1

Ok. Les villages, j'ai en vision de Anna et Torsten de Africa GreenTec, il parle de ta vision d'un village vert. Pouvez-vous m'expliquer brièvement ce que vous entendez par là ?

Speaker 2

Oui c'est une commune en transition que nous enclenchons, d'abord il y a le plan de l'énergie, puisqu'il n'est plus utilisé, l'énergie fossile, ou bien réduire l'énergie fossile qui fonctionne sur la base du pétrole, et promouvoir les énergies renouvelables, ce qu'on est en train de faire ici. Donc avec la centrale solaire globale, on développe des énergies propres, on est aussi en train de faire composer pour remplacer les pompes à essence et les pompes à gasoil, pour les remplacer par les pompes solaires au niveau de marchés, au niveau des producteurs, et tout ça, ça va contribuer à renforcer un peu, donc l'autonomisation de la population, ils ne dépendront pas de *Senalec* et qui n'utilise pas le pétrole.

Alors on est en train de faire une agriculture saine et durable à des cultures qui n'utilisent pas les pesticides chimiques, ceux qui utilisent l'engrais organique, qui utilisent le compost, avec d'excellents résultats, donc que nous avons enregistré, on y travaille on est en train de développer. On est en train de mettre en place un vaste programme de reboisement. Donc avec plusieurs milliers de plantes qu'on reboise sur l'axe routier, dans les maisons, et dans les places publiques. On est en train de faire la RNA, on a plus de 500 hectares de RNA (Régime à l'action Naturelle

Assistée), cest pour proteger les jeunes pour qu'ils ne coupent pas la foret.

On est en train de promouvoir les fourneaux améliorés, pour éviter que les femmes coupent le bois pour faire la cuisson. Donc on leur donne des fourneaux améliorés, qui ne consomment plus de bois. Alors on est en train de prévoir aussi des potagers, des jardins potagers écologiques, qui font un peu (l'agroforestarie e integration du Maraîchage a la foreresterie et qui n'utilisent pas le produit chimique de synthèse. Donc tous ces éléments et d'autres programmes encore, d'éducation environnementale, d'éducation des enfants, tout cela va contribuer à faire une ville commune verte.

Speaker 1

Ok. Ma prochaine question était. On m'a dit qu'il y a à côté de toutes les maisons une poubelle où les ordures sont jetées. Comment allez-vous faire pour garder le village propre?

Speaker 2

Ça c'est un projet, ce n'est pas encore effectif totalement, mais je pense qu'on y parviendra, pour pouvoir non seulement collecter les ordures, mais aussi pouvoir les transformer, les transformer en engrais verts.

Speaker 1

Ok. Question générale. Combien de temps vous êtes maire de *Ndiop* maintenant?

Speaker 2

Depuis 2014.

Speaker 1

2014 ok. Et combien de personnes vivent à *Bacco*?

Speaker 2

4000, 5000...

Speaker 1

Ok, ça c'est peut-être une question pour Africa GreenTec, mais combien de personnes on est en contrat avec Africa GreenTec ?

Speaker 2

Ça il faut demander à Africa GreenTec.

Speaker 1

Merci beaucoup.

Speaker 2

Ok.