Master Thesis

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Social Business at the Base of the Pyramid

Marketing Solar Light in Rural Cameroon

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Abstract

The majority of the Cameroonians living in rural areas rely on outdated lighting technologies such as kerosene lamps, candles or battery-powered torches. Despite the negative impacts on the health and the environment, these lighting sources are relatively expensive and, thus, should be replaced. Market-based approaches to fight poverty or solve any problem from the field of education, health, technology access or environment have become quite common recently. The present thesis deals with the base of the pyramid approach (BOP) by C.K. Prahalad as well as the social business idea by Muhammad Yunus.

The thesis in particular focuses on the social solar enterprise Cameroon Solar Solutions (C.S.S.) which aims to replace low-technology lighting sources with solar energy. However, the business environment in rural Cameroon is highly complex and, thus, it is challenging to operate successfully in this market. The author of the thesis has analysed the rural BOP market of Cameroon, identified the critical factors of success and created a model to successfully exploit the solar market. Subsequently, the model has been applied to the rural BOP market in Cameroon and evaluated using the example of C.S.S.

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Abbreviations

AfDB	African Development Bank
BOP	Base/Bottom of the Pyramid
C.S.S.	Cameroon Solar Solutions
CEMAC	Economic and Monetary Community of Central Africa
CEO	Chief Executive Officer
CIA	Central Intelligence Agency
EED	Etude Engineering Développment
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
IFC	International Finance Corporation
IMF	International Monetary Fund
MINEP	Ministry of Economy, Planning and Regional Development
MNC	Multinational Corporation
NGO	Non-governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PLS	Pico-powered Lighting System
PODC	Projet d'Organisation et Developpment des Communautes
PPP	Purchasing Power Parity
ROSCA	Rotating Savings and Credit Association
SHS	Solar Home System
SME	Small and Medium-sized Enterprises
SNV	Netherlands Development Organization
USB	Universal Serial Bus
WHO	World Health Organization

Introduction

"We had a lovely colleague", Leo Szlezak begins, "she was cute, but not really blessed with intelligence". "Did you know, that Edison has died, Luiserl?" she was asked. "What Edison? The café owner of Cafe Wien?". "Of course not my dear, the inventor Edison. Well, listen. In the past, before the electric energy has been known, we lighted with kerosene lamps. When the electric energy came, Edison invented the light bulb, which gave us electric light". "And this one died?" asked she. „That's right!". „Oh well, in that case we will light with kerosene lamps again".

Leo Slezak (1873-1946)

Though, Slezak is making fun of the protagonist the anecdote contains an ambiguous truth: despite the technical progress, it is not accurate to say that light bulbs replaced kerosene, at least not in many developing countries. According to Lighting Africa (2012a) about 1.6 billion people in the world have no access to electricity, 600 million in Africa alone (p. 2). With no alternatives are available, many rely on traditional and low-technology lightning options. The use of kerosene lamps in particular, but also of candles or non-rechargeable batteries is widely spread sometimes with grievous consequences for the population. Studies have shown that the by-products of burning kerosene lead to negative health impacts such as tuberculosis and child poisoning. Fuel-based lighting is additionally a main cause of structural fires, burn injuries and contributes to global climate change. Furthermore, the prospects are not very positive. The situation will worsen dramatically in the future because Africa's grid expansion is not able to keep pace with population growth and its un-electrified population is projected to increase to almost 700 million people by 2030. Asia will then no longer be the largest un-electrified market worldwide as Africa supersedes its place (Lighting Africa, 2013, pp. 19-20).

Considering the future developments mentioned above, Cameroon is no exception. Only 48 percent of the population has access to electricity while the access is mainly concentrated in urban areas. Around a quarter of all rural households are electrified while the rest has to rely on different off-grid options to light homes, charge mobile phones or run other devices. Due to the availability and, at first glance, cheap price, kerosene lamps, candles and non-rechargeable LED are the predominant lightning solution in Cameroon (Ministry of Economy, Planning and Regional Development [MINEP], 2009, p. 40).

Modern off-grid technologies, especially pico-powered lighting systems (PLSs) and solar home systems (SHSs), offer a great number of advantages: they are more eco-friendly and reliable, the

handling does not pose a high risk to the user and in the long run they are cheaper, as long as the quality meets certain standards. But even though photovoltaic products could improve the life of many people, these technologies are not widely spread in Cameroon. According to Lightning Africa (2012b) the market for such products has been poorly developed. Only a few solar companies exist which often use material of poor quality (p. 2). This poses the question why modern PV technologies are not commercially successful yet; or more precisely, what kind of barriers exist preventing the development of the solar off-grid market. The thesis aims to find out, if a social solar business can be set up successfully in Cameroon and what must be done to handle the complex business environment.

1. Field of research

As mentioned above, population growth in Africa will significantly increase demand for energy which is a main driver of anthropogenic greenhouse gas. By replacing fuel-based sources of energy climate change can be mitigated. The access to clean energy is therefore not merely an issue for Western countries, but it is also an important issue in many developing countries too. Nevertheless, climate change seems to be an abstract concept when the daily survival is a struggle for all but the privileged few. Thus renewable energies are only an option, if they also improve the daily life of the people living at the base of the economic pyramid. Experts agree that modern technologies, with solar off-grid solutions leading the way, have a positive impact. Moreover, the access to energy creates new income opportunities and thus, an important measure to fight poverty. In the light of this background, it is therefore not surprising that the development of the solar market and the business have become important fields of research. The author of the present thesis focuses on the off-grid market of Cameroon while the social enterprise Cameroon Solar Solutions is in the centre of the research.

1.1. Problem definition

Muhammad Yunus, father of the microfinance concept and Nobel laureate, explained the idea of "social business" as follows:"The origin of the idea of social business was really quite simple: whenever I wanted to deal with a social or economic problem, I tried to solve the problem by creating a business around it. Over time I became convinced that it is an excellent way to address social and economic problems ... " (Yunus, 2010, S. 17). What Yunus says is in fact simple and sounds like a recipe: identify a problem, create a business and you will be successful. However, regardless how good an idea is, and how simple the potential execution seems to be, reality has a habit of giving all sorts of most unbelievable surprises. In fact, Yunus was right by saying the idea is simple, but that does not necessarily mean that creating a successful business is an easy undertaking.

Cameroon Solar Solutions (C.S.S.) is a solar enterprise founded in Cameroon in the year 2011, with the goal, to bring solar energy to people living at the base of the pyramid. The idea emerged as simply as Yunus mentioned: in 2009 different NGOs set up a joint initiative in rural Cameroon, called PODC (Projet d'Organisation et Developpment des Communautes), to protect the natural environment of the country. The initiative specifically targeted the village communities living in vulnerable regions because empowering these people has a positive impact on the protection of the natural habitat. Within the PODC three different measures have been found, through which the life of the people could improve. Solar energy was one of them and the first pillar in their strategy. It soon became clear that the demand for solar energy is many times higher than the project capacity. Although enough technicians have been trained, the PODC had not enough money for more

installations. Then, the project management had the idea to create a business to supply more people with clean and affordable energy: the birth of the social enterprise C.S.S.

Two years later, the result is sobering: the office has been closed, the employees disappeared and the enterprise is nearly bankrupt. Even though there have been some solar installations, the money has been taken by some disloyal and corrupt employees instead of being invested into the extending of the business. This has aroused my curiosity: Why was it not possible to set up a business in Cameroon, despite the demand for solar energy being so great?

I will argue, that it is possible to set up a social solar business upon the condition that the complex market environment has been analysed and the critical success factors been identified.

1.2. Research question and objectives

This master thesis addresses the following research question: I*s a social solar enterprise able to operate successfully in the rural BoP market of Cameroon? An empirical evaluation on the example of Cameroon Solar Solutions (C.S.S.).*

The goal of the thesis is to examine the BOP market in Cameroon, to identify the crucial factors of success and finally, to present a thesis which provides a starting point for strategy making. However, the thesis does not aim to formulate specific measures, but rather to bring order to a complex business environment. Furthermore, it should help to avoid mistakes made in the past and to guide the social solar enterprise C.S.S. in a prospering future.

1.3.Methodology

To reach epistemological results, appropriate methodologies have to be applied. Regarding the environment for a social solar business in rural Cameroon, little knowledge is available. Although there are many other social businesses in different developing countries, the environment in Cameroon and the situation of the C.S.S. require their own research. Furthermore, little relevant data are available neither in a qualitative nor in a quantitative form. The exploratory approach taken in this thesis can therefore be justified.

The thesis is exploratory as it wants to investigate the little researched phenomena of a social business at the base of the pyramid in rural Cameroon. It intends to make first steps towards theory-building by summing up the results in a model, which helps to understand the complex business environment in Cameroon and shows the crucial factors of success. The exploratory research of the thesis includes two different methods of collecting qualitative data: individual interviews and action research.

1. Individual interviews: To analyse the market environment in Cameroon, 14 In-depth interviews have been conducted with insiders from the energy sector, representatives of different NGOs (non-governmental organisations), as well as technicians and entrepreneurs. The interviews have been conducted in Cameroon and Switzerland. Not to infringe confidentiality, the qualitative data has been anonymised while using pseudonyms instead of real names.
2. Action research: Action research is characterized by the involvement of the researcher in the objects that are being studied. The author of the thesis spent about 9 weeks (04.07-08.08.13) in Cameroon and was closely involved in restarting the social business C.S.S. After his return he continued to observe the important process relating the development of the enterprise and was included in all important decisions. In 2014, the research continues and the author will again travel to Cameroon to implement the findings of the present thesis.

Furthermore, the author had the possibility to participate in the field test of a new solar product called Oolux. The product has been tested by talking with Cameroonian BOP customers as well as conducting a short survey with 30 prospective solar technicians. These results constitute another (quantitative) methodology that is used only in *chapter 6.3.* Apart from the investigation of the primary data collected through the mentioned techniques, an analysis of secondary data such as books, relevant studies and journals has been conducted.

1.4. Structure

In the first part of the thesis (A) the theoretical foundation will be developed: Firstly, by defining the relevant concepts and terms related with social business and the base of the pyramid theory. Secondly, by examining and characterising the rural BOP market. And thirdly, by identifying relevant factors and principles of success for doing business in a complex BOP market. Finally, the results are compiled and a model is being created out of the findings.

In the second part of the thesis (B) the model is applied on the specific BOP market in rural Cameroon while focusing on the social solar enterprise C.S.S. In a first step, the enterprise and its history are shortly presented. In a second step, each component of the model is discussed and evaluated on the basis of the situation in Cameroon. In a third step, a short forecast of the market potential of the energy market in Cameroon is given. In a last step, the conclusion summarizes the relevant finding while the author gives recommendation what should be taken into account when formulating strategies

1.5. Restriction and limitations

The thesis focuses on the analysis of the enterprise C.S.S. and the particular environment for a social solar business in Cameroon. Although the results can be relevant for other African countries or social solar businesses, the characteristics of Cameroon are considered as unique.

Furthermore, the enterprise C.S.S. is still under development and almost every day the situation must be evaluated again. As mentioned above, the presented findings are just a first step and thus conclusive statements cannot be made. The future will show, if the enterprise is really able to operate successfully in the long term.

Finally, the C.S.S. has specialised on selling pico-powered lighting sources (PLSs) and Solar Home Systems (SHSs) up to 100 Watt. The enterprise mainly focuses on the rural areas of the East and Centre regions in Cameroon. However, the office is based in Yaoundé, the capital city, and even if customers of urban areas are not targeted, they cannot be excluded from the business activities.

A) Theoretical Part

In the following chapters the theoretical foundation of thesis will be developed. *Chapter 2* deals with the bottom of the pyramid approach and explains the basic concept with respectful criticism; additionally the social business approach by Muhammad Yunus will be explained in order to distinguish it from related concepts such as social entrepreneurship. In *chapter 3* BOP markets are examined while analysing the most influential factors which are responsible for the complexity. Furthermore, *chapter 4* discusses the principles and critical success factors for a social business operating in BOP markets. At the end of *chapter 4*, the results are summarised and shown as a model. Finally, this model provides a basis to evaluate the situation of the C.S.S. in the Cameroonian BOP market.

2. Concepts and definitions

The Bottom of the Pyramid (BOP) is a frequently mentioned term in business literature as well as in the developing work. Often the term refers to a certain population group without giving further information about the concept itself. Heierli (2008) for example notes that BOP is "a new euphemism for the poor" (p. 37). As a first step, therefore the economic theory behind the BOP term will be examined. A related economic approach of the BOP is found in the idea of social business. While the former mainly deals with business cases involving actors of all socio-economic tiers, social business focuses directly on achieving social objectives.

2.1. The bottom of the pyramid

The term "bottom of the pyramid" and the concept behind it, refers to the billions of people living on less than $2 per day, first articulated in 1998 by the Professors Prahalad and Hart. In a paradigm shifting article in the business journal *Strategy+Business (January 10, 2002)* they explained in more detail how business could profitably serve the needs of the four billion poor people in the developing world. Since that first use, the term, as well as the concept, has been subsequently expanded upon. The latest example of which was the publication of Prahalad's book *The Fortune at the Bottom of the Pyramid* the approach became known to a wider public (Prahalad, C.K., 2010, pp. 17-18).

2.1.1. The original concept by C.K. Prahalad and S.L. Hart

The basic BOP concept is rooted in the consideration that there is a fortune at bottom of the world's economic pyramid of consumers. According to Prahalad and Hart (2002) multinational corporations (MNCs) have underestimated the huge market potential of the developing world. They state that billions of aspiring poor seek to join the global economy but are ignored by market actors from the developed countries. As a result, MNCs miss the chance to realise profits while lifting billions of people out of poverty (p.3).

Prahalad and Hart (2002) formulate their theory by referring to the economic pyramid which is divided into 4 tiers: The top of the pyramid (tier 1) consists of 75 to 100 million relatively wealthy consumers with an annual per capita income of more than 20'000 US Dollar. The middle of the pyramid (tier 2 and 3) is composed of about 1.75 billion poor customers with an annual per capita income of 1'500-20'000 US Dollar. And finally at the bottom of the pyramid (tier 4) about 4 billion people who live with an annual per capita income of less than 1'500 US Dollar per year (p.3).

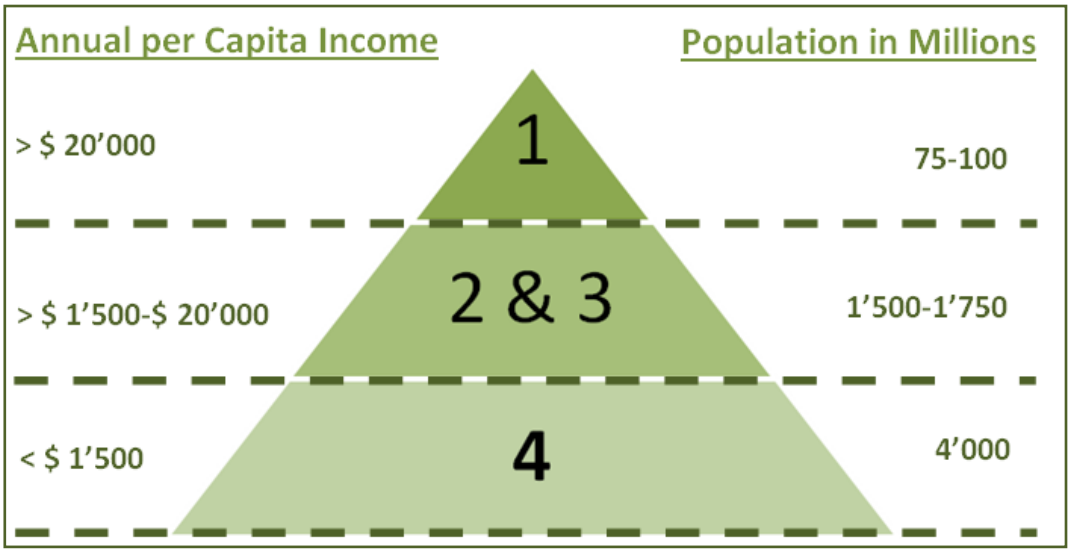

Figure 1: Economic Pyramid. Source: Own illustration based on Prahalad and Hart (2002), p. 4.

The economic pyramid does not only show the extreme inequity of wealth distribution but also the huge size of an untouched consumer market. This raises the question, why do MNCs only concentrate on the first tier, and to a certain extent on the second and third tier, but ignore the multi-trillion dollar market potential of the fourth tier. Prahalad (2010) argues that MNCs do not appreciate the market potential because of their wrong perception. Managers look at developing countries with a set of assumptions, and practices based upon those assumptions, which have to be re-examined: The first assumption implies that poor people are not the target consumers because the cost structure of the MNCs does not allow them to compete profitably. According to the second assumption, managers think that the poor cannot afford to use products sold in developed markets. The third assumption is based on the perception that the poor have no use for new technology and thus should rely on previous generations of technology. As a result of the fourth assumption MNCs

see no long-term viability for their business at the bottom of the pyramid as BOP markets are, in the best case, a welcome variety. The fifth and last assumption implies that it is difficult to find managers for BOP markets and countries because they search in industrialised countries for intellectual challenges (p.74).

By changing the way in which the BOP consumers are perceived, tier four will no longer be an unprofitable market. Moreover, BOP markets can become drivers of innovation and opportunities. However, Prahalad and Hart (2002) point out that BOP markets also pose new challenges. MNCs have to combine low cost, good quality, sustainability and profitability while radically rethinking how to approach markets. This means not serving existing markets better or more efficient but developing a commercial infrastructure tailored to the needs and challenges of BOP consumers. Furthermore, they state that multiple players have to be involved. Fighting poverty requires a joint course of action including the private sector, local and international governmental authorities, non-governmental organizations as well as financial institutions and aid organisations (pp. 5-6).

In summary it can be said that Prahalad and Hart see the integration of the bottom of the pyramid as a win-win situation. On the one hand, multinational corporations can break into new markets by selling their products to the people at the base of the pyramid, considered no longer as “poor” but rather as value-conscious consumers. This untapped purchasing power at the bottom of the pyramid reflects a huge opportunity to make profits. On the other hand, the integration of the BOP people into the world economy improves their daily life and thus is an important step in fighting poverty. However, Prahalad and Hart do not see their theory as the only solution. They argue that the private sector has not yet recognised itself as part of the solution and consequently a paradigm change is required. Lifting billions of people out of poverty always require an integrated approach including different actors from the private sector, the public sector and the civil society.

2.1.2. Criticism of the BOP concept by A. Karnani

Since the release of Prahalad’s book the BOP concept has been massively criticised. Especially Annel Karnani, professor at the University of Michigan, has launched a vigorous debate by saying that the BOP proposition is “at best, a harmless illusion and potentially a dangerous delusion” (Karnani, 2007). According to Karnani (2007) the BOP concept is riddled with inaccuracies and fallacies: Firstly, the potential market at the bottom of the pyramid fails to meet the claimed size. Despite the optimistic assumption on average consumption of the poor, Prahalad calculates the market size based on purchasing power parity (PPP) and not on market exchange rates which is more accurate for MNCs. Moreover, the market is not merely smaller but rather less profitable due to the lack of infrastructure, geographical dispersion etc. Secondly, it is not possible to reduce prices to the extent proposed by Prahalad. Even if this was possible by reducing the price per use, for example by selling

smaller packages, the negative impacts on the environment implicates a serious trade-off. Thirdly, it is rarely possible to reduce price and retain high quality. On the other hand, low-quality products do not hurt the poor as long as they understand the trade-off regarding their safety. Fourthly, MNCs should not take the leading role. Especially small to medium-sized local enterprises are better suited to serve the poor because they possess better knowledge of the customers and the market (pp. 99-105). Fifthly, many advocates of market-based solutions view the poor as rational consumers. In fact, this fallacy does not take into account that the poor lack education, information etc. that leads them to make bad decisions. This could have disastrous consequences because the poor are much more vulnerable. In contrast to richer people the poor people have no resources or access to services to compensate for their errors (Karnani, Romanticizing the Poor, 2009, pp. 40-41). And finally, Karnani notes that many authors, including Prahald and Yunus, excessively romanticize the poor. He points out that "most people do not have the skills, vision, creativity and persistence to be an entrepreneur" (Karnani, 2009, p. 43).

2.1.3. Critical evaluation of the debate

The debate between Prahalad and Karnani did not create a winner and loser. Moreover, the debate contributed to the development of the market-based approach and strengthened the role of the private sector in fighting poverty. Prahalad (2010) points out that the impact of the market-based approach cannot yet be evaluated; too little time has passed since the implementation of the BOP concept (p. 29). However, Prahalad has accepted criticism and adapted the concept to a certain extent. He states that it is less important what exactly the bottom of the pyramid looks like, rather what he really wanted to do was raise awareness of the 4 billion people who should play a more important role in the global economy. Also that the private sector can contribute to the fight against poverty while making profits, and, what is of particular importance, that the private sector is accepted by the civil society and the governments as an equal actor (Prahalad, C.K., 2010, pp. 32-36). Also Hart was involved in the debate and, together with other authors publishing on the issue, he proposed a next generation BOP 2.0 strategy. While the first generation was focused on "selling to the poor", the new approach takes the BOP as business partner into account. In this sense, the relationship between the top and the bottom is no longer a one-way street. Dialogue and shared commitment replace the previous top down view. This also finds expression in using the term "base" instead of "bottom" to avoid the negative connotation[1] (Simanis & Hart, 2008, pp. 1-2). In particular, the change of the focus towards a business co-venture approach addresses the often formulated criticism. Karnani (2007) states that the private sector should integrate the poor by accepting them as producers. Private companies can furthermore invest in the skills and productivity of the poor to

[1] From now on the term „base of the pyramid is used. Not only because of the negative connotations but also to confess to this more adequate approach.

increase their employment opportunities. “This is the win-win solution; this is the real fortune at the bottom of the pyramid” (pp. 109-110).

2.2. Social Business

The debate can be linked to the concept of social business, a related market-based approach to eradicate poverty. Despite Karnani’s plea for integrating the poor as producers, he doubts the potential for entrepreneurs at the base of the pyramid, which in fact is contradictory. Karnani justifies his view by referring to the fact that even in developed countries, with high levels of education and access to financial services, 90 percent of the labour force exists as employees and not as entrepreneurs (Karnani, 2009, p. 43). Thus, to see the poor as creative entrepreneurs is a romantic exaggerated. Yunus, often considered as father of the social business approach, rejects this view.

2.2.1. Social Business: the new kind of Capitalism

In the 70’s Yunus started to give out small loans to the poor so that they no longer had to rely on informal money lenders charging very high interest rates. He was convinced that people living at the base of the pyramid have the talent and skill to become income earners. The only thing they needed was someone starting them off. Yunus’ micro finance business, which was self-sustained from the very beginning, soon became a high profile tool in fighting poverty.

The concept of Yunus (2010) is based on the premise that the existing theory of capitalism misinterprets human nature. According to the economic theories, humans only pursue selfish interests while the sum for each individual’s search for self-interest generates maximum wealth. Hence, the economic thinking is incomplete because it does not take into account other motivations such as altruism. Yunus therefore distinguishes between two different kinds of businesses: The first one focuses on maximising profits for the owner with little or no consideration for others. The second one, named “social business”, is characterised by selflessness. This kind of business aims to help others without making financial gains for the owner while generating enough income to cover its own costs. The purpose of the business is not to make money but to bring an end to a problem such as poverty or climate change (pp. xiiv-xvii).

2.2.2. Social enterprise, social entrepreneurs and social business

There exist many different definitions and terms which try to explain the phenomenon of solving social problems while doing business. However, trying to find a universal valid description of social enterprise, social entrepreneurs or social business can be like “nailing jelly to a tree”. The Ashoka foundation for example, a worldwide network of social entrepreneurs, defines social entrepreneurs “as individuals with innovative solutions to society’s most pressing social problems” (www.ashoka.org). Often definitions aim at emphasising differences from regular profit oriented business approaches. Bornstein and Davis (2010) describe social enterprise “as an organization that

attacks problems through a business format, even if it is not legally structured as a profit-seeking entity" (p. xv). Or Lorenz (2012) who defines a social entrepreneur as "an entrepreneur whose venture has a social impact" (p. 23). Others try to set up a collection of criteria describing a social entrepreneur. Hamschmidt and Pirson (2011) for example by saying that "social entrepreneurship describes a set of behaviours that are exceptional" (p. 29). Whereas authors like Ridley-Duff and Bull (2011) explain different theoretical concepts and models underlying the *social economy* such as the triple bottom line. However, they conclude that "different meanings are attached to social enterprise" (Ridley-Duff & Bull, 2011, p. 80).

Yunus (2010) on the other hand gives his own definition of social business. He points out that social business differs from social entrepreneurship in the way that it describes "an initiative of social consequences created by an entrepreneur with a social vision" (p. 4). However, the problem appears to be that an initiative can also be non-economic with the result that social business and social entrepreneurship is no longer the same thing. Together with Hans Reitz, director of the Grameen Creative Lab, Yunus (2010) formulated seven principle of social business (p. 3):

1. The objective of a social business is to overcome poverty, or one or more problems from the field of education, health, technology access or environment. A social business aims not to maximise profit.
2. A social business enterprise will attain financial and economic sustainability.
3. Investors only get back their investment amount without dividends or interest rates.
4. When the investment amount is paid back, profit stays within the enterprise. It should be used for expansion and improvement of the business.
5. The enterprise will be environmentally conscious.
6. The employees get market wage with better-than-standard working conditions.
7. (Do it with joy).

Although Yunus differs his concept of social business from any term that refers to social entrepreneur or social enterprise, the author of the present thesis treats the terms as synonymous. Whenever such terms are used, they refer to the approach described by Yunus. This is due to the fact that the objective of research, the enterprise Cameroon Solar Solutions, meets all of the stated seven principles.

3. BOP markets

BOP markets cannot be compared to markets in developed countries. There are specific obstacles BOP markets face which have to be taken into account when strategy-making. Often the combination of several obstacles creates a business environment that makes it nearly impossible to set up a successful social business. Ireland (2008) points out: “Can there be a worse market in which to seek supernormal profits than one that is distant, dispersed, desperately poor, largely illiterate and heterogeneous as well as economically, physically and politically risky?” (p. 430).

3.1. Complexity of BOP markets

At a first glance BOP markets are not compelling and seem unattractive to entrepreneurs. It may be asked if it is ever possible for a social enterprise to attain financial sustainability, not to mention to scale up a business under such complex circumstances. Therefore, it is all the more important to get an idea about how a BOP market is structured. If an entrepreneur wants to deal with the complexity he has to be aware of what to expect and to find an adequate strategy to handle these problems. Shukla and Bairiganjan (2011) identified the most important factors that make the Indian rural BOP market complex. Although they explicitly analysed the market in India the pattern can be adapted in a way that it provides a general approach to handle complex BOP markets.

Shukla and Bairiganjan (2011) state that “BOP markets are often rural [...] poorly served, dominated by local informal economies and consequently relatively uncompetitive and inefficient. They starkly contrast wealthier mid-market population segments that are largely urban, relatively well-served and extremely competitive” (p. 2). Due to this complexity the authors developed a pattern showing the most influencing factors. The following figure is based on Shukla and Bairiganjan (2011) but also includes factors mentioned by Prahalad (2010), Lorenz (2012) and other authors (e.g. Prahalad, 2010; Kennedy & Novogratz, 2011; London, 2011).

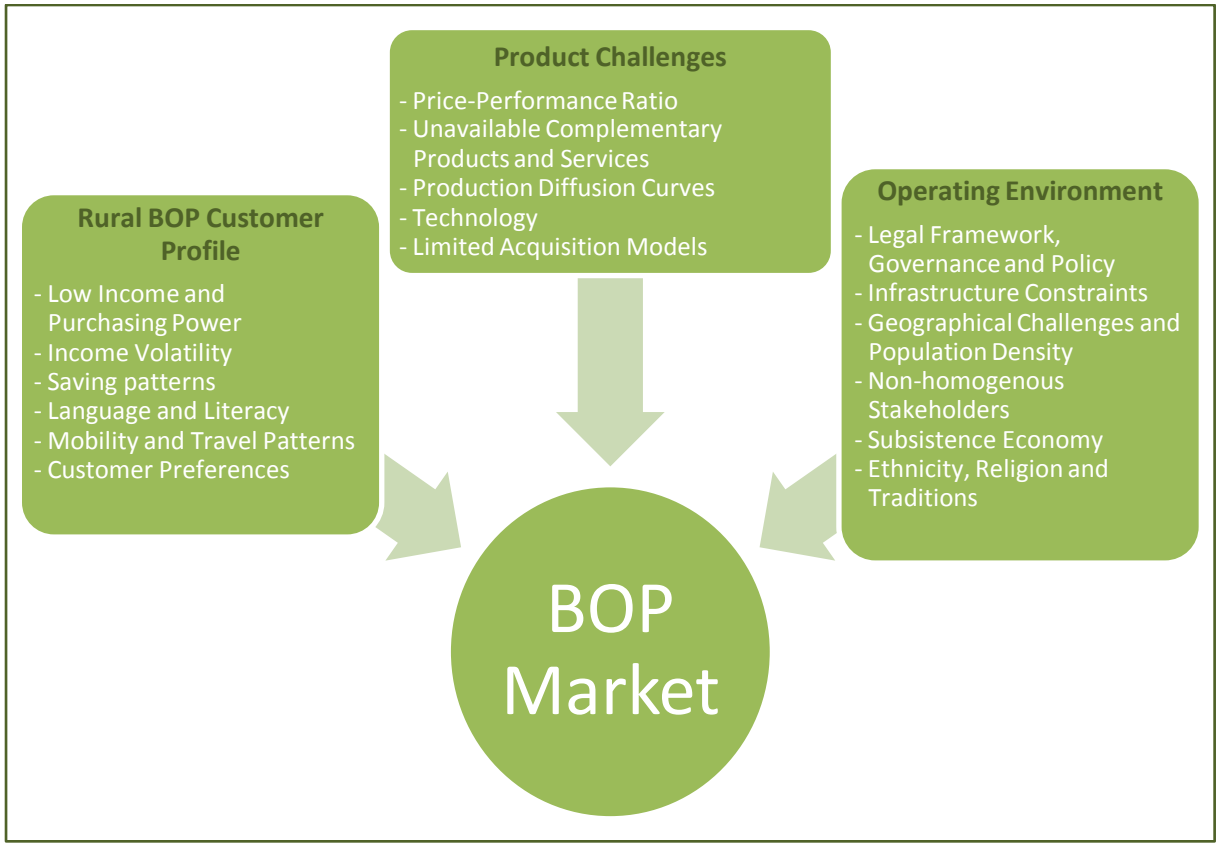

Figure 2: Rural BOP market complexity. Source: Own illustration based on Shukla & Bairiganjan (2011), p. 3.

The factors can be classified into three different categories: Rural BOP Customer Profile, Product Challenges and Operating Environment.

3.1.1. Rural BOP customer profile

According to Shukla and Bairiganjan (2011) BOP customers have a **low income** which first of all is spent on basic needs such as food or health. Hence, for additional long-term investments there is less disposal income left (p. 3). Naturally, this begs the question; if a market, dominated by low income consumers, is viable enough to make business. There is an on-going debate about whether the BOP market has enough aggregated **purchasing power**. Some authors, including Karnani (2007), are convinced that poor people have a low purchasing power and thus BOP markets are not viable (p. 101). On the other hand Prahalad and Hammond (2002) state that even if the aggregated purchasing power is not comparable to the one in developed countries, the huge number of people disposing of a small income constitutes an interesting market. In reality, consumers at the base of the pyramid pay much higher prices for most things than middle class consumers do. This so called “Poverty Premium” or “BOP-penalty” exists due to inefficient distribution, low competition and excessive mark-ups. As a result, BOP markets have room for new competitors to come and make profits (pp. 54-56). At the same time, this view is criticised by Kay and Lewenstein (2013) who have proved that in some places this is no longer the case. By recalculating the example of Prahalad and Hammond

(the price differences for the same products in Dharavi and Warden Road in Mumbai) they come to the opposite conclusion. The authors conclude that "serving a bottom-of-the-pyramid market today is trickier than the theory suggests" (p. 23). Nevertheless, Kay and Lewenstein refer to an example of an urban BOP market which is again different to a rural BOP market.

Furthermore, the income is highly **volatile** and depends on many factors (Shukla & Bairiganjan, 2011, p. 3). This insight is supported by the IMF (2011) which points to fact that low income countries regularly face exogenous shocks, for example, in food price or commodity exports, having strong impacts for people living at the base of the pyramid (p. 5). Additionally, this a problem regarding the lack of access to financial institutions and other **saving patterns** such as ROSCAs (Rotating Savings and Credit Associations) which could help to mitigate these shocks. Furthermore, the opportunity to save money for a future investment is not given.

Another factor that makes BOP markets more complicated is the **linguistic diversity** and specifically the high **illiteracy rate** preventing cost-effective marketing and supply of adequate information. Moreover, this could lead to wrong purchasing decisions as predicted by Karnani (2009) in *chapter 2.1.2*. Prahalad (2010) has observed that it is important to train the consumers on how to use a product. Many people living at the base of the pyramid do not have access to media which is not only a main channel to promote products and services but also for training in their handling. Furthermore, the heterogeneity of the user concerning culture, language or education is challenging for the development of products and services (pp. 99-100).

This effect is further exacerbated by restricted **mobility** and limited **travel patterns**. People in remote areas gain little knowledge from outside their local communities and thus make it hard to balance their interests or to compare products (Shukla & Bairiganjan, 2011). At the same time, Prahalad (2010) points to the global networking which also has become reality in developing countries. This factor can play an important role regarding consumer awareness. Through use of mobile phones and the internet, customers even in remote areas have access to information (p. 83). This allows BOP consumers to make better purchase decisions while increasing competition amongst enterprises.

Finally, **customer preferences** shape the profile of BOP consumers. Due to deep cultural beliefs, preconceived notions or prior purchase decisions, consumption patterns are relatively fix. Moreover, BOP consumers often do not recognize their latent needs and thus pursue only the fulfilment of tangible needs. For an enterprise selling products and services a high degree of customisation is therefore required (Shukla & Bairiganjan, 2011, pp. 4-5).

3.1.2. Product challenges

The second category of factors making the BOP market complex refers to the product challenges. According to Shukla and Bairiganjan (2011) products and services for the BOP need innovation and new business models (p. 5). This insight is supported by Prahalad (2010) saying that a new philosophy in product innovation and development is required which takes the BOP market characteristics into account. Against the widely held belief, BOP customers have brand awareness and are additionally oriented towards a high **price-performance ratio** (p. 82). As shown in the last chapter, rural BOP consumers have a low level of disposable income. But at the same time they often live under extreme conditions that demands much of the products and services. This requires enterprise to offer products of high quality but at an affordable price. By referring to Yunus' seven principles this restriction poses a great challenge; a social enterprise has to increase pressure on its cost while paying fair wages without making compromises regarding quality.

BOP consumers furthermore have no access to products and services which better fit their needs. Although there are existing and established **complementary products and services**, people's purchase decisions are distorted (Shukla & Bairiganjan, 2011, p. 5). While Karnani (2009) states that the poor often make bad decisions due to the lack of education, this view is contradictory to his. Because of unavailable complementary products and services there is no real decision possible.

According to Shukla and Bairiganjan (2011) **product diffusion curves are typical** in rural BOP markets. Due to their low income and risk-aversion BOP customers avoid independent decision making for new products and services. For an enterprise in the rural BOP market it is therefore crucial to find opinion leaders to influence early adaptors and followers, especially when selling products and services without much "social proof". As mentioned in the last chapter people living in remote areas have little knowledge gleaned from outside of their communities. Hence, they often demonstrate no rational behaviour but orient themselves to opinions made by leaders of the community. This has to be taken into account when formulating marketing strategies (Shukla & Bairiganjan, 2011, p. 6).

An enterprise at the base of the pyramid has to meet the latest **technology** standards to keep up. Outdated technologies mainly designed to meet the needs of people living in developed countries are not able to serve the poor; on the one hand, because an optimal price-performance ratio requires products and services which are highly efficient and effective. This also includes the development of so-called platform solutions which allow features to easily be added or removed. On the other hand, because these technologies are designed for a different purpose they may not meet the challenging conditions BOP people face every day. Additionally, the products and services have to be designed in a manner that allows them to be adapted by people with a low level of education (Prahalad, C.K., 2010, pp. 99-100).

For people living in remote areas there are very few **acquisition models**. As mentioned in the last chapter the rural BOP customer profile is characterised by the lack of access to financial institutions as well as a low disposable income. Despite the demand for new products and services BOP customers have little possibility to purchase, not even to pay by instalments. Shukla and Bairiganjan (2011) note that only a few product acquisition models for rural BOP markets have been tested but with little success (p. 6).

3.1.3. Operating environment

The third category of factors making the BOP market complex refers to the operating environment. According to Shukla and Bairiganjan (2011) the political, social, economic and technological unpredictability of this market are the main reasons why companies do not participate in the BOP markets (p. 6). The first factor that is responsible for a difficult operating environment deals with the **legal framework, governance and policy**. Lorenz (2012) notes that the lack or dysfunctionality of legal and political frameworks is a characteristic of BOP markets and thus, there is no structure or reliability to conduct business. Moreover, corruption and ineffective bureaucratic systems cause high costs for entrepreneurs, or even prevent service and product delivery (p. 32). Prahalad (2010) agrees with this view and adds that it is not necessarily the lack of a legal framework but rather the enforcement of the law. In some developing countries there is an almost uncontrolled growth of rules and policies making it impossible to provide legal certainty. Hence, property rights and contract law are not guaranteed, which in turn favours corruption and fraud at every political level. This has the same effect as having no legal framework at all (pp. 176-177). Finally, the consequences of this environment lead to the establishment of an informal economy where income-generating activities lack formal registration with governmental institutions. Prahalad (2010) emphasizes that in an informal economy the enterprises remain small and local due to the lack of sufficient access to capital which is necessary for growth (p. 176-177). Furthermore, the people and entrepreneurs are not protected by public regulation and rely mainly on social networks for their business activities which include selling, purchasing and funding (Lorenz, 2012, p. 38). Shukla and Bairiganjan (2011) point to another important factor: ill-thought-out government interventions and policy support, for example subsidies, often lead to the wide introduction of low-quality products that shift the consumer's perception away from better product choices. Even if these are short-termed they could fatally distort the market (p. 7).

Infrastructure constraints pose a significant problem in BOP markets. Shukla and Bairiganjan (2011) state that low penetration of civic and private infrastructure has created barriers to the entry of mainstream products (p. 7). The often mentioned reason why there is "no fortune at the base of the pyramid" is mostly justified with weak infrastructure in the sectors such as transportation, water and

sanitation and energy, as well as information and communication technology. Karnani (2007) emphasizes that weak infrastructure makes it hard to exploit economies of scale and thus increases the cost of doing business (p. 101-105). In rural areas especially the distribution of products and services poses a huge challenge. Prahalad (2010) argues that entry into the BOP market is viable if concentrating on urban areas. Due to the fact that increasing urbanisation more and more concentrates consumers into small spaces, economies of scale offset higher costs which arise from infrastructure constraints. Hence, setting up a distribution network is relatively easy and provides huge sales opportunities (p. 81). Nevertheless, the problem of rural distribution is still unsolved and Prahalad was not successful in giving any solution.

Geographical challenges and population density intensify the problem mentioned above. As already discussed, sparse population density and the geographical spread of rural villages do not allow the realisation of economies of scale (or more precisely economies of density). Lorenz (2012) emphasizes that the external living situation of the rural poor is of major importance in contrast to the urban poor who are not afflicted as much by geography and infrastructure constraints (p. 32). Shukla and Bairiganjan (2011) furthermore note that extreme weather conditions and the hostile terrain demands special transportation and storage facilities. Thus, a high degree of customisation in planning and execution is required (p. 7).

Another factor that makes BOP markets more complicated is the **lack of homogeneity among key stakeholders**. For an entrepreneur it is often complicated to identify relevant stakeholders. In the public sector for example the dysfunctionality of the legal framework and the ineffective bureaucratic systems have built a structure which is difficult to understand. But also in the economic or civil sector, uncertain power centres exist where outside entrepreneurs do not have much access (Shukla & Bairiganjan, 2011, p. 7). Furthermore, heterogeneity can not only be found in urbans centres but also in small communities. Arora and Romijn (2009) note that “even in a village afflicted with poverty, there are rich and poor farmers who are assisted in their agricultural task by the landless” (p. 19). Hence, local conditions can be more heterogeneous and complex than it appears at first glance. As a result, local insight is required by distributors, manufacturers and producers.

Rural BOP markets are characterised by the fact that production is often consumed in its entirety, with no surplus for further investments. This so-called **subsistence economy** can often be found in agricultural, fishery-based and nomadic societies (Lorenz, 2012, p. 35). There are several parameters influencing the decision-making process of subsistence farmers as well as the economic structure: extreme isolation (far away from markets), low standard of living, economic stagnation, weak commitment to agriculture (other income-generation opportunities affect investment decisions), insecurity of land tenure, labour and capital dependency (Miracle, 1968, as citied in Lorenz, 2012, p.

36). Nevertheless, this does not mean that subsistence farmer do not sell surpluses on the market to generate an additional income. It is furthermore characteristic for families of subsistence farmers that at least a part works additionally on plantations or in other sectors. Despite this diversification, the income of people living in rural areas is highly volatile. As already mentioned in *chapter 3.1.1* price shocks can significantly influence income and production. Moreover, rural BOP consumers often experience irregular income flows. Due to the dependency of agriculture on external factors such as rain, income can vary significantly both in positive and negative direction (Bardia, 2010, p. 179). For an entrepreneur it is crucial to understand the logic of the (subsistence) agriculture-based economy including the customisation of products or the seasonal nature of a disposal income.

Finally, **ethnicity, religion and culture** shape the operating environment and make the BOP markets complex. Fafchamps (2000) notes: "In many developing countries, the ethnic makeup of local business communities is quite different from that of the population at large. It is not uncommon for members of particular ethnic or religious group, or even for residents of foreign origin, to account for an overwhelming proportion of entrepreneurs" (p. 205). On the one hand, this lack of business diversity can lead to inefficiency, for example by favouring a business partner or a job seeker regardless of the performance. On the other hand, it can also serve as a catalyst for political tensions. Reasons for the concentration of particular ethnic groups in certain sectors can be many and varied. Colonial policies have often favoured particular groups, or other historical and political factors have enabled a dominant position (Fafchamps, 2000, p. 206). Hence, it can be concluded that ethnicity is a very sensitive field and may not translate to rational behaviour. This is also true for culture which is another factor that influences the operating environment. According to Broadman (2013) it is important to understand local participation and to integrate local culture. He further emphasises that "complexity of Africa often requires turning conventional thinking on its head" (p. 8). Thus, to understand and anticipate local culture is crucial for an entrepreneur doing business at the base of the pyramid.

3.2. Doing business in BOP markets

The last chapter has shown that BOP markets are highly complex compared to those at the top of the economic pyramid. Now, quite correctly, the question must be asked if starting an enterprise in such an environment is even possible, and more so a social business which aims to help others without focusing on making financial gains. In contrast, Prahalad and Hammond (2002) concluded their article by saying that "the emergence of the 4 billion people who make up the Tier 4 market is a great opportunity for MNCs" (p. 14). One could imagine that big multinational corporations such as Unilever, one of the world's biggest consumer goods companies, take a relative low risk by investing several hundred thousand into venture business. And, even if the endeavour fails, MNCs have the

financial resources to restructure a business until the desired results are achieved. On the other hand, it is an entirely different matter if a NGO or a private person starts a social business investing just several thousand, quite apart from the huge business know-how MNCs possess. Thus, the question arises: Are BOP markets only a real opportunity for big multinational corporations, or also for social businesses too? The best way to answer this question is by analysing an empirically relevant number of social enterprises doing business at the base of the pyramid. However, in an effort not to go beyond the scope of this thesis, the only way to gain insight is to evaluate current literature related to this subject. Different authors have tried to identify critical factors of success for ventures in BOP markets, for both social businesses and for-profit enterprises. Although the approaches vary, common critical factors for success in BOP markets can be found.

4. What makes a social business in a BOP market successful?

There is a wealth of literature about social business and social entrepreneurship. Many authors investigate the question of what has to be done to successfully start a business in BOP markets. While some of them have a theoretical background, the majority are practitioners or, as for example the case of Muhammad Yunus, both theorist and practitioner at the same time. Nevertheless, BOP market theories encompass a huge field varied field in terms of geography as well as content. While some investigate enterprises in the nutrition sector, others analyse businesses in the sanitation or energy sector; and while some focus on countries in Asia, others deal with BOP markets in Africa. Thus, it can be stated that there are many adequate approaches to assess critical factor of success, but neither approach seems to capture the whole picture on its own. There is no universal recipe for how to successfully manage a social business. Indeed, how could an approach to social business in India be completely transferred to an enterprise in Sub-Saharan Africa? Hence, it is useful to recall how Prahald (2010) answered the criticism raised that his approach over generalises: “The Bottom of the Pyramid is like a kaleidoscope. No single view illuminates the total opportunity. Every twist helps focus on a specific facet of the opportunity or problem” (p. 33).

Apart from that, there are certain factors having a universal impact. In the following chapter these factors are extracted from relevant literature and put into a model.

4.1. Principles of success by Ted London

According to London (2011), launching a social business successfully in a BOP market is a challenging endeavour. He states that entrepreneurs “must understand how to create business models and operate enterprises in a market environment governed by different rules of the game, energized by different stakeholder expectations, and implemented with unfamiliar customers, suppliers, and partners” (p. 20). Therefore, a set of principles is required which enables appropriate response to these unique opportunities and challenges. London (2011) has formulated seven key principles for success that have to be applied at each of the three phases of a business launch: designing, piloting and scaling. The key challenge in the design phase is the **creating of market opportunities**. Because BOP markets do not necessarily exist in an organised form and also market awareness and demand are not well developed, first of all, strategies to create a market have to be explored. Therefore, an entrepreneur has to figure out how to assess consumer demand, to reduce transaction costs with suppliers and to facilitate the development of public services. It is important to consider a portfolio of investment needs and prospects for accessing resources from various partners. Hence, it could be useful to enter into potential partnerships with the development sector. Another important challenge in the design phase is the **crafting of solutions** for the BOP. The successful design of an enterprise requires knowledge about the people and the markets of the BOP. Thus, entrepreneurs

have to adapt their thoughts and deeds to the situation, and ground their dialogue in mutual respect (pp. 21-24). According to London (2011) entrepreneurs "must adopt three guiding perspectives as they develop relationships in BOP communities: be patient, stay longer and come back" (p. 24). An important principle in the pilot phase is the willingness to experiment, learn and to improve. London (2011) terms this principle as **orchestrating effective experiments** which incorporates two components: Firstly, an entrepreneur has to develop a metric to measure the process of trial-and-error. On the basis of such a performance management tool (e.g. lessons learned, improvement generated etc.) it can be assessed what has been done, what has gone wrong and what has to be made to avoid mistakes in the future. Secondly, entrepreneurs should identify and test specific hypotheses to assess particular challenges (pp. 26-27). Nevertheless, it is important not to invest too much in the pilot phase to slowly assess the BOP market potential and the sustainability of the enterprise. London (2011) points out that "failure may generate more useful knowledge than success" (p. 26). At the same time, it is important to **manage failures**. For example not to abandon an enterprise too early, just because it has not been successful, and thus, turn a learning-oriented pilot into a philanthropic project even if it could be self-sustaining. Furthermore, if a social business has to end and because the continuation does not make any sense, neither as project nor as enterprise, the landing has to be soft. That means all included partners have to be involved in the process to guarantee a harmless finalisation (London, 2011, pp. 28-30).

To scale up a social business, **co-mingled competitive advantage** has to be created and sustained. An entrepreneur will achieve that by gaining access to, and investing in, platforms which are often developed and managed by non-profit or community-based organisations. Such platforms could include network infrastructure (e.g. distribution systems), social infrastructure (e.g. relationship capital) or physical infrastructure (e.g. underutilized business assets). The access to such platforms requires partnerships with relevant organizations. Thus, entrepreneurs have to create values that these partners want to pursue. At the same time the proximity to partners demands a certain investment and is also associated with risks (London, 2011, pp. 31-33). Another important principle is the **leverage and transfer of social embeddedness**. Despite the scaling up, a social business also aims to scale deep (same customer but offering new products/services) or scale wide (same products/services but target new customers). This requires to "start over" and to design and pilot a new business model. Moreover, an entrepreneur has to develop social embeddedness, "the capability to gain a deep sense of the social context and a detailed knowledge of the intrinsic economic rationale of the local economy" (London, 2011, p. 34). Social embeddedness can, in turn, be achieved by gaining access to critical market-specific information (through a diversity of local stakeholders) and by interpreting that information (London, 2011, pp. 34-35).

Finally, **mutual value creation** is central to all stages, and for all the principles. A social business can only be successful if it is financially and economically sustainable while creating value for the BOP communities at the same time. However, assessing and enhancing mutual value creation remains problematic for many enterprises at the base of the pyramid. London (2011) therefore points out that entrepreneurs have to remain open to local value creation and to invest in listening to the voices of the BOP. Thus, it could be useful to develop an impact assessment framework to find out who is (and how they are) impacted by the enterprise (pp. 37-40).

According to London (2011) setting up a business in a BOP market is an iterative process: if necessary, the phases of designing, piloting and scaling have to be repeated (p. 26). That implies to experiment, to learn, to implement a measure and to experiment again till the result is reached. At the same time the seven principle help to roughly guide this process. However, the principles only serve as a general guide and thus, further research regarding adequate factors of success is required.

4.2. Critical factors of success

The literature shows different critical factors of success for enterprises setting up in BOP markets. Depending on the context of the particular author and the analysed business respectively country, the result differs. Kennedy and Novogratz (2011) have identified four factors that are key for success (pp. 52-53): Firstly, **costs** have to be **reduced** radically without sacrificing quality. Secondly, a **BOP-centric management team** has to be built. According to these authors "finding the right talent at the right time" is of particular importance. The management team of an enterprise should have the motivation and imagination to create solutions but at the same time must also possess the skills to manage a business. On the one hand, it is hard to find a top management who is willing to work for a social business due to the low salary and the working conditions in rural areas. On the other hand, it is challenging to find leaders at the middle-management level who will take initiative rather than follow directions. Therefore, innovation in building a management team is required. Kennedy and Novogratz propose to connect experienced managers from the private sector with idealistic young professionals to form a management team. Thirdly, an enterprise at the base of the pyramid has to offer products and services that meet at least three conditions (**human-centric design thinking**): They have to be valued by, and affordable to, BOP consumers. Furthermore, the products and services must be delivered efficiently enough to cover the cost of the enterprise (Kennedy & Novogratz, 2011, pp. 53-56). Kennedy and Novogratz (2011) emphasize that "human-centric design begins with an attempt to understand the wants and needs of customers" (p. 57). And finally, it is important to establish trust with the BOP to grow new markets. Many BOP customers are extremely sceptical of solutions offered to them due to the bad experiences they have from previous broken

promises; not only by the government, but also by developing organisations and charities (Kennedy & Novogratz, 2011, pp. 57-58).

Anderson and Billou (2007) have developed the 4A framework which relates to four critical factors that are important for success. The first factor availability refers to the extent BOP consumers have access to products and services. Especially in rural areas it is challenging to set up adequate distribution facilities. The second factor deals with affordability. As already mentioned, the income at the base of the pyramid is low. Thus, products have to be affordable for BOP consumers. The third factor that is key for success refers to the acceptability and describes the extent to which products and services will be consumed, distributed and sold. Because the local context differs significantly within the base of the pyramid, it is important to respond to the regional cultural or socio-economic aspects. And finally, the fourth factor takes the awareness of the customers into account. To create awareness in a market with less access to conventional advertising media alternative communication channels must be explored (pp. 14-20).

Prahalad (2010) supports the insight of Anderson and Billou by saying that the four A's are the most important requirements for the development of a market at the base of the pyramid. Moreover, he emphasizes that innovation in BOP markets requires twelve principles[2] (pp. 96-12). And finally, to establish partnerships is a crucial factor for success. Prahalad (2010) mentions this factor several times and he puts it directly by saying "do not be a lone fighter" (p 44).

4.3. Marketing to the base of the pyramid

To sell products or services, and to communicate their value to the customer, an entrepreneur has to figure out an adequate marketing plan which fits to the BOP market. Not to go beyond the scope of this thesis, this chapter focuses on the marketing tools and in particular on the marketing mix (product, price, place promotion)[3]. According to Heierli (2008) multinational corporations have to radically redesign their marketing strategies to exploit BOP markets (p. 37). But what holds true for MNCs applies to a social business too. *Chapter 3* has shown that BOP markets are enormously complex. Conventional marketing strategies based on premises from the top of the pyramid can therefore not simply be adjusted. However, this does not mean that the classic marketing mix is useless. Moreover, it has to be adapted in a way to take all the relevant aspects of BOP markets into account. As mentioned in the last chapter, the 4 A's are critical success factors and can be transferred to the marketing mix: Firstly, the product or service has to be designed in a manner that it serves the BOP. Only if it can generate a benefit for the consumers as well as the distributors, will products and

[2] The twelve principles mentioned by Prahalad are reflected in *chapter 3.1 Complexity of BOP markets* and are not mentioned again.

[3] Marketing encompasses a conceptual, management-oriented dimension as well as an operational, practical dimension. The term marketing refers to the latter.

services be accepted and sold successfully. Secondly, the price has to be set to generate enough income for a social enterprise to operate in a financially sustainable manner, but at the same time, products and services have to be affordable for low income customers. Thirdly, BOP consumers need access to products and services. Thus, the distribution (place) is a challenging factor especially when markets in remote areas are targeted. Fourthly, BOP consumers have to be aware of which products and services an enterprise offers and, what kind of value they create.

Even though the modern marketing understanding favours a dividing into the four P's, the approach has been extended in recent times (Meffert, Burmann, & Kirchgeorg, 2008, p. 22). Related to the context of BOP markets, two additional P's have attracted attention: people and process. Heierli (2008) has discussed the factor people while dealing with the sanitation marketing. In his example the fifth P (people) becomes a driving force for success because it is the people that exercise strong social pressure to change behaviour; in Heierli's case, practice of sanitation (pp. 58-59). In serving BOP markets, the factor people can also refer to the level of service, skills and expertise of the employees. Due to the challenging environment a social business faces, the people working for the enterprise can make the difference and thus, a social business successful. Additionally, the sixth P, process, has become important (Meffert, Burmann, & Kirchgeorg, 2008, pp. 880-885). As mentioned in the previous chapter reducing costs is key for success. Prahalad (2010) explicitly mentions process innovation; not only as a measure to reduce cost but also as a necessity to reach BOP consumers in remote areas by identifying new ways of distribution (p. 99).

4.4. An integrated approach for a social business in a BOP market

Chapter 3 has shown that the BOP market is enormous challenging and thus, an enterprise has to identify the right measures to overcome the associated problems in order to be successful. Hence, the relevant factors of success and the adequate marketing tool mentioned in the last chapter are brought together. The following marketing and management model can be seen as a simplified representation of what has been discussed. It combines the important factors of success, the BOP market complexity and the guiding principles. Although it cannot be taken as a conclusive model, the simplification helps to provide an overview, which is important regarding the fact that a social business in a BOP market reflects a complex system. Moreover, it is a rough guidance and can serve as a basis for strategy-making.

The model is an integrated approach in that it combines two dimensions. On the one hand, it shows a part of the corporate management in the context of the BOP micro and macro level. On the other hand, the corporate management is based on six pillars which represent the marketing tools required to exploit the BOP market.

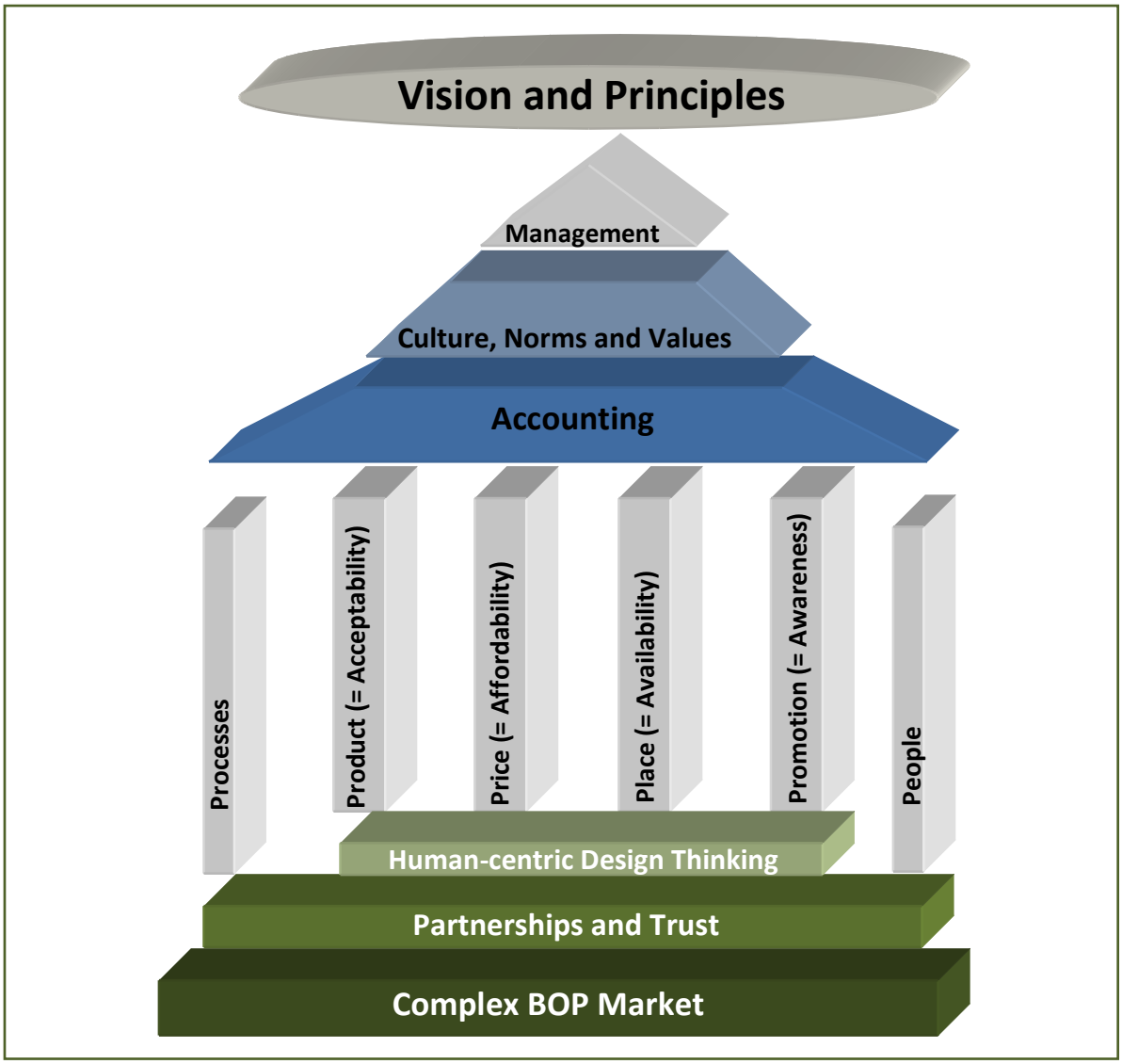

Figure 3: BOP marketing and management model: An Integrated approach for the evaluation of a social business in a BOP market. Source: Own illustration.

The complex BOP market is at the bottom of the model because every operational and strategic decision of the enterprise has to take the specific background of the market into account. Though, the market itself is influenced by different factors which can be classified into the categories: customer profile, product challenges and operating environment.

The next layer of the foundation refers to partnerships and trust. To enter into partnership and build up trust is crucial for the success of a business at the base of the pyramid. Kennedy and Novogratz (2011) note that "villagers hear the promises made by politicians – a new road, a new school, a new clinic – around election time and then see many of those promises broken ... So it should not be surprising that many BOP customers are extremely sceptical ..." (p. 58). This view concurs with the observations many other authors and practitioners made (e.g. London, 2011; Broadman, 2013; Prahalad, 2010; Heierli, 2008). Trust is not only important between the social business and the BOP community, but also between a variety of stakeholders and the enterprise. For example, to get access to funding high level of trust between the donor respectively the investor and the

entrepreneur is required. Furthermore, trust is an essential precondition for entering into partnerships. Due to the complexity of BOP markets and the challenging business environment partnerships in turn are crucial. Cooperation for example can help to close research gaps, especially when there is a lack of knowledge about local conditions; to reduce cost by sharing supply chains; or in general terms to facilitate business. In this regard it is of considerable significance to identify key stakeholders and to develop a strategy which allows tapping the full potential. Thus, an entrepreneur has to be aware of the relevant internal (e.g. employees, investor etc.) and external (e.g. customers, suppliers, NGOs, government etc.) stakeholders (Hammond, 2011; Prahalad, 2010; London, 2011; Rüegg-Stürm, 2005). The human-centric design thinking is important regarding the marketing. It begins with the understanding of the needs of the BOP consumers and implements these findings. Hence, the traditional marketing mix concentrates on satisfying these needs: the products and services are functional and designed in a manner that they are highly appreciated; the price is set to be affordable for the BOP consumer while generating enough revenue for the enterprise; the distribution is organised in a way that people have access, also in remote areas; the promotion takes local as well as cultural circumstances into account and raises awareness of the value of the products and services. However, marketing to the base of the pyramid is quite an unexplored field and thus, with regards to the necessity of market-based solutions in fighting poverty, should gain more importance in the future. Several authors have attended to this unexplored academic field in recent years (e.g. Prahalad, C.K., 2010; Heierli, 2008; Kennedy & Novogratz, 2011; Anderson & Billou, 2007). The traditional marketing tools are extended by processes and people. Processes for example play an important role when operating in BOP markets. According to Prahalad (2010) there is a significant potential for innovation by creating new processes which fit to the specific conditions of BOP markets (p. 114-119). Moreover, optimising processes can be crucial to reduce costs which itself is necessary to create affordable products and services. People furthermore form another pillar for a social business and are an important tool in marketing to the base of the pyramid. To recognise the needs of the BOP consumers and to offer adequate products as well as services, the staff constitutes an integral part of a social enterprise. In the end, the success of a social business stands and falls with the people who are engaged. In summary it can be said that the six marketing pillars connect the enterprise with the market.

The roof of the model is inward-looking and focuses on the success factors determined by the enterprise itself. Accounting, the first layer, includes all relevant aspects regarding the financial control of the enterprise. To operate in a market with relatively low purchasing power while ensuring a high price-performance ratio and paying fair wages at the same time, a high level of financial discipline is required. Moreover, financial control is important to prevent fraud or theft. Holzer and Chandler (1981) note that the lack of control within local companies is a major problem in developing

countries. Often there exists any form of accounting what leads to “a late closing of accounts (if indeed ever completed), poor internal control, absence of management accounting, incomplete and inaccurate records, and unauditable systems” (p. 23). Hence, it is important to implement a proper accounting process which includes all important steps from a systematically source documentation (receipts, payment confirmations etc.) right up to a financial report (monthly or yearly). To reduce costs and exercise financial control the accounting is inevitable.

The second layer refers to the culture, values and norms of the enterprise. It encompasses a normative dimension and is thus less tangible. According to Rüegg-Stürm (2005) “explicit structural arrangements and regulations are not by themselves sufficient for enabling a firm to cope with the many needs, demands and stimuli ... In addition, a shared sense of purpose, a common explicit or implicit background knowledge, is required” (p. 42). Culture, values and norms address the interaction between or within the different stakeholders. They for example, become visible in the interaction within the staff or between the staff and the management. But, they can also manifest themselves towards customers and business partners. Even if the normative dimension has not mentioned in previous chapters of this thesis, culture, values and norms are central to all business activities. Especially when building trust or establishing partnerships, which most likely require mutual respect and fair interaction.

The management builds the roof top of the model. According to Kennedy and Novogratz (2011) the management needs two skill sets: ”the will and imagination to create solutions for BOP markets and the skill to manage a significant business” (p. 54). Only a management team that meets these requirements is able to operate in a complex BOP market. Hence, a social business is an endeavour that demands a lot from all involved actors but, at the end, it is the responsibility of the management to define and implement the right decision. Therefore, it is an important, if not the most important factor of success.

And finally, the principles mentioned by Ted London in *chapter 4.1* as well as the principles mentioned by Muhammad Yunus in *chapter 2.2.2* build the framework of all activities. Yunus (2010) emphasises: “They [the principles] serve as a touchstone and a constant reminder of the values that are at the heart of the social business idea” (p. 3).

B) Practical Part

After the model has been developed it will be applied to Cameroon and the case study C.S.S. *Chapter 5* shortly gives an overview about Cameroon, the history of the C.S.S. as well as the restart in the year 2013. In *chapter 6* each component of the model is discussed and evaluated on the basis of the situation in Cameroon. After that, a short outlook on the market potential of the energy market in Cameroon is presented in *chapter 7*. Finally, the conclusion in *chapter 8* summarises the relevant findings while the author gives recommendations what should be taken into account when formulating strategies.

5. Context of the case study

When setting up a social enterprise, specific particularities regarding the country as well as the sector have to be taken into account. Hence, this chapter gives a short introduction to Cameroon and the social solar enterprise C.S.S. The history of the enterprise is of particular interest regarding the principle "manage failures" mentioned by Ted London in *chapter 4.1*

5.1. Introducing the country: Cameroon

The Republic of Cameroon[4] is a country located in Central Africa and surround by Chad in the North; the Central African Republic in the East; Equatorial Guinea, Gabon and the Republic of the Congo in the south; and Nigeria in the West. With a surface of about 472'710 square kilometres it is 12 times bigger than Switzerland and is nearly the same size as Sweden. Cameroon also has access to sea and its coastline is part of the Gulf of Guinea. Due to its geographical diversity including beaches, deserts, mountains, rainforests and savannas, the country is often called "Afrique en miniature". Cameroon is divided into 10 regions which are subdivided into 58 divisions and 360 sub-divisions, so-called arrondissements (Central Intelligence Agency [CIA], 2013).

Cameroon is long and narrow and the climate varies within the country. Three different types of climate can be identified: the equatorial climate in the South, the tropical climate in the Centre and the Sahelian climate in the North (African Development Bank [AfDB], 2010, p.13). With an average radiation intensity of 4.9 kWh/m2 per day, Cameroon possesses good sunlight especially in the northern and drier part of the country but also in the more humid southern part. These values represent the enormous potential of solar energy in Cameroon (Djyoum and Viban, 2012).

Cameroon has about 20.5 million inhabitants while the growth rate amounts 2.04% per annum. The country's age structure is dominated by young people: About 42% of its population is younger than

[4] A political map of Cameroon can be found in the appendix.

14 years and just about 5% older than 60 years. Cameroon's life expectancy at birth amounts 53.6 years for women and 51.4 years for men. This value is relatively low compared to the average life expectancy across the 27 member states of the European Union with 75.3 years for men and 81.7 for women. (CIA, 2013). According to the United Nations (2012) Cameroon ranks number 150 in the Human Development Ranking with an index value of 0.495. The average index of Sub-Saharan Africa amounts 0.475.

Cameroon's economy heavily relies on its oil resources and the favourable agriculture conditions. The oil and agriculture sectors which account for 50% respectively 25% of the export are basically responsible for the growth over the last years (AfDB, 2010, p.13). The country is part of the Economic and Monetary Community of Central Africa (CEMAC) which seeks for a sub-regional economic integration through forming a monetary union with the Central Africa CFA franc as a common currency (CIA, 2013). Cameroon is rarely in the focus of international attention. There were no famines, wars or any spectacular breakthrough regarding democracy. Nevertheless, the fact that Cameroon is a relative stable country in Central Africa should not obscure the huge economic problems the country faces. Even if the exploitation of natural resources guarantees relatively stable export revenues, the Cameroonian government failed in investing these revenues into infrastructure and the manufacturing sectors (Mehler, 2008, pp. 39-51).

5.2.Introducing the case: the social solar enterprise C.S.S.

Cameroon Solar Solutions (C.S.S.) is a social solar enterprise founded as an economic spin-off of the community development program PODC (Projet d'Organisation et Developpment des Communautes). The PODC is a typical development project: established in the year 2009 by different national and international NGOs (e.g. Greenpeace), donor founded and focusing on the support of the economic, social and environmental development. On the contrary, the C.S.S. intended to be a social business right from the outset.

5.2.1. The establishment and the fall of the enterprise C.S.S.

The enterprise C.S.S. has its origins in the PODC. In the year 2009 several international and national NGOs started the development program with the aim to protect the natural hesitate of Cameroon and in particular the rainforests in the Congo Basin. Since the establishment the PODC is working in 15 villages in the East and Center region of Cameroon. Within the project 40 African ethnological field researchers have been trained. Together with the people in the villages they try to identify the most urgent needs of the community and work out ideal solutions. One of the most important needs is the access to clean and affordable energy. Thus, some field researchers obtained additional training as solar technicians. Within the structure of the PODC these technicians started to promote and sell solar energy. The positive experiences with off-grid solutions to overcome energy poverty

had inspired the project management and some technicians to establish a company with various goals: On the one hand, BOP consumers in rural Cameroon should have better access to solar products. Through the marketing of solar light in rural areas the BOP's purchase decision towards a more efficient energy supply can be increased. On the other hand, the enterprise should generate an income for the technicians. After a period of planning and preparation, the C.S.S. was finally founded in March 2011. It can be summarised, that the C.S.S. has a close relation to the PODC due to its origin but also because of the cooperation regarding the installations of SHSs as well as the exchange of knowledge.

C.S.S. is based in Yaoundé, the capital city of Cameroon. Although the enterprise could rely on the support of different NGOs with regard to finance and technical advice the company did not perform successfully. Due to the absence of a well organised administration, theft and fraud were not discovered for a long time. As a result, the former director of the company and his entourage exploited the C.S.S. until it had to shut down at the end of 2012. Despite the relatively high amount of money they have stolen, the enterprise has been left with the obligation to maintain the sold solar installations.

5.2.2. The restart in 2013 and future prospection

With the financial and technical support of Solafrica, as Swiss based NGO, the social solar enterprise has been restarted in summer 2013. Active participants involved in the restructuring process included two Cameroonians, the technical manager of the PODC and an external person; and three Swiss, the project coordinator of the PODC as well as two external consultants mandated by Solafrica. The author of the present thesis was one of the consultants and responsible for the building up of the marketing and sales department. At the same time, the other consultant, an alumnus of the ETH Zürich and a former employee of a social investment company, dealt with the building up of administrative structures. To successfully restart the social enterprise different measures have been taken: Firstly, the company has been legalised with the help of a notary, and the office reopened. Secondly, employees have been recruited including three sales agents, a secretary and a technician as well as a technical assistant. And finally, administrative structures have been built and the sale has been organised. Today the social enterprise is on the way to prosper and has achieved initial success. However, since the restart C.S.S. has already faced certain setbacks. In particular, the dismissal of two employees due to fraud and improper behaviour. At the moment, C.S.S. employs seven people: a technical director and interim CEO, an administrative director, a prospective marketing and sales director, a sales agent, a secretary, a technician and a technical assistant. When required the enterprise can make use of the trained technicians of the PODC.

C.S.S will import and distribute solar products, such as small SHSs (up to 100 W) and PLSs to urban and rural low and middle-income people in close collaboration with the PODC. In 2014, a retailer network should be established with the help of trained technicians of the PODC. Furthermore, local students and trainees will be recruited to build an expertise in the installing and after service of small SHSs in rural areas.

There is a huge demand for off-grid solutions in the energy market of Cameroon. However, this market has always been seen as too risky and complex to deal with. Hence, there is no energy promoter selling electricity or solar equipment to low-income households. With the network and the technicians trained by the PODC, C.S.S. has excellent pre-requisites to succeed in introducing solar energy massively in all rural areas of Cameroon. Nevertheless, the mistakes made in the past still have its consequences. On the one hand, C.S.S. is still responsible for the maintenance of the solar installations although the money has been stolen by former employees. On the other hand, the lawsuit against the fraudulent director is a costly endeavour with a highly uncertain outcome.

6. Evaluation of the C.S.S. on the basis of the developed model

In the following chapter the C.S.S. will be analysed on the basis of the developed marketing and management model. It should be noted that the evaluation deals in particular with C.S.S. in the context of the solar market in rural Cameroon. However, the overall BOP market in Cameroon will additionally be examined to give a comprehensive view of the situation in which the C.S.S. operates.

6.1. BOP market complexity in Cameroon

The solar market in Cameroon is a typical BOP market. This fact is not only based on the observations the author made during his field research, it also corresponds to the answers from the 14 interviews as well as the informal discussions held with NGO leaders, businessmen and political experts. The most important factors responsible for the complexity of the rural BOP market in Cameroon are summarised in this chapter.

6.1.1. Rural BOP customer profile in Cameroon

The low income of rural BOP customers is a huge challenge when operating in the Cameroonian market. According to Lighting Africa (2012b) the main market in rural non-electrified areas is dominated by customers with low purchasing power who are unable to meet the initial product costs (p. 8). Eleven out of thirteen interviewees agreed on that and indicated the low income as the main problem for doing business in Cameroon. This view is supported by empirical findings: Despite the favourable economic conditions, the country has a low per capita GDP of $2.400[5] and thus belongs to the category of the worst performing countries in the world. In the light of these findings the high unemployment and underemployment rate of 4.4% respectively 75.8% is not surprising. Cameroon faces many serious economic problems such as endemic corruption, a stagnant per capita income and a relatively inequitable distribution of income (CIA, 2012). According to the MINEP (2009) more than 40%[6] of all Cameroonians live below poverty line while the overwhelming part comes from the rural areas (p. 41). Furthermore, the income in Cameroon is determined by the prices for commodities and agricultural products and as a result, highly volatile (Jansen, 2004, pp. 13-24). It can be summarised that rural BOP consumers in Cameroon have a low per capita income as well as a low disposal income.

The problem of the low purchasing power is additionally reinforced due to the lack of access to financial institutions. Especially in rural areas, BOP costumers have less possibility to save money for future investments. In general, village saving banks or microfinance institutions are concentrated in

[5] Retrieved 2012. The GDP per capita is adjusted at purchase power parity (PPP).
[6] According to MINEP (2009) the definition of poverty is as follows: The average income of an adult-equivalent household is less than 269'443 FCFA (≈557 Dollar) per year. A poor household comprises 6 people and a non-poor household 3 people (pp.36-37).

urban areas as well as in the centres of rural regions (Moukandjo 2013; Berger, 2013; Aboubakar, 2013). However, in some regions there exist so-called “Tontines”, rotating savings and credit associations (ROSCAs), where a group of individuals saves and borrows together. According to the EED (2013) there exist different systems of ROSCAs in the whole of Cameroon while the overwhelming part is located in the West region of the country (p. 28). I. Aboubakar (personal communication, July 24, 2013) points out that in the Southwest, Northwest and West region ROSCAs are quite common used saving patterns due to the cultural embedding. The values within Western societies differ significantly from those in the Centre and East region where C.S.S. mainly operates. In contrast to the latter, mutual trust is much more valued in the West what at the end favours the existence of ROSCAs. It is not surprising that these regions are much more developed than the one in East or Centre regions. Hence, potential rural customers of the C.S.S. are not only characterised by a low income, but also by the lack of access to financial institutions or any other saving pattern such as ROSCAs.

Another characteristic of rural BOP customers refers to heterogeneity. Due to its geographical diversity Cameroon is home to many different cultures with their traditional language, rituals and way of living. The population is a mosaic of over 250 ethnic groups speaking more than 200 languages. Nevertheless, French and English introduced during colonialism are widely spoken and thus official languages. Today, the country consists of two English-speaking and eight French-speaking regions (AfDB, 2010, p.13). According to S. Bedimo (personal communication, August 5, 2013) especially in remote areas in the East region people speak their traditional languages and do understand neither French nor English. The experience within the PODC has shown that often a translator is needed when operating in such areas. Thus, any business activities become more complicated. Compared to other Sub-Saharan African countries Cameroon has a relatively high literacy rate of 71.3%[7] (CIA, 2010). A. Zoua (personal communication, July 29, 2013) points out that in rural areas of the East region the reading ability is poor compared to the urban areas where the access to education is much better. As a consequence, a complete rethinking in promoting solar energy is required. It can be noted that Cameroonians widely speak French or English while the majority is able to read and write. Nevertheless, this should not obscure the fact that specifically for the targeted BOP consumers in the rural areas of the East and Centre region this is often not the case.

The mobility of rural BOP consumers in Cameroon is limited. Even though there are existing travel facilities such as omnibus operators, only the centres are connected. For people living in remote

[7] Definition of literacy according to the CIA: age 15 and over can read and write.

areas there exists less access while some villages are only accessible on foot. Moreover, a typical BOP household cannot afford to use regularly such facilities (Berger, 2013; Ndong, 2013; Meba, 2013). D. Berger (personal communication, September 27, 2013) emphasizes that the lack of travel possibilities is a main reason why communities in remote areas are less developed compared to those living closer to regional centres or main transport axes. It can also be observed that BOP costumers are willing to pay high prices for any kind of goods due to the under-supply. This not only applies to consumer goods such as food or medicaments but also to small capital goods. As a consequence, BOP consumers have no real purchasing choice and thus have to rely on what is available in their communities. L. Courtois (personal communication, July 31, 2013) points out that restricted mobility is an important factor while the solar market in Cameroon is underdeveloped and dominated by products of poor quality. It can be summarised that potential BOP customers are isolated and dependent on local monopolies.

The customer preferences vary significantly within Cameroon. There are existing regions, especially in the North of the country, where consumer awareness is low with relatively fixed consumption patterns. In such places, a high customisation is required to create products fitting exactly the needs of those people. In other regions such as in the South, West or Centre people are mainly aware of solar energy. It can be noted that Cameroonians are in general aware of the advantages solar energy offers and thus, less work is necessary to convince people (Zoua, 2013; Aboubakar, 2013; Song, 2013; Meba, 2013). But the problem is something quite different: Even though BOP consumers perceive solar energy as the ideal to replace tradition lighting sources, lighting in general is not currently valued in the same way as other disseminated products (e.g. mobile phones). As a consequence, changing customer preferences must begin at the point where lighting in general gains more value (Lighting Africa, 2012b, p. 7). D. Berger (personal communication, September 27, 2013) furthermore points to an additionally problem. He states that it is not merely the consumption pattern that is fix or the people not recognising their latent needs which poses a problem. Moreover, BOP consumers are willing to change their preferences but they do not understand why they have to pay for it. Through developing aid they lost the understanding why they have to purchase and do not get it for free. Apart from that, it can be noted that fix customer preferences are not a main problem. In general, the value of solar energy is highly appreciated.

6.1.2. Product challenges

As mentioned in the last chapter, rural BOP consumers in Cameroon value the benefit of technically sensible innovations. Therefore, the challenge does not lie merely in customer awareness but in offering high quality products that customers can afford. Given the low income level in Cameroon, C.S.S. has to find or create products with an optimal price-performance ratio. In general, there are

two purchasing options: On the one hand, material can be purchased in Cameroon from local suppliers, often Chinese direct importers. However, according to Lighting Africa (2012b) the Cameroonian solar market is dominated by low cost products often of very poor quality. Due to the high costs of doing business in Cameroon (more information in *chapter 6.1.3.*) there are no big players that could supply the market with qualitative products. The few existing firms are small, mainly operate in the informal sector and do not have sufficient assets to invest in stock (p. 8). The experiences made within the C.S.S. have shown that against the expectations and the assumptions made by Lighting Africa, there can be found solar material of good quality. This only applies for individual components to create solar home systems and not for complete portable devices which cannot be found in large quantities. On the other hand, C.S.S. can import itself directly from Asia or Europe. But due to non-transparent custom clearance and corruption the taxes can be unpredictable high. Calculations have shown that the C.S.S. pays up to 30% more when import directly because of the lack of knowledge and understanding of the local custom procedures. Moreover, the enterprise is liable to damages resulting from loss or theft. In the light of these risks it makes more sense to purchase directly in Cameroon (Moukandjo, 2013; Schmid, 2013). It can be summarised that for the C.S.S. it is complicated to get access to qualitative products and material at a reasonable price. Hence, to offer an adequate price-performance ratio is challenging especially regarding smaller devices with little added value.

Regardless of whether solar energy better fits the needs of BOP consumers in rural Cameroon, the majority relies on traditional lighting sources including kerosene lamps, candles, battery-powered torches (non-rechargeable) and fuel as well as diesel generators. According to a study conducted by the EED (2013) kerosene lamps are the most preferred off-grid lighting source in Cameroon (p. 96). This insight is supported by Lighting Africa (2012b) which points to the fact that kerosene lamps are used for lighting by over two-thirds of the rural population. Because complementary products such as solar devices are not available, people have to rely on traditional lighting sources. Kerosene on the contrary is easy available in every part of Cameroon. The same applies for battery-powered torches. People living near the border to Nigeria, an exporter of cheap batteries, rely heavily on such torches even though they would be better off using PLSs (pp. 2-3). It can be noted that the Cameroonian energy market is dominated by products that inadequately serve BOP consumers demand. Thus, the lack of complementary products impacts the purchase choice and skews the decision towards inappropriate goods.

Diffusion curves are typical for solar products. The experiences within the PODC have shown that solar energy is firstly adapted by people with a relatively high social status and the necessary financial resources. Moreover, they are characterised by an outstanding open mind and the will to

change something in their communities. The role to initiate a change within the village usually takes over the chief of a community. It could, for example, be observed that after the chief has been convinced of solar energy, other members of the village followed and purchased solar devices too. Often the news have spread out and initiated a demand from people outside the communities which is a reason why the PODC was no longer able to keep pace with the demand and therefore founded the C.S.S. Hence, the opinions made by leaders have a huge influence on adapting solar energy (Berger, personal communication, September 27, 2013). Such experiences have shown that rural BOP consumers make their purchase decision carefully due to their limited financial resources. As a consequence, the C.S.S. must focus its marketing efforts on the opinion leaders.

Product innovation regarding solar devices has become a huge field of interest. Lighting Africa (2013) for example has made substantial efforts in setting up quality standards for PLSs which serve as a guidance for importers, distributors and consumers (p. 97). According to L. Courtois (personal communication, July 31, 2013) the Cameroonian market is spoiled with products of low quality. To change this, the Gesellschaft für Internationale Zusammenarbeit (GIZ) in Cameroon wants to strengthen the awareness for high quality products on the one hand, while facilitating the import of solar material and devices on the other. For the C.S.S. the latter is of particular interest. As mentioned in previous paragraphs products of good quality are not widely available in Cameroon. The only high quality brand is d.light which is sold through the TOTAL shops and imported by the oil and gas company directly. For distributors such as the C.S.S. the only alternative that remains is the direct import which again is an expensive and complex endeavour.

The acquisition of solar material in rural areas of Cameroon is difficult. Due to the low income and the lack of access to financial institutions, many BOP consumers can only purchase by paying in instalments. Taken this restriction the C.S.S. has the following options: It concentrates its efforts in finding customers who can pay in one single payment (goods for money). As a result, the enterprise hedges against payment defaults but at the same time, looses customers and enters into conflict with its social purpose (because only the more affluent can be served). Or, the costumers have the possibility to make initial payments according to a certain plan what posses a high default risk. The experiences made within the PODC with the second option were not satisfying at all. It turned out that the payment behaviour in the 15 test villages was predominantly poor and the project lost money. Additionally, the second option is time consuming and costly what again increases the prices for the product. It can be summarised that the lack of adequate acquisition models in rural Cameroon is a major problem, especially for a social business which aims on improving the life of the BOP consumers. Therefore, it is important to calculate the default risk and balance carefully the interests.

6.1.3. Operating environment

The main reason for the insufficient economic performance in Cameroon is the endemic corruption and the poor governance which impedes the optimal use of public resources for the country's socio-economic development. Accordingly, Cameroon was at the bottom of Transparency Corruption Perceptions Index in the years 1998 and 1999 (Mehler, 2008, pp. 39-43). According to Transparency International (2012) the country's value has improved and today it ranks number 144 out of 176 countries. Mehler (2008) points out that the government made some efforts in fighting corruption for example by setting up a new anti-corruption commission. But its member are nominated by the president and thus not independent. The tendency to use public bodies privately is still going on which leads to no noticeable change to the daily life of the people (p.43). All actors in Cameroon's economy are affected by this, but in particular enterprises operating in new industries such as the off-grid lighting market. Customs procedures and tax requirements lead to high initial cost for solar products in the formal market which increases massively the prices. As a consequence, households with an already low purchasing power cannot afford to buy healthier and more efficient lighting technologies and thus, not improve their lives (Lighting Africa, 2012b, p. 7). However, as Prahalad (2010) pointed out, it is not necessarily the lack of the legal framework but rather the enforcement of the law. In Cameroon a law has already been enacted which should help to increase the import of solar material: according to the articles 65-4 of the law 2011 2011/022 the government has been mandated to define the custom reductions for solar products and services (EED, 2013, p. 44). However, the regulation has not yet been implemented and as a result, no change has occurred. L. Courtois (personal communication, July 31, 2013) emphasises that all taken measures to facilitate the access to solar products are useless as long as the government does not improve its custom policy. Moreover, the situation today excludes small and medium-sized businesses from the solar market. On the contrary, huge multinational corporations such as TOTAL have market advantages. Due to their large financial resources they perceive any payments related to corruption as "opportunity costs" to make business in a certain market. L. Courtois supports this view by saying that TOTAL does not pay anything to import solar devices. Although such companies can offer solar products at a low price, the development of the off-grid market will not develop as long as SME cannot participate as equal actors. Hence, the C.S.S. has to face the critical question how it adapts to such an environment. Authors such as Hart and London (2005) suggest for small enterprises to "fly under the radar" to avoid high taxes and corruption payments (p. 31). But escaping into the informal economy is only a solution as long as the enterprise is kept small. Today the C.S.S. is formally registered but with no adequate strategy to behave regarding corruption and tax payments. Additionally, the future development of the politics in Cameroon complicates the drafting of a strategy. Although Cameroon is characterised by relative socio-political stability, there is little prospect for the ongoing of the

present condition. President Paul Biya, in power since 1982, has conducted little efforts to arrange his succession although he turned 80 years old. In 2012 several political figures have been arrested and convicted while Biya and his entourage remain the most powerful actors in the state. Observers see these trials as shadow of a battle that will offer up the possible successors of the current head of state. The growing dissatisfaction of the population about the socio-economic situation and the maladministration of the political elite give cause for concern. Augurs see Cameroon as a powder keg where just a little incident can trigger a huge crisis. Hence, any long term investments are associated with high risk (African Economic Outlook, 2013; Hug, 2013). It can be summarised that endemic corruption and maladministration have led to an insufficient business environment. It is therefore not surprising that Cameroon ranks 161st out of 185 countries according to the World Bank report Doing Business 2013.

The civic and private infrastructure in Cameroon is poor, in the sanitation, energy as well as transportation sector. Especially the latter is a problem when targeting BOP consumers in rural areas. Today, just the main cities are connected and the roads are often in a very bad condition. Additionally, the existing roads are only single-lane and thus extremely dangerous. The World Health Organization (2013) estimates that the road user death rate in Cameroon amounts 20.1 per 100'000 people what is nearly three times as much as the OECD average of 7.8 (p. 255). Despite the high risks, the majority of the rural communities is connected by roads without a solid surface, while some are even not accessible by car at all. Hence, the C.S.S. faces huge logistic challenges when marketing solar light in rural areas. Furthermore, the transportation of solar material to people living in remote areas is cost intensive what increases the price. This is a further problem regarding the low income of rural BOP customers. Hence, especially the transport sector plays an important role in the economic development, job creation and poverty alleviation of the country (AfDB, 2010, p. 28). At the same time, the lack of basic infrastructure in the energy sector creates the potential for an off-grid market that can be exploited by the C.S.S.

Another factor that increases the problem of the poor infrastructure is the geography and the population density. Approximately more than half of the population lives in urban areas particularly in Doula, the countries economical centre and most important trade port, as well as in Yaoundé, the political capital. The tendency for people to be concentrated in towns leads to a relative low population density of just about 40 people per square kilometre (Worldbank, 2012). For the C.S.S. this implies longer travel times to reach its customer in rural areas. Furthermore, robust transport facilities are required especially when travelling during the raining season. It can be noted that reaching rural BOP consumers is an expensive endeavour because economies of density cannot be

realised. Moreover, the planning and execution of sales respectively maintenance tours ties up capacities. Ultimately, this has again a negative effect on the price.

The heterogeneity of key stakeholders is a phenomenon that can be observed in Cameroon. The C.S.S. is confronted with this in different ways. Taken the example of the diffusion curves mentioned in the last chapter, it is crucial to identify opinion leaders of a village when promoting solar light. At the same time, it is complicated for an outsider to find the right person to talk to. Hence, local insight is required when figuring out an adequate marketing strategy. However, due to the close cooperation with the PODC, which possesses knowledge working with communities, the latter cannot be seen as a great challenge. On the other hand, it looks differently regarding the identification of power centres in the public sector. The example examined in the context of custom policy is a more complex problem. Although there is a legal basis which should guarantee the facilitated importation of solar material, it is difficult to identify a key stakeholder to address to and to claim this right. Experiences made with intermediaries such as lawyers were not satisfactory. Instead of acting in the interest of the customer, they preferred making money without providing any result (Berger, 2013; Schmid, 2013; Ndong, 2013). It can be summarised that key stakeholders are heterogeneous while their identification is complicated. Hence, it is important to analyse the business environment, to identify key stakeholders and to integrate them in a corporate strategy.

Cameroon is shaped by an agrarian-oriented (subsistence) economy: The Northern regions are dry and dominated by a nomadic society that generates its income through livestock farming. On the contrary, people in the South rely on fishing while the humid Western and Centre regions mainly live on agriculture. Depending on the earnings and the price of the sold goods, farmers or fishers have highly volatile income. Hence, the logic of agrarian-oriented (subsistence) economies must be understood when marketing products such as solar light. V. Moukandjo (personal communication, August 2, 2013) explains this logic by giving a good example: Usually, cocoa farmers have a low disposal income and employ only a few workers. But during harvest time, exactly the opposite is the case. Thus, over a very short time, workers and farmers have a disposal income which they could invest in solar devices or even small solar home systems. But due to the lack of access to financial institutions the money will neither be invested nor saved. Often it is spent entirely on alcohol and tobacco while the rest of the family has no further benefit. It can be noted that C.S.S. will benefit when the economical context is understood. As the example of the cocoa farmers showed, a marketing strategy has to take the local conditions into account. Hence, factors can play a role which are not obvious at first sight.

Despite influencing factors that can be understood rationally, there exist determinants which are characterised by an irrational behaviour. Especially in Cameroon, with a huge diversity of ethnicities,

different religious communities and a rich culture, daily business life is influenced by factors that cannot be understood by people outside this particular society. C.S.S. has already experience in this context. It can for example be observed that certain ethnical groups are predominant in the Cameroonian business life. This could be an advantage when making business with people from the same group, but also a challenge when addressing stakeholders of different ethnicities. As a result, considerations have to be made how to form the staff of an enterprise. In this context diversity management can play an important role. D. Berger (personal communication, September 27, 2013) notes that especially in the application procedure different interests have to be balanced in order to meet the demands of all relevant stakeholders. This, for example, can lead to a decision which does not only take performance into account, but also has consideration for ethnicity.

Furthermore, quiet resentments growing out of former colonial policies, ethnic conflicts or religious tensions can form obstacles. Such feelings are often not noticeable but can influence the behaviour and thus, should not be underestimated. Fritz (as citied in Broadman, 2013) emphasises that doing business in Africa requires a certain ability to empathise: “People in Africa have a proud heritage; they don’t take kindly to others coming in and telling them what to do” (p. 9). Finally, every society has its general framework of values which is based on a common history and tradition. In this context a frequently used term is “political culture” which aims to make the frame of shared values more tangible. Due to the colonial background of Cameroun, the decade-long history of corruption and public mismanagement as well as the repressiveness of the ruling system, a certain political culture has resulted which influences the daily behaviour of the people. The political culture in Cameroon is marked by neopatrimonialism and corruption which influences not only the public but also the private sphere. Fraud or theft in this sense becomes consequently a basic mechanism and is no longer considered morally reprehensible. Nevertheless, it is impossible to give an exhaustive list of possible obstacles regarding culture, ethnicity or religion. But it is important to be aware of incidents which could have their origin in irrational behaviour and thus, to take appropriate measures with the right degree of sensitivity.

6.2. Partnerships and trust

The complexity of the rural BOP market in Cameroon constitutes a challenging business environment. Against this backdrop, it is even more important to build up trust and enter into partnerships. As mentioned in the last chapter, corruption in Cameroon is rampant, the judicial system dysfunctional and the public administration totally discredited. Thus, the political culture is characterised by a strong mutual distrust not only between the government and its citizens but also among the people in the wider society. In this sense, building up trust does not play a marginal role but rather it is a key factor of success, in particular in the rural market where people have been disappointed numerous times. However, building up trust is an intensive endeavour and impacts all

activities of the enterprise.

Before strategy making it is important to identify the internal and external stakeholders. The rural BOP customer in Cameroon has been described in *chapter 6.1.1*. who is an important internal stakeholder to build up trust with. People living in remote areas are characterised by low education and they often have no access to information which could improve their purchase decisions. Thus, there is an asymmetry of information between the customer and the enterprise what makes them extremely vulnerable. For a social enterprise such as the C.S.S. and its employees, it is important to put the well-being of the BOP consumers first. This affects strategically as well as operational decisions. P. Schmid (personal communication, September 13, 2013) points out that especially the pricing of solar light is a challenge. Because BOP consumers are not able to compare products they simply have to trust the enterprise to make the right decision for them. A sales agent of the C.S.S. for example can set the price almost as he likes and even if the customer is better off than using traditional lighting sources, he pays more than market price. Another important stakeholder is the investor, in the case of C.S.S. the NGO Solafrica. This relationship is key for the existence of the C.S.S. due to the financial and technical support Solafrica gives. On the other hand, Solafrica is also dependent on the success of the enterprise to meet the requirements of its donors. C.S.S. furthermore has to be aware of its external stakeholders. The community development project PODC is already an important partner regarding the access to rural villages. But the partnership is by far not exploited yet, though there are challenges in the market which could be tackled by a closer cooperation. For example, to gain further insights about the rural BOP profile or to determine the product and price policy. Financial institutes on the other hand could help to facilitate the access to solar energy for the consumers and to reduce the risk of default. As mentioned in the last chapter, custom taxes constitute a huge challenge for the enterprise. A possible partnership with a powerful player, in the civil or public sector, could help to mitigate these taxes and as a result, significantly decrease the price of the products.

It can be summarised that mutual trust is an important factor when operating in the rural BOP market in Cameroon. Moreover, to identify key stakeholders of C.S.S. and to strengthen the cooperation will contribute significantly to the success of the enterprise. However, C.S.S. has not considered a strategy yet and as a result, does not exploit the full potential of partnerships.

6.3. Human-centric design thinking and the four P's

Solar energy is an appropriate measure to fight poverty and improve the life of the most vulnerable. Hence, human-centric design thinking in the context of solar energy has become quite a trend in recent years. Lighting Africa (2013) lists about 48 different PLS-products of high quality tailored to the needs of the people living at the base of the pyramid. C.S.S. also has different PLSs in its product

portfolio. Hence, in the following chapter the importance of the human-centric design thinking will be explained at the example of Oolux which has been developed in Switzerland. Oolux is a high efficient solar power kit for lighting and charging purposes and has been designed to meet the needs of the BOP consumers. The product has been tested in the rural market of Cameroon on the basis of the traditional marketing mix: product, price, place and promotion.

6.3.1. Product

Human-centric design thinking puts the needs of the BOP consumer in the centre: Firstly, BOP people usually live under extreme conditions which require a product of superior quality. Oolux has been developed in accordance to take the environment of the BOP people into account. Thus, the product has been design in a manner that it is sufficiently reliable. The box for example is made of resistant plastic and silicon; the buttons on the lamps and on the power box are capacitive touch buttons to protect it from dust and water. Additionally, Oolux has a high performance. Due to its capacity it is able to supply light for many hours or to charge several mobile phones. Even if it is not possible to charge the power box, for example during rainy seasons, Oolux assures sufficient electricity until it can be recharged. Secondly, Oolux focuses on the most basic functions that are necessary such as lighting and charging mobile phones. Furthermore, the modularity allows to power a variety of USB-enabled devices through the USB ports (www.oolux.org).

Oolux has been tested by conducting a survey with 30 prospective solar technicians from all over Cameroon. Through the survey the author of the thesis wanted to find out if the developer created a product that fits the need of the rural BOP people living in Cameroon. The students had time to examine the product and afterwards they are given the task to evaluate it. The result looks as follows[8]:

[8] The students could give several answers.

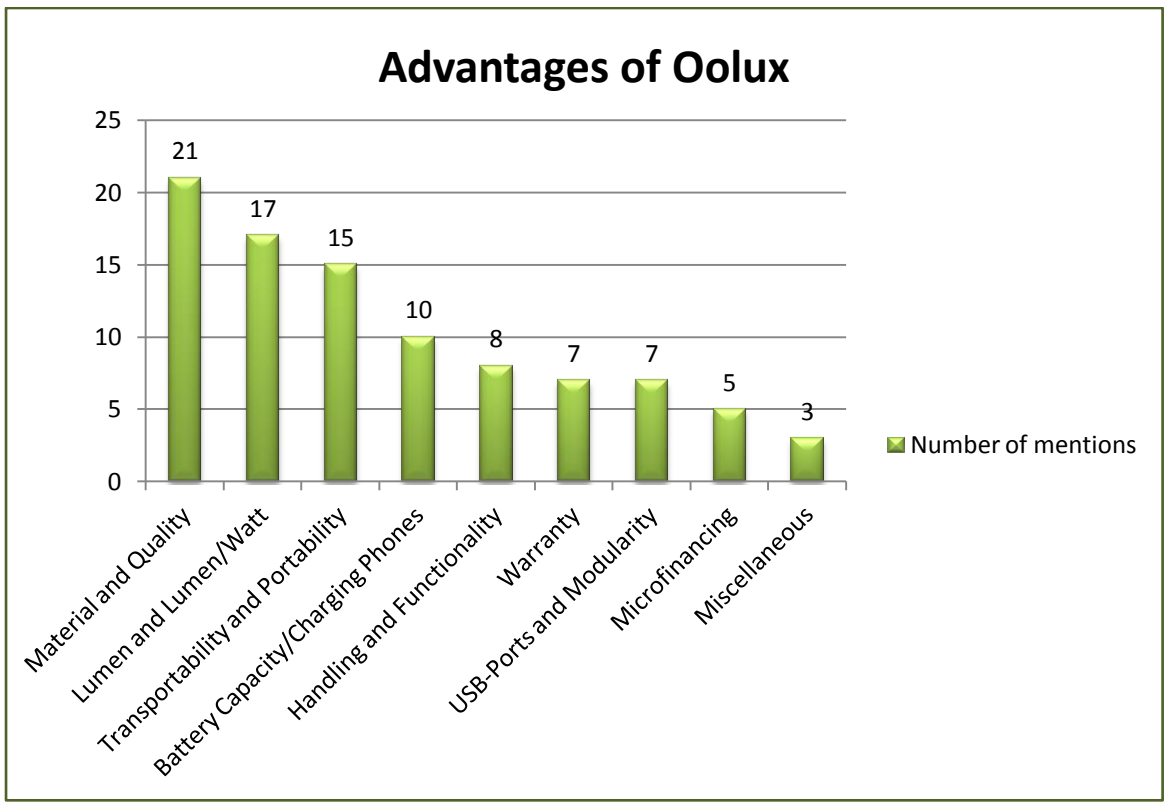

Figure 4: Advantages of Oolux. Source: Own illustration.

According to the students the most important advantage of Oolux is the material and the quality. Due to the humidity and the dusty environment in rural Cameroon the solar device has to be robust and well-finished. The second most mentioned advantage of Oolux is the brightness of light and its efficiency. For the students it is crucial that the product is powerful and supplies energy as long as possible. Furthermore, it is important to transport the device easily. Any fix installation is not appropriate in a rural households and flexibility regarding light is important. For many students it was impressing that Oolux is able to charge more than one mobile phone a day. Thus, a high performance is necessary especially because all members of the household use the product intensively. The handling and functionality of Oolux were seen as “easy” and “generally intelligible” while the warranty of two years as well as the USB-Ports/Modularity are fairly recognised as standard for any PLSs. Whereas the integrated micro-finance system was not highly appreciated. Further mentions include the reparation, the design and the charging control of the product.

In general, the students see Oolux as a very good solution for poor people living in remote areas. The product precisely meets the demand of the BOP consumer and thus, complies with the principles of the human-centric design thinking. It can be summarised that the quality and the capacity plays an important role for a product to be accepted by people living at the base of the pyramid. Due to its functionality and design it is a worthwhile investment even for people with a low income.

6.3.2. Price

The price of a PLS has to be set in order to be affordable for BOP consumers, but also to cover the variable costs as well as a part of the fix costs of the enterprise. To find an affordable price the actual spending on energy per household serves as an indicator.

Kerosene lamps and battery-powered torches are the most used lighting sources in off-grid households due to the lack of access to alternatives. Supposing that remote areas can be supplied with PLSs, the pertinent question is whether the households are better off by investing their energy spending on the acquisition of a PLS. Different institutions and experts have tried to answer this question:

The Netherlands Development Organization (SNV) has surveyed 75 off-grid households in the regions North, East and North West of Cameroon. The answers combined with focus group interviews and literature research led to the following results:

Source	Daily spending		Yearly spending	
	FCFA	US Dollar	FCFA	US Dollar[9]
Kerosene lamps + phone recharge	132	0.26	48 180	**96**
Battery torch + phone recharge	51	0.19	34 308	**69**

Table 1: Daily and yearly energy spending per household. Source: Own illustration based on SNV (2012), p. 3.

The EED (2013) has surveyed 930 households in 51[10] communities, located in the three main areas of Cameroon: **"Nord"** (Extrême-Nord, Nord, Adamaoua), **"Côtière"** (Littoral, Sud-Ouest) and **"Sud"** (Ouest, Nord-Ouest, Est, Sud, Centre).

Yearly Spending	Area "Côtière"	Area "Nord"	Area "Sud"
Lighting + phone recharge in FCFA	81 616	30 110	34 886
Lighting + phone recharge in US Dollar[11]	**169**	**62**	**72**

Table 2: Yearly energy spending per household by different regions. Source: Own illustration based on EED (2013), p.111.

By taking the results of these two calculations together, it can be stated that the annual spending for lighting and recharging the phone in an off-grid household is between 62 to 169 US Dollar. Depending on the region and on the energy source used, the value differs significantly. However, these results are in line with the findings of the in-depth interviews conducted by the author of the

[9] Exchange rate at September 27th.
[10] Altogether, 42 off-grid communities and 9 grid-connected communities participated.
[11] Exchange rate at September 27th.

thesis: it has been seen that an average household of about 4 to 6 people spends yearly 52'200 FCFA (≈108 US Dollar). Depending on how the price is set and which source of energy is currently used, a household can acquire a PLS within a reasonable time. After the PLS is paid off, it belongs to the household and no more spending on energy is needed till the appliance has to be replaced. That means that future energy spending can be saved.

If it is assumed that Oolux is enough powerful to provide light and energy for an average household of four to six people, it can replace traditional sources completely. Thus, by taking a price lying within a range of 62 to 169 US Dollar, the investment has paid off in less than a year. This in turn requires the possibility to pay in instalments which is difficult due to the lack of acquisition models as shown in *chapter 6.1.2.*

Because in Cameroon only lighting products of cheap quality are available, the understanding of high prices for good quality remains a problem. Nevertheless, the management of the C.S.S. has decided to set the price at 70'000 FCFA (≈145 Dollar[12]) per kit. Although this price is basically regarded as hardly affordable for the BOP people, C.S.S. has to set that price to cover its costs. S. Bosailler (personal communication, September 19, 2013) points out that even if Oolux is sold at cost, the price C.S.S. has to pay will amount at least 80 to 90 Dollar per kit. The remaining 55 respectively 65 Dollar have to cover transportation, import duties, distribution, administration, commission as well as a benefit for the enterprise.

On the contrary, the 30 prospective technicians have been asked how much they would spend for purchasing Oolux. The results revealed an average price of 45'518 FCFA (≈ 94 US Dollar[13]) which is about a third less that the price set by the C.S.S. management. Moreover, solar technicians are rather aware of the quality-price ratio in contrast to the BOP consumers. As a result, the price of 145 Dollar per kit does not nearly meet the price expectations of rural BOP customers.

It can be summarised that the development of high quality and affordable products is complicated. However, an average household in rural Cameroon spends a lot on traditional energy sources and thus, is better off by replacing unhealthy and inefficient sources by high quality products such as Oolux. The real challenge is convincing the consumer to make an investment and to enable access to appropriate acquisition models.

6.3.3. Place

The geography and the population density in Cameroon make the distribution of solar products a difficult matter. C.S.S. is located in a quarter outside of the capital city Yaoundé. When a customer orders a solar home system, technicians buy the components and drive to the customer's village. To

[12] Exchange rate at September 27th.
[13] Exchange rate at September 27th.

reduce costs the sales tour is used to the full. That means the transport car is loaded with PLSs that will be sold in the villages which lie directly on the way. This distribution scheme is highly efficient but does not allow a comprehensive supply. Furthermore, it is incompatible with the micro-finance system of Oolux which has been developed to make the product affordable while generating an income for the seller: BOP consumers can acquire an Oolux kit while paying progressively over several weeks or months on a pre-paid basis. To get an Oolux kit the customer first has to make a down payment. From that time onwards he can top up the power box on a daily, weekly or monthly basis. In addition to do that he goes to the seller who connects the power box to a computer. Dependent on the size of the payment the system is activated till the pre-paid period expires. When the full value of the kit has been paid, Oolux belongs to the customer and the kit is activated permanently. This system allows investing the savings made on kerosene expenses from the very first day.

The Oolux payment scheme is far from being ideal. In rural Cameroon the road conditions are bad, the distance between single villages huge and there is no public transport. Hence, the system is not economically profitable neither for the customer who cannot afford going to the C.S.S. office regularly nor for the enterprise who also has restricted mobility due to the high transport costs.

One possibility to tackle the problem is the building up of a retailer network in the regional centres of the urban areas. On the other hand, the development and maintenance of such a network is expensive and requires reliable retailers. Or, as an alternative, C.S.S. cooperates with small village shops to distribute its product. But therefore mutual trust is required to assert that the partner is acting according to the principles of the social enterprise. However, even if there is a retailer or partner network, the Oolux payment scheme does not fit to the situation in rural Cameroon.

It should be noted that the distribution of solar material is complicated. Especially when smaller devices (e.g. Oolux) are sold to poor households who cannot afford to purchase in one payment. Thus, it is challenging to sell solar light to the BOP while making profit for the enterprise. At the same time, BOP people living in remote areas need clean energy most urgently but have no access.

6.3.4. Promotion

As shown in the last two chapters the price and the distribution are major challenges when marketing solar light. On the other hand, promotion is regarded as a less significant challenge. Despite the problem that many BOP consumers in rural Cameroon do not understand why they have to pay more for good quality, the experiences made with Oolux have demonstrated that costumers can be convinced of the contrary. A. Zoua (personal communication, July 29, 2013) points out that people living in rural communities are willing to spend a lot of their income on the purchase of a high-qualitative product even if they attach a different value, though, upon condition that the seller

is trustworthy and accepted by the community. Furthermore, if a member of a community has made good experiences with a solar product it is most likely that other members will decide to purchase as well. Through the community development project PODC, C.S.S. has an excellent access to communities living in rural areas of the Centre and East region of Cameroon. However, the problems of the low income, the lack of adequate acquisition models as well as distribution schemes are still unsolved. Hence, even if BOP consumers are aware of the advantages solar energy offers they have no access.

6.4. People and processes

People and processes are important tools that shape the marketing activities of the social enterprise. It has been shown that mutual trust and partnerships are key for success in the BOP market in Cameroon. At the same time, it is not the enterprise itself but the employees that enable partnerships by creating trust. A. Zoua (2013) for example demonstrated that the person selling solar product plays a crucial role when promoting solar light and that personal trust is a condition to operate in rural areas. Hence, all the more attention should be paid to the personnel policy of a social enterprise. Within the C.S.S. positive and negative experiences have been made regarding the people working for the enterprise: The C.S.S. has basically been established without having a coordinated and structured proceeding. Until the decline of the enterprise in the year 2012, there existed no human resource management which could have exercised control. As a result, people were employed who were not trustworthy and thus, did not act in the interest of the enterprise. D. Berger (personal communication, September 27, 2013) notes that the lack of control had disastrous consequences because people started to work for the C.S.S. who were more interested in defrauding customers than serving the already vulnerable communities. They, for example, took down payments for solar home systems without making any installation. Even today there still exist outstanding installations. Furthermore, the trust in the seriousness of the enterprise is consistently damaged. On the contrary, the people working for the C.S.S. determine the success of the enterprise and constitute a source of innovation. P. Schmid (personal communication, September 13, 2013) supports this insight by saying that especially technicians have a huge knowledge that is interesting for the enterprise. On the one hand, they are often in the field and thus, understand the needs of the people living at the base of the pyramid. On the other hand, the technicians can create solutions which meet the needs of the people. Some C.S.S. technicians for example are about to develop a micro solar home system which is more powerful than a PLS but less expensive than a small solar homes system. Moreover, the new product is solely constructed with components available on the market in Cameroon without making any commitment regarding quality. The new product is designed for street vendors and people having small shops in the rural areas who often cannot afford to buy a SHS but still need a system that generates more energy than a portable device.

Processes furthermore are an important tool when marketing solar light to the base of the pyramid. With regard to the distribution problem and the enormous cost pressure when operating in the rural BOP market of Cameroon, process optimisation is crucial to success. Furthermore, as mentioned in *chapter 4.2* cost reduction is a critical factor of success under the condition that quality is not scarified. P. Schmid (personal communication, September 13, 2013) explains the importance of optimising processes by giving a simple example: The technicians and sales agents of the C.S.S. normally use a petrol-powered van to travel to the customers in rural areas. However, the management of the C.S.S. found out that it is much cheaper to replace the old vehicle by a diesel-powered van. Because the new van is more efficient and runs with diesel, the travel costs can be reduced up to 40%. This has to do with the fact that in Cameroon, compared to European countries, diesel is cheaper than petrol. Even if the new van requires an additional investment, it has already paid off after several months due to the savings achieved. As the example shows, the examination of processes can significantly help to reduce costs and to decrease prices for solar energy. Hence, in all areas of the enterprise the processes regularly have to be analysed in order to optimise, and reduce costs.

Positive and negative experiences have proved the importance of “people” and “processes” when marketing solar energy. It can be summarised, that the challenging business environment in rural Cameroon requires additional efforts in all relevant areas of an enterprise in order to operate successfully. Hence, despite the use of the traditional marketing tools, the management of the C.S.S. has at least to be aware how to manage people and to reduce costs by optimising processes.

6.5. Accounting

Fraud and theft were the main reasons leading to the decline of the C.S.S. in the year 2012. Due to the lack of accounting, financial control was not exercised and thus, the board of the enterprise was not able to detect the criminal behaviour of several staff members. The implementation of an accounting process in the summer 2013 has already proved to be a success: An employee, for example, took more money from the cash than she needed to buy office supplies. By intentionally miscalculating the sum of the amount spent she tried to defraud. But through the control of the source documents (e.g. receipts) the accountant detected the harmful behaviour which led to the dismissal of the person.

The accounting furthermore is necessary to recognise and calculate costs. As mentioned in the last chapter process optimisation is an important measure to reduce costs. P. Schmid (personal communication, September 13, 2013) points out that in the past sales tour have been conducted without recognising the related expenditures. As a result, some tours apparently produced high costs but only gained small revenues. In the future, the higher transparency will help to optimise such

tours or to change them in order to reduce costs.

Additionally, the accounting is useful to provide donors and investor with information about the performance of the enterprise. Solafrica which financially and technically supports the C.S.S. relies on monthly and yearly reports to increase transparency among its donors. Moreover, the reporting does not only show the financial performance but merely gives useful information concerning the business and the operating environment in Cameroon. Hence, this allows improving the support of Solafrica which positively impacts C.S.S.

It can be summarised that the implementation of an accounting process is crucial for the success when operating in complex business environments such as the solar market in rural Cameroon. Firstly, accounting helps to exercise financial control which prevents fraud or theft. Secondly, it creates cost transparency and helps optimising processes. And finally, through accounting the relevant stakeholders such as investors and donors can measure the financial performance of the enterprise and thus, increases mutual trust.

6.6. Culture, norms and values

The public mismanagement, corruption and the repressiveness of the ruling system in Cameroon have shaped society and country. Today, the political culture is characterised by mistrust which has led to the erosion of norms and values that other societies take for granted. Ultimately, the decay of the society harms the economic development and is an additional factor why Cameroon belongs to the group of worst performing countries in the world. This makes it all the more important for an enterprise to define its corporate culture based on shared norms and values. As mentioned in *chapter 6.2* trust is an important requirement to enter into partnerships. At the same time trust is an example of corporate culture and is itself a product of shared norms and values. However, the term “corporate culture” is highly abstract especially because of immaterial forces that shape the concept. D. Berger (personal communication, September 27, 2013) notes that the experiences made within the PODC have shown the importance of defining norms and values: At the beginning of the development project there were no rules. As a result, some ethnological field researcher working with the communities started to drink alcohol, to smoke and to behave inappropriately. In their understanding this behaviour was not exceptional. Hence, this experience made it necessary to strictly define norms and values. For the C.S.S. there exist already rules which have to be agreed to during the recruitment interview. Nevertheless, corporate culture is more than just some written rules and includes rather components such as identity, though patterns or leadership practices. As the example in the last chapter showed, even after the implementation of accounting measures employees attempting to defraud the enterprise, although it became much easier to catch such activities. One explanation is that fraud is common practice in Cameroon. Maybe this person had

acted fraudulently in the past. Finally, it can be concluded that such a behaviour pattern cannot be changed from one day to another. The same applies for a corporate culture that needs a certain time to develop. However, every day a process takes place that forms this culture, not only within the enterprise but also towards all stakeholders. It is in the duty of the management of the C.S.S. to be aware of what the erosion of norms and values can cause. Thus, the managers have to live the values and norms that are in accordance with the purpose of the social enterprise and to integrate them into their everyday actions.

A corporate culture based on shared norms and values is important for a social enterprise operating in a complex environment. Even though it is a long-term process to form a corporate culture, the management has to be aware of its importance and to behave accordingly.

6.7. Management

A BOP-centric management team represents the last piece in the integrated approach determining the success of a social business in a BOP market. Two skill sets have been mentioned that are required when managing a social enterprise: the will and imagination to create solutions for BOP market as well as the skills to manage significant business. According to D. Berger (personal communication, September 27, 2013) the former manager of the C.S.S. had neither one of them. When C.S.S. was founded in 2011 the project management of the PODC entrusted an ambitious solar technician and sales agent to manage the enterprise. But instead of establishing a structure for the enterprise he was significantly involved in the fraud. It can be concluded that it is not only important to create measures to exercise control, but also to entrust a management team that is willing and able to manage the enterprise. However, regarding the management, it has been learnt from the made mistakes in the past. Today, C.S.S. is managed by a technical director, an administrative director and a prospective marketing and sales director. The technical director was recruited from the PODC where he had already worked for more than two years and thus, gained confidence. On the other hand, the administrative director has been chosen due to her managerial skills and the high reputation she enjoys in one of the partner NGOs working with the PODC. Finally, the prospective marketing and sales director has been recruited due to his excellent performance when he worked as a sales agent for the C.S.S. If this management team effectively has the required skill sets cannot be evaluated yet. Since the restart of the enterprise only half a year has passed and the future will show if this team is really able to successfully manage the enterprise.

It can be summarised that the management builds an important if not the most important factor of success. Hence, it is crucial to form a BOP-centric management team that is willing and has the adequate skills to manage a business.

6.8. Vision and principles

The vision to bring clean and affordable energy to the people living at the base of the pyramid in rural Cameroon is the reason why the social solar enterprise C.S.S. was founded. It goes without saying that all activities of the enterprise have to serve this goal. However, this does not mean that other objectives cannot be pursued. Moreover, it is important to be aware of the vision that is targeted and to behave in accordance to achieve the related goals. Furthermore, principles roughly guide a social enterprise and find themselves in all activities. This is true both for the principles mentioned by Yunus (2010) in *chapter 2.2.2.* as well as the principles mentioned by London (2011) in *chapter 4.1.* While Yunus' principles define the purpose of a social business as well as the basic requirements, London lists certain principles that should guide the operative activities to be successful in a BOP market. Regarding the complex environment in Cameroon, both sets of principles shape the building up of a social enterprise in the BOP market. Hence, the management of the C.S.S. is well advised by implementing these principles when strategy making.

A vision is a necessary condition when establishing a social business. Furthermore, principles guide the process towards a successful achievement of the targeted vision while influencing all operational activities of a social enterprise.

7. Is there a “fortune” at the base of the pyramid in Cameroon?

Regarding the energy market in Cameroon, the full potential of off-grid solutions is far from being saturated. The complex business environment attracts little foreign investment regardless this vast untapped market. Hence, it is less likely that in the foreseeable future big players will enter into the market. On the contrary, local small and medium-sized companies start to become veritable actors in the energy market but often remain small. Due to the fact that they mainly operate in the informal sector they cannot attract sufficient investment to grow. As a result, there is not a lot of competition in the rural energy market in Cameroon.

7.1. Energy consumption in Cameroon and access to electricity

According to Lighting Africa (2012b) the total energy consumption in Cameroon in the year 2008 was estimated at 6’027 oil kiloton equivalents. The most consumed energy is biomass with a share of 77% of total energy consumption, followed by oil products with a share of 16% and electricity with a share of 7%. Due to its availability, biomass is the most abundantly used energy source for households. It is estimated that Cameroon possesses about 21 million hectares of ligneous biomass which covers nearly 45% of the country’s territory. Especially in rural zones biomass is the preferred source of energy whereby access to other options is difficult and often more expensive (p.1). Oil products are the second most preferred source of energy but characterised by declining demand over the last two year. In 2010 Cameroon had a daily consumption of 36’500 barrels oil compared to 29’500 barrels in the year 2012 (U.S. Energy Information Administration, 2013).

Electricity, in contrast, is not available for the majority of the Cameroonians and thus accounts only for a small share of the overall energy consumption. The following table shows the access to electricity sorted by different regions:

Region/Cities		Access to electricity		
		Poor[14]	Non Poor	Total
Douala (City)		83.3%	97.5%	97.1%
Yaoundé (City)		90.8%	98.5%	98.2%
Adamaoua		9.8%	34.9%	25.0%
Centre		38.7%	50.2%	46.7%
Est		11.8%	29.6%	23.2%
Extrême-Nord		3.2%	23.6%	11.7%
Littoral		57.4%	69.7%	66.9%
Nord		4.5%	29.2%	16.3%
Nord-Ouest		12.2%	41.4%	30.6%
Ouest		36.8%	62.1%	56.3%
Sud		61.9%	74.3%	71.8%
Sud-Ouest		17.3%	39.8%	35.7%
Cameroon	Urban	64.8%	92.5%	90.4%
	Rural	12.1%	30.9%	23.1%
	Together	**17.3%**	**60.6%**	**48%**

Table 3: Percentage of housholds with access to electricity. Source: Own illustration based on MINEP (2009), p.40.

Table 1 shows the percentage of electrification for different regions divided into poor and non-poor as well as urban and rural. Nearly half of the population has no access to electricity whereby northern regions and the east region are more affected. Households in urban areas such as Douala and Yaoundé have better access while roughly three quarter of all households in rural areas have no access regardless if they are poor or not. In summary, it can be said that the most disadvantaged groups are poor households living in Sud-Ouest, Nord-Ouest, Nord, Extrême-Nord, Est and Adamaoua. The findings are not surprising regarding the fact that these regions are structurally weak with low economic performance. Furthermore, the access to the electricity grid does not guarantee a proper supply of energy. According to Lighting Africa (2012b) the total hours of power outages per month in Cameroon averages 32 hours (p.4).

It can be summarised that the energy consumption in Cameroon heavily relies on biomass and oil. Electricity on the other hand is only a small part of the overall consumption. Wide regions of the

[14] According to MINEP (2009) the definition of poverty is as follows: The average income of an adult-equivalent household is less than 269’443 FCFA (≈557 Dollar) per year. A poor household comprises 6 people and a non-poor household 3 people (pp.36-37).

country do not have any access and those with access often face power outages. Only the big urban centres of Cameroon (e.g. Douala and Yaoundé) have a relatively stable electricity supply. People living in the rural areas and especially the poor are mostly affected by the lack of access to electricity.

7.2. Competition in the off-grid market

According to Lighting Africa (2012b) PV-based lighting products are not widely used in Cameroon. Due to the weak development of the market people in rural as well as urban areas have little access to such products. The results offered by Lighting Africa concur with the observations made by the author of this thesis. From discussions held with industry insiders, NGO representatives and technicians of the C.S.S. it appears that the Cameroonian market for pico-powered lighting systems and solar home systems lacks far behind (Moukandjo, 2013; Courtois, 2013; Malonga, 2013). The following figure gives a general overview of available off-grid PV technologies in Cameroon:

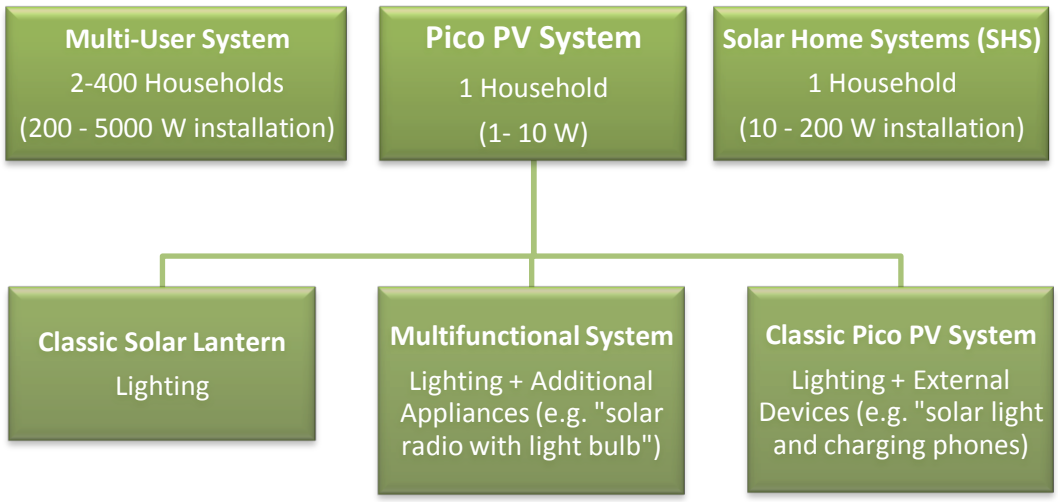

Figure 5: Off-grid PV technologies. Source: Own illustration based on GTZ (2010), p.8

According to O. Malonga (personal communication, July 26, 2013) just few companies in Cameroon exist that are able to install multi-user systems. In financial terms as well as from a technical point of view such installations present a certain risk which normally can be taken only by big companies. On the other hand, an increasing number of enterprise exist which are able to install SHSs, while the majority of these companies is located in the main cities Douala and Yaoundé.

According to the EED (2013) the PLS market in Cameroon is dominated by products of low quality often distributed by street vendors or through village shops. Most products are purchased from China or India and imported through big distribution companies. In addition, some products (mainly from China) are imported via Nigeria where the market for PLS is much bigger (pp.39-41). A veritable player in the market is Awango by Total, a line of high quality PLS introduced by the oil and gas

company. Total sells different types of PLS from suppliers including d-light, Greenlight Planet and Sunday in all of its petrol station shops in Cameroon. The products are not only promoted prominently in their shops but also with huge posters alongside the streets of the urban centres. At the same time, Total struggles with reaching the rural population because of the position of its shops which are mainly located in the big cities and alongside the main roads. From discussions held with local experts, the conclusion can be reached that Total is intensively trying to overcome this problem. This in turn means that Total will expand its relationship with NGOS having access to remote areas (Courois, personal communication, July 31, 2013).

In summary it can be said that regarding SHSs there are just a few competitors for C.S.S. which mainly focus on urban areas such as Douala and Yaoundé. On the other hand, the market for off-grid solutions up to 100 watts of power is huge and by far not fully tapped. Concerning PLSs TOTAL’s Awango line (especially d-light) is the biggest competitor. According to V. Moukandjo (personal communication, August 2, 2013) none of the Lighting Global quality-verified products (cf. Lighting Africa Market Trend’s Report 2013) are sold to a great extent in Cameroon. Though, these products are not totally absent from the market. Small and medium-sized enterprises, which are installing SHSs, start to add PLSs to their product portfolio. C.S.S. for example is selling products such as the Solux LED-105 and Oolux successfully.

7.3. Development of the off-grid market

Proceeding from the assumption that people are better off when they replace their traditional energy sources, the general development of the off-grid market has to be analysed.

According to the GTZ (2009) the typical costs[15] for electricity supplied by PLSs are at least ten times higher, respectively four times higher for SHSs, than what has to be paid for grid electricity. Although the prices for both can vary significantly, grid electricity under market conditions is normally cheaper and more efficient. It therefore would be desirable if the whole population could have access to the electricity grid and thus no longer has a need for PLS or SHSs (p. 4).

Despite the ambitious goals of the Cameroonian government, an electrification growth rate of 7% in the years 2010-2020, the reality looks different. Results show that over 60% of rural households (1.8 Mio.) will remain without electricity in 2015, with 48% (1.5 Mio.) still lacking access in 2020. Thus, the rural and urban off-grid market in Cameroon will shape the electricity sector in the future. But at the same time this market cannot be taken as one unity. Studies estimate that 40% of the rural respectively 2-5% of the urban off-grid market are not commercially viable due to poverty. People in this segment cannot purchase PLS out of their own resources and therefore depend on political

[15] Measured in kilolumen-hours (USD/klmh).

initiatives. Hence, just 35% of the rural and 5-8% of the urban off-grid market present a potential. Furthermore, a part of the grid electrified households, in both urban and rural areas, will afford a PLS to overcome power outages or just because of the quality of the light (Lightning Africa, 2012b, pp. 4-5).

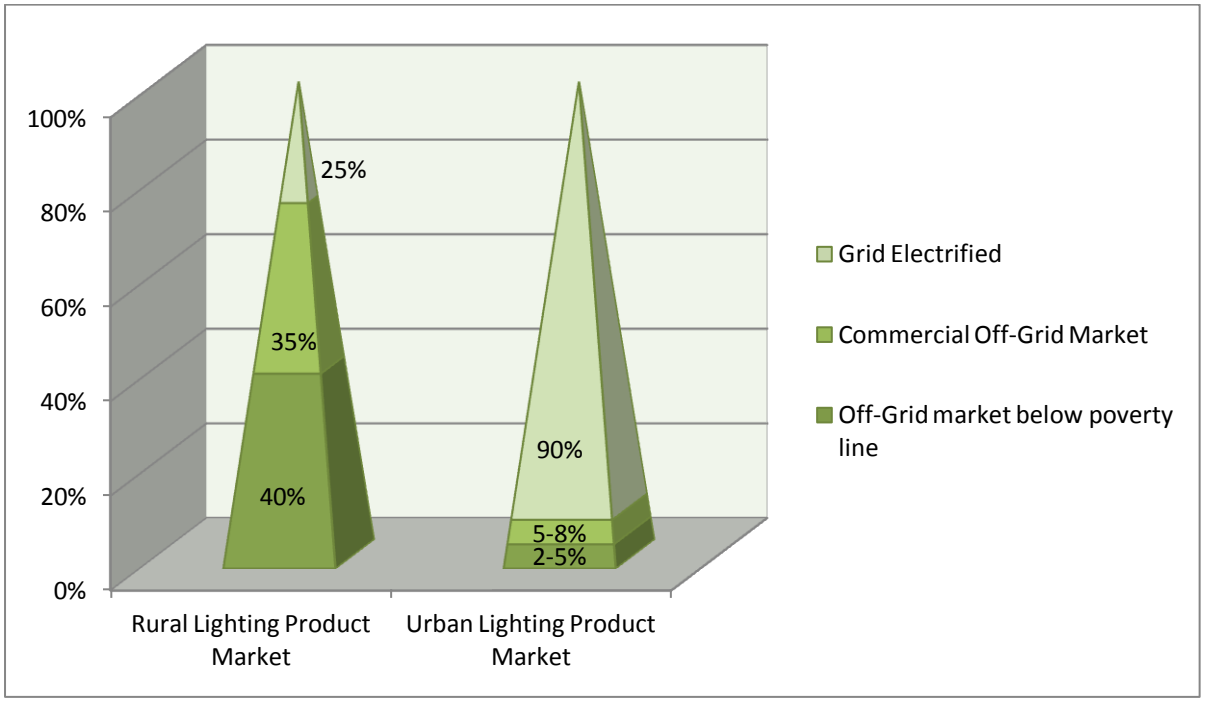

Figure 6: Rural and Urban Lighting Product Markets. Source: Own illustration based on Lighting Africa (2012b), p 5.

Altogether a rural lighting product market of 2.4 million households and an urban lighting product market of 2.5 million households are estimated. It can be stated, that there will be a huge off-grid market in the future of about 5 million households (Lightning Africa, 2012, p. 5).

7.4. Beyond the economic aspects: development policies

The Lighting Africa initiative, a joint IFC and World Bank program, is a prominent proof of the fact that the international community seeks to accelerate the development of commercial off-grid lighting markets in Sub-Saharan Africa. More and more development organisations, private as well as governmental, put their focus on electrification. They expect of it significant socio economic, health and environmental benefits such as new income generation opportunities for small businesses. The GIZ and SNV in Cameroon are in line with the policy of the World Bank and try to eliminate market barriers for solar energy. On the one hand, they try to achieve this goal by supporting solar enterprises through information. Both, the GIZ and SNV, have recently published studies providing background information on consumer behavior, market size, needs etc. Such information could be used to build up a business strategy or a marketing concept. On the other hand they advocate and lobby for measures creating a better business environment. A good example for this purpose is the

fight for the implementation of law 2011/022 (articles 65-4) which should guarantee customs facilitations for the import of renewable energies. So far the law pays only lip service with no advantages for the importers of solar material and devices. But as the example of Ghana shows, such efforts can make a difference and can have an instantly positive impact. If the Cameroonian government takes its responsibility and liberalises the solar market, the import of PLSs will increase significantly (Courtois, 2013; Hug, 2013).

8. Conclusion and recommendations

After the marketing and management model has applied to the case study C.S.S. we can assess whether a social solar enterprise is able to operate successfully in the rural BOP market in Cameroon. In the following paragraphs, the main findings are summarised while the author gives recommendations on how to tackle the biggest challenges. When formulating strategies for the C.S.S. these recommendations provide a basis to build upon.

In a first step the different factors have been identified making the rural BOP market in Cameroon complex and they can be divided into three categories: customer profile, product challenges and operating environment.

Rural BOP consumers in Cameroon are characterised by a low and volatile income, the lack of access to financial institutions, its heterogeneity, restricted mobility and fixed consumption patterns. Doing business in the BOP market, especially the low income households constitute a huge problem. More than 40 percent of all Cameroonian live below poverty line and thus have a low disposal income for purchasing solar devices or systems. At the same time, these people spend much of their income on traditional energy sources that are bad for their health and, additionally, negatively affect the environment. All the more important is it to supply clean and affordable energy to BOP customers living in rural areas. But due to low incomes, and the lack of access to financial institutions, they have no possibility to afford solar light even if it would improve their lives, not only with regard to health, but also in financial terms. For marketing solar energy these characteristics have been identified as most challenging factors shaping the rural BOP market in Cameroon.

The author recommends reducing operational costs of the C.S.S. in order to offer affordable products. Moreover, C.S.S. should make a strategy to allow its customer to have better access to financial institutions. This should include entering into partnerships with financial institutions that operate in C.S.S. customers' areas.

Product challenges include factors such as the price-performance ratio, unavailable complementary products and services, products diffusion curves, efficient technologies as well as limited acquisition models. In Cameroon it is complicated to get access to products of high quality. At the same time, the import of solar material is expensive. Hence, to offer qualitative products with a high price-performance ratio is challenging. Additionally, there are no adequate acquisition models which could facilitate the access to solar products. BOP consumers have a low disposal income while the majority has no savings. That means they can only pay in instalments which requires more flexibility when doing business with BOP consumers. For marketing solar energy the price-performance ratio and the lack of adequate acquisition models have been identified as biggest challenges regarding the product challenges.

The author recommends carefully analysing the purchase options of the C.S.S. To offer qualitative products with a high price-performance ratio it is necessary to import solar devices. At the same time, import duties have to be reduced in order to make the products affordable. Thus, C.S.S. has to enter into partnerships with suppliers or actors that can facilitate the import of solar material, especially of PSLs. Furthermore, acquisition models should be created together with financial institutes.

The operating environment is characterised by the factors legal framework, governance and policy; infrastructure constraints; geographical challenges and population density, non-homogenous stakeholders, subsistence economy; as well as ethnicity, religion and traditions. The endemic corruption and the maladministration have created a business environment in Cameroon in which it is hard to operate and compete as a small private actor. This not only has to do with the fact that corruption payments increase the price for solar products but also with a vast number of inefficiencies that negatively impact the operating environment. The Cameroonian government for example failed in investing into infrastructure such as roads, energy or sanitation to improve economic activities. Due to the geographical challenges, Cameroon faces infrastructure constraints which intensify the difficulties and impede the economic development of the country. Low population density additionally makes it complicated to realise economies of scale for companies which are willing to serve rural BOP consumers. Thus, for rural communities it is complicated to get integrated into the economy both as consumer and as producer. Furthermore, the agrarian-oriented subsistence economy creates a specific business context that has to be taken into account. And finally, ethnicity, religion and traditions shape the business environment in Cameroon and can trigger irrational behaviour with various consequences. One example of which is the political culture in Cameroon which is characterised by neopatrimonialism and corruption. Regarding the operating environment the identified factors are highly linked and, thus, it is difficult to identify the most challenging obstacles. However, for marketing solar energy especially corruption, insufficient infrastructure and the subsistence economy make it complicated to operate successfully in the rural BOP market of Cameroon.

The author recommends developing a corporate strategy to tackle these problems: Corruption payments in general have to be avoided. If this is not possible, C.S.S. should try to partnership with power centres to get support. For example, by cooperating with developing agencies that have a certain influence and can serve as a leverage for different issues. Infrastructure problems, on the other hand, cannot be tackled directly. This makes it all the more important to develop innovative strategies that can include partnerships with bus operators or other suppliers. To the take the characteristics of the subsistence economy into account, it is an advantage to have local insight. By knowing more about the seasonal nature of the disposal income of the rural BOP consumers, an

appropriate marketing strategy can be developed. In the end, the C.S.S. management has to be aware of factors shaping the environment which can trigger any irrational behaviour.

The operating environment in the rural BOP market of Cameroon is complex and thus to operate successfully under such circumstances is a challenging endeavour. It is all the more important to build up trust and enter into close partnerships various stakeholders. Hence, the author recommends identifying key stakeholders that should be addressed. In order to do that in a structured manner, a stakeholder management should be developed: Firstly, by identifying internal and external stakeholders. Secondly, by analysing the impact of the stakeholders on the enterprise. And finally, by implementing measures that help to exploit the full potential of the relevant stakeholders of the C.S.S.

Human-centric design thinking is crucial when operating in BOP markets, not only because BOP consumers are more willing to purchase well designed products, but also to pursue the vision of the enterprise. With regard to the rural BOP market in Cameroon, the C.S.S. aims on providing clean and affordable energy in order to replace unhealthy and expensive traditional lighting sources. Hence, the enterprise has to offer products that are accepted by BOP consumers, affordable for households with very low incomes, available even in remote areas as well as promoted in a way that the advantages of the products draw people's attention.

Despite the traditional marketing tools to exploit BOP markets, people and processes play an important role. With regard to people, the personnel policy of the C.S.S. is crucial because employees do not only impact the performance of the enterprise but also the pursuit of its vision. The people working for the C.S.S. are the link between BOP consumers and the enterprise. Thus, to improve the lives of the people living at the base of the pyramid an active cooperation with the employees is required. They have to, at the very least, act in accordance with the culture, norms and values of the enterprise. At their best, the employees serve as a precious source of innovation. Furthermore, the examination of processes is an important tool. By optimising processes costs can be optimised what is necessary to operate profitably in the rural BOP market of Cameroon.

The author recommends compiling a product portfolio for the C.S.S. which meets the requirements of the human-centric design thinking. All people working for the C.S.S. have to act in accordance with the principles of the enterprise to guarantee a well performance of the C.S.S. while pursuing the vision. And finally, cost intensive processes have to be examined in order to detect saving potential.

To operate in the rural BOP market of Cameroon it is essential to have a proper accounting. It is not only an important tool to exercise control, but also to create cost transparency and to measure the financial performance of the C.S.S. The author recommends implementing an uncomplicated accounting procedure which can be easily handled by the management of the enterprise.

Furthermore, it is important to generate monthly and yearly reports based on the accounting which allows gaining information about the enterprise and the situation in Cameroon by Solafrica.

The implementation of culture, norms and values are necessary to react on the corruption of the society in Cameroon. The author recommends developing a mission statement of the C.S.S. as well as a code of conduct based on the principles and vision of the social enterprise. They are not only useful to guide operational activities but also support the decision making. This institutionalisation based on the most important norms and values of the enterprise supports the development of a corporate culture within the C.S.S.

The BOP-centric management team builds the last and probably most important factor of success when operating in the rural BOP market of Cameroon. For the C.S.S. this implies to entrust a management team which has the will and imagination to create energy solutions for the BOP, but also the necessary skills to manage the enterprise. The author recommends assessing the management team regularly on the basis of criteria established by the investor Solafrica. Despite the technical and financial support for the enterprise, the evaluation allows Solafrica to invest directly into the improvement of the management team.

The market for solar energy is not tapped yet and there is a potential for doing business in rural Cameroon. However, as showed, the market is highly complex which makes it difficult for a social enterprise to operate successfully. Therefore, it is important to be aware off the relevant factors of success and to develop adequate strategies to tackle the main obstacles. The marketing and management model thereby serves as a starting point for strategy making.
Should the critical factors of success analysed and necessary measures highlighted be implemented, a social solar enterprise is able to operate successfully in the rural BOP market of Cameroon.

Closing words

The lack of access to energy and clean lighting sources in Africa presents a huge problem to the continent. On one hand, it is an immediate threat for the people handling such equipment day by day. At the same time, poor households spend much of their income on energy although it is not improving their lives. Moreover, the negative health impacts that result from its use make the life of the most vulnerable even more complicated and, thus, favours poverty. On the other hand, we are all affected by the consequences; not only because it contributes to climate change but also because poverty concerns all of us. The tragedy at Lampedusa in the autumn 2013, where hundreds of African refugees died, has again shown that the phenomenon “poverty” is delivered directly to Europe’s doorsteps. One can only imagine what will happen in the future as populations continue to grow especially in developing countries. The United Nation estimates that Africa’s population will more than triple until the end of the century with enormous consequences for Europe. Hence, poverty is not just the concern of distant nations but, ultimately, it affects the whole of humanity. At least in our own interest, we are well advised to do everything possible to fight poverty.

I am convinced that problems can be solved by creating a business around it. The social solar business C.S.S. is a good example for this. Firstly, the enterprise increases access to clean energy and improves the lives of its customers. Secondly, new jobs are created while inspiring others to become successful entrepreneurs. However, neither private nor public or civil actors are able to fight poverty on their own. It is all the more important to shift the paradigm and to create development policies that involve all actors.

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Source of the photo: Own photograph, taken on July 4th in Mengang, Cameroon.

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Appendix

a) Individual Interviews

The interviews have been conducted in Cameroon and Switzerland between 24 July and 13 September 2013. Overall, 14 In-depth interviews have been conducted with insiders from the energy sector, representatives of different NGOs as well as technicians and entrepreneurs. The interviews followed three different steps: 1) The interviewee had to sign the consent form. 2) The interviewer continued in accordance with the interview guideline. 3) Four open-ended questions have been asked while the interviewee had unlimited time to answer. 4) After the interviews have been conducted the interview report was filled out.

Not to infringe confidentiality, the qualitative data has been anonymised while using pseudonyms instead of real names. Furthermore the function has been changed in a way to not identify the real person while keeping the persons principle profession.

List of interviewees

Date and Place	Interviewee	Relevance for the topic/ Function	Length of the Interview
24.07.13 (CM)	Ibrahim Aboubakar	Technician	55 min
25.07.13 (CM)	Thomas Hug	Political expert working in Cameroon	1h 05 min
25.07.13 (CM)	Adrienne Ndong	President of a Cameroonian NGO	1h
26.07.13 (CM)	Oscar Malonga	Technician	55 min
29.07.13 (CM)	Alex Zoua	Communication expert of a Cameroonian NGO	40 min
31.07.13 (CM)	Laurent Courtois	Political and economical expert working in Cameroon	48 min
02.08.13 (CM)	Vincent Moukandjo	Cameroonian Entrepreneur	40 min
05.08.13 (CM)	Samuel Bedimo	Employee of a Cameroonian NGO	45 min
05.08.13 (CM)	Esther Meba	Manager of a Cameroonian NGO	55 min

05.08.13 (CM)	Benjamin Song	Technician	35 min
19.09.13 (CH)	Stephan Bosailler	Employee of a Swiss NGO	45 min
27.09.13 (CH)	Daniel Berger	Employee of a Swiss NGO	1h 05 min
23.08.13 (CH)	Philipp Schmid	Employee of a Swiss NGO	1h 20 min

Consent Form

Consent Form

This interview is conducted as part of the **master studies** at the **University of St. Gallen** (Switzerland) in the program **International Affairs and Governance**. The thesis is supervised by referee Dr. Urs Heierli with the consent of the director of the program PhD Prof. Dr. Dirk Lehmkuhl.

The research paper deals with the following topic:

Marketing of Solar Light to the Base of the Pyramid in rural Cameroon.

I, _____, agree to be interviewed for the master thesis which is being produced by Joel Jeanloz.

I certify that I have been told of the confidentiality of information collected for this project and the anonymity of my participation; that I have been given satisfactory answers to my inquiries concerning project procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice.

I agree to participate in one or more electronically recorded interviews for this project. I understand that such interviews and related materials will be kept completely anonymous, and that the results of this study may be published in an academic journal or book.

I agree that any information obtained from this research may be used in any way thought best for this study.

_____ Date _____

Signature of Interviewee

Interview Guideline

Interview Guideline

Interview Nr.	Name	Place	Date	Length

Preparation + Introduction

- Welcome the interviewee and thanks for participating
- **What the interview is about:** It is about the BoP Market in rural Cameroon and the marketing of solar light. The master thesis addresses the following research question*: Is a social solar enterprise able to operate successfully in a rural BoP market? An evaluation on the example of Cameroon Solar Solutions*. Title of the paper: *Marketing Solar Light to the Base of the Pyramid*.
- **Objectives of the interview:** To find out the challenges and difficulties of the rural BoP market in rural Cameroon (especially in the East and Centre region). Furthermore, I want to find out which measures have to be taken to reduce these difficulties/challenges.
- **Time frame:** 1 – 1/12 hours
- **Voluntariness:** Whenever you feel uncomfortable with the interview you can stop immediately. You don't have to answer questions you don't like to answer. Important: This does not have any disadvantages or consequences!
- **Confidentiality:** The interview will be recorded, put into writing and finally evaluated. All your statements will be treated as confidential and are published anonymous.

Oral explanation of the statement of agreement signed by the participant!

- Do you have further questions?

Questions

Nr.	Main questions	Matter of details	Objectives and theoretical background
1	What are the difficulties/challenges/obstacles of the rural BoP market in rural/urban Cameroon?	Analysis of initial situation (eco-system): Imagine that you are an entrepreneur who wants to start a) a business (in general) and b) a social solar enterprise.	Firstly, for enterprises in Cameroon in general. Secondly, the example of CSS (the market for solar light).
2	Which of these difficulties/ obstacles are the most challenging from the point of view of an entrepreneur?	The most challenging factors making the BOP market complex: a) of the mentioned factors and b) from Shukla and Bairiganjan pattern	Repeat what the Interviewee said and use the scheme.
3	Which measures have to be taken to reduce the challenges/difficulties?	In the sense of: What can an entrepreneur do to reduce the challenges/difficulties?	No theory, just in the opinion of the interviewee.
4	How can the market be exploited?	In the sense of: Difficulties regarding the marketing?	Using the 6'Ps (product, price, promotion, place, person, processes).
5	Would you like to add something important?	-	-

Follow-up:

– Write down in the protocol the particularities of the interview environment/situation and personal impressions of the interviewee about the interview.

Interview Report

Interview-Report

Fill out immediately after the interview!

Interview Nr.	Interviewer	Date	Length

Interviewee

Name, Last name:

Further Information

1) Place, Premise: Information about the procedure of contact

2) Motivation to participate

3) Interview atmosphere

4) Relation to the interviewee, relevance for the topic

5) Interaction during the interview

6) Difficult Parts, difficulties answering certain questions

b) Oolux Students Survey

Students Survey

Because only 25 Oolux kits were available and most of the kits were sold while I was already back, not many recommendations could be collected. Instead, I conducted a survey during a training course for 30 young technicians from all over Cameroon. Before the students had to answer four questions about Oolux, I explained the most important functions of the kit and showed the advantages. Hence, the students had time to examine the product and to formulate their criticism. The following results were obtained:

1. Question: What is the advantage of Oolux?

The students could write down as many advantages as they identify. In the diagram below the most mentioned answers are shown.

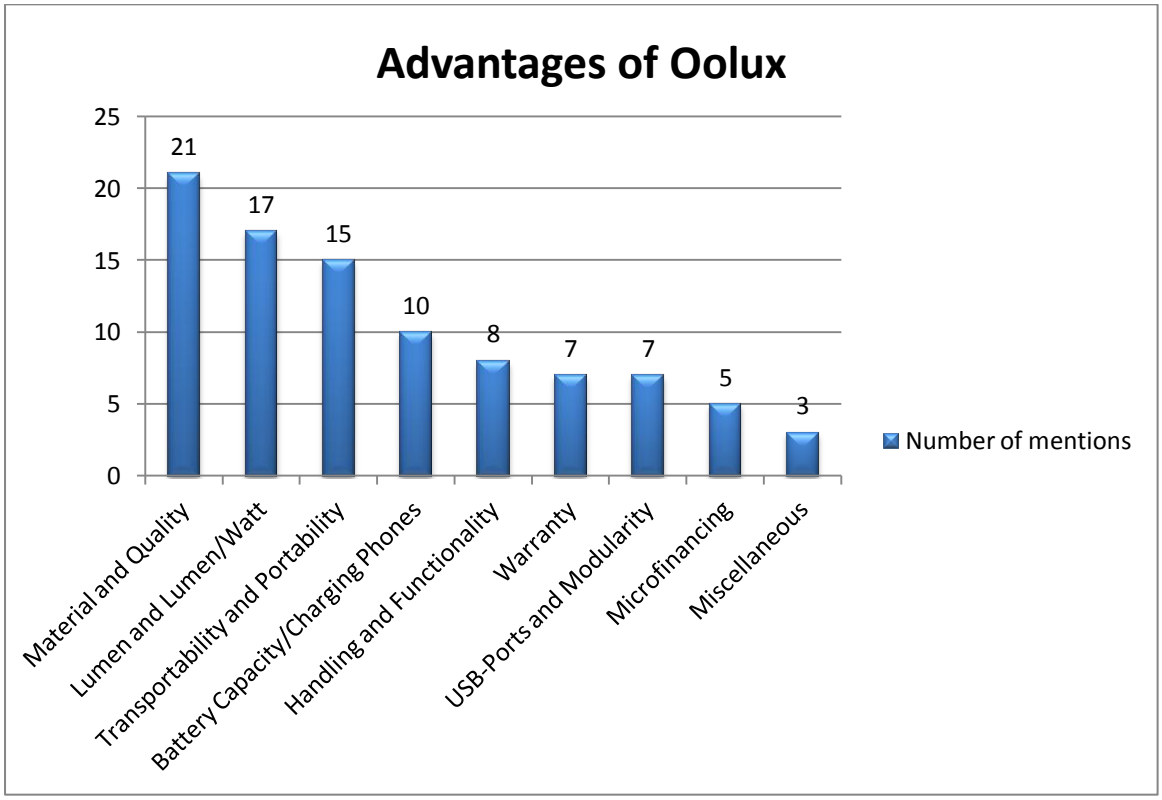

Table 4: Advantages of Oolux. Source: Own illustration.

According to the students the most important advantage is the material, especially the silicone, and the overall quality of the components. The second most mentioned advantage is the brightness of light and its efficiency, followed by the battery capacity. For many students it was impressing that Oolux is able to charge more than one mobile phone a day. Compared to products of the competitors – for example the d-light S250 – the students trust in Oolux's ability to charge several phones. The handling and functionality were generally seen as "easy" and "generally intelligible". The warranty of two years as well as the USB-Ports/Modularity are fairly recognized as standard for PLSs. Whereas the microfinance system did not let to a huge euphoria. Further mentions include the reparation, the design and the charging control.

In general, the students see Oolux as a good solution for poor people living in remote areas and as a practicable solution for power outages. If the price is payable, the PLS will be usable in all the different areas of Cameroon.

2. Question: What is the disadvantage of Oolux?

Although the students could write down as many disadvantages as they identify, the overwhelming part only mentioned one. However, some gave an intensive explanation of their answers.

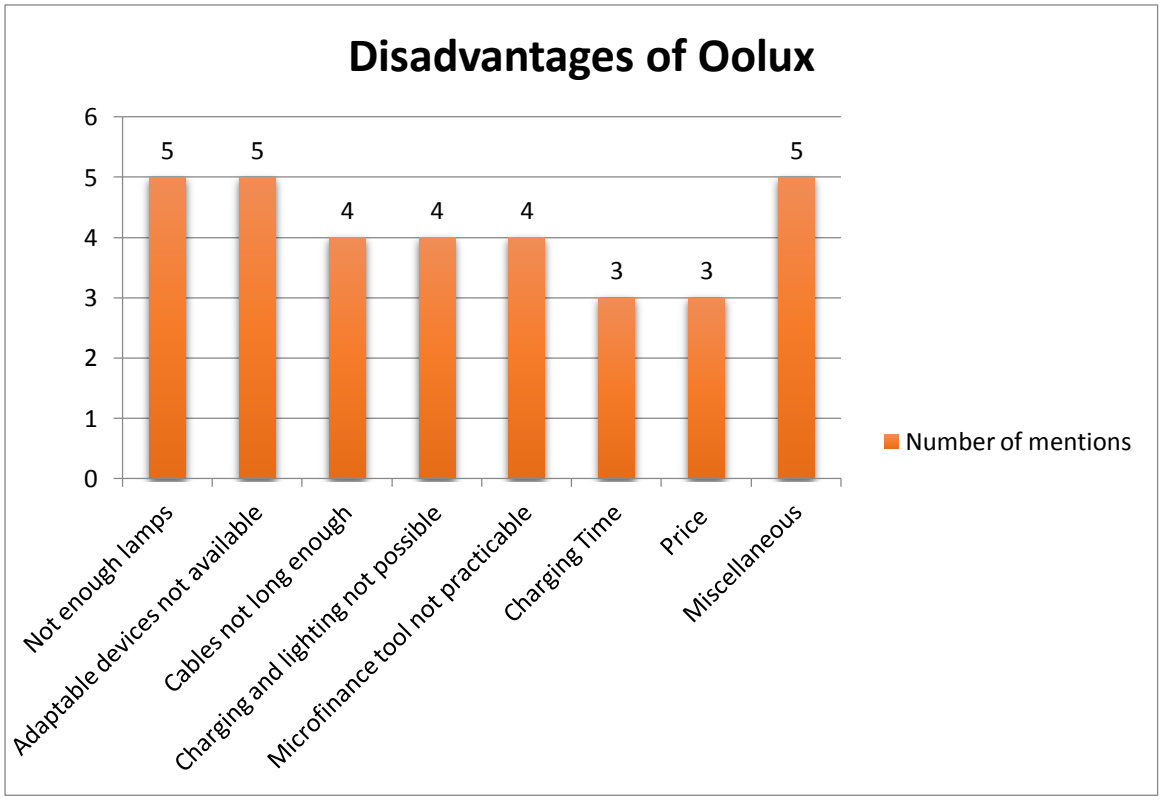

Table 5: Disadvantages of Oolux. Source: Own illustration.

According to the students the kit does not contain enough lamps. They state, that many households do not need light for a long duration, instead more than two lamps are required. Furthermore, they criticized that no adaptable devices such as a chargeable torch or different kinds of lamps are available. For some of the students the cables were not long enough, charging and lighting not possible at the same time, and the microfinance tool not practicable. Another problem is the charging time. It took more than a day to completely charge the power box with the delivered panels (regardless the relatively intensive sunlight). Finally, three students were concerned about the price. Although we did not say anything about the price, some guessed that it is too high. Further mentions include the difficulty to handle the kit, the color green (which is not useful in the forest), the plastic box (which could easily burn when putting next to the fire) and the on/off switch (which should be on the box).

3. Question: What can be improved?

The results can be found under *Final Recommendations.*

4. Question: What price are you willing to pay for a kit?

Altogether, 28 students answered this question. An average price of 45'518 FCFA (≈ 94 US Dollar[16]) was found. The difference between this proposed price and the price set by the C.S.S. amounts 24'482 FCFA (≈ 51 US Dollar).

Final Recommendations

Recommendations for the composition of the kit and the design

- One of Oolux's advantages is the modularity. However, the kit exists of only two lamps and does not address to the specific needs of the customers. For example: A customer has a house with only one small room. He requires one big lamp but with a wider angle of light. Another customer prefers having four lamps switched on instead of two lamps but for a longer duration.
  Conclusion: Why not deliver just different components (small lamps, big lamps, chargeable torches etc.) and the customer can assemble the product so it meets his needs and requirements.
- Customers in rural areas do not have access to different devices compatible with Oolux. Especially users living in the forest would like to have a small chargeable torch (for going to the forest, toilet etc.) without taking the box with them.
  Conclusion: It would be efficient (and an additional income for the sales agent) if he could sell compatible devices while promoting Oolux.
- In some of the rural households a desk simply does not exist.
  Conclusion: The desk stand is therefore unnecessary.
- The packaging is attractively designed. However, in the field it gets dirty quite quickly and afterwards it looks "grubby". Additionally, the box has to be opened several times before sold to the customer (to charge the battery). So it looks already used before handed out to the customer. Furthermore, the packaging is not space saving.
  Conclusion: Is the packaging really necessary? If Oolux is shipped without cardboard, space can be saved which is more important than having a nice packaging. The latter anyway is no longer good looking when handed out to the customer.
- For people living in the forest the color green is not adequate.
  Conclusion: Different brighter colors are more useful.

Recommendations for the technical development of the kit

- It has often been said that Oolux is "neither fish nor fowl". On the one hand, Oolux has a high battery capacity (with a voltage of only 5V) and is thus relatively expensive. On the other hand, the capacity/voltage is too low to run devices such as a TV or a music system.
  Conclusion: Two models are required: A cheaper one (with less capacity) and a more expensive one (with more capacity and a higher voltage). Is it not possible to connect several boxes to increase the voltage respectively the capacity?
- Charging phones and using the lamps at the same time is not possible. But the customers often charge their phones when they are home (often at night).
  Conclusion: Increase the voltage of the box.
- The cables of the lamps are too short.
  Conclusion: Longer cables and an increase of the voltage.
- The switch does not make any sense when it is placed on the lamp.
  Conclusion: Place the switch on the box.

[16] Exchange rate at September 27th.

- Once the box is toped up, it could be stolen.
  Conclusion: Any kind of protection against theft would be useful.
- The USB-Ports are not protected against dirt.
  Conclusion: The opening should be protected with something.

Recommendation for the payment and activation system

- To top up the box physical connection is required. Due to population density and the bad infrastructure in Cameroon, the target group (rural households) cannot be supplied.
  Conclusion: A better solution has to be found.
- The Oolux Manager is not flexible enough. For example: Two of the employees bought Oolux for themselves. I wanted to give them a reduction of 20%. However, I had to change the payment plan just for two customers. It would be easier, if you have just a small memo box where you can write something into it like “special discount for employees”.
  Conclusion: Add a small box to the manager where you can put any kind of note.

Miscellaneous

- The retailer/partner needs more than one adapter to charge the kits.
- The retailer/partner should know what he can repair on his own. For example: The sensitive touch button did not work. One of the technicians just cut away some silicone and it worked.
- The price of the kit is too high and should be reduced.

c) Political map of Cameroon

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