

UNIVERSITY OF ST.GALLEN

Master in International Affairs and Governance (MIA)

Master Thesis

***Marketing safe water to the base of the pyramid—lessons for scaling
up a social enterprise in Guinea***

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Abstract

Market based approaches to safe water development are a promising tool with several advantages to the conventional donor approach. Not only can profit-oriented businesses achieve long-term financial sustainability but also do they have the potential to grow in size. Furthermore, successful social enterprises might be replicated in other countries. Despite this, doing business at the bottom of the pyramid is no easy task. This thesis addresses the question of how locally successful projects can be scaled up in a financially sustainable way. Based on literature research and a case study the analysis shows that “microfranchising” is among the most promising strategies to address that challenge.

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[Please note that the use of financial or any other data relating to or generated by Antenna Technologies or Tinkisso-Antenna must not be used without their explicit consent (Antenna Technologies: "pgduvernay@antenna.ch"; Tinkisso-Antenna: "abscamara@antenna.ch").]

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Abbreviations

ATG	Antenna Technologies, Geneva
BDS	Business development services
BEP	Breakeven point
BoP	Bottom of the pyramid
EUR	Euro
HWTS	Home based water treatment and storage
IFC	International Finance Corporation
IRP	Inventory routing problem
MNC	Multinational corporation
MSE	Micro and small enterprise
NGO	Non-governmental organization
PSI	Population Services International
TA	Tinkisso-Antenna
UNICEF	United Nations Children's Fund
USD	US- Dollar
VLE	Village-level entrepreneur
VRP	Vehicle routing problem
WRI	World Resources Institute

I. INTRODUCTION

1. Problem Definition and Research Question

In 2002 Prahalad and Hart confronted academia and business with the idea that the developing world is home to huge untapped markets and billions of potential customers. Their seminal article laid the foundation of the “bottom of the pyramid (BoP) proposition” which argues that private companies can profitably serve low-income consumers and contribute to the alleviation of poverty: *“Low-income markets present a prodigious opportunity for the world’s wealthiest companies – to seek their fortunes and bring prosperity to the aspiring poor”* (Prahalad & Hart, 2002, p. 1).

Considerable research efforts have been made to gain a better understanding of the markets at the BoP and the opportunities and challenges they entail. However, the initial hype has been dampened by the actual experience of many companies that tried to penetrate BoP markets. They faced considerable challenges, in particular with regard to supply chains and distribution management. As a consequence, many MNCs decided to withdraw from low-income markets and to focus on the “low hanging fruit” – the middle and upper income segments (Anderson & Billou, 2007, p. 14). To this day there are opposing viewpoints with regard to the extent of business opportunities at the BoP. The only agreement exists on the notion that if successful business at the BoP is possible at all, new models and approaches are required.

Not only the business world but also the development community shows an interest to market innovative products and technologies to BoP customers. This led to the creation of a new player in the development sector: The social business.¹ Much hope has been placed in this new concept which is ascribed to Muhammad Yunus (Yunus, 2007) who pioneered the microcredit approach with Grameen Bank. Social businesses face the same problems like MNCs in their efforts to penetrate low-income markets. Many of them developed innovative products or services and successfully implemented their approach on a local basis. However, expanding their business to (national) scale remains a major challenge in most cases. Therefore, innovative strategies are needed especially in light of often tight financial constraints.

¹ “Social business” and “social enterprise” are henceforth used synonymously. Both differ from traditional businesses in that their primary objective is to realize a social rather than a financial gain.

The objective of this thesis is to provide insights on scaling up social enterprises in the area of safe water development based on the “home based water treatment and safe storage” (HWTS) approach. The analysis is based on literature research and on a case study in Guinea. The following research question shall be addressed:

„How can locally successful social businesses in the area of safe water development based on the HWTS-approach be scaled-up in a cost-efficient and sustainable way?

The paper is structured in four sections. Section II provides a summary of the state of the art research on doing business at the bottom of the pyramid. Chapters 2 and 3 explain the concept of the BoP and analyze the challenges that business needs to deal with in order to reach BoP customers. Chapter 4 elaborates on the two main tasks “market and demand creation” and “effective supply” that must be addressed in order to penetrate BoP markets with solutions for safe water development. Chapter 5 discusses the organizational forms that are most adequate to effectively cope with those two main tasks. Section III of the paper is devoted to a case study of an NGO in Guinea called Tinkisso-Antenna. Chapter 7 shows that Guinea can be considered a BOP country and chapters 8 and 9 describe Tinkisso-Antenna’s project history as well as its current strategy. Chapter 10 discusses Tinkisso-Antenna’s strategy with regard to the state of the art research and provides recommendations for improvement.

1.1 Conventional and new approaches to development

Countless pages have been written on the question of which is the most effective approach to development and it goes beyond the scope of this paper to deal with the details of this discussion. Obviously there is no “right” or “wrong” and opinions and experiences diverge. However, the development community has gradually shifted its view on the most appropriate ways and means over time. At large one can distinguish between the conventional development approach, the business development services (BDS) approach and the market creation approach.

Conventional approaches to development usually rest upon partnerships with governments or NGOs who channel donor funding in the form of goods or services to beneficiaries (the “target population”). The focus often lies on delivery through public infrastructure channels rather than directly to individuals which results in a more or less homogeneous coverage of the population. The delivery of goods and services is highly subsidized and cost recovery

does not occur. Not least, mindset and ideological barriers matter: Advocates of conventional development approaches are often reluctant towards market based solutions and disapprove marketing and for profit enterprise promotion as useful development tools (Heierli, 2000, p. 14 f.). The main problem with classic forms of development is its heavy reliance on donor funding and the resulting lack of long term sustainability.

The business development services approach is based on the notion that sustainable growth of micro and small enterprises (MSEs) is critical for development. The approach functions as follows: Governments, NGOs or other implementers funnel their own or donor's funds to BDS facilitators who then provide targeted non-financial services and products to selected MSEs according to their business needs. BDS assistance primarily includes skill transfer, consultancy, training, linking, informing and communication. Some scholars argue that BDS is one of the most important factors that affect the performance of MSEs (Ageba, 2006, p. 307). Despite its effectiveness, the BDS approach for micro-enterprise promotion usually relies on subsidies or donor funding and cost recovery is a second-order priority only. However, issues with regard to sustainability and the need to find ways to reduce reliance on finite external financing have been acknowledged and there is growing interest in the question of how a private market for BDS providers can be established (Heierli, 2000, p. 15).

The market creation approach builds on the basic BDS principles but envisages a market where BDS services are paid for. This ought to guarantee the profitability and thus the sustainability of BDS provider's operations. Furthermore, the market creation approach focuses on specific products or services with high potential for poverty alleviation. There are three core elements: (1) Need-based product development, (2) marketing and promotion and (3) the creation of a sustainable market (Heierli, 2000, p. 16). A crucial notion of the market development approach is that delivery of goods and services is based on profit oriented private channels ideally operated by microenterprises. In some cases, public private partnerships (PPPs) are part of the approach (Heierli, 2000, p. 16).

Despite the potential of the market creation approach its limitations with regard to specific fields of development need to be taken into account. In safe water development it is obvious that small private sector entrepreneurs are not able to build up a nationwide sanitation system providing piped in supply of drinking water to all households. Enormous investment costs make this kind of system a public sector responsibility in most countries. But how about countries that cannot afford the setup of such infrastructure? How can the private

sector provide affordable solutions to safe water development? Home based water treatment systems are one answer to that question.

1.2 The HWST- approach

In many countries water decontamination is not assumed by the public sector. Therefore, households need to dispose of their own means to make the water they source drinkable. As the name suggests home based water treatment and storage (HWTS) solutions allow for water treatment at the household level. Therefore, these solutions are primarily suited for countries or regions where water as a resource is available but not in drinking quality be it through public sources (wells, boreholes, rivers, lakes, etc.) or through untreated piped in supply. Interestingly, studies showed that treating water at the household level is more effective than conventional improvements in water supply when it comes to ensuring microbiological quality of water at the point of consumption: HWTS has been associated with a 35% reduction in diarrheal disease compared to 11% for conventional source based interventions. Moreover, evidence for economic advantages with regard to implementation costs is equally compelling (UNICEF, 2008, p. 2).

There are many different HWTS solutions. Basically any method that allows for water treatment at home falls into this category. The most common examples are boiling, filtration, solar disinfection, flocculation and the chlorination method. The latter is the focus of this paper and has been found to be the most cost effective method to prevent diarrhea in areas where financial resources are limited (Clasen, Haller, Walker, Bartram, & Cairncross, 2007, p. 599). Chlorination is the most widely used mean of treating water at the community level and apart from boiling it is also the most frequently practiced method in the home (UNICEF, 2008, p. 3).

Many HWTS solutions can be used to fight emergencies like epidemics where sanitary conditions are key to successful containment. All of them are effective tools for sustainable long term health prevention which is the focus of this paper. Unsafe drinking water is among the main contributors to an estimated four billion cases of diarrheal disease annually causing more than 1.5 million deaths, mostly among young children. Moreover, contaminated water is a major source of hepatitis, typhoid fever and many other illnesses (UNICEF, 2008, p. 1). These statistics have led the international development community to include the sustainable access to safe drinking water into the United Nation's Millennium Development

Goals. Hence, the development and dissemination of HWTS technologies has been given program priority by international organizations like UNICEF and is an important pillar to safe water development.

II. THE STATE OF THE ART

Section II depicts the theoretical background and the state of research of the concepts in question.

2. The Bottom of the Pyramid: Proposition, Promises and Critique

The BoP is an economic concept that defies any universally accepted definition. In their seminal article, which has gained considerable attention in the marketing literature, Prahalad and Hart (2002) divide the world into four economic tiers. Tier number four - the bottom - consists of 4 billion people who earn less than 1'500 USD a year. There is an ongoing debate on whether this is the right way to draw the line between the bottom and the rest of the pyramid and ultimately the discussion boils down to the question of where poverty begins. The respective level of income is usually set around 2 USD per day (Rivera-Santos & Rufin, 2010, p. 127). However, it is not the purpose of this chapter to enter that discussion but rather to provide an overview on nature, opportunities and challenges of business at the BoP.

Many attempts have been made to better describe and understand the economics of BoP markets. According to C.K. Prahalad, the father of the concept, the BoP does not just consist of poor people but of four billion micro consumers and micro producers. Prahalad argues that no universal definition of the BoP can be useful and that it must not be seen as a monolith. Every organization must define "the poor" according to its own productive engagement and is free to choose any segment of the four billion it wants to serve products or services to (Prahalad, 2010, p. 7f.).

A 2007 study by the World Resources Institute (WRI) and the International Finance Corporation (IFC) has significantly contributed to a better understanding of the empirical dimensions of the BoP concept. The authors provide regionally aggregated data for the four developing regions Africa, Asia, Eastern Europe, and Latin America as well as for the world as a whole. Furthermore, they present useful insights on market composition, BoP household expenditures and show differences between urban and rural areas. WRI and IFC calculate a total of 4 billion people with a combined household income of 5 trillion USD a year who form the BoP (WRI & IFC, 2007, p. 9). Unlike Prahalad, they set the upper threshold at 3'000 USD

annual income.² BoP markets are often rural, poorly served, dominated by the informal economy and relatively inefficient and uncompetitive. WRI and IFC argue that the development community tends to focus on the poorest of the poor (1 billion people who earn less than 1 USD a day in local purchasing power) while a much larger segment of the low-income population deserves attention and is the appropriate focus of a market oriented approach. They claim that the starting point should not be poverty but the fact that most BoP population segments are not integrated into the global market economy. Other characteristics are significant unmet needs (no access to financial services, water, electricity, basic health care, etc.), dependence on informal or subsistence livelihoods (lacking access to markets to sell labor), and a “BoP penalty” meaning that they pay higher prices for basic goods and services than do wealthier consumers (WRI & IFC, 2007, p. 3 ff.).

Despite the high promises based on the auspicious number of 4 billion potential consumers with an annual income of 5 trillion USD, scholars and other business experts disagree on the question of whether business at the bottom of the pyramid is profitable or not. The branch of literature following Prahalad puts forth the huge potential at the BoP and supports the findings with case studies that portray the poor as motivated by similar desires as the rich. Critics of the BoP proposition put validity and applicability of these case studies into question and argue that the BoP is, first and foremost, a source of serious losses. They claim that the poor spend 80 percent of their income on basic goods like food, clothing and fuel which leaves not much money for other consumer products. Furthermore, BoP customers are too heterogenic and geographically dispersed which results in costly distribution and in a difficulty to realize economies of scale (Pitta, Guesalaga, & Marshall, 2008, p. 393 ff.). Critics like Karnani (2005, 2007) challenge the entire BoP approach. He argues that the latter is seductively appealing but too good to be true and logically flawed: *“There is little glory or fortune at the bottom of the pyramid – unfortunately, it is (almost) all a mirage”* (Karnani, 2007, p. 91). Karamchandani, Kubzansky and Lalwani (2011) put forward that only few multinational firms have built sizeable businesses serving customers who survive on a few dollars a day and that for most companies the BoP is not worth a try. However, they do not preclude the possibility that innovative multinationals can manage the obstacles and achieve great rewards (Karamchandani, Kubzansky, & Lalwani, 2011, pp. 107, 111). Other scholars put more particular BoP propositions into question. Harjula (2006) warns that different time-

² Calculation based on 2005 USD.

frames of venture capitalists and entrepreneurs cause disruption and conflicts of interests. A key concern relates to the question of whether a (social) innovation will achieve critical mass during the investment period of the financier and turn into a profitable business fast enough (Harjula, 2006, p. 85 f.). McFalls (2007) puts forth a similar argument and says that unless significant structural changes are implemented to allow for long-term commitment and experimentation unrealistic expectations for business executives may be set (McFalls, 2007, pp. 85, 95 f.). Finally, ethical concerns with regard to products, pricing, promotion and distribution are being raised (Davidson, 2009, p. 24 ff.).

Kacou (2011) sees a “survival trap” as the main problem at the BoP. Businesses, individuals and leaders are caught in a vicious cycle in which they repeatedly pursue the same strategies in the face of chronic problems (Kacou, 2011, p. 12). By suggesting alternative business strategies Kacou (2011) is not an opponent of the BoP proposition as such but rather an critic of using common approaches to business at the BoP. This leads us to the only area where something like a consensus seems to exist: Experts agree that if there is a potential for profit in low-income markets only new business strategies will be able to exploit them. The following chapter discusses the challenges that these new strategies need to address.

3. The Main Challenges at the BoP and the 4-As Framework

Business conditions at the BoP fundamentally differ from those in more developed parts of the world. Often, companies are required to create whole new markets instead of entering and competing in existing ones (Seelos & Mair, 2007, p. 52). According to Hammond and Prahalad (2004) “*CEO’s must shed old concepts of marketing, distribution, and research*” to reach the world’s 4 billion poor people (Hammond & Prahalad, 2004, p. 30). In order to develop such approaches they need to be aware of the numerous challenges at the BoP.

Anderson and Billou (2007) analyze the innovative strategies of those corporations who successfully serve the world’s most needy customers on commonalities. They find that all of them started with the development of an approach that delivers the “4-As”: Availability, affordability, acceptability and awareness (Anderson & Billou, 2007, p. 14). Based on these insights the authors developed the widely accepted “4-As framework” that divides the challenges at the BoP into four distinct categories.

The following part presents Anderson and Billou's (2007) framework as well as strategic advice on how to overcome the four challenges.³

3.1 Availability

Ensuring the availability of products and services to clients is one of the biggest challenges at the BoP. Due to lacking infrastructure and an underdeveloped private sector distribution channels are often fragmented or non-existent. Moreover, many developing countries cover vast geographical areas. Anderson and Billou (2007) take India as an example where more than 600'000 villages are spread over 3.2 million square kilometers. Even though there might be a market of more than 700 million poor Indians in theory, delivering goods and services to them is very difficult in practice. In countries like Indonesia or the Philippines which are fragmented over thousands of little islands that task might become even more demanding.

The challenges with regard to availability and distribution can be divided into different categories. The first category is a lack of the public good "infrastructure". A World Economic Forum Report (2009) points out that missing infrastructure can include "hard" infrastructure as well as "soft" infrastructure. Hard infrastructure involves roads, warehousing, logistics facilities and public utilities for water, electricity and communication. The second category is soft infrastructure and includes the presence of producer organizations, educational and training programs and basic information on consumers like individual identification or credit histories that allow companies to tailor products and services. Both hard and soft infrastructures enable market activity and value creation and their allocations is usually considered a public sector responsibility (WEF, 2009, p. 18).

Organizations that want to serve BoP-consumers need to find innovative ways to overcome infrastructure constraints. Often, this includes partnerships and sharing of infrastructure with other actors. The IFC (2009) advises that distribution through small and micro enterprises or through village-level entrepreneurs is an effective strategy to penetrate BoP-markets. These organizations or individuals are deeply rooted in their local communities and enjoy a high level of trust and acceptance which can be critical for successful marketing and sale of products and services (IFC, 2009, p. 7). Anderson and Billou (2007) mention Hindustan Lever Ltd. As an example of a company that successfully created an innovative

³ For more information refer to Naef, Moser and Tenchio's (2013) useful working paper on BoP challenges and respective strategies.

distribution system to tackle the last mile challenge. It supplies even the most isolated BoP consumers using autos, rickshaws, bullock-carts and canoes (Anderson & Billou, 2007, p. 16).

It is one thing to make a product or service available to people at the BoP. However, ensuring permanent access to it is another challenge. Especially socially oriented organizations that provide solutions in areas like health prevention must find ways to make sure that the product is available without interruption in order to claim a positive health impact. Furthermore, products with a high degree of (technical) complexity and maintenance requirements as well as products requiring complementary products for their proper functioning must be complemented with an effective after sales service (IFC, 2009, p. 9).

Insufficient access to information on BoP conditions is another constraint to build up an effective distribution system as (public) statistics are often inaccurate or non-existent (WEF, 2009, p. 19). Reliable data is important to any organization that wants to know more about its clients, their needs and customs. Even very basic questions like what quantities to deliver to what region can become a challenge if there is no information available on the number of people living in the targeted areas. On the other hand, the lack of information makes it difficult for the rural population to make informed choices about buying and selling goods and accessing services (Vachani & Smith, 2008, p. 6 f.).

In sum, the challenge to ensure “availability” boils down to ensuring effective distribution systems that penetrate even remote rural areas.

3.2 Affordability

The main common feature of BoP customers is their relative poverty and the resulting price-sensitivity with regard to any expenditure that is not absolutely essential. It is therefore a major challenge for any business to make its product or service affordable and to remain financially profitable at the same time.

Not only is BoP consumers’ disposable income low but it is also often subject to a high volatility. Their cash-flow usually occurs on a daily rather than on a weekly or monthly basis. This has important implications on the amount of savings available and therefore on the capability to invest higher amounts of money at once (Anderson & Billou, 2007, p. 17). Furthermore, access to credit, working- and investment capital is usually very limited in BoP

economies (Henriques & Herr, 2007, p. 46 f.). These financial constraints are the reason for why BoP consumers tend to be “smart shoppers” and risk-averse investors who only spend money on products they understand and trust in (WEF, 2009, p. 5).

The affordability challenge is not limited to the end-consumer’s ability to purchase a product. Distributors are usually required to make substantial up-front purchases. Given their limited financial capabilities ways need to be found to accurately support distributors with financial-, promotional- and other forms of support. Furthermore, in order to keep prices on a reasonable level the cost of input factors like raw material and the manufacturing of basic components must remain at a low level. According to Porter’s (1979) five forces framework the availability of more than one input-supplier is an important factor to reduce their bargaining power (Porter, 1979, p. 140). Strategies and measures to reduce production costs (and thereby indirectly the price) will not be further discussed as they basically equal those applied in developed markets.

3.3 Acceptability

Gaining and maintaining acceptability for a product or service is the third challenge in serving BoP markets. Products must be adapted to the unique needs and customs of both consumers and distributors (Anderson & Billou, 2007, p. 18 f.). BoP customers are risk-averse investors and cannot afford financial losses (WEF, 2009, p. 5). They do not necessarily seek the cheapest product but the one that appears to be the most risk-free (Hystra, 2013, p. 6). Hence, it is difficult to make people try and pay for something new that they do not know. Again, this is not only true for the end-consumer but also for distributors who assume a risk by buying stock. Merchants and other sellers are only going to invest if there is acceptability and demand for the product which assures them that it is going to leave the shelves.⁴ Of course, winning acceptance alone is not enough. Efforts need to be made in order to maintain it and to avoid customer dissatisfaction.

It is pivotal to understand the local culture and people’s perceptions. A product may appear useful and appropriate from a “western” viewpoint but prove unacceptable for the people who are supposed to buy it. In the 1990s the chinese home appliance manufacturer Haier Group discovered that poor customers in rural areas believe that buying a washing machine just for washing clothes is sort of frivolous. Only when Haier modified its machines to make

⁴ This is especially true for products with an expiration date.

them suitable for washing vegetables too did the company win market leadership in China's rural provinces (Anderson & Billou, 2007, p. 18).

3.4 Awareness

People will only buy a product if they are aware of its existence and if they know what benefit they can expect from it. However, conventional advertising media is largely inaccessible for most BoP customers. Many of them do not own a TV or a radio let alone a computer with internet access. Even if, frequent power blackouts and high costs are additional impediments to marketing via conventional channels.

Another challenge to awareness creation is the low level of education and a high illiteracy rate in developing countries. Many BoP customers cannot be targeted by marketing methods that require reading skills. The same is true for complex products that usually come together with an instruction manual or with the option of calling a service line. At the BoP producers must find other ways to make people familiar with the use of their products and maybe even with basic repair tasks.

3.5 Additional challenges at the BoP

There are some additional challenges that business needs to address in order to be successful in BoP markets. Some of them could be included in the 4-As framework. However, they are mentioned separately in order to avoid confusion and to emphasize their importance.

First, there is "behavioral change" which lies somewhere in between awareness and acceptability. If a product or service is to be permanently used or consumed by people who never saw anything the like before, simply raising awareness might not be enough. Permanent use does require a change in behavior which is usually not easy to bring about. Many developing countries do not have a culture of innovation characteristic of the west and the same mode of living has been passed down through many generations (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 57). Hence, innovative tools need to be applied to address that challenge. The social marketing literature which will be discussed in chapter 4.1.2.1 offers useful suggestions and insights.

Second, there is usually a weak institutional environment in BoP countries (Rivera-Santos & Rufin, 2010, p. 128 f.). An unstable political situation, dysfunctional institutions and weak

rule of law are characteristic for many developing countries. This has direct implications on business conditions: Long-term planning is difficult, contracts are hard to enforce, courts are slow to act and corruption and red tape are often widespread (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 57).

Organizations who intend to locate their production in BoP economies must prepare for low levels of productivity. Supply can be an issue as access to resources and technology as well as opportunities for bulk purchase of inputs is limited. Not least, there is often a severe lack of education and skills which can impact the quality of products and services (Henriques & Herr, 2007, p. 46 f.).

In summary, there are numerous challenges at the BoP which have extensively been documented by many researchers. Anderson and Billou's (2007) "4-As" provide a comprehensive framework for profitably serving BoP consumers and a useful guide for business. However, knowing about the challenges is only the first step to success. In a second step, one needs to be clear about how to address these challenges. For that purpose, a suitable business model and effective strategies need to be developed.

4. Two main Tasks: Supply and Demand

Marketing HWTS solutions to the BoP aims to improve people's health using a preventive approach in combination with an economically sustainable business model. This involves two main tasks: (1) The creation of demand (a market) for the product and (2) ensuring its effective supply. Naturally, demand creation needs to occur before distribution channels are put in place as supplying goods and not being able to sell them inevitably results in financial losses which runs against the objective of economic sustainability. "Demand creation" deals with "awareness" and "acceptability" while effective supply involves "availability" and "affordability". The two tasks can be further divided into more specific subsets. This chapter discusses strategies and tools to address them.

4.1 Market- and demand creation

The creation of a sustainable market depends on need-based product development and on effective marketing and promotion.

4.1.1 Need-based product development

Need-based product development is a delicate task. At the core it is about adapting and optimizing existing technologies with regard to local conditions. There are two basic approaches to it: First, one may downsize modern technology to make it affordable to BoP customers. Second, traditional technologies may be improved in order to enhance their effectiveness. Opportunities for the development of new and effective products that serve the needs of the poor are abundant given the low degree of technologization at the BoP (Heierli, 2000, p. 26 ff.). There is no panacea for success in need-based product development. However, Heierli (2010) identifies a set of factors that proved to be important in practice: The identification of new markets should have an impact on the initial product concept, the affordability target should be based on reliable empirical data, trade-offs between quality and affordability need to be carefully addressed, prototypes ought to be tested in the field and the final product must permanently be modified according to customer feedback and experience. Last but not least, if the project is to be replicated in other countries different local conditions must be taken into account (Heierli, 2000, p. 27).

4.1.2 Marketing and promotion

If a product is to be sold and not just distributed for free a certain level of demand and a willingness to pay are required. First of all, people need to be aware of the existence of the product and they need to know what it is good for and how they can profit from it (“awareness”). Second, people must accept it and be willing to pay a price (“acceptance”). Effective promotion tools are needed to address this challenge.

It is one of the unique characteristics of BoP consumers that they are unfamiliar with many products, technologies and procedures (WEF, 2009, p. 12) which renders demand creation in developing countries much different from demand creation in developed economies. If, for example, a company wants to market a new shampoo brand in a developed country it can implicitly rely on people’s previous experience with similar products and focus on highlighting the characteristics and advantages of the new one. However, if someone has never seen or used shampoo before advertising needs to take a whole new approach. BoP consumers look for trusted advice (WEF, 2009, p. 12) that something they have never used before will bring them a benefit worth spending scarce money on. Positive word-of mouth matters most as a large percentage of BoP customers make purchasing decisions based on what their neighbors and relatives recommend to them (HYSTRA, 2013, p. 11).

In the context of safe water development it is not enough that people buy the HWTS product every once in a while because effective prevention of waterborne diseases can only take place if water treatment occurs on a constant basis. Therefore, simply creating demand is not enough. Rather, a change in behavior needs to occur which leads to the incorporation of the product into people's daily routine.

Social- and commercial marketing are the two main promotion tools for market- and demand creation. Despite their different functioning they go in pairs and work towards a common objective. A well-functioning interaction is vital in order to achieve the desired results.

4.1.2.1 Social marketing

Social marketing is a distinct marketing discipline that has been developed since the early 1970s. Its main focus is to influence behaviors with the objective of delivering a positive benefit for society (Lee & Kotler, 2011, p. 7):

“Social Marketing is a process that uses marketing principles and techniques to influence target audience behaviors that will benefit society as well as the individual. This strategically oriented discipline relies on creating, communicating, delivering, and exchanging offerings that have positive value for individuals, clients, partners, and society at large.”

(Lee, Rothschild, & Smith, 2011)

There exists substantial literature on social marketing and it goes beyond the scope of this paper to go into the details of this discipline.⁵ The following explanations are no more than an overview on possibilities and limitations of social marketing as a tool to bring about behavioral change.

Social marketing techniques are most often used in the area of public health, environmental protection or for enhancing the well-being of communities (Lee & Kotler, 2011, p. 26). “Product”, “price”, “place” and “promotion” are the basic components of any social marketing plan and their interplay is referred to as the “strategic marketing mix”. These “4-

⁵ For more information the reader shall be referred to Lee and Kotler's (2011) book on social marketing and on the report in Annex II.

Ps”⁶ are thought of as the independent variables used to influence behaviors of the target audience (Lee & Kotler, 2011, p. 46).

The “Product” of a social marketing campaign is not necessarily a tangible good. It can be anything offered to satisfy a want or need. Major product elements include the benefit that the customers want in exchange for performing a behavior (core product), any actual good or service that is promoted to the target audience (actual product) and any additional product elements (augmented product) they need to perform the behavior (Lee & Kotler, 2011, p. 243).

“Price” in a social marketing context refers to the monetary or nonmonetary costs of adopting the desired behavior. Monetary costs occur if goods and services need to be bought by the target audience. Nonmonetary costs are intangible but just as real for the customers and often even more significant for social marketing products. They include costs associated with time and effort to perform the behavior as well as any physical and psychological discomfort that may be related to it. In addition to costs there are monetary and nonmonetary benefits. Taken together these costs and benefits result in an incentive structure that determines the price of a product (Lee & Kotler, 2011, p. 268 f.).

“Place” is where and when the target audience will perform the behavior or buy any related good or service. The objective of the place marketing tool is to make access to the product or service as easy and convenient as possible (Lee & Kotler, 2011, p. 291 f.). Hence, “place” is basically about effective distribution channels and supply systems.

“Promotion” includes all sorts of persuasive communications which are designed to lead the target audience into adopting the desired behavior and into buying related goods or services. Promotion strategies define messages and messengers and determine the communication channels to be used (Lee & Kotler, 2011, p. 319 f.).

Studies show that social marketing tools are effective across a wide range of behaviors, target groups and in different settings. They are suitable to influence policy, professional practice as well as individuals (Stead, Gordon, Angus, & McDermott, 2007, p. 126). Hence, these tools are suitable to create demand for HWTS- solutions because in the first place. Customers at the BoP do not only need to be convinced of a new product but rather to

⁶ The 4-Ps partially overlap with the 4-As which is certainly no coincidence given the interaction of scholars in the field.

adopt a certain behavior which they are not used to (treating water on a daily basis). Only at a later stage when people are willing to pay for a respective product does commercial marketing come into play. HYSTRA, a strategy consulting firm for business and social sector pioneers who work at the BoP finds in a comparative study that below the line marketing⁷ works better at the BoP: *“The BoP market is won one village at a time. Each village takes several steps: first making villagers aware of and tempted by the offer, second overcoming the last barriers to purchase, and finally ensuring that buyers use and are satisfied with the products ... and tell their friends about it (Hystra, 2013, p. 9).”* Social marketing is based on the same approach and is therefore an effective tool for BoP marketing.

Very solid knowledge of local conditions, customs and ways of living is required in order to pursue effective social marketing campaigns. Therefore, only organizations with strong local roots and a solid network are likely to be successful with respective planning and implementation. Furthermore, behavioral change takes time which is why demand creation for HWTS solutions at the BoP is a time-consuming process.

4.1.2.2 Commercial marketing

There are important differences between social- and commercial marketing. The Chartered Institute of Marketing defines commercial marketing as *„the management process responsible for identifying, anticipating and satisfying customer requirements profitably (CIM, 2009, p. 2).”* Hence, the primary aim is the development of a company’s position in order to optimize benefits and to sell goods and services profitably. Both customer orientation and the pursuit of financial gain for the company are at the core of this discipline. Social marketing too puts the customer into the focus but its objective is no financial but a societal gain. While competition in commercial marketing focuses on other organizations offering similar goods and services, competition in social marketing is usually the current or preferred behavior of the target audience (Lee & Kotler, 2011, p. 14 ff.).

4.1.2.3 Interaction of social and commercial marketing

Effective demand creation for a HWTS product at the BoP requires close interaction of social- and commercial marketing. First, awareness for a certain problem needs to be created. Many people in developing countries do not appreciate the fact that water can contain microbes and be a porter of severe illnesses. Without this knowledge they are not

⁷ Marketing that does not use classic marketing and communication tools.

going to see the need to treat water. In a second step, people have to be convinced that something should be done about that problem not just today but on a permanent basis. This might sound obvious but if someone has never treated water in his life and neither do his friends he might not be ready to take up a respective habit let alone to pay for a respective product. In a third step, possible solutions and options are presented. As shown in chapter 1.2 there are several HWTS methods (chlorination, boiling, solar disinfection, etc.). The target audience must be convinced that the one method your organization is offering is actually the most adequate. In a last step, people need to be convinced of the particular product that the respective organization offers especially if there are similar products on the market. Step one to three mainly fall into the domain of social marketing. Step number four which involves communication on the product's name and on where it can be bought is the responsibility of commercial marketing.⁸

In a nutshell, social marketing is a tool to create awareness for a problem as well as demand and a willingness to pay for an effective solution. Commercial marketing techniques are then used to cater to this new demand by advertising a particular brand or product.

4.2 Effective Supply

Effective supply is one of the main challenges when expanding an existing business. Once demand for a product or service is created in a certain region an effective supply system is needed. Customers must be able to easily and permanently access the product at any time without much effort ("availability") and at an affordable price ("affordability"). Especially in the area of safe water development the exigency of permanent access and affordability for the poor are vital in order to allow for a sustainable preventive approach. Water needs to be treated at all times as already a short bottleneck in supply can be enough for people to fall ill. Effective supply should not be reduced to functioning distribution channels only although they are important. The whole business model must work properly in order to make the product available to customers over the long run. Hence, financial sustainability and other factors are at least as important as are distribution channels. Ensuring effective supply requires a solid business model which is able to deal with the BoP challenges described in chapter 3. In addition, two closely supply related issues arise: The "last mile problem" and the question of how to properly manage and control distribution channels.

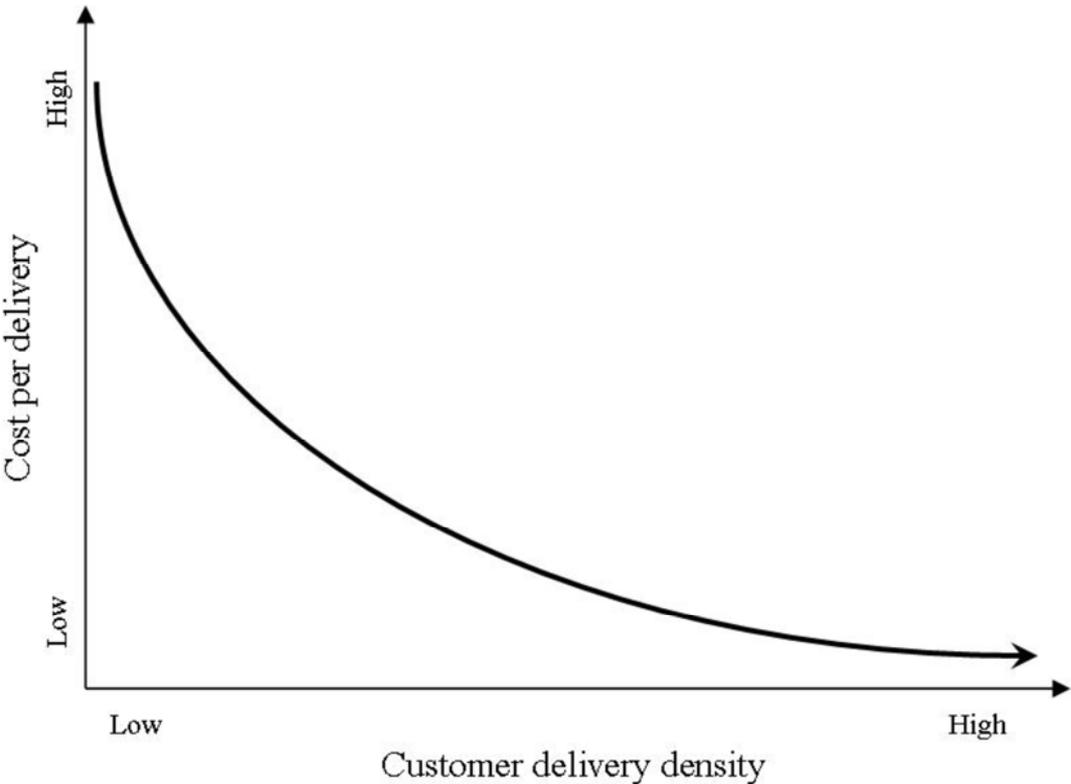
⁸ Refer to Figure 8 of the report in Annex II for an illustration on the basis of a practical example.

4.2.1 The last mile challenge

All suppliers of goods or services face the challenge of how to bring their products to the final consumer. Problems concerning the distribution of goods between depots and end-users are generally known as “Vehicle Routing Problems” (VRPs) or “Inventory Routing Problems” (IRPs). They have extensively been researched by mathematicians and other scholars (Toth & Vigo, 2001, p. 1). IRP and VRP deal with questions like how to choose optimal delivery routes, how to set customer delivery times, what number of items to deliver at each visit, and so forth.

The “last mile distribution problem” is a variant of the IRP (Balcik, Beamon, & Smilowitz, 2008, p. 52) and one of the main distribution challenges in the BoP context. The last mile challenge arises from the simple relationship between population density and delivery cost as shown in Figure 1 (Boyer, Prud'homme, & Chung, 2009, p. 187). In densely populated areas the costs for supplying one unit is rather low because customers live within small distances of each other. In areas with only few customers the delivery costs are spread over less units (sales) which is why delivery costs per unit are high. This relationship is even more pronounced in countries with lacking infrastructure.

Figure 1: Last mile distribution costs⁹



⁹ Source: Boyer, Prud'homme, & Chung, 2009, p. 187.

Any organization that seeks to go beyond local business and cover a wider area must deal with the last mile challenge, especially if its customers are poor people living in rural areas. Economically viable options need to be found.

4.2.2 Managing distribution channels

Organizations that want to make HWTS solutions available to the poor population must make sure that the end-price consumers pay is affordable. Given the high transportation cost for delivery to remote villages this is no easy task. From an economic point of view distribution is only financially attractive in urban areas; however, in a development context the target audience makes most often part of the rural population. Hence, there are conflicting interests between the economic and the social side of activities. Furthermore, if a business is not fully vertically integrated ways need to be found to exercise control over the many distribution channels in order to make sure that no one sells the product at a price other than the official one. A viable business model needs to account for these challenges and provide a way to make the product available at the same price throughout an extended area.

4.2.3 Options for expansion

There are many ways of expanding an existing business. An organization can do everything from production to final sales in-house or choose to outsource certain parts of the value chain to others. Examples are models like multilevel-marketing, agency agreements, distributorship, voluntary chains, dealership, pyramid schemes or franchising (Illetschko, *Microfranchising: The theory*, 2011a, p. 18 ff.). According to Illetschko (2011), an established franchise writer and lecturer, *“franchising has established itself as the most successful business expansion mechanism known”* (Illetschko, *Microfranchising: The theory*, 2011a, p. 8).

A franchise is defined as *“a contractual agreement between the owner of a business system and trademark (the franchiser) that permits the franchisee to produce and market the franchiser’s product or service in a specified area. Franchising brings together the brand, marketing capabilities, and business systems of the large corporation with the entrepreneurship and local knowledge of small firms [...]”* (Grant, 2010, p. 363). The benefits of franchising can be explained by the economics of vertical integration: The franchiser performs those tasks that involve substantial scale economies like purchasing and branding.

The franchisee on the other hand keeps his residual profits which leaves him with strong incentives to invest in the local market by identifying good locations and by tailoring products to local taste. Principal-agent problems can arise when franchisees cut corners on quality, charge too high prices, etc. (Besanko, Dranove, Shanley, & Schaefer, 2013, p. 148).

There are different types of franchising. While early forms emerged primarily in the fast-food sector franchises are today used in many sectors. There are the two main categories “product franchise¹⁰” and “business-format franchise”. Product franchises grant the franchisee access to a certain product, to preferential pricing, to the corporate identity and give him the right to trade under a common brand. However, support in terms of training and operational assistance remains limited. A “business-format franchise” on the other hand provides a comprehensive operating system in addition to what a product franchise offers in order to maximize profitability (Illetschko, Microfranchising: The theory, 2011a, p. 16 f.). With the emergence of niche markets the business-format franchise has been adapted which led to the development of the new models “conversion franchise”, “area franchise”, “tandem franchise”, “social franchise” and “microfranchise”. These new models are all adaptations of the original business-format franchise. Experience over the past five decades suggests that only business-format franchises or legitimate adaptations of it will deliver on expectations (Illetschko, Microfranchising: The theory, 2011a, p. 17).

4.2.4 Franchising at the BoP

Most franchise concepts mainly address the needs of the middle class. Illetschko (2014) mourns that franchising has barely made any impact at all in developing countries in spite of vast opportunities. According to him, the reasons for the slow expansion of the concept at the BoP are a lack of understanding of its potential and insufficient knowledge of cultural barriers (Illetschko, Microfranchising: The theory, 2011a, p. 20 f.).

With regard to safe water development and the marketing of HWTS solutions to the bottom of the pyramid the greatest promise lies in microfranchising and to some extent in social franchising. These two approaches best combine the strength of a capitalist approach to doing business with social objectives and are able to create a combination of social acceptability and commercial sustainability (Illetschko, Microfranchising: The theory, 2011a, p. 21).

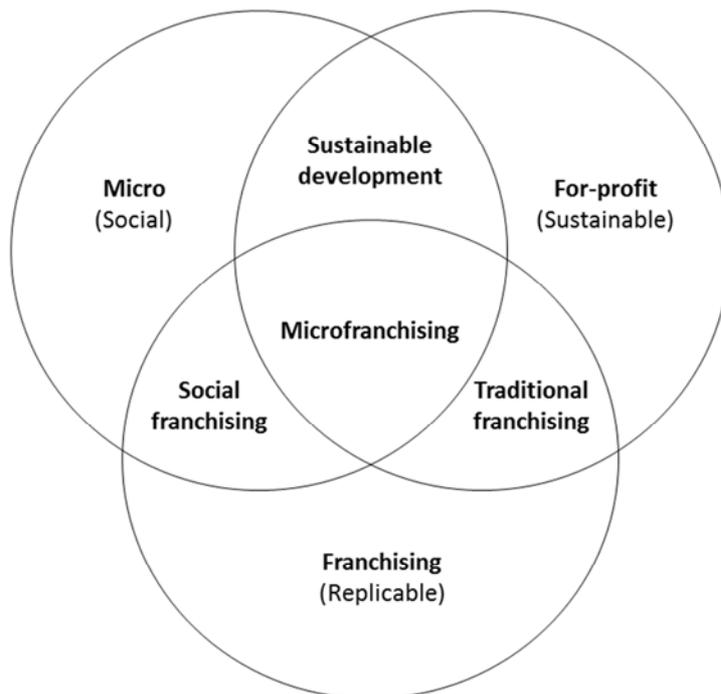
¹⁰ Also known as trademark franchises.

The model of social franchising is structured to deliver products and services that are usually provided to poor population segments by governments or NGOs like basic health services, etc. Research suggests that private enterprise can deliver such services more cost-effectively. Therefore, if the target population is able and willing to pay for at least part of the cost it makes sense for governments or donors to provide subsidies to such a franchise (Illetschko, *Microfranchising: The theory*, 2011a, p. 18). However, social franchises usually seek to accomplish the most good for the greatest number of people and they almost always require some amount of external funding. Hence, they are not designed for financial self-sufficiency and will likely never be profitable for both the franchisor and the franchisee (Magleby, 2005, p. 23). The dependency on third party funding is a threat with regard to long term financial stability which is the main flaw of social franchises.

4.2.5 Microfranchising

In combination with the power of a brand (trademark) microfranchises are able to create business opportunities for the poorest of the poor which are viable in the short term and sustainable in the long term (Illetschko, 2011a, p. 18). Microfranchising is based on the assumption that traditional franchise agreements where large company resources provided by the franchisor go together with the capital, skills and dedication of franchisees do not properly address the needs of poor and uneducated individuals. It pairs micro-entrepreneurs who want to expand their business with people who want to be self-employed but lack the managerial skills and capital. Microfranchising is about making better businesses and not primarily about making a better product or service. Ultimately it is a tool for poverty alleviation (Fairbourne J. , 2007, pp. 10, 26).

Microfranchising is based on the three core elements “micro”, “franchising” and “for-profit”. The term “micro” refers to the social objective which is to be realized based on grassroots bottom-up initiatives. “Franchise” stands for the systematic replication to scale based on a proven business-model (Fairbourne J. , 2007, p. 8 f.). The “for-profit” aspect allows for financial sustainability. Rogers, Fairbourne and Wolcott (2011) provide a useful illustration in their “Venn diagram” shown in Figure 2 (Rogers, Fairbourne, & Wolcott, 2011, p. 37):

Figure 2: Venn diagram defining microfranchising

The three core elements “micro”, “franchising” and “for-profit” are not always equally weighted which results in subcategories. There is a difference between social microfranchising, sustainable microfranchising and for-profit microfranchising depending on the focus of the respective business. Social microfranchising does not focus on financial stability but on providing goods and services to the poor. Sustainable microfranchising seeks sufficient profits to sustain existing activities and to invest into new franchises. For-profit microfranchising is similar to the latter but is designed to return profits to investors as quickly as possible (Fairbourne J. , 2007, p. 10).

Rogers, Fairbourne and Wolcott (2011) specify three characteristics that enable microfranchising models to function: They must be (1) organic, (2) modular, (3) and microscalable. “Organic” means that the franchises should be executable with minimal involvement from the core franchiser organization while maintaining quality and consistency of the operations. In order to achieve that objective microfranchising models must be “modular” in that they are composed of discrete and interconnected components that can be easily added or subtracted in order to improve functionality or capabilities as business grows. “Microscalability” requires the business model to be repeatable with severely limited financial and professional resources. This allows for scaling up by adding more and more nodes. While each node starts off small some of them grow bigger over time and others keep their initial size. Many developed-world models are scalable but not microscalable. A

McDonald's franchise requires hundreds of thousands of US dollars to found and substantial further capital to grow (Rogers, Fairbourne, & Wolcott, 2011, p. 38 f.). It is important to take into account that it will typically take three to five years before a new franchisor reaches profitability (Illetschko, 2011a, p. 14).

4.2.6 Village-level entrepreneurs (VLEs)

Compared to the distributor model microfranchising does have advantages in executing control over distribution channels, quality and price of a product which are among the major challenges with regard to effective supply. However, the last mile challenge may not always be sufficiently addressed. If a franchisee is located in a small town the latter may be well served but the surrounding villages (especially the very remote ones) do still lack access to the product. Village-level entrepreneurs (VLEs) are one way to address that problem and to complement the microfranchise by buying stock and distributing it within their communities either on the market or by going from door to door (the last mile). Dutt (2012) sees "customer demand", "a low level of risk taken by the village entrepreneur", and the fact that the lead company takes on some risk, capital costs or promotional activities as the three main factors that are required for successful distribution by village-level entrepreneurs (Dutt, 2012, p. 1). As shown word-of-mouth marketing is key at the BoP and this is exactly what VLEs are capable of doing because people know them well. Furthermore, VLEs allow for better intelligence as they have more accurate information on where current demand for a product exists and where supply is sufficient (HYSTRA, 2013, p. 11). Despite these advantages building a solid VLE-network usually takes considerable time.

The present chapter elaborated on the two main tasks "demand creation" and "effective supply". Demand creation is a much more difficult and time consuming task at the BoP than it is in more developed markets. Moreover, effective supply as it is understood in this paper does not just involve distribution channels and the "last mile challenge" but the entire business process. Only if all elements interact properly do consumers have easy, permanent and affordable access to a product or service. If, for example, production stalls due to a shortage of raw materials the end-consumer will not have permanent access despite of a functioning distribution system. The state of the art tools to deal with the two main tasks have been presented: Social- and on a later stage commercial marketing allow for demand and market creation while specific franchise models combined with a network of village-level entrepreneurs allow for effective, affordable and permanent supply of a product. In

order to deal with the two main tasks of scaling up we need to look at the entire business model and ask which organizational structure is the most capable of using the available tools and of addressing the challenges ahead.

5. Choosing the “right” Organizational Form

As shown in chapter 2 Hammond and Prahalad (2004) call for CEOs who want to be successful at the BoP to shed old concepts and to adapt traditional business models to local circumstances. However, they provide no guidance on how this should be done. The present chapter deals with that question.

Recall that the focus of this paper is on safe water development using the HWTS-approach. Hence, the first and foremost objective is to achieve a social purpose and not to generate revenues. In light of the numerous challenges at the BoP it is important not to jump to premature conclusions with regard to the best organizational form.¹¹ Having a social purpose does not necessarily imply that the best business model is that of an NGO and if you seek profits the “traditional enterprise” might not be the best choice either. If the pursued goal is somewhere in between making profits and working towards a social end the optimal business model is even less obvious.

If the best organizational structure cannot be derived from the primary objective the problem must be addressed from another angle. It does arguably make sense to start from the tasks that need to be performed. Therefore, the question is what form of organization is best suited to cope with the two main tasks described in the previous chapter. Who is likely to be more successful in demand and market creation, an NGO or a for-profit company? And does the answer stay the same with regard to effective supply? Not least, the role and source of financing needs to be addressed.

In the following, the different organizational structures at hand are going to be briefly discussed in order to assess their capability of dealing with the two tasks. The aim is to present a viable business model for marketing HWTS solutions to the BoP which is adaptable to local circumstances, financially sustainable and which allows for scaling up.

¹¹ Henceforth used equivalently with the term “business model”.

5.1 NGO versus enterprise for market and demand creation

Note that in the context of this paper the term “NGO” includes any form of private sector organization that does not seek profit but works towards a socially beneficial cause (social objective). “Company” or “firm” refer to traditional profit-seeking forms of organization.

5.1.1 The R&D phase for need-based product development

The R&D phase is where effective need-based products for home based water treatment are researched and developed. For this to be successful a combination of in-depth knowledge of the conditions at the BoP together with technological know-how are required. One must know exactly about the sanitary challenges in the targeted countries and how people live. Even though a product might be very effective in the laboratory this does not ensure that it will yield the same benefits at the BoP because the preconditions required for its proper functioning might not be met. For example a device that requires electricity or complex maintenance is unlikely to work in a remote rural village.

In light of the requirements for the R&D phase a partnership between locally rooted NGOs with solid knowledge of the conditions in the field together with companies, universities or other organizations that dispose of technological know-how, research and product development capacities seems most suitable. Funding is unlikely to come from the (small) private sector because recovery of investment is uncertain. Hence, public or philanthropic funding should be envisaged.

5.1.2 Marketing and promotion

As shown in chapter 4.1.2.1 the main promotional tool for demand creation for HWTS solutions at the BoP is social marketing. Its techniques are used to change people’s behavior and to inspire trust in new and socially beneficial products. Important characteristics that organizations need to dispose of for effective and sustainable demand creation at the BoP are the following:

First of all, demand creation through social marketing takes time. Behavioral change cannot be enforced which is why only businesses with long term investment time horizons are likely to be successful at this task. This is true with regard to operational activities in the field but also for their financing. An organization that expects immediate or short term returns on investment is inevitably going to be disappointed.

Second, planning and performing social marketing campaigns requires solid knowledge of local conditions, customs and ways of living. Only if the target audience and its environment are profoundly understood is one likely to be successful in developing a distinct mix of the 4 Ps (Lee & Kotler, 2011, p. 10). For the execution of campaigns a strong network of local partners that enjoy acceptance within their communities and which are able to inspire trust with risk-averse people is needed.

As shown in chapter 4.1.2.3 social- and commercial marketing are supposed to go in pairs in order to create demand for a product. Once awareness for a problem as well as a willingness to pay for an adequate solution is created through social marketing campaigns people need to be led towards the particular product the business is selling. This last step is where commercial marketing comes into play. It involves communication on the product's name and on where it can be bought. While In-depth knowledge on local circumstances is crucial for effective social marketing it is not equally important for commercial marketing.

In a nutshell, effective demand creation in its first and most important phase requires a long term investment horizon, a strong network of local partners as well as solid knowledge of customers' ways of living and of local conditions. In view of these requirements non-profit NGOs seem better suited for the task. A recent study by the Stanford Graduate School of Business (2014) shows that about half of for-profit companies' shareholder base has a short (seven month or less) or medium-term (between 11 and 27 month) investment horizon. Furthermore, even a long-term investment horizon does not have to be that long and is often as short as 2.8 years which puts pressure on management to focus on short-term results (SGSB, 2014, p. 1). Unlike for-profit organizations non-profits are comparably free from time constraints, they are more familiar with the slow process of demand creation and they have proven to be innovative and successful in this early-stage market-building work (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 57). Furthermore, local NGOs are deeply rooted in their communities and dispose of substantial local knowledge and of strong networks. For-profit firms on the other hand are often newcomers and not familiar with local circumstances or with the BoP environment in general.

For the last step of demand creation through purely commercial marketing, which is being done in more or less the same way over all the intervention zones, for-profit companies might be even more capable given their often greater financial resources.

In conclusion non-profit NGOs are better suited for demand creation at the early stage which is the most important, time-consuming and difficult one. Once demand is created and people have come to trust in the new product for-profit companies can take over and engage in commercial marketing activities to promote a particular brand.

5.2 NGO versus enterprise for effective supply

Scholars agree that if business at the BoP is to be successful new approaches and especially new supply-models need to be found. These models need to be able to deal with lacking infrastructure, an underdeveloped private sector, with insufficient access to information and with risk-averse low income consumers. Furthermore, expensive last mile distribution needs to be taken into account and distribution channels must be managed and controlled so that the product is being sold everywhere at the same price. At the same time, access to the product needs to be guaranteed on a permanent basis in order to allow for effective health prevention and the business is supposed to be financially self-sustaining.

The state of the art research suggests microfranchise models in combination with a network of VLEs who cover the last mile. But how can such a business be initiated and sustained? Are NGOs or for-profit structures better suited or are new and more hybrid forms the best way to go?

For microfranchising to be successful the business which is to be replicated must have established itself as a profitable model worthy of replication. It must be well developed and rely on proven market need, accurate selling strategies, documented operational systems, etc. (Gibson, 2007, p. 25). As it comes to effective supply of HWTS solutions to the BoP there are two main phases that need to be distinguished (apart from market and demand creation): First there is the “business creation phase” in which the business model is developed from scratch and tested under real BoP circumstances. The second phase is the “replication phase” and this is where franchising comes into play. The product together with a functioning business model are made available to franchisees who replicate the same business in another location and thereby make the product available to the local population. This second phase is also referred to as “scaling up”. Both stages involve unique challenges and therefore, the discussion of whether NGOs or enterprises are most apt to cope with them must be led for each individual phase.

5.2.1 The business creation phase

Chesbrough, Ahern, Finn and Guerraz' (2006) paper provides valuable insights for the business creation phase. The authors analyze the approaches of different organizations that were able to move from non-profit projects to commercially sustainable operations and compare them to initiatives that were not successful in making this transition. They identify the following success factors: Successful projects focused first on the implementation and design of a business model that commercialized the technology and only then did they improve product design. The authors also show that the successful businesses models take significant time and experimentation to develop. Depending on infrastructure conditions and other factors five years or more were needed to implement an effective approach. In most cases this was longer than the development of the respective technologies (or products) required. The gradual development of a business model is the reverse of most for-profit companies' approach to the developing world because of their short investment time horizons.¹² In the successful cases that Chesbrough et al. (2006) analyzed it was non-profit NGOs that did most of the initial creation of the business model infrastructure (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 49).

Chesbrough and Rosenbloom (2002) describe a well-functioning business model as "*a heuristic logic that connects technical potential [product development] with the realization of economic value [customer needs]*" (Chesbrough & Rosenbloom, 2002, p. 529). Thus, distribution channels are a key element of the value chain that turns the potential value of a technology or product into monetary value in the market. The success of products in developing countries is highly correlated with the extent to which business models and distribution channels are customized to local conditions. On the whole the business model must create an architecture that leads local entrepreneurs to invest into the technology by placing orders, holding, stock and making deliveries. Moreover, it must make sure that supplies needed are on hand, that training and financing for would-be entrepreneurs is available and that original sales channels are created. Not least, the business model must be able to gain the trust of established local entrepreneurs who might become future franchisees (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 52 f.).

Creating a functioning business model at the BoP requires significant time, in-depth knowledge of local conditions and a strong local network. For these reasons Chesbrough et

¹² Recall that most companies have short- or medium term time investment horizons as shown in chapter 5.1.2.

al. (2006) see NGOs as better capable of pursuing that task. The authors argue that some local NGOs are in fact very effective “business model generators” that are undervalued by for-profit firms who seek to penetrate the developing world. In their view, many NGOs are business-savvy, results-oriented and understand the conditions at the BoP extremely well. At the same time they do not face equal time constraints as for-profit companies. Therefore, these NGOs are leading in adapting traditional business models to the developing world and are not skeptical of the private sector. Rather, they believe that only a profitable private sector can offer sustainability in a world where government programs are limited and international aid is temporary. Furthermore, NGOs see the private sector as a source of new technologies that allow them to improve their social mission (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 55 f.).

Chesbrough et al. (2006) find that in the first place successful businesses at the BoP often rely on NGOs that act like master franchisors in a developed economy. They create the entire business architecture, engage with first partners and find investors who enable the setup of the infrastructure. They remain the hubs of that network during the initial bootstrapping phase and re-invest the profits into building a sustainable business. This structural patience is what makes NGOs effective business model generators and attractive partners for companies who wish to expand their business to the BoP (Chesbrough, Ahern, Finn, & Guerraz, 2006, pp. 56, 58). Chesbrough et al. (2006) suggest that if companies and NGOs work together they should agree on a working partnership rather than on a joint legal entity. Only then can the NGO guard its independence and does not risk to be seen as the agent of a single company or, worse, as profit oriented. As an independent entity the NGO is able to attract funding from public and philanthropic sources which for-profit companies cannot. At best, the NGO is able to exit the project after it has become financially viable and move on to another venture using the recent success to attract new investors. Leadership of the business can then be handed over to the company which should be able to guarantee for financial sustainability based on long-term profitability (Chesbrough, Ahern, Finn, & Guerraz, 2006, p. 59 f.).

In conclusion, NGOs are likely to be the best business model generators at the BoP. They do have the structural patience and local knowledge needed to develop new approaches. Furthermore, they are able to attract public and philanthropic funding which is usually not accessible to profit oriented companies. Once the business has become financially

sustainable the NGO can add it to its success record, go on to the next project and leave the replication and scaling phase to the company.

5.2.2 The replication- or scaling-phase

Microfranchising is the state of the art tool for scaling up a business at the BoP (chapter 4.2.4). As mentioned before the business to be replicated must have established itself as a financially sustainable model before the replication phase can begin, that is, the business creation phase must be successfully completed. Gibson (2007) suggests that *“generally, microfranchising relationships are initiated by franchisors who are either independent business people, non-governmental organizations (NGOs), or multi-national corporations (MNCs)”* (Gibson, 2007, p. 26).

Independent micro-entrepreneurs (or for-profit companies) who accumulated enough business expertise, clientele and capital can expand into further locations in two ways: By opening up a second location or by franchising the business (selling franchise rights to others). With each microfranchise added the business is being expanded and new customers are reached (Gibson, 2007, p. 27).

Multinational corporations have only recently become involved in microfranchising efforts after Prahalad (2004) pointed to tremendous potential business opportunities at the BoP. MNCs see microenterprises as a way of getting distribution channels down to the lowest economic level. For that purpose they start to seek local partners and to provide financial means to them (Gibson, 2007, p. 32).

Gibson (2007) identifies three ways in which well-funded NGOs can get involved in microfranchising: (1) As business model creators, (2) as investors in already operating (and probably struggling) microenterprises with growth potential and (3) by using a microequity method such as the BOOT model. The role of NGOs as business model creators has already been addressed in the previous chapter. The second way is most suited for NGOs with substantial financial capabilities. Instead of creating a business on their own they scan their targeted countries for already existing promising projects which are currently struggling with financing or who do not have the means to expand a promising business further. By granting financial assistance these well-funded NGOs can help their smaller local peers to expand their operations by setting up a microfranchise network.

The third and most promising way is to take advantage of the BOOT model¹³ which is also referred to as “microequity” or as a “sliding scale of ownership”. According to Gibson (2007) the BOOT model *“is an excellent method for getting a necessity entrepreneur or inexperienced person into a business and then coaching that person until the person is able to operate and eventually own (by means of purchase) either a majority or all of the business.”* (Gibson, 2007, p. 29). The BOOT model can be applied by either well-funded NGOs or by MNCS who act as franchisors (or any other investor with sufficient financial capabilities). The franchisor assumes the entire cost for the establishment of the microfranchise, finds the location, buys the inventory and basically provides all of the necessary upfront investment. It then hires an operator who has the capabilities to manage the business. In a next step the franchisor enters into a sweat equity agreement¹⁴ with the operator designed to facilitate the gradual transfer of ownership from the franchisor to the franchisee. This approach creates incentives for the operator to work the business in a committed way. The more time and energy he invests the more profits he makes which he can use to gradually buy further shares of the franchise he operates. As the operator becomes more and more financially invested his personal interest of running a successful business increases. Eventually, ownership of the franchise will be transferred to the operator who then becomes a full franchisee with the entitlement to keep all subsequent profits. Of course, the franchisee also bears full responsibility for potential losses. Before beginning the gradual transfer of ownership the franchisor ideally mentors the operator for about 6 to 12 months. That gives the franchising organization enough time to evaluate the operator’s skills (Gibson, 2007, p. 29 f.).

In conclusion, the state of the art research suggests that once a business model has become profitable it is best run by a for-profit enterprise which will guarantee for long-term financial stability once the NGO exits the project and takes on a new challenge. Hence, the replication or scaling phase is best done by profit oriented companies.

¹³ BOOT stands for “build, own, operate and transfer” of ownership.

¹⁴ INVESTOPEDIA describes sweat equity as *“Contribution to a project or enterprise in the form of effort and toil. Sweat equity is the ownership interest, or increase in value, that is created as a direct result of hard work by the owner(s). It is the preferred mode of building equity for cash-strapped entrepreneurs in their start-up ventures, since they may be unable to contribute much financial capital to their enterprise [...]”* (INVESTOPEDIA, 2014).

6. Discussion

The challenges for doing business at the BoP are manifold. They can be grouped into four distinct categories which are captured by Anderson and Billou's (2007) 4 A's framework. Any operation that is to be successful must address each one of the four A's by developing respective strategies.

Marketing HWTS solutions in developing countries usually boils down to two main tasks: The creation of a market with sufficient demand and the setup of an effective supply system. First of all, affordable need-based products need to be developed. In a next step marketing- and promotional activities work towards demand creation. The major method in the first place is social marketing; a tool that allows to raise awareness for a particular problem and to make people willing to pay for an appropriate solution. At a later stage social marketing efforts need to be combined with commercial marketing in order to create demand for a specific product or brand. There are several ways available to assure effective supply of an HWTS solution to BoP customers. Experts suggest a combination of microfranchising and village level entrepreneurs. Together they do bear the most potential to guarantee financial stability of the business and effective distribution channels, both of which are key to effective long-term supply.

This paper showed that there is no panacea with regard to the organizational form. The question of whether an NGO or an enterprise is likely to be more effective must be asked for all stages of the project. NGOs seem better suited for demand creation in the first (social marketing) phase and for the development of business models that are well tailored to local circumstances. However, once the project has become financially viable private companies with a profit orientation can best guarantee for its long-term sustainability as well as for its replication to scale using, for example, microfranchising strategies.

Scholars argue that the line between for-profit and non-profit organizations is increasingly blurred and advocate hybrid organizational forms and strategies (Porter, 2011, p. 67). Given the numerous tasks and challenges at each stage of developing and scaling up a business at the BoP this seems to be a very reasonable suggestion. Therefore, the question "NGO or enterprise" cannot be answered as such. Rather, the discussion should focus on choosing the best organizational form at the right time while allowing for hybrid forms in between. The discussed literature above advises a shift from a socially oriented NGO towards a profit-

oriented enterprise. However, how exactly that shift takes place and what the final business model should look like must be decided for each case individually and with respect to local circumstances.

One very important element with regard to scaling up profitable businesses at the BoP has not been addressed so far: Appropriate financing needs to be ensured for every new intervention zone to which the business is to be expanded to. Therefore, the two main tasks of demand creation and effective supply need not only be addressed from an organizational but also from a financial point of view. Especially the first task poses considerable challenges. As shown, time and money needed for market and demand creation usually outrun the investment horizon of private sector companies by far. Furthermore, the small private sector (MSEs) at the BoP faces the problem of cost recovery. The considerable investment for research, product development, setting up supply channels and large-scale promotion can usually not be recovered because the exclusivity of the product is difficult to defend (Heierli, 2000, p. 18). In other words, the small private sector is not willing or able to invest in a public good (a market and demand for a product) because of the free-rider problem: Once the market is established others can copy the product and deprive the initial investor of his market share.

Assuming that private sector investment cannot be relied upon for market creation there are basically two sources of capital remaining which are public or philanthropic funding. Providing safe water to the population is widely recognized as a public responsibility. Therefore, governments should have an interest in supporting respective projects especially if they are based on a cost-effective approach. Due to tremendous infrastructure costs providing piped in supply of safe drinking water to all households (especially to those in remote rural areas) is no option for developing countries. As shown in chapter 1.2 the HWTS approach offers a much cheaper alternative. Hence, there is a strong argument that the funding of market and demand creation should be considered a public task and assumed by governments or international development agencies. Whenever governments are not able or willing to earmark respective funds NGOs may try to attract philanthropic funding or partner with national or international development organizations. The private sector will only step in if it is able to sell a certain volume of goods which allows for a profitable supply chain (Heierli, 2000, p. 18). Therefore, it seems reasonable to subsidize initial market

development by public or philanthropic funding in order to set the stage for the private sector to guarantee supply.

Financing with regard to effective supply depends on which of the two phases (business creation, replication and scaling) needs to be covered. Again, it might be difficult to attract private sector investment for the business creation phase because return on investment involves uncertainty and considerable waiting time. Therefore, socially oriented NGOs without profit motive are most suited to operate through this phase and to attract public or philanthropic funding for their projects. These projects contribute to the allocation of the public good “safe water” which is ultimately a government responsibility. The second phase with regard to effective supply involves scaling up and replication of the business. Once demand for the product has been created in a new intervention zone the business should be able to expand its supply to these areas based on its own financial resources. If not, external funding from the private sector can be envisaged. As microfranchising is a rather new approach respective funding models are still in their infancy. Nonetheless, microfinance has attracted considerable money from both social and commercial investors. According to Felder-Kuzu (2007) funding for microfranchising is likely to follow a similar development like microfinance where donor funds are the main source of investment at the early stages. Private and commercial investors follow later (Felder-Kuzu, 2007, pp. 212, 222 f.). Whatever shape upcoming financing schemes will take they are going to be hybrid in their form bringing together public, philanthropic and private investment.

In conclusion, hybrid strategies are needed both with regard to the organizational form as well as with regard to capital.¹⁵ Public and philanthropic funding is best apt to bear the expenses for demand creation and to push the development of a new business model in the first place. At a later stage profits that originate from sales can be re-invested into new intervention zones where demand has already been created. This approach allows for long-term financial sustainability and for the expansion of effective supply to new areas (scaling up).

¹⁵ The term “social enterprise” is often used to refer to such hybrid forms of organization.

III. CASE STUDY

The following case is based on a two month field study conducted by the author in Guinea-Conakry. The field study was mandated by the Geneva based foundation Antenna Technologies (ATG) to document and evaluate the scaling up of its partnering NGO Tinkisso-Antenna's (TA) safe water project to national scale with the objective to provide strategic recommendations and to facilitate the replication in other countries. The final report can be found in Annex II.¹⁶

The case of TA provides interesting insights into the challenges of scaling up a social enterprise in a BoP context. Its findings are based on discussions with TA and ATG staff, on numerous interviews with national and local health authorities, NGOs, associations, health centers, etc. Furthermore, a survey has been conducted with a total of 175 households in rural and urban areas of TA's intervention zone. Details on interview partners as well as on the survey method are disclosed in the report.

This case study does only deal with the aspects of the report that are relevant to scaling up Tinkisso-Antenna's business.¹⁷ The first part provides a brief presentation of the BoP country Guinea and Tinkisso-Antenna's project history. The second part shows the NGO's strategy to deal with the two tasks demand and market creation and effective supply. It concludes with a discussion on new business options with regard to the state of the art research.

7. Guinea: A BoP country

Guinea¹⁸ is a prime example of a BoP country. Ever since its independence from France in 1958 the nation has been led by authoritarian regimes. After its first leader Ahmed Sekou Touré who ruled for more than 25 years died changes in leadership through military coups have become frequent leading to high political instability. Until today governance in the sub-Saharan country is poor and institutions and the rule of law are weak. Guinea's Human Development Index in 2013 stands at position 179 out of 187. Poverty is widespread and has increased from 53% to 55.2% at national level between 2007 and 2012 according to the IMF (IMF, 2013, p. 12). Regional disparities are substantial and the divide between rural and urban areas is clearly visible: While 27.4% of people are considered poor in Conakry (2012)

¹⁶ The report is henceforth cited as " (Bühlmann, 2014)".

¹⁷ The reader is referred to the report for more information on TA's business.

¹⁸ Also referred to as „Guinea-Conakry“ to avoid confusion with neighboring Guinea-Bissau and Equatorial Guinea.

up to 65% remain under the poverty line in rural areas (IMF, 2013, p. 16). Furthermore, doing business in Guinea is difficult. In 2014 the World Bank ranks the country number 175¹⁹ out of 189 in its “ease of doing business” ranking which is composed of 10 relevant indicators (The World Bank, 2014). Lacking hard and soft infrastructure poses serious constraints as will be discussed in more detail.

8. Tinkisso-Antenna’s Safe Water Business: Project History

The Geneva based foundation Antenna Technologies commits itself to the development and dissemination of simple low-cost technologies and products on behalf of the poorest. Its WATA technology allows turning a mix of water and salt into sodium hypochlorite using an electrolytic process. The resulting solution can be used for water disinfection or as a detergent in households, hospitals, etc.

In 2007 Antenna Technologies partnered with the Guinean NGO Tinkisso (later renamed to Tinkisso-Antenna) to initiate a pilot project in the city of Dabola²⁰ as well as in the surrounding rural areas. Using ATG’s WATA device TA started producing active chlorine and marketing it in small bottles of 250 ml under the brand “WATA Eau” (later relabeled to “Chlore’C”). The pilot proved to be a success leading to a sharp decline in the number of cases of diarrhea and cholera within the intervention zone. Through skillful networking²¹ with WHO, UNICEF and government staff TA managed to acquire attention for its success and was eventually asked by the authorities to help expanding the project to scale in order to increase the number of beneficiaries. However, the government wanted to be in charge of production and dissemination leaving TA in the role of a technical consultant. UNICEF agreed to finance the procurement of 14 WATA devices which would then be installed in the locations of all of Conakry’s five communal health authorities as well as with the regional health authorities of the other regions of the country.²² Furthermore, UNICEF did also assume all production related costs until periodic evaluations of the activities left no doubt that the amount of subsidies were heavily disproportionate to the amount of chlorine produced and sold. As it became clear that most regional authorities used the capital

¹⁹ Up from 179 in 2013.

²⁰ The city of Dabola is a small town with approximately 40’000 inhabitants (2014). It is located in Guinea’s poorest region Faranah.

²¹ The report in the annex provides detailed information on how TA interacted with authorities and international organizations as well as on the project history as a whole.

²² Guinea is divided into eight administrative regions one of which is constituted by the capital Conakry. The regions are further divided into prefectures and sub-prefectures.

earmarked for the production of chlorine for other purposes and after production stalled almost everywhere UNICEF stopped paying subsidies by the end of 2009. The experiment of running the project by public authorities had clearly failed due to poor management although the basic approach of producing chlorine locally was in itself very advantageous due to low transportation costs.

In the meantime however, TA continued to locally produce and sell its WATA Eau in Dabola without receiving any subsidies. This had not escaped the national health authorities' notice who then ordered the allocation of all 14 devices spread across the country to one central production site in Conakry and put TA in charge of handling production and dissemination. TA would take care of business operations without interference by the government and in turn commit to stand ready to produce large quantities of chlorine on short notice during epidemics. Although TA did now dispose of considerable production capacities it faced one major problem: How to make its product (now called "Chlore'C") available to people living outside of Conakry? This is the point where TA faced the challenge of "scaling up" for the first time. The following chapter deals with TA's strategy and discusses its successes and problems.

9. Tinkisso-Antenna's Safe Water Business: Scaling up

Selling Chlore'C in Conakry is profitable because people tend to have more purchasing power and transportation costs are low. Delivering the product to remote rural areas is often not: Road conditions are poor and people live dispersed in little communities where only small quantities can be sold at a time. Furthermore, most of them are not aware of waterborne diseases and do not see a need to treat their drinking water. As the rural population usually disposes of a very low and volatile income any additional expenditure requires justification. As a consequence, selling Chlore'C in remote rural areas is not only unattractive from an economic point of view but also difficult to do as demand does not exist yet. However, these rural areas are where the neediest part of the population lives and where TA is able to realize its social objective.

The process of bringing TA's project to scale is currently in progress. The NGO needs to deal with all of the 4 A's and address to the two main tasks described in chapter 4: Demand creation and effective supply. A first section describes TA's strategy with regard to these

challenges based on the findings of the report in the annex.²³ A second part analyses the problems met and identifies potential solutions with regard to insights from the literature as identified in section II of this paper.

9.1 Basic strategic approach for scaling up

Tinkisso-Antenna's strategic approach for scaling up is described in chapter 5 of the report in the annex. Its basic mode of functioning is based on a simple step-by-step approach that combines elements of social and commercial marketing.²⁴

Entering a new intervention zone TA starts with awareness creation for waterborne diseases through social marketing campaigns. Once the target audience²⁵ recognizes the risk of falling ill due to contaminated drinking water and is ready to pay for an efficient solution TA applies commercial marketing activities in order to focus this new demand on its own product Chlore'C.²⁶ At this point the distribution system does solely consist of social marketing partners who distribute the product whenever they carry out social marketing activities. In the absence of such activities the availability of Chlore'C stalls or is severely limited. Hence, the distribution system cannot yet guarantee uninterrupted and effective supply and is not based on an economically viable model as only very small quantities are being sold. Therefore, as soon as demand reaches a certain level TA starts to improve its supply system by partnering with private sector partners (distributors, wholesalers, pharmacies, etc.).

TA's strategic approach is based on the assumption that this model will allow to generate revenues after a certain period of time which can then be re-invested into a new intervention zone where the process starts from new. In theory this strategy allows for an economically sustainable way for scaling up its operations. In practice however, delivery to remote areas results in losses unless substantial quantities allow for sufficient economies of scale. To date Tinkisso-Antenna has not been able to deliver and sell such quantities.

²³ Refer to chapters 5, 6 and 7 of the report for more detailed information.

²⁴ See Figure 1 on page 17 of the report.

²⁵ The term „target audience“ is widely used in the social marketing literature and refers to the population segment whose behavior one tries to influence by respective campaigns.

²⁶ Note that demand for a solution does not equal demand for Chlore'C since there are several ways to decontaminate drinking water like boiling, filters, etc. The process that intends to lead the new customers towards a particular product involves a combination of social and commercial marketing activities as shown by Figure 8 on page 41 of the report.

9.2 Strategy for demand creation

Social and commercial marketing are the two tools Tinkisso-Antenna applies for demand creation and to deal with the two A's "Awareness" and "Acceptability". It partners with different organizations and individuals to carry out respective activities.²⁷

In 2011 Tinkisso-Antenna signed a contract with Guinea's Ministry of Health containing the stipulation that regional and communal health structures shall work together with TA in disseminating Chlore'C and in raising awareness for the product. Furthermore, Chlore'C was added to an official list that contains the essential drugs that all hospitals and communal health centers must dispose of at any moment. Doctors and health centers were ordered to prescribe and promote the product to diarrhea patients as well as during information sessions that they conduct in surrounding villages.²⁸ As a consequence, health centers became a very important pillar of Tinkisso-Antenna's social marketing strategy.²⁹

Local NGOs and associations are further partners for social marketing in the intervention zones. Tinkisso-Antenna identifies organizations that are already active and operational in their region and who have a good standing with the local population. Examples are NGOs working in development or youth-, sports-, or woman's associations. The approach allows TA to rely on already existing structures and to add its own "package". For this purpose it educates the NGO's and associations' staff on waterborne diseases and on how to use Chlore'C. Some of TA's partnering organizations already dispose of substantial knowledge with regard to social marketing techniques. For those who do not TA provides training for individual staff and shows them how to effectively approach the target audience. Finally, Tinkisso-Antenna works together with influential others³⁰ like village leaders as well as with priests and imams who include messages on the importance of safe water into their mass.

One key element in TA's social marketing strategy is the village level entrepreneur. In fact, he assumes a critical double role that combines social marketing functions with last-mile distribution. The use of VLEs will be described in the following chapter.

²⁷ Refer to the report in the annex for detailed information on what social marketing activities and techniques TA and its partnering organizations apply.

²⁸ Community health agents go from door to door to explain health related practices like birth control, nutrition, sanitation, etc.

²⁹ According to TA's information over 250 health centers and hospitals are currently part of that network (Bühlmann, 2014, p. 24).

³⁰ „Influential others“ is a commonly used term in the social marketing literature and is an equivalent to „opinion leaders“.

TA's social marketing partnerships create a win-win situation for both sides. Social marketing partners procure Chlore'C at 3'500 GNF per bottle and sell it at 5'000 GNF which leaves them with a markup of 1'500 GNF per bottle. TA on the other hand scales up its social marketing activities without having to be present with its own staff. Furthermore, working with locally respected people and organizations as well as with health structures does not only raise awareness for Chlore'C but also substantially contribute to the acceptability of the product with the population.

9.3 Strategy for effective supply

Effective supply strategies at the BoP need to address "availability" and "affordability". As shown Tinkisso-Antenna produces and bottles all of its Chlore'C in Conakry. Using its own truck it delivers to about 100 of the capital's over 200 pharmacies as well as to some stores and supermarkets (Bühlmann, 2014, p. 54).

In April 2014 supply outside of Conakry was almost entirely limited to the distribution via health centers and hospitals. TA sends its delivery truck to regional deposits from where the surrounding health centers can stock up Chlore'C on credit. Payback occurs only after the centers sell all of their supplies. NGOs and associations also take part in the distribution, however, their sales amount is limited and sales often only occur during social marketing campaigns but not on a permanent basis.

By the end of April 2014 TA entered a partnership agreement with the company "Good Job", a Guinean private sector distributor. Working for other goods-producers as well it disposes of a network of wholesalers in many regions of the country. The objective of TA's partnership with Good Job is to attain scale by lowering transportation costs and to make Chlore'C available at the same price throughout the entire country in stores, pharmacies and on markets. Furthermore, health structures can also be connected to the new distribution system. TA and Good Job share the costs of commercial marketing (radio spots, posters, etc.) which is necessary to make wholesalers and other merchants add the new product to their assortment. Past experience shows that the latter only buy stock of Chlore'C if they are convinced that there is enough local demand for it.³¹

³¹ Buying Chlore'C for the first time represents a financial risk to merchants because it has an expiry date. The product becomes worthless if it is not sold within a certain period of time.

While connecting regional wholesalers to the distribution network might be sufficient to make Chlore'C available in urban areas it is not enough to expand product-coverage to remote rural villages. Wholesalers only sell their products where they expect to make profits and do not concern themselves with questions about social impact. Therefore, economic considerations do in most cases prevent them from trying to reach those customers who are most distant and least able to pay. As a consequence, supply remains limited to cities and at best to their outskirts leaving the surrounding rural population cut off. TA approaches this problem of last mile distribution by using village level entrepreneurs. As mentioned before they assume a double role by contributing to the social marketing process and to the supply chain at the same time. For that purpose TA or one of its partnering NGOs identifies a person (often a community agent who is well-known by the villagers) who is willing to become a promoter of the product in his or her village. Then, the VLE receives a box of Chlore'C for free to distribute or sell it to family and friends. Word of mouth usually spreads very quickly once a new product appears in a small village. People start to ask questions about it and try it by themselves. The fact that someone familiar promotes Chlore'C contributes substantially to the acceptability of the product. If the VLE's activities are not sufficient to initiate demand the local partnering NGO later supports his activities by conducting an actual social marketing campaign. Once people ask for the product on a regular basis and are willing to pay for it the village is being connected to TA's distribution system by putting him in contact with the local wholesaler or with TA's regional partnering NGO who disposes of stock. Like social marketing partners the VLE can buy the product at a price of 3'500 GNF and make more revenue the more stock he sells.

10. Discussion and Recommendations

Tinkisso-Antenna's strategy for scaling up its business deals with all of the 4 As. However, the problems met suggest that improvements can be made. This chapter identifies these problems and contrasts them with potential solutions based on the state of the art research in order to provide recommendations for improvement.

10.1 Problems with demand creation

Tinkisso-Antenna's experience with demand creation confirms the observations highlighted in the social marketing literature: Raising awareness for waterborne diseases and developing acceptability for its product Chlore'C takes considerable time.

TA's strategy of using social marketing partners that are locally rooted, speak the local language, and who know customs and people is in line with the contemporary recommendations from social marketing literature. This strategy does not only allow to create demand in a cost-effective way but also to tailor the campaigns to local conditions. The collaboration with health centers, hospitals and community health agents is a very effective way to promote the use of Chlore'C. First of all it allows reaching many people over a vast geographical area. Second, the target population is likely to be more receptive to lessons on health prevention and water treatment when they or their children suffer from a disease which is directly related to contaminated water. Furthermore, the fact that a doctor or another health care professional promotes the use of Chlore'C does inspire trust and therefore acceptability for the product. The same goes true for social marketing via local NGOs, associations and village level entrepreneurs. The public confidence they enjoy in their communities allows them to be effective messengers on behalf of Tinkisso-Antenna and Chlore'C.

The major problem for Tinkisso-Antenna with regard to demand creation is the lack of uninterrupted funding for social marketing activities. The NGO faces the common dilemma that demand creation is an expensive task which by definition always precedes the profit-taking. Hence, there is no way around the allocation of an up-front credit for each new intervention zone. This credit must either be provided by in-house financing or by external funding. However, in-house financing is only feasible until the business has reached a critical mass (sales amount) which allows to generate sufficient revenues for re-investment. In the case of Tinkisso-Antenna it is almost impossible to attain this critical mass without receiving start-up financing for demand creation. Significantly, it has been TA's major ongoing struggle to attract funding on a reliable and steady basis that enables the development of a sustainable long-term business plan.

In conclusion, Tinkisso-Antenna has developed a functioning state of the art strategy for demand creation in the new intervention zones but lacks a reliable long term financing scheme to implement it.

10.2 Problems with effective supply

Tinkisso-Antenna does not encounter major problems with making Chlore'C available to the population at an affordable price in the capital, Conakry. Short delivery routes to

pharmacies, stores and health centers combined with considerable sales amounts allow for a profitable business. Inhabitants of Conakry, Guinea's biggest city, tend to be better educated in hygiene practices than their rural counterparts and they are used to go to merchants in order to run errands. Furthermore, many customers in Conakry already know "Sur Eau" which is a competing product to Chlore'C produced by Population Services International (PSI). As many people have already applied the chlorination method or at least heard of it awareness and acceptability are given to a considerable extent in Conakry. Therefore, purely commercial promotion through placards, radio spots and the like are sufficient to make customers buy Chlore'C. TA does not need to invest much money in social marketing activities which again allows for lower costs.

Despite rather favorable conditions in Conakry "double circuits" are one supply chain related problem that TA faces in the capital. As the NGO does not act as the final seller it has difficulty to control the price to which the product is sold to the end consumer. TA has "caught" pharmacies and other vendors selling bottles for up to 10'000 GNF which is two times the official price. However, Bühlmann (2014) shows in a household level survey that the problem is not very pronounced to date as only about 10% of customers pay too much for the product. In order to fight such double circuits TA prints the end price of 5000 GNF on the bottle label and confronts the fallible merchants with their practices. Tinkisso-Antenna did only spot double circuits in Conakry where it is well connected. The same problem would likely go unnoticed in more distant areas. Hence, being locally based has the advantage that monitoring business conditions is much easier. One can better react to problems, deal with customer concerns and deliver stock even on short notice.

Ensuring effective supply outside of Conakry is much more difficult. To date, distribution into these intervention zones primarily functions through health centers and hospitals. Despite the advantages this approach has for social marketing and in terms of reach it suffers from major flaws as far as distribution and financial sustainability are concerned. Figure 6 of the report shows how distribution through health centers is organized (Bühlmann, 2014, p. 25). When a health center runs out of stock it places an order with the prefectural health authority who bundles the orders from all centers in its area of responsibility and forwards it to the regional health authority. The latter, again, collects all orderings coming from the prefectural authorities in its regions and asks TA for delivery of the total quantity. TA delivers respective stock on credit to the regional authority who delivers to the prefectural

authorities. From there Chlore'C supply goes on to the health centers. It is obvious that this process is time-consuming and most health centers are bound to run out of stock at some point even if they place their orders betimes. Hence, the current system does not allow for the uninterrupted permanent supply of Chlore'C which is necessary to allow for effective health prevention. Furthermore, it creates a financial problem for TA because back payment of its loan (delivery on credit) can take up to several months. Only once health centers sold all of their stock do they pay for the product. Moreover, payment does not directly go to TA but follows the same official channel like orders and delivery: Prefectural authorities collect all the money coming from centers and forward it to the regional authorities who only pay TA back once they collected all the money from a delivery. Frequently, back payment does not occur at all because of lacking coordination or because health centers or authorities use the revenues from sales for other purposes (Bühlmann, 2014, p. 25 f.).

The situation with NGOs and associations is quite similar. They are very suitable to scale up social marketing efforts but they cannot guarantee permanent availability of the product. These organizations need the Chlore'C they receive from TA for their social marketing campaigns and even though they do participate in sales they don't have the capacities to cover more than a few customers at once. Furthermore, like health centers they procure Chlore'C on credit from TA although they usually pay their debts.

In conclusion, health structures, NGOs and associations are very useful for social marketing purposes and demand creation but cannot guarantee permanent availability of Chlore'C on their own. Moreover, slow delivery processes and precarious cash flows do not allow for economies of scale which are vital for financial sustainability in TA's current business model. The case of Tinkisso-Antenna clearly shows that only a privately run and profit-oriented supply system can guarantee permanent access to the product for the population and financial sustainability for the social business.

As shown in the previous chapter TA has to date entrusted its social marketing partners with the distribution of Chlore'C. It is only now about to develop a profit-oriented commercial distribution system. Among the many options available it chose a distributorship-model which Illetschko (2011) describes as follows: “[...] *a manufacturer, importer or wholesaler appoints one or several distributors. These distributors are normally selected on the strength of their existing contacts in the target market. Distributors will be obliged to stock, sell and service the product within a defined area and usually operate for their own account.*”

(Illetschko, 2011a, p. 19). TA decided to work with the distributor Good Job because it does dispose of contacts in the target market. Not only did the company already distribute the competing product Sur Eau but it also delivers other goods to cities outside of Conakry. TA plans to pair the distributor approach with a local coordinator who is responsible to guarantee an effective interplay between demand creation and supply.

The distributor approach does have advantages with regard to distribution costs: Convincing wholesalers to sell Chlore'C might be easier and as a professional distributor Good Job has experience in transportation of goods throughout the country. Hence, the model might allow for better availability of the product. Furthermore, if the envisaged cross-subsidization system proves to work out it might be able to make Chlore'C available throughout all intervention zones at the same price of 5'000 GNF (affordability). However, there are considerable disadvantages and risks involved in the distributor-model.

First and very importantly control over distribution channels remains limited. Once the distributor unloads his stock of Chlore'C with the local wholesaler he cedes responsibility to the latter and does not care about what happens next. For the wholesaler does it not matter who the bottles are sold to as long as they leave his shelves and he earns a profit. Hence, he will not make an effort to reach remote villages when he can sell all of his stock around the corner although this is exactly where TA wants to see its product to be consumed. Furthermore, he is likely not going to concern himself with problems like double circuits which can become very dangerous for TA's project. Only if the poorest can afford Chlore'C is TA's business going to attain its social objective. At worst the wholesaler might even start selling the product over price himself if enough demand exists in urban areas. Ultimately, selling a wide range of different goods he does not depend on Chlore'C sales in the long run and will not make much effort to promote it.

Second, the distributor model does not allow for effective interaction of social and commercial marketing and to sustainably connect remote villages through VLEs. The main reason is that finding a local coordinator with sufficient incentive to do dedicated work is very difficult. As shown earlier demand creation and supply need to go in pairs if the gains of social marketing efforts are not to be lost. If demand for Chlore'C starts to evolve in a village it is from utmost importance to quickly connect it to a reliable distribution system. Otherwise people forget about the product and all demand creation efforts are in vain. Hence, there is need for a local coordinator who constantly monitors the activities and

market conditions within his area of responsibility and who stands ready to connect people and to coordinate demand creation and supply. Such a coordinator needs to have a personal interest in the success of Chlore'C in his region in order to do his work with the necessary commitment. As shown this is the case with neither the wholesalers nor the distributor. The only organizations who might take on the responsibility as a local coordinator are NGOs and associations. However, they do have several projects and promoting Chlore'C is usually just one of many activities on their minds. Furthermore, these organizations are often rather poorly organized and as they work with many young people their churn rate tends to be high. It is therefore not easy to find someone with the long-term commitment and personal interest required to assume the important role of a local coordinator. Not least so because the limited sales amount of NGOs and associations does usually not allow for a sufficient financial incentive.

The main problems associated with the distributor model that TA chose in order to scale up its supply of Chlore'C all boil down to a lack of local commitment. However, constant monitoring of local circumstances and effective coordination are key to reaching scale. The state of the art research presented in section II suggests that local ownership through microfranchising is best suited to address this challenge. Chapter 10.4 analyses how Tinkisso-Antenna could replace its distributor model for a microfranchise approach in order to create a sustainable business with local ownership.

10.3 Economic viability of the current business model

Tinkisso-Antenna only begun to professionalize its book-keeping in 2012 which is why no reliable data is available for the time before. As the balance sheet and the income statement for 2014 are not available yet only the years 2012 and 2013 will be taken into account in the following analysis. Furthermore, any conclusion on the economic viability of the current model should be treated with caution. As shown earlier the development of a business model at the base of the pyramid takes considerable time and Tinkisso-Antenna is yet at an early stage of this development. Furthermore, reliable data for sales quantities are only available for 2013 while the data for 2012 is incomplete.

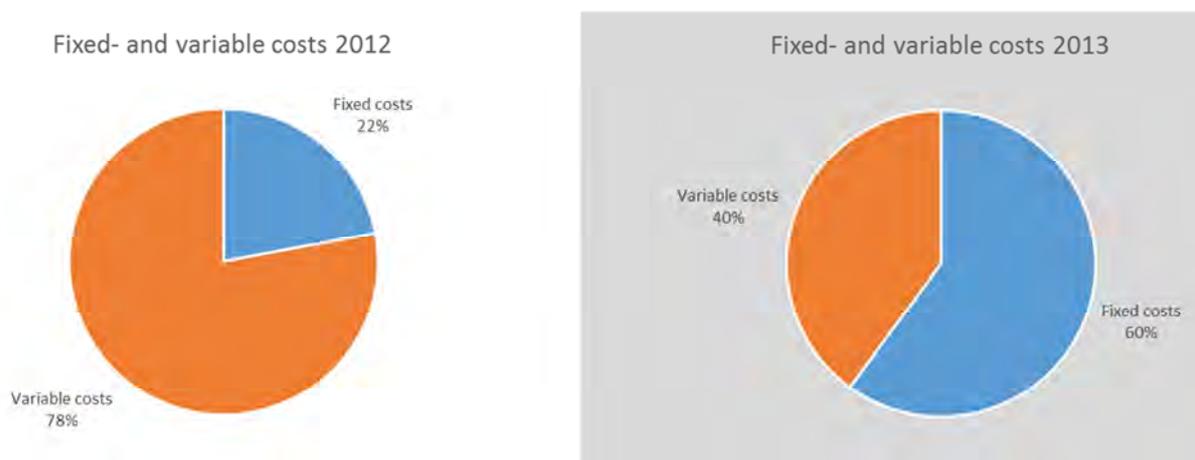
Tinkisso-Antenna has a balance sheet total of EUR 94'805.18 in 2012 and of EUR 121'776.56 in 2013. Total Chlore'C sales revenue in 2012 amounts to EUR 244'331.32 and EUR 98'678.28 in 2013. Tinkisso-Antenna's income statement discloses a profit of EUR 22'435.78 for 2012

and a loss of EUR 102'001.95 for 2013. The total debt to equity ratio is 18% in 2012 and as high as 120% in 2013. The main reasons for this heavy increase are new provisions for amortization as well as externally funded investment in new infrastructure.

10.3.1 Changing cost structure

Being at an early stage of its scaling process Tinkisso-Antenna's business undergoes considerable changes with regard to cost structures as shown in Figure 3.³²

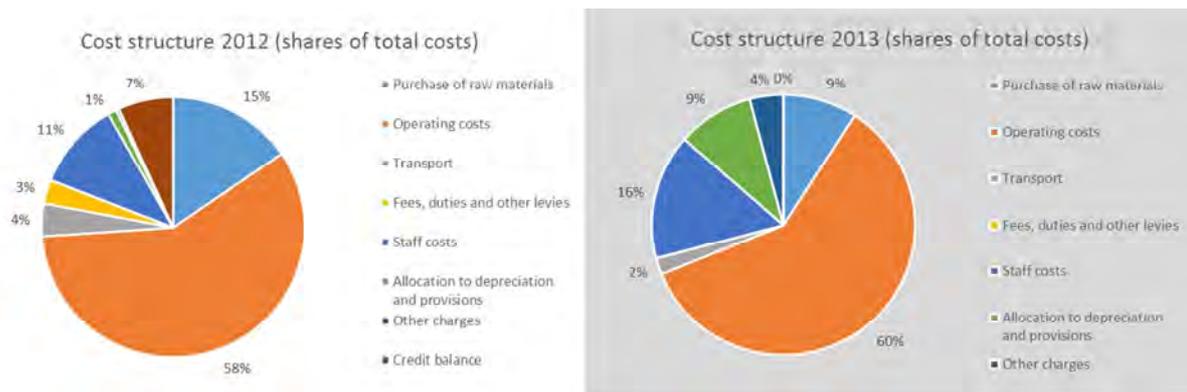
Figure 3: Fixed- and variable costs (2012 and 2013)



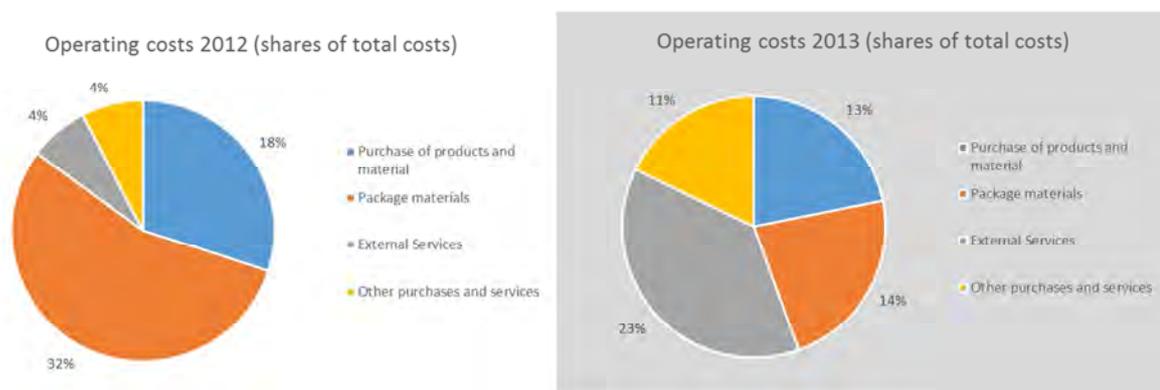
While the share of fixed costs was as low as 22% in 2012 it increased to 60% in 2013. The last column in Annex I shows the changing shares of individual cost items in total costs between 2012 and 2013.³³ Looking at the fixed costs we see that “external services” increased by 18%. Thereof, 12% can be attributed to “promotion activities” which include social- and commercial marketing efforts. Rising costs for promotion are not surprising considering Tinkisso-Antenna's efforts to reach out to markets outside of Conakry. Furthermore, “allocation to depreciation and provisions” increased by 8% compared to 2012.

³² More details can be found in Annex I.

³³ Note that the biggest changes (upper 10%) are highlighted in red.

Figure 4: Cost structure (2012 and 2013)

Not only with regard to fixed- and variable costs but also with regard to cost categories did substantial changes occur (Figure 4). Both in 2012 as well as in 2013 operating costs take up more than half of total costs amounting to 58% and 60% respectively. Expenses for the purchase of raw materials decreased from 15% in 2012 to 9% in 2013. On the other hand, staff costs increased from 11% to 16%.

Figure 5: Operating costs as share of total costs (2012 and 2013)

Being the biggest single cost item by far operating costs deserve closer examination. Figure 5 shows substantial changes in their composition. The cost share for package materials fell substantially in 2013 (from 32% to 14%) and at the same time the expenses for external services increased from 4% to 23%. Due to technical problems and other factors the number of sold bottles fell from 373'860 in 2012 to 283'613 in 2013.³⁴ At the same time Tinkisso-Antenna started to invest more money in promotional activities which explains these shifts to some extent.

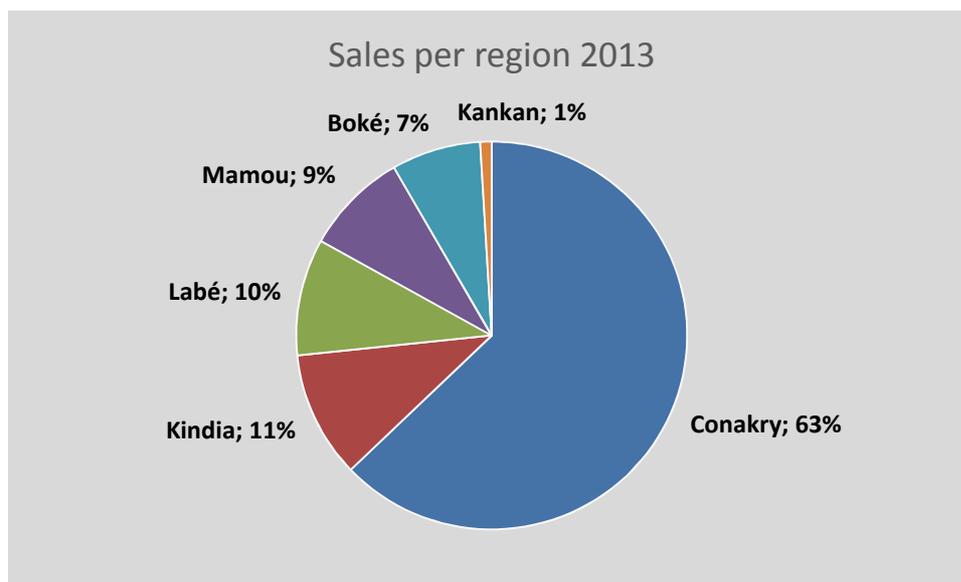
³⁴ Note that the data for production quantities is incomplete for 2012 and should therefore be treated with caution. The calculation for the number of sold bottles is based on the production statistics for both years including a 7% spill (these 7% are an estimate made by Tinkisso-Antenna).

In a nutshell, Tinkisso-Antenna's cost structure is undergoing considerable changes along with the development of its business model and it might be too early to draw a valid picture that allows for tailored recommendations. However, operating costs make up a large part of the total and deserve scrutiny. With regard to Tinkisso-Antenna's business model this is unlikely to change.

10.3.2 Modeling transportation costs

Figure 6 shows the sales distribution of Chlore'C throughout Tinkisso-Antenna's intervention zones in 2013. More than 60% of sales have been realized in Conakry where transportation costs are comparably low due to high customer density,³⁵ proximity to the production facility as well as due to relatively favorable road conditions. Another 11% have been sold in Kindia which is about two hours away from Conakry by car.

Figure 6: Chlore'C sales per region 2013



Merely 1% of bottles have been sold in Kankan, the most distant region from Conakry. Tinkisso-Antenna sees itself as a socially oriented business and aims to bring a solution for home-based-water-treatment to those people who need it the most. However, these people do not live in the capital but in the more distant rural regions of the country. Hence, the transportation costs of EUR 6'195 stated in 2013 are much lower than those that are to be expected for the years to come.

³⁵ Recall the correlation shown in Figure 1 where delivery costs increase with lower customer density.

Table 1: Distance between regions in kilometers

	Distance (km)
Ckry - Ckry	45
Ckry - Kindia	137
Ckry - Labé	376
Ckry - Mamou	309
Ckry - Boké	296
Ckry - Kankan	663

Future transportation costs can be modeled assuming that they are a function of the total quantity delivered to each region with an increasing distance resulting in higher costs (distances shown in

Table 1³⁶). “X” serves a transportation constant calculated on total transportation costs for 2013 (EUR 6’195). The sum of transportation costs for all regions equals total transportation costs:³⁷

$$(1) \quad \sum(a * bn * cn * x) = EUR 6195$$

Solve (1) for x:

$$(2) \quad x = \frac{6195}{ab1c1+ab2c2+ab3c3+ab4c4+ab5c5+ab6c6} = 0.000163052$$

Based on this calculation Table 2 shows what transportation costs would be for 2013 under two different scenarios.³⁸

Table 2: Modeling different regional coverage

	Actual sales (2013)		Scenario 1: (Equal sales amounts)		Scenario 2: (Sales according to population)	
Conakry	1'307.42	63%	346.83	17%	473.36	23%
Kindia	667.12	11%	1'055.89	17%	1'200.83	19%
Labé	1'694.43	10%	2'897.93	17%	2'104.69	12%
Mamou	1'224.73	9%	2'381.54	17%	1'271.75	9%
Boké	1'009.33	7%	2'281.35	17%	1'799.53	13%
Kankan	291.98	1%	5'109.91	17%	7'403.35	24%
Total costs	6'195.00	100%	14'073.46	100%	14'253.52	100%

Scenario 1 assumes that Chlore’C bottles are equally distributed and sold to the six different regions covered by Tinkisso-Antenna to date. *Scenario 2* takes on a market-based approach and assumes delivery according to the size of the population (number of potential

³⁶ Data retrieved from Google Maps. Distances are calculated between Conakry and the regional capital. Note that Interregional transport to villages is not included and would increase transportation costs even more. For Conakry the outer diameter (maximal transportation distance) has been used.

³⁷ a = total sales (bottles); b = percentages sold per region (%); c = distance per region (km); x = transportation constant; index n 1 to 6 for the different regions.

³⁸ With respective changes made to parameter „b“ for each region.

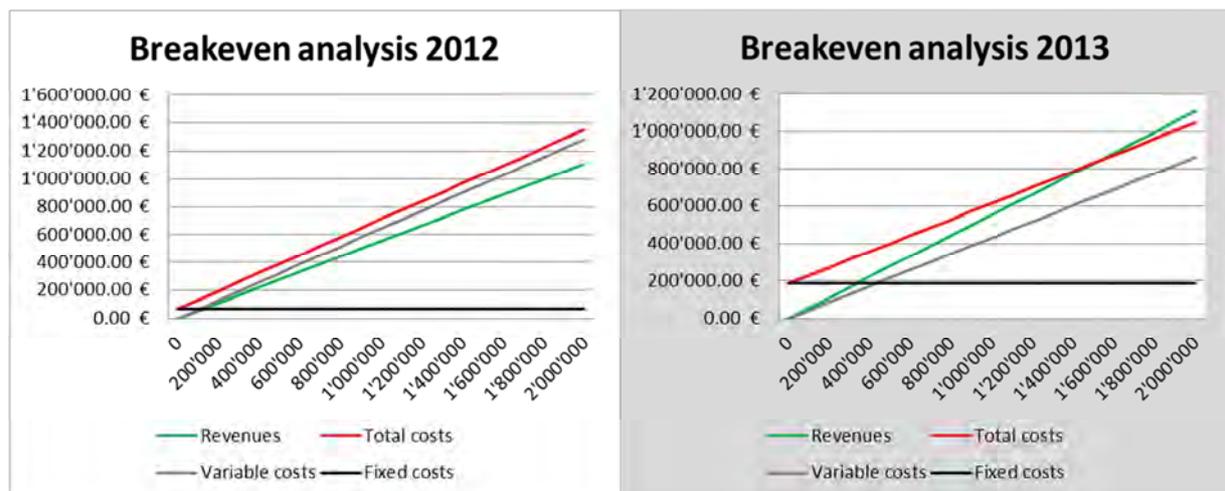
customers) of the different regions. The results clearly show that transportation costs would more than double for both scenarios (EUR 14'073 for *Scenario 1* and EUR 14'254 for *Scenario 2* instead of the actual EUR 6'195).

Transportation costs are a very important variable cost item that is likely to increase significantly over the next years. The 2012 and 2013 numbers provide a strong underestimation with regard to future business scenarios.

10.3.3 Breakeven Analysis

Tinkisso-Antenna's operations are not financially sustainable for the years 2012 and 2013. External funding is necessary to keep them going and the profits in 2012 could not have been realized without the former.

Figure 7: Breakeven analysis (2012 and 2013)



The point where revenues equal total costs defines breakeven (BEP). Any production amount short of it will result in losses and any amount beyond in profits. Figure 7 shows a breakeven analysis of Tinkisso-Antenna for the years 2012 and 2013. BEP is given at the intersection of the green (revenues) and the red (total costs) line.

Figure 7 clearly shows that breakeven does not occur in 2012 as can be seen by the diverging lines. The reason for this is the fact that variable costs per bottle (EUR 0.64) exceed its price of GNF 5'000 (EUR 0.55). Hence, with every additional bottle produced and sold Tinkisso-Antenna incurs a loss of EUR 0.9.

The situation looks different for 2013 where the price per bottle exceeds its variable costs (EUR 0.43) by EUR 0.12. The BEP lies at a production quantity of 1'517'374 bottles, which

equals a turnover of EUR 838'729. Tinkisso-Antenna incurred losses in 2013 because it sold only about a fifth of that amount (283'613 bottles).

In conclusion, Tinkisso-Antenna's business has not been financially sustainable during the years 2012 and 2013. Production quantities have been too low and costs exceeded revenues. One of the key challenges for the years to come is the question of how to deliver Chlore'C to more distant regions given that losses occur already now when most bottles are sold in Conakry which is the most attractive market from an economic point of view. There is no single best solution for improvements of Tinkisso-Antenna's business model and several options deserve consideration. The following chapter discusses one such option and proposes the implementation of a microfranchise model.

10.4 Proposing a new business model for Tinkisso-Antenna

The present chapter analyses whether or not Tinkisso-Antenna's business is suited for a microfranchise approach and discusses its implementation. Following this model Tinkisso-Antenna would make WATA-devices, training and material available to licensees. The latter would start to produce Chlore'C locally and to distribute it within their region. In return Tinkisso-Antenna as franchisor receives franchising fees that can be used to develop the business.

10.4.1 Applicability of the microfranchise approach for Tinkisso-Antenna

A business model based on a franchise approach would not only allow Tinkisso-Antenna to save significant transportation costs by producing Chlore'C locally but also to scale up its business in a financially sustainable way through local ownership. Interestingly, local production has already been tried in Guinea as shown at the beginning of chapter 8. Until 2009 regional health authorities were mandated to produce and distribute chlorine on behalf of the population. However, despite the numerous advantages of local production the project failed due to poor public governance. Based on the insights from contemporary BoP literature I recommend Tinkisso-Antenna to revive local production based on a privately run and profit based microfranchise business model. The recommendation is based on the assumption that the microfranchise approach is best suited to address the 4 As, especially "availability" and "affordability".

Microfranchising assumes that providing a simple toolbox to individuals or small organizations with very limited resources is sufficient to build a new business (Rogers,

Fairbourne, & Wolcott, 2011, p. 38). However, not all business models are suited for this approach. Therefore, Tinkisso-Antenna's eligibility for microfranchising needs to be assessed in a first step. As shown in chapter 4.2.5 Rogers, Fairbourne and Wolcott (2011) identify three characteristics that successful microfranchise model typically dispose of: They are organic, modular, and microscalable (Rogers, Fairbourne, & Wolcott, 2011, p. 38 ff.).

In order for a microfranchise to be organic it must be executable at the grass-roots franchisee level with minimal involvement from the franchiser. The speed of growth is largely determined by local needs which are identified by local staff (Rogers, Fairbourne, & Wolcott, 2011, pp. 38, 40). Production of Chlore'C requires a certain amount of technical expertise. Hence, franchisees need respective training before they can run their own local production site. Until 2009 Tinkisso-Antenna acted as a technical consultant on behalf of UNICEF to educate and assist the regional authorities in production of chlorine using WATA devices. The reason for the subsequent production breakdown was not related to skill or technical know-how but to financial mismanagement. Therefore, it can be concluded that production of Chlore'C is executable at the grass-root franchisee level. While considerable training might be necessary at the outset of a new franchisee's operations the role of TA as the core franchiser would sharply decline to minimal consulting efforts thereafter. Local production of Chlore'C would ideally allow for grass-roots level growth of local franchises. Production volume could ideally be aligned to fluctuations in demand. Furthermore, local staff allows for permanent monitoring of business conditions, to react to newly created demand (linking of VLEs) and ensure proper coordination of social and commercial marketing. In conclusion, Tinkisso-Antenna's project does fulfill the requirements of being organic although the necessary technical training at the beginning might be a challenge.

Microfranchises are typically modular which allows them to achieve quality and consistency of the operations with minimal involvement of the franchisor. Modularity can also involve the option to add additional goods and services to the range of products in order to constantly adapt the business model to consumer needs (Rogers, Fairbourne, & Wolcott, 2011, pp. 38, 40). Similarly to production, proper quality control of the output and maintenance of technical devices for consistency do require employee training. Again, while the amount of such training needed at the beginning should not be underestimated it does later fall to sporadic consultancy as prior experience with regional authorities shows. Hence, minimal involvement of the core franchisor can be assumed over the medium- and long run.

Although Tinkisso-Antenna does fulfill the basic requirement for modularity it is focused on one single product only. Therefore, franchisees lack the option to diversify their businesses by adding additional goods and services to the existing range of products. Being focused on one stream of revenue only is certainly a weakness of Tinkisso-Antenna's business.

Microscalability requires a business to be successfully repeatable with heavily limited financial and professional resources (Rogers, Fairbourne, & Wolcott, 2011, p. 38). This is the part where Tinkisso-Antenna does arguably face the biggest challenge. Setting up a production facility for Chlore'C does indeed require financial resources which are not within reach of the poorest. Furthermore, a certain level of technical expertise is indispensable. Although TA's business does face constraints with regard to its microscalability this does not mean that it is not suited for microfranchising given the right approach to it.

10.4.2 Implementation of the microfranchise approach

Implementing a microfranchising approach is certainly a challenging task with many uncertainties. As mentioned before the objective is to find a capable licensee and provide him with the necessary material and training needed to start production of Chlore'C in his region.

It is not easy to determine the costs involved in opening a new franchise because local circumstances are likely to require different settings and adaptations of the business model. Antenna Technologies offers three different WATA- devices for the production of chlorine.³⁹ The cheapest one is called "Mini-WATA KIT" and comes at a price of EUR 125 (EUR 166 for the solar option). It is capable of producing 167 ml of active chlorine per hour which allows for treatment of up to 4000 liters of water per day equaling the needs of 1000 people.⁴⁰ The WATA-Standard KIT (1 liter of chlorine per hour, treatment of 24'000 liters of water per day equaling 6'000 people) costs EUR 317. Finally, the "Maxi-WATA KIT", Antenna Technologies most performant device, produces 12.5 liters of active chlorine per hour (treatment of 500'000 liters of water per day equaling 125'000 people) at a price of EUR 3'620 per unit.

Several expenses are necessary in addition to the production device. Again, they vary with local circumstances like the availability of electricity and other input factors. Overall, the setup of a new microfranchise requires at least EUR 125 upfront investment which is a lot of

³⁹ For more information see (Antenna Technologies, 2014).

⁴⁰ With average quality water and according to the standards of 4 liters per person per day; final concentration in residual chlorine of minimum 0.5 to 1 mg/l according to Antenna Technologies.

money in a country with a GDP per capita of USD 1'100.⁴¹ Therefore, appropriate financing methods need to be found.

Chapter 5.2.2 introduced the BOOT model which is based on a microequity approach. This model could prove to be an effective tool for Tinkisso-Antenna to acquire, train and manage new franchises. After identifying new franchisees Tinkisso-Antenna would assume all initial costs for establishing local production facilities. Their operators are then given the opportunity to gradually pay back Tinkisso-Antenna through a sweat equity agreement and become the actual owners of the microfranchise (sliding scale of ownership). As they become more and more financially invested their incentives to run the business successfully increases. Tinkisso-Antenna does either have the option to buy new devices or to give out those of its central production facility in Conakry. The latter option has the advantage that it does not require any new investment.

Companies at the BoP often wrestle with tradeoffs between cost, coverage and control (WEF, 2009, p. 26). Especially for franchises where principle-agent issues are more likely to occur the “control aspect” becomes very important to make sure the franchisees act according to the mutual agreement. Mismanagement may have negative implications for the business and for the reputation of the brand. First of all, the BOOT model with its strong collaboration between franchisor and franchisee fosters the development of personal ties and allows building up mutual trust. However, the most effective way to exert control over franchisees might work through the supply of Chlore’C bottles. There is currently only one producer which is able to manufacture such bottles in the whole country. Hence, local franchises do not have a way to circumvent bottle-supply by Tinkisso-Antenna and rely on its supply.

10.5 Conclusion case study

In summary, Tinkisso-Antenna’s business meets the requirements for a microfranchise. The latter would allow addressing the challenges “availability” and “affordability” more effectively than the current centralized business model mainly by shortening transportation distances. Furthermore, a microfranchise approach allows for better coordination of supply and demand at the local level and to interact with customers on an on-going basis in order to achieve better acceptability for the product.

⁴¹ According to the 2013 figures of the CIA Factbook (Central Intelligence Agency, 2014).

Therefore, I recommend Tinkisso-Antenna to hand over production of Chlore'C to local business format microfranchises. Despite the failed attempt of local production via regional health authorities in the past I argue that a privately run approach does bear huge potential for scaling up Tinkisso-Antenna's business in a financially sustainable way. TA could take on more of a managerial role by focusing on demand and market creation as well as on management, training and coordination of the various franchises across the country. It could continue to be seen as an NGO and therefore attract public and philanthropic funding. Furthermore, it could increasingly rely on a stable income stream coming from the fees that the franchisees pay on a regular basis. Control over the franchisees can be exercised via the supply of Chlore'C bottles.

The new business model based on a microfranchise approach would allow Tinkisso-Antenna to focus on demand and market creation as well as on the management of the various actors involved in its business model. Coordination of social and commercial activities could be improved and local circumstances better be taken into account. Furthermore, after sales services would be much easier to conduct. Very importantly, the microfranchise approach provides a solution against the lack of local commitment which was the main problem for the failed attempt of regional production in the past. Not least, substantial transportation costs could be saved with a simultaneous improvement of supply to distant regions.

IV. CONCLUSION

Doing business at the BoP is a challenging task especially when it comes to acquiring and maintaining a certain size in order to reach more customers. There is no panacea for scaling-up a locally successful social business in the area of safe water development based on the HWTS-approach. However, theory and practice provide useful guidance to find feasible options.

Business conditions at the BoP fundamentally differ from those in more developed parts of the world and companies are often required to create whole new markets instead of entering and competing in existing ones. The state of the art research suggests that only businesses that deliver all of the 4 A's have better chances to be successful in the long run.

Marketing HWTS solutions to the BoP involves two main tasks: The creation of demand (a market) for the product and ensuring its effective supply. Ideally, funding for market creation is derived from public or philanthropic sources while effective supply is guaranteed by the private sector.

There is no single best organizational structure for doing and scaling up business at the BoP. The choice needs to be made for each individual task and hybrid forms may often be the best way to go. Broadly speaking non-profit NGOs seem to be better suited for demand and market creation at the early stage which is the most important, time-consuming and difficult one. Furthermore, they are effective business model generators at the BoP because they have the structural patience and local knowledge needed to develop new approaches. The state of the art research suggests that once a business model has become profitable it is best run by a for-profit enterprise which will guarantee for long-term financial stability. Hence, the replication or scaling phase is usually best done by profit oriented companies.

According to various scholars and experts from the field microfranchising bears the highest potential for scaling up a locally successful business at the BoP. It effectively combines the strength of a capitalist approach to doing business with social objectives which allows to create a combination of social acceptability and commercial sustainability. Microfranchises provide the poorest with business opportunities that are viable in the short term and sustainable in the long run. Ideally, the microfranchise approach is combined with village-level entrepreneurs in order to distribute the product to distant rural communities.

Financing remains a challenge and hybrid approaches are needed. On the level of business operations the BOOT model offers a promising solution to start more capital intensive microfranchises. On a general level private and public funding need to go in pairs to allow for effective solutions. Market and demand creation should ideally be assumed by governments in order to provide the private sector with profitable business opportunities. Hence, public funding should not be used to subsidize products but to create markets. Only then are sustainable and privately run supply chains likely to develop at the bottom of the pyramid.

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13. Annex

Annex I: Income statement Tinkisso-Antenna (2012 and 2013)

	fixed/ variable	per 31.12.2012	per 13.12.2013	change in value	change in % (12/13)	share in total cost/revenue 2012	share in total costs/ revenue 2013	change of share of total costs (in %points)
OPERATING COSTS								
Purchase of raw materials		51'060.11	28'013.10	-23047.01	-45.14 %	15%	9%	-6 %
Caustic soda	vc	4'632.22	5'202.78	+570.56	+12.32 %	1%	2%	+0 %
Salt	vc	2'820.56	4'040.56	+1220.	+43.25 %	1%	1%	+0 %
Diverse Products	vc	43'607.33	17'436.43	-26170.9	-60.01 %	13%	6%	-8 %
Acetic acid	vc		1'333.33	+1333.33		0%	0%	+0 %
Operating costs		193'332.56	182'959.72	-10372.84	-5.37 %	58%	60%	+1 %
Purchase of products and material		57'897.72	39'907.33	-17990.39	-31.07 %	18%	13%	-4 %
Purchase of bottle labels	vc	26'795.83	18'805.56	-7990.27	-29.82 %	8%	6%	-2 %
Purchase of fluid glue	vc	17'426.44	11'309.44	-6117.	-35.10 %	5%	4%	-2 %
purchase of fuel Groupe Electrogè	vc	7'151.67	4'533.39	-2618.28	-36.61 %	2%	1%	-1 %
Purchase of fuel (car)	vc	1'616.44	1'366.06	-250.38	-15.49 %	0%	0%	-0 %
Purchase of fuel (motorcycle)	vc	33.33		-33.33	-100.00 %	0%	0%	-0 %
Purchase of adhesive tape	vc	2'946.78	1'032.22	-1914.56	-64.97 %	1%	0%	-1 %
Purchase of grease material	vc	13.89	136.67	+122.78	+883.95 %	0%	0%	+0 %
Purchase of stationery	vc	1'913.33	1'335.11	-578.22	-30.22 %	1%	0%	-0 %
Purchase of placards	vc		1'388.89	+1388.89		0%	0%	+0 %
Package materials		106'660.72	41'394.44	-65266.28	-61.19 %	32%	14%	-19 %
Purchase of bottle packaging	vc	87'392.22	32'288.89	-55103.33	-63.05 %	26%	11%	-16 %
Purchase of carton package	vc	16'994.61	8'333.33	-8661.28	-50.96 %	5%	3%	-2 %
Purchase of individual packaging materials	vc	2'273.89	772.22	-1501.67	-66.04 %	1%	0%	-0 %
External Services		14'104.79	69'176.22	+55071.43	+390.44 %	4%	23%	+18 %
Office rent	fc		1'666.67	+1666.67		0%	1%	+1 %
Rents for various locations	fc	13.33	18'666.67	+18653.34	+139'935.03 %	0%	6%	+6 %
Maintenance services Groupe Electrogè	fc	770.56	357.78	-412.78	-53.57 %	0%	0%	-0 %
Maintenance of vehicles	fc	308.33	413.78	+105.45	+34.20 %	0%	0%	+0 %
Maintenance motorcycle	fc	59.00		-59.	-100.00 %	0%	0%	-0 %
Maintenance IT	fc	61.11	133.33	+72.22	+118.18 %	0%	0%	+0 %
Maintenance Maxi wata	fc	645.56		-645.56	-100.00 %	0%	0%	-0 %
Maintenance offices	fc	1'187.51	566.33	-621.18	-52.31 %	0%	0%	-0 %
Various maintenance expenses	fc	204.39	400.11	+195.72	+95.76 %	0%	0%	+0 %
Assurance transport material	fc	111.11	241.28	+130.17	+117.15 %	0%	0%	+0 %
Promotion activities	fc	10'001.11	46'002.50	+36001.39	+359.97 %	3%	15%	+12 %
Telephone/ Communication	fc	384.44	300.00	-84.44	-21.96 %	0%	0%	-0 %
Internet	fc	358.33	427.78	+69.45	+19.38 %	0%	0%	+0 %
Other purchases and services		14'669.32	32'481.72	+17812.4	+121.43 %	4%	11%	+6 %
Water and electricity	fc		109.00	+109.		0%	0%	+0 %
Purchase various material Goupes E.	fc	925.00	11'938.11	+11013.11	+1190.61 %	0%	4%	+4 %
Purchase various material for vehicles	fc	36.67	957.44	+920.77	+2510.96 %	0%	0%	+0 %
Purchase various material for Maxi wata	fc	475.56	966.67	+491.11	+103.27 %	0%	0%	+0 %
Bank fees	fc	255.99	180.50	-75.49	-29.49 %	0%	0%	-0 %
Commissions and fees on purchases	fc	13.33		-13.33	-100.00 %	0%	0%	-0 %
Training of staff	fc	555.56	5'333.33	+4777.77	+859.99 %	0%	2%	+2 %
Salaries of temporary staff	vc	11'545.56	8'160.00	-3385.56	-29.32 %	3%	3%	-1 %
Admission fees	fc	822.78	2'773.33	+1950.55	+237.07 %	0%	1%	+1 %
Expenditures for missions	fc	38.89	2'063.33	+2024.44	+5205.55 %	0%	1%	+1 %
Transport		13'376.28	6'195.06	-7181.22	-53.69 %	4%	2%	-2 %
Transport		5'154.67	3'015.56	-2139.11	-41.50 %	2%	1%	-1 %
Transport for buying	vc	1'235.89	321.11	-914.78	-74.02 %	0%	0%	-0 %
Transport for selling	vc	3'684.67	1'386.11	-2298.56	-62.38 %	1%	0%	-1 %
Transport of staff	fc	21.67	6.67	-15.	-69.22 %	0%	0%	-0 %
Various transport costs	fc	186.11	1'301.67	+1115.56	+599.41 %	0%	0%	+0 %
Travel	fc	26.33		-26.33	-100.00 %	0%	0%	-0 %
Various purchases and external costs		8'221.61	3'179.50	-5042.11	-61.33 %	2%	1%	-1 %
Various purchases	vc	8'221.61	3'179.50	-5042.11	-61.33 %	2%	1%	-1 %
Fees, duties and other levies		9'768.28	94.44	-9673.84	-99.03 %	3%	0%	-3 %
Other purchases and services	fc	9'768.28	94.44	-9673.84	-99.03 %	3%	0%	-3 %
Staff costs		35'897.67	47'620.78	+11723.11	+32.66 %	11%	16%	+5 %
Salaries and treatments		34'888.89	47'431.89	+12543.	+35.95 %	11%	15%	+5 %
Salaries	fc	34'611.11	42'866.67	+8255.56	+23.85 %	10%	14%	+4 %
Premiums	fc	277.78	4'565.22	+4287.44	+1543.47 %	0%	1%	+1 %
Social charges	fc	1'008.78	188.89	-819.89	-81.28 %	0%	0%	-0 %
Allocation to depreciation and provisions		3'512.97	28'874.51	+25361.54	+721.94 %	1%	9%	+8 %
Allocation for the depreciation of industrial material	fc	2'361.67	20'053.56	+17691.89	+749.13 %	1%	7%	+6 %
Allocation for the depreciation of software	fc	75.83	1'011.11	+935.28	+1233.39 %	0%	0%	+0 %
Allocation for the depreciation of hardware	fc	151.08	756.48	+605.4	+400.71 %	0%	0%	+0 %
Allocation for the depreciation of Trans Auto materi	fc	924.38	6'820.69	+5896.31	+637.87 %	0%	2%	+2 %
Allocation for the depreciation of office material	fc		232.66	+232.66		0%	0%	+0 %
Other charges	fc	1'218.50	12'678.80	+11460.3	+940.53 %	0%	4%	+4 %
TOTAL I		308'166.36	306'436.41	-1729.95	-0.56 %	93%	100%	+7 %
Credit balance		22'435.78		-22435.78	-100.00 %	7%	0%	-7 %
Benefits		22'435.78		-22435.78	-100.00 %	7%	0%	-7 %
TOTAL GENERAL (COSTS)		330'602.14	306'436.41	-24165.73	-7.31 %	100%	100%	+0 %
REVENUES								
Net turnover (A)		298'076.05	98'678.28	-199397.77	-66.89 %	90%	32%	-58 %
Sales of various products		53'744.73		-53744.73	-100.00 %	16%	0%	-16 %
Sales of Chlore'C		244'331.32	98'678.28	-145653.04	-59.61 %	74%	32%	-42 %
Other revenues (B)		32'526.09	105'756.18	+73230.09	+225.14 %	10%	35%	+25 %
Product inventories			2'753.33	+2753.33		0%	1%	+1 %
Operating grants		32'526.09	89'578.91	+57052.82	+175.41 %	10%	29%	+19 %
Exchange gains			13'423.93	+13423.93		0%	4%	+4 %
TOTAL (A + B)		330'602.14	204'434.46	-126167.68	-38.16 %	100%	67%	-33 %
Debit balance			102'001.95	+102001.95		0%	33%	+33 %
Loss			102'001.95	+102001.95		0%	33%	+33 %
TOTAL GENERAL (PRODUCTS)		330'602.14	306'436.41	-24165.73	-7.31 %	100%	100%	+0 %

Red numbers indicate negative values, black numbers positive values
Red cells indicate the top 10% values per column

Annex II: Household Water Treatment and Safe Storage with Chlore'C: A Case Study of a Social Business in Guinea.

Household Water Treatment and Safe Storage with Chlore'C

A Case Study of a Social Business in Guinea

(March and April 2014)

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Executive Summary

This case study documents Tinkisso-Antenna's strategy to expand its social business for home based water treatment with chlorine to national scale. By outlining best practices and problems met it shows how the NGO managed to access the political authorities and to build a strong partnership with them. Furthermore, the report explains how Tinkisso-Antenna has developed a strong network of local partners to pursue social marketing activities and discusses current efforts to ensure easy availability of its product "Chlore'C" throughout the five intervention zones. An impact evaluation estimates Tinkisso-Antenna's current health impact and added value in Guinea.

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Abbreviations

CS	Centre de Santé (French for: Health Center)
DPS	Direction/Directeur Provincial de la Santé (French for: Prefectural Health Authority/Director)
DRS	Direction/Directeur Régional de la Santé (French for: Regional Health Authority/Director)
DSVCO	Direction de Sante de la City de Conakry (French for: Health Authority of the City of Conakry)
GNF	Franc Guinéen
HWTS	Household Water Treatment and Safe Storage
LLC	Limited Liability Company
OCHA	Office for the Coordination of Humanitarian Affairs
TED	Traitement de l'Eau à Domicile (French for: Home Based Water Treatment)
WASH	Water, Sanitation and Health
WHO	World Health Organization
MDG	Millennium Development Goals
NGO	Non-Governmental Organization
UNICEF	United Nations Children's Fund

1. Introduction

This case study documents the extension of the joint project of Tinkisso-Antenna and Antenna Technologies to national scale. The focus lies on *social marketing, partnerships* and on the collaboration with authorities and international organizations (henceforth referred to as *politics*). Moreover, *health impact* and added value of the project will be assessed.

In 2007 Antenna Technologies approaches the Guinean NGO Tinkisso and UNICEF in order to initiate a pilot project. Its aim is to sustainably improve the population's access to safe drinking water by implementing and marketing the TED approach in the prefecture of Dabola, Faranah. TED is French for "traitement de l'eau à domicile" and is referred to in English as "household water treatment and safe storage" (HWTS). Antenna Technologies had earlier developed an electric device to produce a solution of active chlorine using water and salt. Small amounts of this solution suffice to make large quantities of water drinkable. To express the value of the partnership Tinkisso later changed its name to Tinkisso-Antenna.

Tinkisso-Antenna is a social business. Its work is based on the assumption that a sustainable and effective long-term solution for safe water in Guinea can only be achieved with a viable economic model based on a product that is affordable and easily accessible to the population.

Tinkisso's activities in Dabola prove to be a success and in 2011 it signs an agreement with Guinea's Health Minister to extend the project into the five new regions of Conakry, Kindia, Boké, Mamou and Labé. In order to support this expansion and to provide a framework for replication in other countries, Antenna Technologies mandated the author with the documentation and evaluation of the above-mentioned aspects of the project. Therefore, the objective of this report is (1) to present a framework for replication, (2) to serve as a guide for scaling up existing projects and (3) to provide recommendations to improve Tinkisso-Antenna's current strategy. To this end it outlines best practices, discusses problems and estimates the impact of Tinkisso-Antenna's work in Guinea.

The paper first briefly explains the project as well as data collection and analysis. *Chapter 2* presents some basic theory on social marketing and HWTS to illustrate the context. *Chapter 3* provides brief background information on Guinea that should help the reader to better understand Tinkisso-Antenna's work environment and the choice of location. *Chapter 4* deals with politics and explains how the NGO gained access to the authorities. *Chapter 5* is devoted to strategy, successes and problems of the expansion as well as to Tinkisso-Antenna's collaboration with social marketing partners. *Chapter 6* looks at the various elements of Tinkisso-Antenna's social marketing campaigns and *Chapter 7* briefly discusses commercial marketing. *Chapter 8* deals with the health impact of Tinkisso-Antenna's work in Guinea. *Chapter 9* provides a SWOT-analysis, summarizes the most important elements, analyzes their interaction with each other and discusses the terms for replication. The report finishes with recommendations on behalf of Tinkisso-Antenna.

1.1 Tinkisso-Antenna's project in a nutshell

The commodity water is widely available in Guinea but it is of poor quality and hence source of several diseases like diarrhea. The latter is among the three most frequent and problematic illnesses in the country and one of the three major causes of death for children

under five years.⁴² A situation analysis conducted in 2007 showed that in 87% of the cases drinking water is contaminated between its source and the actual point of use. In light of this a home based water treatment approach accompanied by the promotion of hygiene practices seemed to be best suited to tackle the existing challenges.

Among the various HWST approaches that exist Tinkisso opted for the chlorination method. Respective technology was provided by Antenna Technologies in Geneva. In 2008 the NGO became the first local producer of chlorine. The positive results of the pilot project in the region of Faranah eventually led the government to support its scaling up to the national level by the end of 2011. This process is currently under way and subject of the present report. There are three elements at the core of the project: 1) Production, 2) the social branch which is structured as an NGO and 3) the commercial or revenue generating side in the form of a limited liability company (LLC).

The production is based on Antenna Technologies' Wata device which is able to produce chlorine out of a solution of water and salt. The substance is filled into bottles of 250 ml. Each of the bottles contains enough chlorine to disinfect 1000 liters of water.

The social component of the project is organized as a non-profit NGO and aims at changing the behaviour of the target population. Therefore, it pursues social marketing activities that are supposed to convince people who never treated their drinking water of the benefits of hygiene and water treatment practices and to bring them to incorporate these practices into their daily routine. This is no easy task to conclude because old habits die hard.

The commercial branch of Tinkisso-Antenna serves two main purposes. First, it ensures that once the target population adopted the practice of water treatment it does have a reliable access to the product. Second, the commercial side is supposed to generate revenues that will be re-invested into the social activities of the NGO.

The three elements need to consort with each other in order to ensure proper functioning and sustainability of the project. The challenge of how to strike the right balance will be discussed in chapter 5.3. Furthermore, good collaboration with partners and authorities is vital for the project and for its expansion.

1.2 Antenna Technologies

Antenna Technologies is a Swiss Foundation promoting innovative technologies for the poor. It is active in several domains of development including safe water. Antenna has developed three electro-chlorination devices which operate in countries like Guinea, Burkina Faso, Democratic Republic of Congo, Mali, Haiti, India, Nepal and Pakistan, and reach an estimated 10 million users. It runs several pilots with social entrepreneurs to promote their products to the local population. Tinkisso-Antenna is their local partner in Guinea and receives technology, financial funding and technical advice through Antenna Technologies.

1.3 Data and information collection

The author has spent March and April 2014 in Guinea for data and information collection. He conducted numerous interviews with national and local authorities, with directors and staff of health centers, hospitals and a health school, with NGOs and associations and with

⁴² World Health Organization (WHO), 2010.

pharmacies and merchants. He learned a lot on Tinkisso-Antenna's strategy, successes and problems during discussion with staff. In addition to that he conducted a household-level survey with the aid of two local assistants during which 175 households have been interviewed.⁴³ An overview of the data and information collection as well as the questionnaire can be found in the annex.

The household survey was executed in Conakry (99 households), in Kindia (29 households), in Mamou (24 households) and in Labé (23 households). In Conakry, three health centers had been randomly selected out of a list of all of the capital's health structures. Then, people coming to the center and some of the surrounding households had been questioned. This method is based on the reasonable assumption that residents from the entire community visit health centers on a purely random basis (for treatment, to visit family, etc.). Hence, they can be considered as households of these communities. This approach does not only allow to save considerable cost, time and man-power but also can the selection of households be improved. In addition to that, homes surrounding the health center had been questioned in order to observe storage of Chlore'C and how people use the product in their daily life. In the region of Kindia, the survey was conducted in the regional hospital (urban setting). In Mamou and Labé, the nearest village-level health centers out of the city were selected⁴⁴ in order to collect data from the rural population.

With regard to statistical significance and validity only the survey in Conakry can make a claim to represent the cities' residents as all three centers had been selected on a purely random basis and the number of cases is high enough. The survey in the other regions must rather be seen as a snapshot of the respective community that fails to represent the whole region. Nonetheless, they provide valuable insights as well as inputs to develop the strategy.

⁴³ The questionnaire can be found in Annex II.

⁴⁴ Both located in small villages about 20 kilometers outside of the regional capital.

2. Theory and Concepts

The theories and concepts presented in this chapter provide no more than a brief overview that should help the reader to get a better understanding of the context of Tinkisso-Antenna's work. They make no claim to be complete.

2.1 Home based water treatment and safe storage (HWTS)

There exist many approaches to safe water development (or WASH in a broader sense) in international development programs.

Home Based Water Treatment and Safe Storage (HWTS) addresses the problem that infection of water in developing countries often occurs during transport, that is, between its sourcing and the point of consumption. It is based on the notion that people should be able to take charge of their own water security by providing them with the necessary knowledge and tools. Hence, all HWTS methods provide means to people that allow them to autonomously disinfect drinking water in their homes.

HWTS is considered to be more effective than conventional improvements in water supplies. A review of studies conducted by the World Bank in 2005 showed that HWTS is associated with a 35% reduction in diarrheal disease compared to a statistically insignificant 11% for conventional source-based interventions. A more recent comprehensive review even found that household-based interventions are as much as twice as effective in prevention than improved wells, boreholes and communal stand pipes (UNICEF, 2008, S. 2). Considering the overwhelming evidence that HWTS prevents recontamination at the household-level the approach is not only suitable for epidemics and emergencies but also for prevention (Sobsey, 2002).

In addition to superior health gains the economic advantages over conventional methods are equally compelling. Clasen et al. (2007) calculate the costs per person and year for different HWTS methods as follows: While some combined methods cost nearly 5 USD, ceramic filters are at 3.03 USD and chlorination (0,66 USD) and solar disinfection (0,63 USD) cost less than one US-dollar. If health cost savings are included, low-cost HWTS methods (like chlorination) have the potential to result in net savings to the public sector (savings higher than implementation costs). Hence, there are very compelling economic arguments to convince authorities from the effectiveness of HWTS-approaches.⁴⁵

Chlorination is only one among many methods that can be applied for the HWTS approach. Others are filter-based systems, solar disinfection, thermal technologies (boiling, etc.), sedimentation, or combined methods. However, Clasen et al. (2007) and the WHO see it as the most cost effective of water quality interventions to prevent diarrhea.

2.2 Social marketing

Social Marketing is a distinct marketing discipline that has been labeled as such in the 1970s. There is no single definition for this concept; however, "influencing behaviour" serves as a

⁴⁵ Note that people often pay the product from their own money. Therefore, while most implementation cost are paid directly by the beneficiaries the public sector recovers more than the full costs of implementation from reduced health costs.

common denominator. A widely accepted definition from renowned authors on the subject defines social marketing as follows:

“Social Marketing is a process that uses marketing principles and techniques to influence target audience behaviours that will benefit society as well as the individual. This strategically oriented discipline relies on creating, communicating, delivering, and exchanging offerings that have positive value for individuals, clients, partners, and society at large.”

(Nancy R. Lee, Michael L. Rothschild, and Bill Smith, 2011⁴⁶)

The difference of social- and commercial marketing lies in its ultimate objective. While commercial marketing is aimed at increasing the company’s wealth by catering to the customer’s needs, the primary purpose of social marketing is to increase societal and individual well-being. The authors of the above-mentioned definition explain the essence of social marketing by comparing it to other (marketing) disciplines. They outline its unique principles and distinctions as well as shared characteristics as described in the following:⁴⁷

An important characteristic that social marketing shares with other disciplines is “audience orientation” where people are seen as decision-makers with choices rather than as students to be educated. It also uses “segmentation” of the population in order to tailor and adapt its strategy and enhance effectiveness. Furthermore, social marketing has a “behavioural focus”; it aims to encourage desired behaviours while discouraging the undesirable ones. “Evaluation” helps to ensure that the intended impact on societal benefits is being actually realized. Finally, “consideration of upstream & midstream target audiences” intends to enhance downstream efforts by targeting midstream (friends, family, opinion leaders) and upstream actors (policy makers, etc.).

Among the unique principles of social marketing is “value exchange”. It is based on the target audiences perceived self-interest that will be rewarded for performing the desired behaviour. “Recognition of competition” is another distinct characteristic. It includes the notion that in a free-choice society the social marketer has to offer options to the individuals which they consider superior to the competing alternatives. “Sustainability” is understood in that you need to constantly adapt your strategy to changes occurring in the audience and in environmental conditions in order to successfully promote desired long run behaviour. Finally, the “4 P’s” of marketing; product, place, price and promotion are the fundamental building blocks of social marketing. However, the understanding of these four elements is different from the one applied in commercial marketing. In social marketing, they are seen as tools to reduce barriers and increase benefits of the desired behaviour. The concept “product” is divided into “core product”, “actual product” and “augmented product”. The former pertains to the benefits received from performing certain behaviour, the second includes the actual features of the products or services offered and “augmented product” refers to additional goods and services provided to help perform the behaviour or increase its appeal. “Price” does not only refer to a product’s monetary costs like in commercial marketing but also to the non-monetary costs associated with adopting a new behaviour. Time spent, physical and psychological efforts and anything else that makes taking on a new behaviour strenuous or unattractive is considered as costs related to the product. “Place” is about making the product easily accessible to the target population as only convenient

⁴⁶ Lee, Rothschild, & Smith, A Declaration of Social Marketing's Unique Principles and Distinctions, 2011.

⁴⁷ Lee & Kotler, Social Marketing: Influencing Behaviours for Good, 2011, p. 18 f., 40 f.

access will lead to long-term adoption of the desired behaviour. Finally, “promotion” embraces all efforts of persuasive communications which highlight the benefits of a new behaviour to the target population as well as the best choice of respective messengers.

Social marketing practices have widely been used in the context of health promotion but also on injury prevention, environmental protection, community involvement or financial well-being. They are typically based on a systematic planning process including 10 steps:⁴⁸ First, background, purpose and focus of the project are clearly defined. Second, a situation analysis using the SWOT framework (strengths to maximize, weaknesses to minimize, opportunities to take advantage of and threats to prepare for) identifies the most important factors with regard to planning decisions in the internal and in the external environment. Third, the target audience is selected and carefully analyzed with regard to its characteristics (willingness to buy the product, demographics, geography, related behaviours, social networks, community assets, size of the market, etc.). Fourth, behaviour-, knowledge-, and belief- objectives are defined, which boils down to the question what you want the target audience to do, know and think about your product. Fifth, the target audience’s barriers to adopt the new behaviour and the respective benefits to be gained from it need to be known to the social marketer. Furthermore, he needs to be aware of competing behaviours and to know who the target audience is most likely to listen to (influential others, opinion leaders). Sixth, a positioning statement describes how you want your target audience to see the new behaviour relative to competing behaviours. Seventh, a strategic marketing mix describes use and interaction of the 4 P’s. Eighth, a plan for monitoring and evaluation needs to be framed at the outset in order to calculate the actual impact of the project and to continually adjust the strategy. Step nine foresees the establishment of a budget and to find funding and in a last step, the detailed implementation plan transforms the social marketing strategy into specific actions.

⁴⁸ Lee & Kotler, *Social Marketing: Influencing Behaviours for Good*, 2011, pp. 42-50.

3. The Environment

Guinea has been ruled by the authoritarian leader Ahmed Sekou Touré for 26 years after becoming independent from France in 1958. Following his death power was seized by military coups in 1984 and in 2008. Tensions along the borders of Liberia and Sierra Leone repeatedly threatened to destabilize the country and to spark civil war. In 2009 the security situation in Guinea (especially in Conakry), deteriorated dramatically when Captain Moussa Dadis Camara's troops fought opposition demonstrations and opened fire on them in a Conakry stadium. The first more or less free elections were held in 2010 leaving the incumbent President Alpha Condé as the winner. Political violence erupted again in early 2013 over the upcoming May elections. The National Assembly of Guinea, the country's legislative body, has not convened since 2008.

As its recent history shows Guinea is a politically highly unstable country with a very weak rule of law. This results in serious uncertainty for any organization that wants to operate within the country. Solid relations to and direct contracts with the political authorities are vital to ensure uninterrupted functioning of a business as laws and courts are dysfunctional.

The countries' economic situation is equally difficult. It ranks among the poorest in the world. In 2013 growth slowed to 2.3% (4.5% were projected) and the IMF's Poverty Reduction Strategy Paper (2013) for Guinea shows that between 2007 and 2012 poverty has increased from 53% to 55.2% at national level. Regional disparities are substantial. While 27.4% of people were considered to be poor in Conakry in 2012 the number is 64.8% in Faranah (plus 11.8 percentage points since 2007), 60.8% in Mamou (plus 10.7 percentage points since 2007), 62.5% in Kindia (plus 1.4 percentage points since 2007), 58.9% in Boké (plus 6.9 percentage points since 2007) and 65% in Labé (plus 5.2 percentage points since 2007). Furthermore, youth unemployment remains a major concern. Especially women and people with a higher education struggle to find paid work. Guinea's poverty is a challenge for a social business like Tinkisso-Antenna who wants its product to be accessible for anyone. If the price is set too high the poorest that would profit the most are excluded. On the other hand, if the business is supposed to be self-sustaining or at least not to incur losses certain revenues need to be generated.

According to the IMF report Guinea's health system is not efficient, accessible or equitable. Therefore, health care is a political priority and established objectives include emphasis on prevention and on the reduction of infant mortality. Despite this, not even 3% of the national budget is assigned to health care which is very low. It is in Tinkisso-Antenna's favor that health care is a national political authority. However, given the low budget there is no financial support from the authorities.

4. Politics: Dealing with Authorities and International Organizations

Solid relations with authorities and public institutions are important in order to ensure an uninterrupted functioning of the envisaged activities and to receive support for the scaling up of the project. This chapter resorts to Tinkisso-Antenna's history to explain how relations with authorities have been built and how they developed to date. It finishes with a summary of best practices and problems to avoid.

4.1 Align with public sector priorities

Before the cholera outbreak of 2007 the coordinator of Tinkisso did not only work in the field of safe water promotion but also in the production of Spiruline capsules to fight malnutrition in Guinea. However, he soon realized that the government's priorities at the time were more focused on improving the population's access to safe drinking water rather than in the area of malnutrition. This was not the only but one of the reasons to alter the area of intervention towards the WASH cluster. Being in line with public sector priorities would later prove to be an important element in implementing the project.

4.2 Showcase results and gain access to government and health officials

As a very young NGO Tinkisso could not look back on previous success stories or any sort of track record that could be shown to decision makers or donors in order to attract funding or to receive administrative support. The small NGO was not known by the authorities, by international organizations like the WHO and UNICEF, or by other major players in the field of WASH interventions. The only reliable partnership existed with Antenna Technologies in the area of technological cooperation. Hence, Tinkisso-Antenna faced a lack of reputation and credibility towards government and health officials. As a consequence, it fell on deaf ears when it first visited the Prefectural Health Director (DPS) of Dabola in order to present its product and ask for support.

Only when the director of the regional health center in Dabola aired his periodic report showing a substantial decline in water related diseases (particularly diarrhea) to the mentioned DPS did the latter advice Tinkisso to turn directly to the National Health Minister. However, the DPS was not able to provide any relevant contact within the national authorities. Tinkisso-Antenna knew that the chances to be noticed or listened to by the latter were very low without some sort of legitimate cause or institutional backup. The way Tinkisso-Antenna dealt with this challenge bears insightful lessons with regard to the replication of similar projects.

Lacking any significant network Tinkisso-Antenna decided to turn to the WHO first as the latter operates on the highest level of coordination in international health policies. Being a vast organization with numerous potential points of access the difficulty was to identify a service within the organization that would listen to Tinkisso-Antenna's concern and that was in a position and willing to provide support. The choice fell on the WHO's *Office for the Coordination of Humanitarian Affairs* (OCHA). As coordination office of the United Nations Secretariat OCHA is responsible for bringing together humanitarian actors in order to ensure a coherent response to emergencies and to facilitate sustainable solutions⁴⁹. Among other, it

⁴⁹ For more information visit OCHA's Website: "<http://www.unocha.org/about-us/who-we-are>" [Last visited: 08.05.14].

offers coordination services between the WHO, UNICEF and NGOs. Hence, it is used to work with the latter and probably more open to newcomers like Tinkisso-Antenna. Furthermore, it disposes of a comprehensive address-book with useful contacts within the WASH cluster. By carefully outlining the project, the technology used and the partnership with Antenna Technologies to the OCHA representative Tinkisso-Antenna managed to create confidence and to convince her to indicate the contact details of the representative to the WHO in Guinea.

As the latter wanted to know where Tinkisso-Antenna had his contact from it proved very useful to have visited OCHA first and hence to be able to show a legitimate cause of establishing the contact. After listening to the description of the project and the possibility to locally produce chlorine in Guinea the WHO representative showed interest in the approach. However, the WHO cannot impose any actions on a country and therefore he stressed the need to include the Guinean authorities in all further steps to be taken. In order to establish a respective link he advised to refer to the WASH representative with UNICEF in Guinea and created the contact. As UNICEF's local WASH representative is involved in many joint projects with the Guinean government the latter would be better suited to identify the best contacts with the authorities than the WHO representative.

Again, the fact that Tinkisso-Antenna was sent to UNICEF's WASH representative by the WHO was from vital importance to be heard and to be taken seriously. After presenting the production technology again on behalf of the UNICEF representative the latter contacted Dr. Abdourahamane Cherif, Director of the Section Public Hygiene at the National Directorate of Quality Control. Having a technical background Dr. Cherif quickly showed interest in Tinkisso-Antenna's work and would later become sort of an ambassador of Tinkisso-Antenna's approach within the national authorities.

4.3 Choose timing, acquire credibility and build trust with the authorities

Dr. Cherif who had read the mentioned report by the communal health center in Dabola was willing to visit Tinkisso-Antenna's production site during one of his regular deployments to control the local water quality. After seeing the laboratory he was positively impressed by Tinkisso-Antenna's initiative and by its ability to produce quality chlorine on a local basis. But as he presented the project to the Health Minister he fell on deaf ears. Nonetheless, Tinkisso-Antenna was now on the public radar and could hope for new opportunities to arise.

Between July and September 2005 a cholera outbreak struck Guinea. The severe situation with close to 2000 cases including 72 deaths⁵⁰ requested an urgent response. However, part of this response was seriously delayed because chlorine had to be strenuously amassed in neighboring countries as no local production site with a respective capacity existed. Dr. Cherif profited of this opportunity to persuade the Health Minister of the necessity to produce chlorine within the country using a system that allows for high production capacities that can be triggered at any time.

With consent of the Health Minister and funding from the WHO a multi-sectoral team visited Tinkisso-Antenna's production site in Dabola in 2006. The group consisted of representatives of the WHO, UNICEF, the Center d'Etude et de Recherche en Environnement of Conakry's Gamel Abdel Nasser University, the National Public Health Institute and finally Dr. Cherif, the

⁵⁰ According to WHO numbers: "http://www.who.int/csr/don/2005_09_23/en/" [Last visited: 08.05.2014].

representative of the National Directorate of Quality Control. The objective of the mission was to examine the production facility and to verify the quality of the chlorine produced by Tinkisso-Antenna. Furthermore, the team experimented with different installation setups as well as with different types of water and salt and filed a report with findings and recommendations on behalf of Tinkisso-Antenna and Antenna Technologies. The joint efforts of this multi-sectoral team together with Tinkisso-Antenna was crucial in building mutual trust and gave way to further collaboration and a partnership agreement with the authorities.

4.4 Working with authorities, administrations and health structures

In 2007 another very serious outbreak of cholera hit Guinea, especially the Capital Conakry and the region of Kindia. By the end of November, 8289 cases including 295 deaths had been notified.⁵¹ Forced to act and being aware of Antenna Technology's effective chlorine production technology the Guinean government successfully requested UNICEF to finance 14 WATA devices. Moreover, for the first time UNICEF agreed to buy them directly without going through its procurement service center in Copenhagen which can be seen as a positive outcome of the trust-building efforts based on the multi-sectoral delegation's visit to Dabola in 2006.

However, instead of entrusting Tinkisso-Antenna with the production of chlorine, the 14 devices were subsequently installed in the facilities of all of Conakry's five Communal Health Authorities as well as with the Regional Health Authorities in the remaining seven regions of the country⁵². Thus, various levels of government took on the responsibility to produce chlorine and to make it available to health structures and to the population in need. For the time being, Tinkisso-Antenna's role was limited to supporting the authorities with the installation of the WATA-devices through technical consulting. UNICEF bore the expenses for these consulting fees and all production related costs. However, only a fraction of the funding that had been announced for social marketing activities with the aim of creating demand for the product on the part of the population had actually been paid out. With those limited funds Tinkisso-Antenna was able to educate health care professionals in social marketing practices and awareness creation but it could not pursue such activities directly with the population as initially planned.

UNICEF continued to subsidize the local health authorities' production facilities and their marketing activities for about two years. However, the periodical evaluations showed clearly that the amount of subsidies paid to the different regions did in no way correspond to the actual amount of chlorine produced, nor to the number of awareness raising efforts executed. While a few DRS spared no expenses to promote the product and were even able to generate some sales-revenues, most of their peers used the subsidies for other purposes. Neglect of maintenance, damaged equipment, and insufficient procurement of input factors ultimately led to production levels close to zero. As a consequence UNICEF stopped paying subsidies to the DRS by the end of 2009. Although the basic approach of producing chlorine

⁵¹ According to WHO numbers: "<http://www.who.int/cholera/countries/CountryProfileGuinea2009.pdf>" [Last visited: 09.05.2014].

⁵² Guinea is divided into the eight administrative regions Conakry, Boké, Faranah, Kankan, Kindia, Labé, Mamou and N'zérékoré. The region/city of Conakry is divided into five communities: Kaloum, Matoto, Ratoma, Dixin and Matam.

locally was in itself very advantageous allowing for fast delivery to the end users its implementation and maintenance failed due to poor management by the authorities.

In the meantime Tinkisso-Antenna improved its energy supply system and continued to produce chlorine and to pursue social marketing activities with the support of Antenna Technologies using the means available. Due to financial constraints it reduced these activities to the region of Faranah where it had originally started its activities.

It did not escape the National Health Minister's notice that Tinkisso-Antenna kept producing chlorine on a low but nevertheless constant level without receiving subsidies while the "official" and subsidized production stalled almost everywhere else. Furthermore, when the Regional Health Director of Labé, Dr. Pépé Bilivogui, was appointed National Director of Public Hygiene he became another advocate of Tinkisso-Antenna within the national administration. He was one of those DRS who were convinced of Tinkisso-Antenna's approach and interested in making it work on behalf of the country's population. Together with Dr. Cherif and Aboubacar Camara who analyzed the unsatisfactory status quo in a report mandated by UNICEF they managed to convince the Minister to centralize production in Conakry and hand it completely over to Tinkisso-Antenna who would be responsible to deliver chlorine whenever there was an epidemic or other forms of demand. The role of the Regional Health Directors was reduced to quality control and distribution as will be further explained.

Dr. Cherif alluded in the interview that at times there had been demands from within the administration to tie Tinkisso-Antenna more closely to the administration or to gain more influence on its management and activities. He mentioned that he often had to fight for Tinkisso-Antenna's independence as he was convinced that only a fully independent NGO could grant an uninterrupted functioning and ensure the proper use of funds. Hence, a certain risk to be "nationalized" or at least attempts by government to gain influence with the organization should be part of the considerations when replicating a similar project.

4.5 Expansion with conditions, negotiating terms and measuring coverage

After the production of chlorine had been centralized in Conakry in 2010 a whole new challenge began to emerge: How to expand the project to maximum coverage? A discussion of optimal and chosen strategies, successes and problems will be presented in chapter 5. Of interest for now is how the terms for this expansion, namely the target coverage had been negotiated and agreed upon in the first place. In 2011 Tinkisso-Antenna signed a respective contract with the authorities.

It is important to take on both hats in order to understand how Tinkisso-Antenna and the Health Minister negotiated the terms of expansion. The Minister having ordered the collection of all WATA devices in the regions to centralize production in Conakry was under significant political pressure to compensate. Delivering chlorine just to one region and subsequently expanding coverage to the others was no politically viable option. Justifying such a move while the need for the product was pervasive would be difficult. Therefore, he handed down this pressure to Tinkisso-Antenna by demanding coverage of all 4 regions where the devices had been taken from: Boké, Kindia, Mamou and Labé. For that purpose, he asked for the statistics in terms of bottles produced. That number would then be transferred into an agreement with Tinkisso-Antenna requiring the latter to deliver the same amount per region in the following year. However, according to Tinkisso-Antenna these

statistics had been manipulated by the regional authorities in order to justify subsidies from UNICEF and to hide their misuse of funds. Hence, the amount of chlorine to be delivered by Tinkisso-Antenna turned out to be very ambitious (especially as no scheme of how to deal with transportation costs and how to create demand had been included).

Tinkisso-Antenna accepted the ambitious terms of expansion in the contract signed in March 2011 based on the Minister's reassurance that support will be provided, be it by UNICEF or by the government. It started to produce chlorine on credit and to deliver the product to the regions. However, the promised support never came and hence, the fixed quantities could not be delivered. In retrospect, it had arguably been a mistake to commit to a contract that largely imposes duties on Tinkisso-Antenna without clearly defining the support it should be granted in return.

Asked how to avoid similar situations in the future Tinkisso-Antenna stressed the importance to be critical towards official statistics and to conduct a proper situation analysis before negotiating terms and conditions. Not only does this facilitate the making of an effective strategy and measuring the project's impact but also can one's bargaining position towards the authorities be improved. Furthermore, any coverage-measurement needs to be based on the number of bottles sold as any other method would be very difficult and costly to implement. Chapter 8.1.1 elaborates on different formula in use to determine the beneficiaries of a project.

Despite the primary importance of political acceptance on the national level it should not be forgotten that success also depends on political will on the regional and prefectural levels. Interviews with authorities on these levels showed that not all of them support Tinkisso-Antenna's project with the same commitment. Hence, it is advisable to increase efforts to work towards a common understanding in "problematic regions".

4.6 Dealing with political realities and aligning expectations

From the perspective of an opportunistic politician it is way more attractive to spend money on emergency action than on preventive measures. Success or failure of emergency responses can clearly be attributed to an administration and therefore yield significant political pressure on the incumbents. On the other hand, money spent on prevention is always competing with many alternative options and therefore much harder to justify. Furthermore, preventive measures are usually long-term investments that tend not to be clearly visible to a broad public. Hence, the incentives to assign public funds to such initiatives are very low, especially in a politically unstable country like Guinea where any serious long-term planning is virtually impossible.

For Tinkisso-Antenna this had two different implications. At the beginning it was certainly very useful to be seen as a competent partner in emergency response. The need of the government to have such a partner ultimately helped the NGO to grow and to become a widely accepted organization in Guinea. In the long run however, to be viewed as an emergency-response NGO by the government poses certain obstacles to achieving Tinkisso-Antenna's vision of developing a permanent and sustainable access to safe drinking water for the country's poorest population. First of all, people get used to the cost-free distribution during crisis which affects their willingness to pay for the product during "normal times". This poses problems for the revenue generating side of Tinkisso-Antenna's work and therefore affects the sustainability of its approach. Second, public funding for social

marketing activities during “normal times” remains heavily limited which renders geographical expansion difficult.

Hence, an ongoing challenge for Tinkisso-Antenna is how to tilt the balance towards being seen as a development partner instead of a firefighter you call in emergencies only. This boils down to the basic question of how the vision of Tinkisso-Antenna, Antenna Technologies and the Guinean authorities can better be aligned. There is no panacea for this problem and a truly satisfactory solution has not been found so far. However, some economic arguments based on sunk costs seem to have had some impact on the authorities’ reasoning. More specifically, when a study showed that in almost 90% of the cases water is contaminated between its source and the actual point of use, considerable investment into improved water sources had already been made. Fearing that these investments could be lost the government started to see Tinkisso-Antenna’s home-based-water-treatment approach as complementary to the already existing structures. Hence, Tinkisso-Antenna gradually starts to be viewed as a partner in health prevention as well but it is still not clear where the respective funding is to be found and what strategy should be applied.

4.7 Conclusion politics

It is important to choose the right point of access. As shown, a coordination office that is used to work with different actors and disposes of relevant contacts can be a good first port of call. Furthermore, it is important to understand how international organizations like the WHO and UNICEF function and how they interact with each other and with government authorities. WHO officials might indicate your project to UNICEF or to the government with a note that it might be interesting to look at and fit into the country’s overall strategy. Hence, they can help a project to acquire credibility. However, when it comes to the actual implication with particular projects, to knowing who might be the best person to speak to and to establishing issue specific contacts, UNICEF is usually more closely involved with the public administration of the country. Within the latter, leading technical staff might be most appropriate to contact at first as they seem to be the most easily to persuade and to elate due to their inherent interest in technology based solutions. At best, they might become an ambassador for the approach with the government as the case of Tinkisso-Antenna shows. Leading quality control officials are one example.

Timing is important and chances of being heard are much better during times when the problem a project is tackling tops the official agenda. Furthermore, building trust is a crucial element in being considered as a competent government partner. A good way to build confidence is to have a project evaluated by a multi-sectoral team of experts including government, academia and international institutions. It is crucial to have the quality of the product controlled and certified by the government. Otherwise, one risks to be seen as a shady or even illegal producer.

Granting funds directly to government and administration can be a risky investment as not only the present example shows. Bad governance, a lack of control and monitoring systems or even full-fledged corruption can make the earmarking of funds a challenging task. If an NGO is able to demonstrate an ability to pursue its activities in a sustainable, goal-oriented way and a willingness to manage its budget effectively it might become attractive to various sponsors. Even national governments who cannot be sure that their local counterparts share their vision and resolve to lead a project to success might become interested in collaboration. The case presented here shows that an initiative that was backed by the

administration on the national level failed mainly because of red tape on the level of regional government and administration. This experience seemingly led the National Health Minister to entrust a small NGO with public functions. As a consequence, the collaboration virtually advanced to the level of a public private partnership (PPP). The process of becoming such a PPP might be accompanied by attempts to gain influence on the respective NGO/partner by the government.

At the outset of a project your organization should conduct a proper situation analysis. This is important to develop a strategy, measure impact and not least to improve your bargaining power towards government officials. Official statistics are often manipulated in favor of the government's position and therefore a poor basis for action.

The fact that politicians tend to prioritize emergency responses over long-term prevention when it comes to funding can have both, positive and negative implications for new NGOs. On the one hand, it can be an opportunity to offer your help in emergency response (as a "firefighter") but on the other hand there is a risk to be reduced to that role in the future even though your long-term vision lies much more on development and prevention.

In conclusion, a solid network with international organizations and the partnership agreement with the Guinean authorities have been crucial for Tinkisso-Antenna to acquire legitimacy for its work and for the scaling up to the national level of the project.

4.8 Politics: Summary of best practices and problems to avoid

Politics: Best practices in a nutshell

The following best practices worked well for Tinkisso-Antenna and may bear insightful lessons with regard to the replication of similar projects. Of course, different circumstances must be considered.

- ☺ **Location selection:** *Start your project in the area where the problem you aim to mitigate is most imminent for its impact to be visible to authorities, donors and other stakeholders*
- ☺ **Align with public priorities:** *Whenever possible try to align your project with public sector priorities in order to maximize (chances for) support*
- ☺ **Build up pressure on decision makers:** *Build up pressure on national authorities by showcasing your positive results through institutionalized reporting channels based on the communal level.*
- ☺ **Gain access:** *In case you are a new organization without a track record of successful projects and a rather weak network try to establish first contacts via the WHO's OCHA. In a second step, seek to be connected with the country representatives of international organizations (WHO, UNICEF, etc.) or similar bodies who are involved in projects with the national authorities on a regular basis.*
- ☺ **Target high level technical staff/ engineers in leading positions:** *Technical staff is likely to show interest in your approach and might become an ambassador for your project with the government. Hence, they are a suitable first point of contact. Leading quality-control officials are one possibility.*
- ☺ **Timing:** *Approach government officials when the problem you provide a solution for is high on their agenda.*
- ☺ **Confidence building:** *Work together with key actors in government, academia and international organizations in order to build trust in your organization's work. Have your technology evaluated and accept recommendations.*
- ☺ **Seal of quality:** *Have your product controlled and certified by the government. Avoid to be seen as a shady or even illegal producer.*
- ☺ **Gain one or several "Government ambassador(s)"/ Do lobbying:** *Try to find someone who works for the authorities and who is convinced by your work/ approach. Make sure he or she is willing and capable of promoting your interests and to put them on the agenda. Keep close ties with that person and involve him or her as much as possible with your organization to build mutual trust. As mentioned, technical staff seems to be most likely to help you with that matter.*
- ☺ **Preserve independence:** *By becoming a public sector partner there might be players within government and administration who argue for closer monitoring or even co-decision in your NGO's management. This threatens the uninterrupted functioning and proper use of funds. The best way to avoid the like seems to actively demonstrate the advantages of an independent public private partner and to have an "ambassador" for this cause within the administration.*

Politics: Problems to avoid in a nutshell

Tinkisso-Antenna had to deal with the following main difficulties. Being aware of them might be useful for the replication of similar projects. As with best practices, different circumstances must be considered.

- ☹ **Don't let others use your brand:** *During the time when the DRS produced chlorine locally they used Tinkisso-Antenna's bottles. At times, this led to concerns that the product could be discredited because of halfhearted production and selling practices.*
- ☹ **Negotiate coverage rates with care and based on your own situation analysis. Don't over-rely on official statistics:** *Make sure any legally binding documents entails both, your duties but also the support you are entitled to. Be critical towards official statistics and if possible make your own situation analysis in order to improve your bargaining position.*
- ☹ **Be careful about advocating your organization as an emergency-response partner:** *Advocating your NGO as a partner for emergency response to the government might be tempting with regard to short-term benefits. In the long run however, you risk losing track of your sustainable and long-term development vision.*
- ☹ **Don't forget the regional and the prefectural level:** *Good relations with the authorities on the regional and on the prefectural levels are important to guarantee sufficient local support. Therefore, lobbying should be done on all levels of government.*

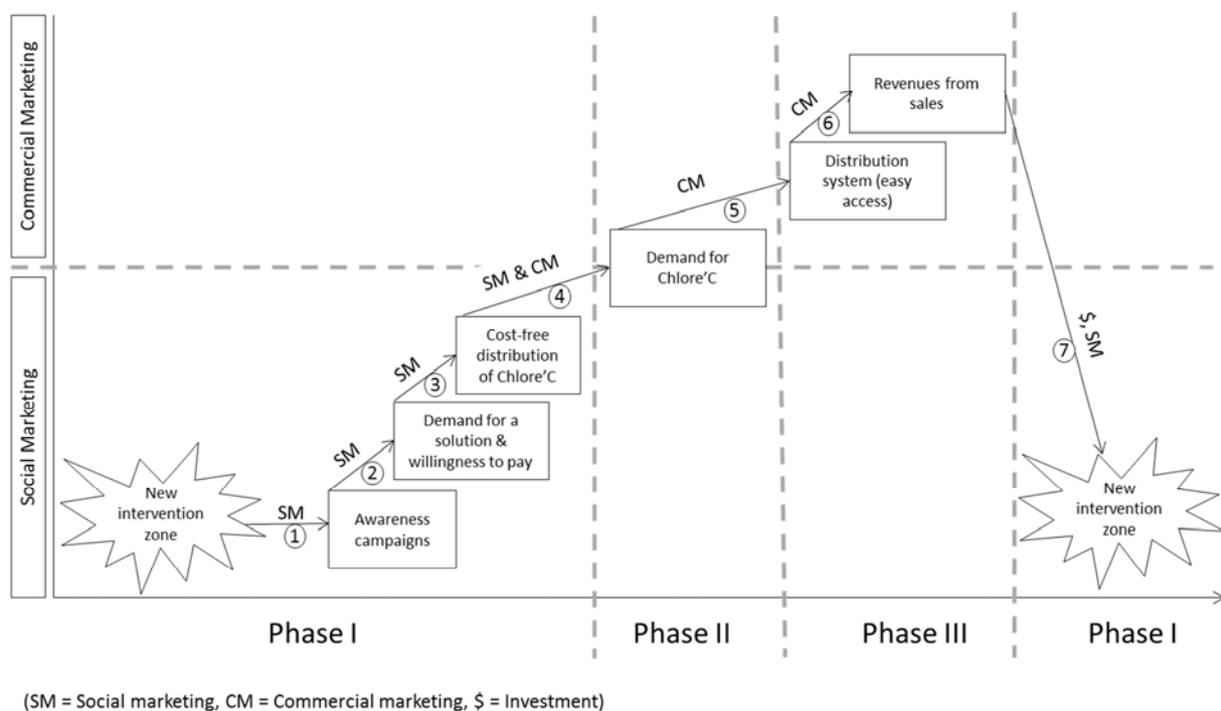
5. Expansion

The previous chapters showed how Tinkisso-Antenna's project started in the region of Faranah and how it managed to gain support from the authorities as well as from international donors. This chapter deals with Tinkisso-Antenna's basic approach of scaling up the project to the national level which is currently in progress. The following parts will then elaborate on the specifics of social- and commercial marketing and on how they interact.

5.1 Expansion in theory

In theory, expansion of Tinkisso-Antenna's project follows a rather simple logic based on a step-by-step approach (Figure 1):

Figure 1: Step-by-step expansion (model case)



(1) After conducting a situation analysis of the new intervention zone, social marketing activities raise awareness for waterborne diseases and work towards a change in behaviour of the population with regard to water treatment and hygiene practices. (2) As a consequence of this, demand and a “willingness to pay” for water treatment solutions is being created. (3) In a third step, Chlore'C is being distributed for free during social marketing activities to make the target audience aware of its existence and functioning. (4) Then, social and commercial marketing work together in order to further accustom the population to the product, to its use and to its benefits. At this stage, distribution is still mainly done via social marketing channels (health centers, NGOs, etc.⁵³) but at the same time Tinkisso-Antenna's commercial branch starts to contact wholesale merchants and to communicate on the product's name, its points of sale, etc. The objective is to clear the way for a commercial distribution network to emerge.⁵⁴ (5) With rising demand for Chlore'C the commercial branch of Tinkisso-Antenna is responsible to make all sorts of sellers

⁵³ See chapters 5.4.1 and 5.4.2 for more information.

⁵⁴ Chapter 7 explains this process in further detail.

(wholesalers, pharmacies, stores, street vendors, etc.) interested in selling Chlore'C and to thereby ensure the easy availability of the product to a broad public. (6) By selling the product on a large scale revenues are created and (7) re-invested into social marketing activities in the next intervention zone where the process starts anew. It is very difficult to provide an appropriate time-frame for the three phases. Their duration heavily depends on time and money invested and will therefore vary from project to project.

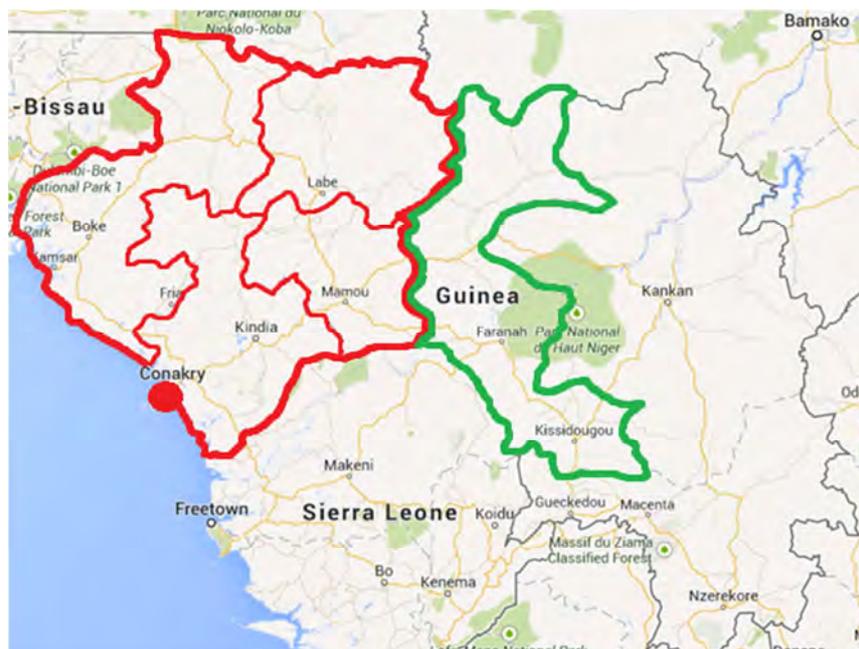
As shown, the social and the commercial branch of Tinkisso-Antenna's project go in pairs and work towards the same goal: Create affordable access to safe drinking water by sustainably promoting a change in the behaviour of water use and by making the necessary means available to the population. A well-functioning interaction between the social and the commercial part is crucial for success. In theory, financial autonomy of these activities can only be ensured if the described step-by-step approach is respected because the revenues generated from sales in one zone are the basis for expanding into a new one.

5.2 Expansion in practice

As the case of Tinkisso-Antenna shows, expansion is often subject to constraints and does not always correspond to the model case. It is important to be aware of these factors and to know how they impact the expansion of the project.

Determination of the new intervention zone

As shown in chapter 4 Tinkisso-Antenna had signed a contract with the Minister of Health in March 2011. It became the basis for the expanded intervention zone (red parts in Figure 2) which had prior to this been limited to the region of Faranah (green part in Figure 2). The contract commits Tinkisso-Antenna to simultaneously deliver Chlore'C to the Regional Health Directors of Boké, Kindia, Mamou, Labé and to the city of Conakry. As discussed earlier the political pressure that the national authorities felt from their regional counterparts had been handed down to Tinkisso-Antenna. This was the first obstacle to expanding the project by targeting one region after another.

Figure 2: Intervention zone⁵⁵**Further terms and conditions**

A pending application for funding with a potential donor institution added additional pressure to expand the project as quickly as possible. Whether or not a given project receives funding may depend on the number of beneficiaries it envisages to reach. If those numbers cannot be achieved, further funding might be cut. Table 1 shows the number of beneficiaries aimed for in the triennial extension program “SUEZ” composed in November 2012 by Antenna Technologies:

Table 1: Expected number of beneficiaries

Year	Target Audience (total)	Targeted coverage	% of population
2013	6'562'620	1'047'200	15,96
2014	7'218'882	1'724'800	23,89
2015	7'940'770	2'279'200	28,70

Of course, Chlore’C bottles could not just be sold in Conakry and other urban centers if the project wanted to be in line with the policies of Tinkisso-Antenna and its partner Antenna Technologies. According to those policies, the beneficiaries need to be the poorest of Guinea’s population, that is, mostly people living in remote villages. In a nutshell, the following factors led Tinkisso-Antenna to deviate from the financially sustainable step-by-step expansion model:

1. Political pressure to cover five regions
2. A high coverage rate committed to in a request for funding of social marketing activities

⁵⁵ Green = original zone, red = new intervention zone (expansion). Source: Google maps.

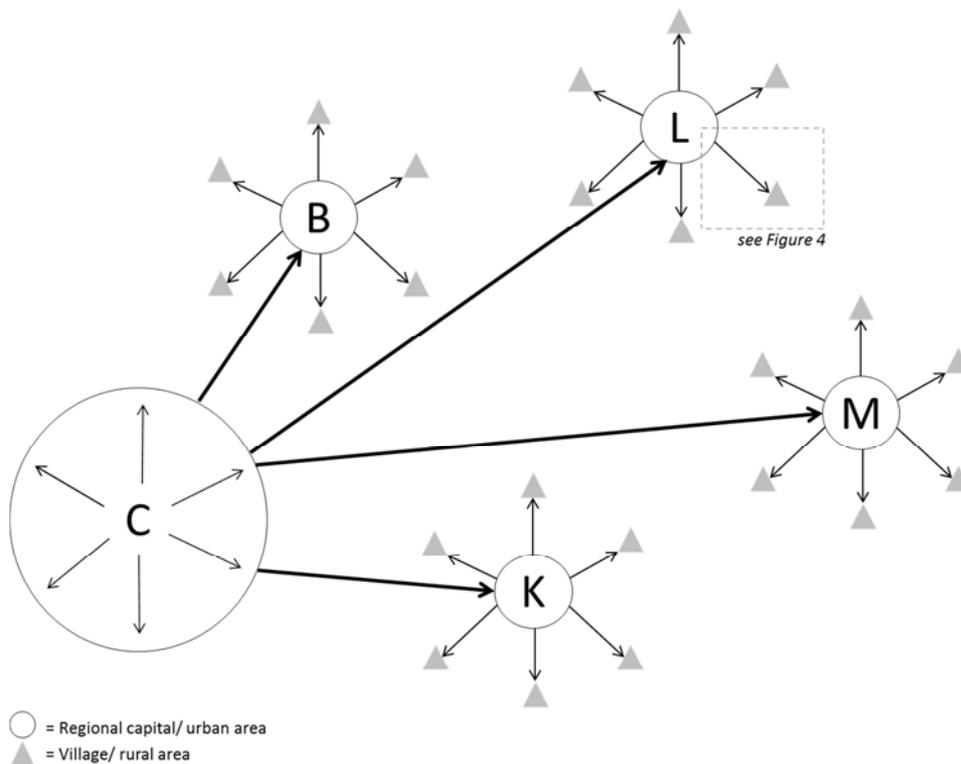
3. Compliance with bylaw policies

Expansion strategy: The big picture

This part presents the main pillars of Tinkisso-Antenna's expansion strategy. The specifics will be explained in later chapters.

Selling the quantities showed in Table 1 in rural areas of four different regions and in Conakry at the same time involves substantial costs and requires respective manpower. Figure 3 provides an overview of how the project had been expanded given the above mentioned conditions:

Figure 3: Expansion (overview)

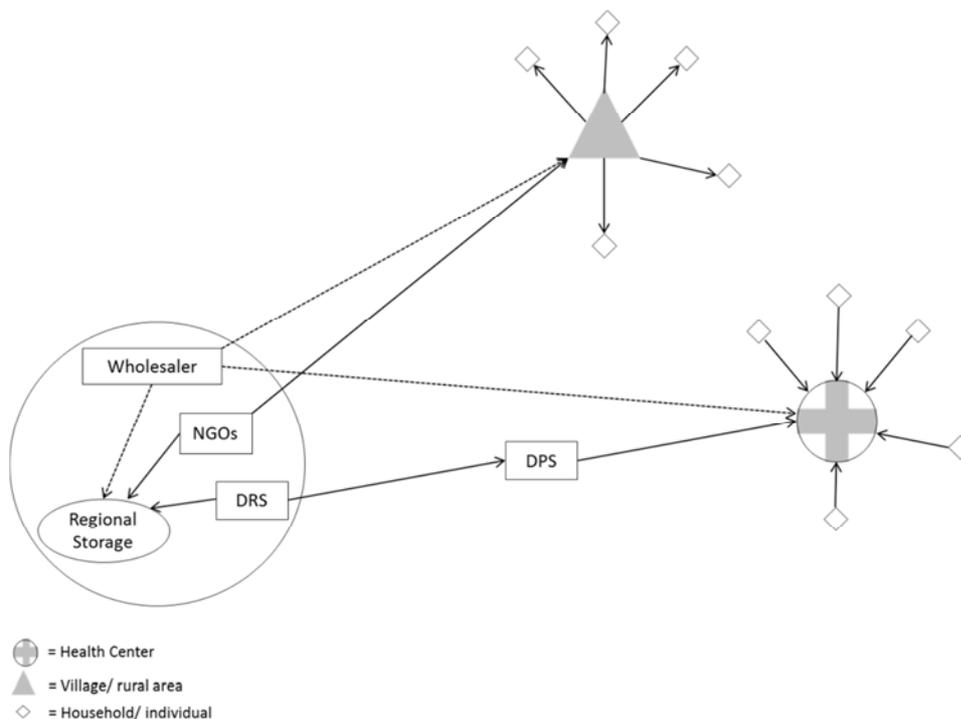


Tinkisso-Antenna produces Chlore'C in Conakry. Part of this output is then distributed and sold in the capital where a certain profit can be realized due to low transportation costs. The remaining Chlore'C bottles are sent to central storages in Boké city, Kindia city, Mamou city and Labé city as stipulated in the contract with the Health Minister. For long, Tinkisso-Antenna had delivered to the regions on its own. It is only at the time of writing that they start to collaborate with commercial sector partners.⁵⁶

When they started the project in the region of Faranah Tinkisso-Antenna used to carry out most social marketing activities on its own. Today, as the project is to be expanded and to cover a substantial geographical area it becomes virtually impossible to do it alone. Therefore, Tinkisso-Antenna depends on various local partners.⁵⁷ Figure 4 shows the very basic functioning of partnerships and networks within the regions:

⁵⁶ Refer to chapter 7 for more information.

⁵⁷ Chapter 6 will explain the collaboration with these partners in more detail.

Figure 4: Regional partnerships and networks

There are two main types of partners in social marketing: Regional health structures and NGOs. Both of them interact with the rural population and create awareness for the problem of waterborne diseases and demand for Tinkisso-Antenna's product. However, the way they interact with people is different. Usually, NGOs actively approach the residents by going to villages where they gather the community for events or pass from door to door for social marketing activities. Health centers on the other hand resume a more passive but no less important role when it comes to social marketing. Even though they do occasionally go towards villagers using health agents they do primarily educate those people on Chlore'C that visit the center for treatment. Besides their role in social marketing, NGOs and health centers also ensure the distribution of Chlore'C in the first place when no commercial distribution network exists yet.

According to Tinkisso-Antenna's experience it is crucial to always start social marketing activities in rural areas. First of all, the effect of the intervention is far more likely to be seen and to send positive signals to donors, authorities, and other stakeholders. Therefore, chances to be perceived as a useful NGO and to receive funding increase substantially. Second, people in villages are much easier to educate. Seemingly, urban people tend to take more pride in what they know and hesitate to admit if they are ignorant of something. On the contrary, when a social marketing team comes to a village it is likely to get the attention of the majority of the local residents. They will usually listen to the messages and actively participate in discussions. Furthermore, people in rural areas are often more willing to embrace a new solution if it seems helpful to them and if one or several of the local opinion leaders also accept or even promote it.⁵⁸ Interestingly, if some villages around a rural center start to use Chlore'C a kind of social pressure upon urban residents seems to arise. When villagers go to town they would often ask for Chlore'C in shops and pharmacies which makes the owners curious about the product. Furthermore, villagers ask people who live in urban

⁵⁸ See chapter 6.5 "Influential others" for more information.

areas whether the water they offer for drinking had been treated or not. Often, the latter do not like being educated by their “less developed” family members and feel obliged to adopt the behaviour of treating water as well. Hence, they too will go to pharmacies and merchants to ask for the product. If social marketing activities are started in the cities the effect is likely to be the opposite. Villagers tend to discount novelties to which they are introduced by urban residents as “products for the wealthy unable to serve the needs of the poor”.

As shown in the model case already, it is important to ensure a timely “commercial follow-up” for three main reasons: First of all, even if some distribution of the product can be done during social marketing activities and health centers this is not going to suffice to ensure an uninterrupted and sufficient long-term supply. Second, people who experienced a social marketing campaign will come and ask for Chlore’C in shops and pharmacies. If they do not find the product there, they might come back for it once or even twice. But at some point they will just forget about it if they cannot easily access the product and make it part of their daily routine. The third reason pertains to the financial stability of the project. Only with enough sales can further social marketing activities be financed. In the long run, a big part of those sales is likely to be realized in urban centers. For those reasons, efforts to build up a reliable commercial distribution network must begin in due time.

Contrary to social marketing activities the commercial side of the project should always start in urban areas. At first, merchants are often reluctant to add the new article to their product range. They need to be convinced that it is going to leave the shelves because enough demand has been created through social marketing activities. Once an appropriate local wholesaler has been found the village-level merchants can easily be connected with him.⁵⁹

5.3 Balancing the budget

It is one thing to do the right step at the right time. However, both social and commercial marketing activities are costly which raises the question of how to split the budget between the two. Again, this heavily depends on the circumstances of a given project and generalizations certainly fall short of particular realities. Nonetheless, some guidance can be drawn from Tinkisso-Antenna’s experience:

Table 2: Balancing expenses for social and commercial marketing

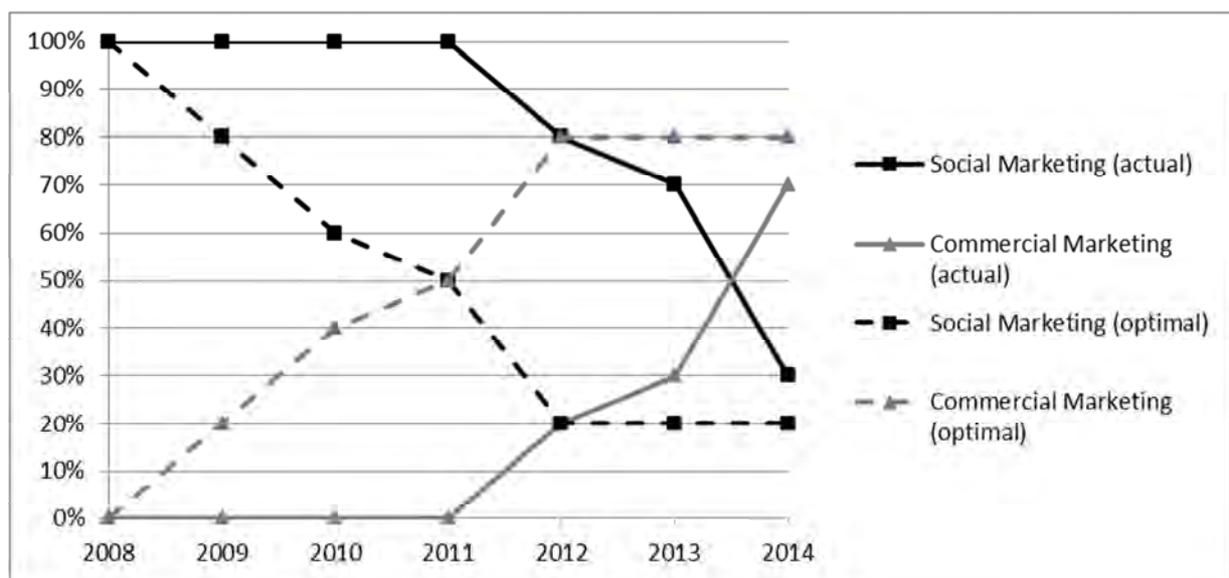
Year	actual		optimal	
	Social (%)	Commercial (%)	Social (%)	Commercial (%)
1 (2008)	100	0	100	0
2 (2009)	100	0	80	20
3 (2010)	100	0	60	40
4 (2011)	100	0	50	50
5 (2012)	80	20	20	80
6 (2013)	70	30	20	80

⁵⁹ Chapter 7 discusses the commercial side of the project in further detail.

7 (2014)	30	70	20	80
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The left part in Table 2 provides an estimation of how Tinkisso-Antenna balanced its expenses for social and commercial marketing activities over seven years up to the present.⁶⁰ The right part shows how Tinkisso-Antenna would strike this balance today if it was to start the project from new.⁶¹ For about four years 100% of the funds that did not go into production or administration had been invested into social marketing activities and commercial marketing activities had been put on ice until 2011. According to Tinkisso-Antenna's judgment today it is advisable to spend the entire budget on social marketing in the first year. However, starting from the second year commercial marketing should be gradually increased. In order to be financially sustainable more money needs to be spent on commercial- than on social marketing in the long run as commercial marketing is much more expensive. Tinkisso-Antenna has only recently reached this point while, based on its personal assessment, it should have done so in 2011 already (Figure 5).

Figure 5: Balancing expenses for social and commercial marketing



5.4 Partnerships for expansion

In general, Tinkisso-Antenna distinguishes between official partnerships based upon mutually signed agreements and unofficial or potential partnerships which are based on non-institutionalized and loose forms of collaboration. Official partnerships have been built in the domains "public/government", "NGO/associations", "commercial" and in "technology and financing". The unofficial and potential partners come from various backgrounds and include schools, health schools, public and religious organizations as well as opinion leaders of all kinds.

This section deals with how official and unofficial partnerships are being formed and maintained in order to execute social marketing activities. Furthermore, incentive structures, motivation and problems will be discussed. Collaboration with political authorities has been

⁶⁰ Estimated by the coordinator of Tinkisso-Antenna.

⁶¹ Information based on an evaluation of Tinkisso-Antenna's coordinator.

described in chapter 4 and partnerships for commercial marketing will be described in chapter 7.

5.4.1 Partnerships for expansion: Regional health structures

Chapter 4 explained how Tinkisso-Antenna gained access to Guinea's health authorities. This part deals with the details of this collaboration.

There are three levels of government in Guinea's public health sector: First of all the national level represented by the National Minister of Health and the National Health Director. On the regional level the health system is led by the Regional Health Directors (DRS) whose equivalent on the lowest level of government are the Prefectural Health Directors (DPS). The latter are the direct supervisors to the directors of the communal health centers or hospitals. In total, Tinkisso-Antenna works together with over 250 health centers and hospitals.

Scope and advantages of the cooperation

As shown earlier Tinkisso-Antenna faced significant pressure to expand its project quickly and to achieve a high rate of coverage with the most poor among the population. Having no partnerships for social marketing and distribution in place yet Tinkisso-Antenna needed to find a way to market and distribute Chlore'C very effectively and at low costs. Furthermore, people had to be convinced of the quality of the product as it was entirely new to them. Partnering with regional health structures was the most appropriate way to overcome all those challenges at the same time.

The first contact to regional health structures is usually initiated by the DRS. They linked Tinkisso-Antenna with the DPS who then facilitated the work with the health centers within their area of responsibility. Furthermore, regional health authorities helped to identify capable local partners for social marketing as explained in chapter 4. Interestingly, regional health authorities repeatedly mentioned during interviews that they prefer working with Tinkisso-Antenna because it is a local NGO which they can more easily confide in. They admitted to have had problems in the past with other more "internationally oriented" NGOs.

As a consequence of Tinkisso-Antenna's good collaboration with health authorities on the national level, Chlore'C had been added to a list containing all essential drugs that the health centers must dispose of. Furthermore, the centers were instructed to prescribe Chlore'C with all cases of diarrhea and other waterborne diseases and to explain its use and purpose to those patients. Hence, every time someone visited a doctor for diarrhea-treatment the former would not only explain cause and effect of waterborne diseases but also give or sell him a bottle of Chlore'C and explain how to use it. It is arguably one of the most effective ways of awareness creation if a product is explained and promoted to someone who suffers from exactly the problem the product provides a solution for. Furthermore, people easily came to trust Chlore'C since it was officially prescribed by a doctor.

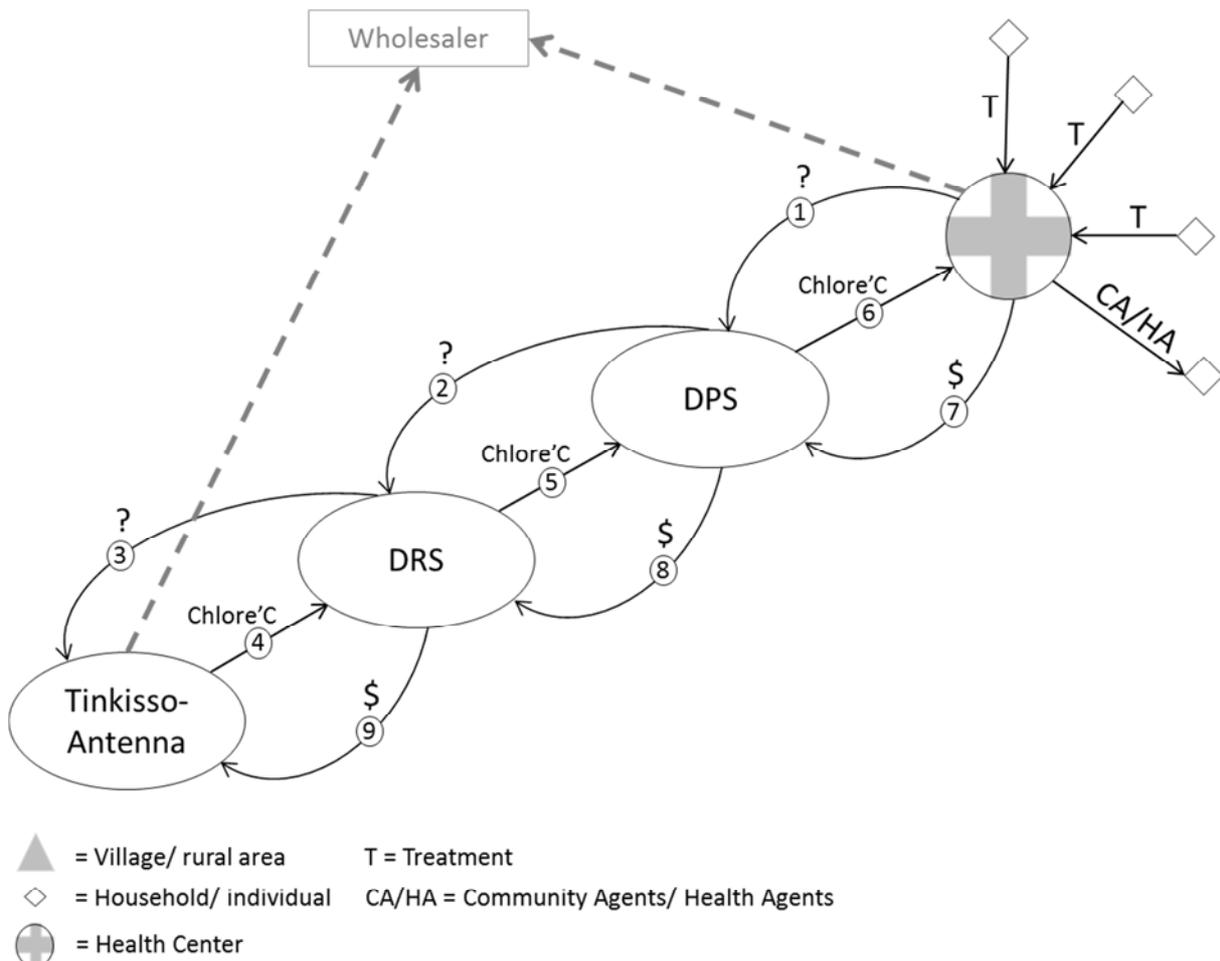
Although health centers primarily sensitize patients coming for treatment their role is not limited to that. Depending on their size and means available they also send out health agents for health promotion to the surrounding villages on a more or less regular basis. These agents explain the use of Chlore'C and sell it to the people who already know and ask for it. Tinkisso-Antenna educates the health agents on the proper use of Chlore'C.

To sum up, health structures are a very important element of Tinkisso-Antenna's social marketing efforts, in its distribution network, as well as for identifying capable regional partners. Especially at the beginning they were extremely helpful to start scaling up the project.

Functioning of the cooperation

Despite the numerous advantages of cooperating with regional health structures there are some problems and challenges that need to be prepared for. In order to understand them it is important to know more about the process shown in Figure 6:

Figure 6: Collaboration with health structures



(1) Whenever a health center runs out of stock it places an order for new Chlore'C bottles with the DPS. (2) The DPS bundles the orders from all health centers in his area of responsibility and forwards it to the DRS. (3) The DRS as well collects all orderings coming from all the DPS and asks (4) Tinkisso-Antenna for delivery of the total quantity but does not pay for the product yet. Once the bottles arrive the (5) DRS distributes them to the DPS who (6) forward the product to the individual health centers. Now the centers start to work with Chlore'C and to sell it to the population as described above. As soon as all bottles are sold they place a new command and (7) transfer the money from sales to the DPS. Once the DPS got the transfers from all health centers (8) they remit it to the DRS who again collect all the money from the DPS and only then (9) wire the total amount to Tinkisso-Antenna.

Problems and challenges in the cooperation with health structures

The following challenges and problems were a direct result of the functioning of the described process:

Bottlenecks in delivery: Needless to say that this process usually takes months to be completed. Delivery is extremely slow creating serious bottlenecks at the level of health centers.

Financial distress: The slow delivery- and revenue-generating process inevitably results in a financial problem for Tinkisso-Antenna who depends on sales to keep producing new stock if not enough working capital is available.

Misuse of revenues: Tinkisso-Antenna often made the experience that once revenues from Chlore'C-sales are realized, health centers, DPS and DRS do not use this money to pay back the debt with Tinkisso-Antenna but to buy other things which are urgently needed. Furthermore, some players altered the margin structure to their favor which posed an impediment to the financing of social marketing activities (health agents going into villages, etc.)

Lack of coordination: Money got lost because of a serious lack of coordination between health authorities and health centers which further aggravated the problem. For example when Tinkisso-Antenna asks a DPS about the revenues from sales they get the answer that a certain health center did not transfer it yet. When inquiring with the health center in question they are told that the money had already been remitted to the DPS.

In order to mitigate those problems Tinkisso-Antenna now starts to exclude health authorities from revenue-transfer and from distribution by directly linking health centers with local merchants. This would substantially accelerate distribution and divert the financial risk away from Tinkisso-Antenna. However, this is a challenge as health centers now need to buy Chlore'C for cash (money they do often not have or need for other things) and not on credit anymore.

5.4.2 Partnerships for expansion: Local NGOs and associations

The basic idea behind partnerships is to create synergies by building on existing structures and know-how. Hence, Tinkisso-Antenna is looking for NGOs and Associations that are already active in the field of social marketing and possess relevant experience, be it in a WASH related field or in another area where community level work is involved. The strategic approach is to support an already existing process and to "inject" Tinkisso-Antenna's social marketing package in order to complete the former. Take for example a local women's association that organizes monthly workshops to discuss a certain set of issues related to women's rights and problems. In that case, Tinkisso-Antenna would convene with the people in charge and discuss ways in which sensitization on WASH practices, the TED approach and Chlore'C can be added to the on-going debates.

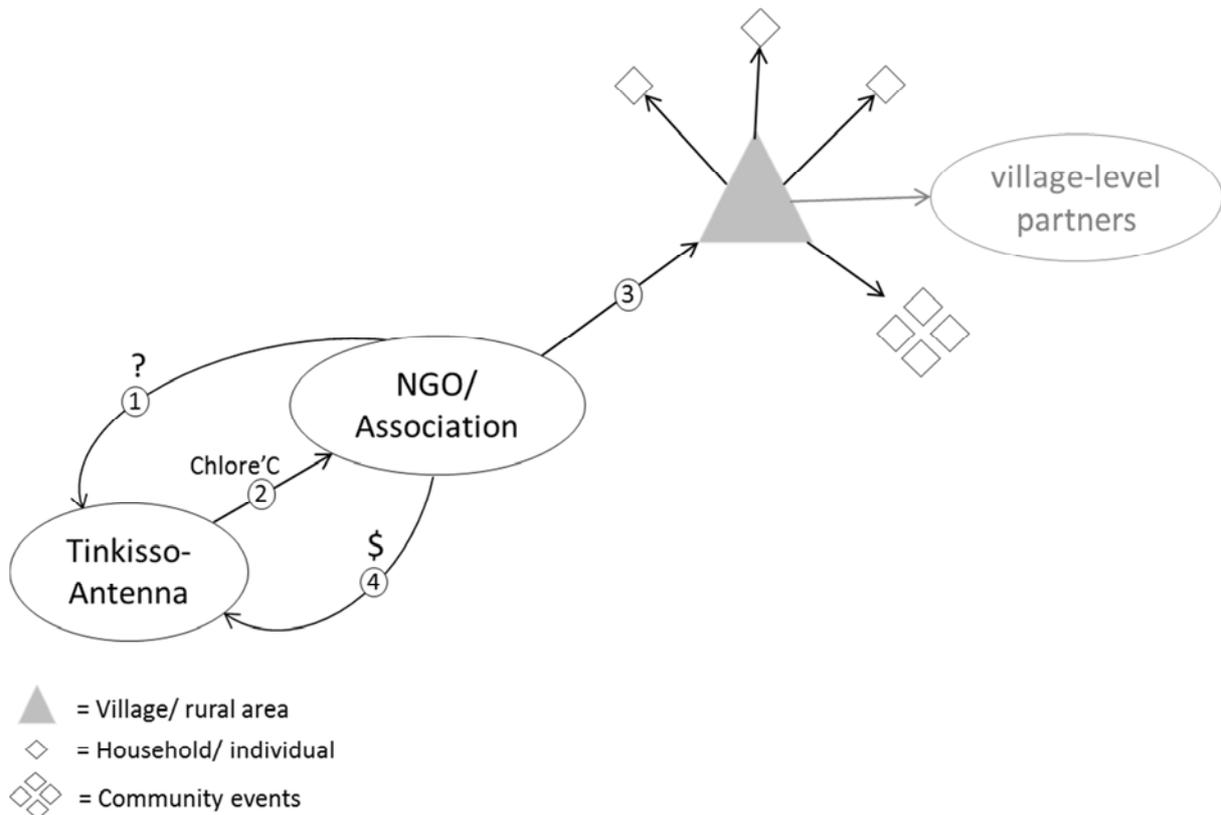
Figure 7: Collaboration with NGOs and associations

Figure 7 shows how Tinkisso-Antenna usually works with its regional partnering NGOs and associations.⁶² (1) An NGO asks Tinkisso-Antenna for a certain quantity of Chlore'C (and sometimes some other supports like promotional material) which the latter sends to the NGO on credit (2), a system they call "dépôt-vente". (3) The NGO then goes to a village to perform social marketing activities which either includes door-to-door visits or community events using mass-communication methods. Chapter 6.7.4 describes those activities in more detail. In some villages, Tinkisso-Antenna's partner-NGO seeks to identify a "village-level partner" who would continue social marketing activities on a regular basis and become a local distributor of Chlore'C in the future. This can be a community agent or another interested person. During the first campaign in a new village Tinkisso-Antenna's partner usually distributes Chlore'C for free. However, if the campaign yields the desired effect and the village-level partner does a good job they will start to sell their stock to the latter after a while and thereby create revenues. (4) This allows them to refund Tinkisso-Antenna for the Chlore'C purchase. The difference between sales revenues and purchase price goes to the NGO as revenue and serves as capital for new activities.

Identification of potential partners

In order to identify NGOs and Associations for new partnerships Tinkisso-Antenna makes use of its existing network with the DRS who are familiar with the local circumstances. In a formal letter the DRS are being requested to help Tinkisso-Antenna to identify potential partners who are likely to meet the following set of criteria:

⁶² In the following, "NGO" and "association" will be equivalently used unless .

- Experience in the area of TED or with other promotional and/or awareness-raising campaigns
- A fair track record of successful projects implemented and executed up to date
- Profound knowledge of the local conditions, culture and language
- Ability and availability to perform the requested social marketing activities
- Credibility and acceptance of the organization with the local population

The DRS forward Tinkisso-Antenna a list with contacts and some basic information on potential partners (person in charge, domain of intervention, activities, name, etc.). In a next step, the most promising NGOs are invited to a meeting and for evaluation.

Evaluation and selection

The evaluation-process is based on a standardized information collection guide which works on the basis of a score-system. The NGOs in question are evaluated, amongst others, upon the following criteria:

- Administrative and project management capabilities
- Technical capacities
- Experience in social marketing activities and water treatment
- Track record of revenue generating activities
- Inclusion of women
- Ability to effectively mobilize resources in the targeted intervention zone.

The resulting score allows to benchmark different NGOs against each other and to set a baseline for minimal requirements. Moreover, some local residents are being interviewed to evaluate the standing of the NGOs and associations with the population. The outcome of the evaluation process allows for an evidence-based choice of new partners. Both sides agree on the terms of collaboration and sign a respective partnership agreement.

Educating and supporting the partners

The extent of education and support delivered to the partnering NGOs depends largely on existing means and capabilities of the NGO but also on Tinkisso-Antenna's financial situation. A lack of these means is a challenge at the time of writing and one reason for why not many social marketing activities are carried out at the moment. As partnerships are formed with organizations that are already active in the field, the efforts are tailored to the individual needs of every NGO. Hence, the range of support provided varies and can be summarized as follows:

Educational support: Expertise in communication and social marketing are the core competencies of Tinkisso-Antenna. Hence, it educates its partners with regard to means, messages and communication channels⁶³ that can be used to educate the local people in the area of water, sanitation and hygiene and especially in the TED approach and the proper use of Chlore'C. Furthermore, Tinkisso-Antenna supports its partnering NGOs in educating communal health agents in the area of social marketing as these educational activities put substantial strain on the budgets of the NGOs, especially small ones.

⁶³ See chapter 6.7.4.

Administrative support: Tinkisso-Antenna has an interest in a solid organizational structure of its partnering NGOs and hence supports them in improving and clarifying existing processes and structures. Not only does this facilitate the collaboration but also will the NGOs activities with regard to the TED approach be more effectively pursued.

Logistic and financial support: Some of the NGOs dispose of valuable experience in social marketing activities but are currently not able to carry out these activities due to bottlenecks in their financial and logistic capabilities. In those cases Tinkisso-Antenna intends to fill in the gap for a limited period of time by, for example, providing bicycles to the partnering NGO which allow them to cover larger distances. However, due to financial constraints this type of support has rarely been granted to NGOs so far.

Promotional support: To successfully launch new social marketing activities related to the promotion of the TED approach and Chlore'C, Tinkisso-Antenna supports their partners in order to attract the attention of the target population. Such promotional support often overlaps with commercial marketing. Examples are:

- Chlore'C- placards to install at prominent locations in the village (e.g. in front of the house of the major)
- Megaphones to promote the product and announce the upcoming social marketing campaign
- Radio spots in order to announce the upcoming sensitizing campaign (e.g. the major of the village asking the population to welcome the agents and listen to their information on water treatment)
- Etc.

Evaluation: A few months after providing initial support and the onset of the local partners' promotion of the TED approach a meeting is held in order to evaluate the work and to discuss successes, problems and solutions. Hence, Tinkisso-Antenna intends to not just provide initial but repeated education and support to the partnering NGOs. The aim is to build a lasting partnership in which Tinkisso-Antenna takes on sort of a "mentoring-role". However, the evaluation process is only about to emerge at the time of writing and no substantial practical experience is available yet.

Unofficial and potential partners

There are various reasons for why some partnerships remain unofficial. The following are the most common (they do sometimes overlap each other): "Costs", "risk reduction", "gaining insider information", "situation analysis" and "networking".

The conclusion of partnership agreements is time consuming and can be costly. Unofficial partnerships allow for an inexpensive, flexible and rather hands-on collaboration. Risk reduction is closely related to these costs. The initial investment in a new partnership results in relatively high sunk costs, notably time and money invested which cannot be recovered in the case the partnership does not work out the way it was planned. The much lower initial costs of unofficial partnerships are one of their advantages by rendering this type of partnership less risky. Collaboration with potential partners helps to gain valuable insider information into their working processes and to evaluate their know-how, as well as their network. This information facilitates future collaboration and might pave the way to an official partnership.

Primary schools are a good example of potential partners of Tinkisso-Antenna where situation analysis and networking are the main reasons for collaboration. Educating kids on WASH practices is believed to be a sustainable way of raising awareness in the population. Not only do the kids grow up with hygiene related practices and incorporate them but also are they likely to tell their parents and friends about what they learned at school. At present however, teaching these practices is not part of the official curriculum of primary schools in Guinea and hence, no official funds flow into respective efforts. Tinkisso-Antenna does not dispose of sufficient means to engage on its own in an official partnership with some primary schools because no certainty exists that promises made in an official agreement could be met. Nonetheless, the NGO tries to influence the practices and raise awareness for WASH practices at schools by different means like organizing “seynettes”⁶⁴ within the scope of other events, or by educating teachers and other staff. Hence, Tinkisso-Antenna works with these schools on an informal but regular basis. In addition to the resulting social benefits, this allows them to keep up with the situation at primary schools in terms of WASH conditions and to be aware about the challenges (situation analysis). Should policy priorities change in the future and funds be earmarked for WASH practices Tinkisso-Antenna would likely be among the first to be mandated with the execution of respective activities as it knows the situation and maintains close networks with the decision makers at the school level.

In summary, the informal collaboration with schools pursues three primary goals: (1) Raising awareness for WASH practices using the available means, (2) keeping information on WASH conditions at schools up to date and (3) pave the way for an official partnership which might become feasible in the future.

Incentive structures

Why would NGOs and associations want to collaborate with Tinkisso-Antenna in promoting the TED approach and in carrying out awareness raising campaigns related to WASH practices? This is an interesting question to elaborate, especially as it comes to associations where people work on a voluntary basis and where one is not very familiar with professional social marketing activities. To answer that question it is important to distinguish between incentive structures on the organizational (NGO/association) and on the individual level (people working for an NGO/association). Interviews with several NGOs and associations that already work with Tinkisso-Antenna or who recently signed a partnership-agreement provide some insightful information that will be presented in the following.⁶⁵

Incentive structures on the organizational level

When asked about their motivation for partnering with Tinkisso-Antenna most NGOs named a *shared humanitarian vision* of helping the population and improving their environment in the first place. Hence, working for a good cause seems to be a strong motivation for some people and a shared vision is important to them. However, as there are many NGOs working for a good cause in Guinea it does still not answer the question why they want to work with Tinkisso-Antenna in particular. During the further discussions some of those motivations could be identified (in random order):

⁶⁴ See chapter 6.7.4.

⁶⁵ See chapter 12 for a list with the interview partners.

Trust in a local NGO: Tinkisso-Antenna's partners seem to value the fact that the former is a local NGO (the same thing had been mentioned by the regional health authorities). Several of the interviewed were convinced that it is easier to work with Tinkisso-Antenna than for example with PSI or another internationally active organization because they fear some hidden agenda. Building confidence is easier because one knows exactly where Tinkisso-Antenna comes from.

Autonomous and stable partner: The fact that Tinkisso-Antenna is based on a business-model inspires confidence with local NGOs. They believe that this operating mode should allow for a sustaining presence and collaboration while with some other NGOs everything depends on external funding that can be cut whenever policy preferences change.

Financial incentive: One incentive for NGOs and associations is the prospect being part of a functioning business-model that allows them to generate some financial revenues by selling the product with a small mark-up. The NGOs/associations know that the better they market the product the more they will sell. Direct and indirect financial support they receive from Tinkisso-Antenna also helps them to pursue their own activities more often and more professionally.

Improve status and gain publicity: The interviewed NGOs/associations mentioned that everyone knows and talks about Tinkisso-Antenna which is even recognized and supported by national and local authorities. They hope to get their own slice of the cake and to improve their standing by being an official partner of Tinkisso-Antenna. Furthermore, whenever Tinkisso-Antenna books success in fighting epidemics in the future they can claim their own contribution to it.

Grow with Tinkisso-Antenna: Many partners see Tinkisso-Antenna as a fast growing and rich NGO. The prospect of growing together with them, to profit from their support and to get a slice of the cake seems to be a strong incentive.

Strengthen organizational structure: One NGO mentioned that Tinkisso-Antenna had a strong structure and was well organized. It hopes to profit from this by learning from organizational practices.

Learning: Associations and NGOs hope to profit from education and training in the area of health prevention and home-based water treatment.

Incentive structures for individual staff

The above mentioned reasons all pertain to why an NGO as an organization would want to work with Tinkisso-Antenna. But for a well-functioning collaboration, the motivation of individual staff needs to be taken into account as well. What is it that motivates many young adults working for local NGOs and associations to promote Tinkisso-Antenna's approach to the local population?

According to Tinkisso-Antenna's experience it is important to find out as much as possible about their motivation to work for a given association or NGO and about what is really important to those people. In a next step, messages need to be tailored in order to establish a strong link between these interests and the HWTS approach/ Chlore'C. Working with a local football association for example, Tinkisso-Antenna would approach the opinion leader of the club (coach, etc.) and discuss the advantages of its product and the importance of

hygiene practices with regard to sports. Messages are framed along the following lines: “Only healthy players can attend regular practice”, “only regular practice will lead to success of your club”, etc. Another example is the work with priests and imams where Tinkisso-Antenna seeks to clarify the connection between funerals and waterborne diseases. Priests are motivated to embed hygiene related messages into their speeches and to talk to family members about how to prevent this kind of death in the future by treating water before drinking it.

In addition to these intrinsic forms of motivation where people want to help their communities there are some financial and professional incentives as well. Many of the young people working for NGOs and associations are unemployed. Even though they do not get paid for what they do they can sometimes earn a little money by selling Chlore’C bottles. Furthermore, many of them hope that their NGO will grow and eventually start to hire staff. In that case chances are high for them to be among the first paid employees and to gain a stable income.

In conclusion it seems that the importance of direct financial gains is of second order only, both on the organizational and on the individual level. Non-financial incentives are much more important in motivating Tinkisso-Antenna’s social marketing partners to collaborate.

Problems and challenges in the cooperation with NGOs

Interviews with NGOs, associations and with Tinkisso-Antenna showed the following main problems and challenges:

Exaggerated expectations/ “Tinkisso is big”: Most interview partners saw Tinkisso-Antenna as a big NGO with abundant resources.⁶⁶ They explained that Tinkisso-Antenna is active all over the country and whenever they see them they would drive up in a big car, distribute pens at schools, distribute Chlore’C for free, and so on. From the perspective of a small local NGO with basically no proper means this can and does often lead to the conclusion that Tinkisso-Antenna is a strong and well-heeled organization. That view raises correspondent expectations which are hard to meet. Tinkisso-Antenna is well aware of the problem but has not found a solution yet. It is hard to explain to local NGOs that even though one does have more means available those means need to be carefully invested.

Lack of follow-up and support: The interviewed NGOs reassured their willingness to collaborate with Tinkisso-Antenna but at the same time they expressed concern about lacking follow-up and support from the latter. The actual cause of the problem that Tinkisso-Antenna does often not dispose of the means to provide support to its partners is not easy to determine and remains subject to discussion. Tinkisso-Antenna argues that financing that had been promised or announced for these social marketing purposes had not or not sufficiently been granted. Another explanation can be found in the fact that Tinkisso-Antenna had left a sustainable step-by-step approach described in Figure 1 which would have allowed it to live up to all promises made to NGOs and associations.

Initial lack of trust: Some NGOs mentioned that building confidence was no easy task at the beginning. When they would ask for Chlore’C on credit in order to do social marketing activities Tinkisso-Antenna used to refuse to deliver the total quantity because of concerns that the NGO could not pay back its debt. This is a challenge for both sides: While Tinkisso-

⁶⁶ In that context the interview partners often said “Tinkisso est costaud” which is French for big/ powerful.

Antenna runs a financial risk; the local NGO cannot prove its trustworthiness without enough Chlore'C. However, ongoing collaboration usually builds confidence and quickly alleviates this problem.

5.5 Conclusion expansion

Expanding a locally successful project to (national) scale is a challenging endeavor that should be based on a clear strategy with defined terms. This chapter discussed Tinkisso-Antenna's approach with its successes and difficulties.

In the model case the project and its activities are expanded into one new intervention zone at a time based on a step-by-step approach. Social- and commercial marketing need to go in pairs. At best, this allows the NGO to be financially independent in its activities.

In practice however, expansion tends to be subject to various constraints and does not necessarily correspond to the model case. Depending on its pace, expansion can be very costly and different local partners are important for success. Social Marketing activities should always be started in rural areas as people there are easier to teach, the impact of the project is more likely to be visible and a certain pressure to act can be imposed on the urban centers. Last but not least, it is vital to ensure a timely "commercial follow-up". A commercial distribution network needs to be created in due time to ensure that demand created through social marketing activities does not wither and to guarantee the populations' easy and permanent access to the product. Last but not least, balancing the budget is no easy task. According to Tinkisso-Antenna's experience spending on commercial marketing needs to surpass expenses on social marketing at some point to ensure enough sales and financial sustainability in the long run.

Health structures are a key element of Tinkisso-Antenna's social marketing efforts and especially at the beginning of scaling up they help to make the distribution of Chlore'C financially feasible. However, slow and lengthy processes are a major challenge. Furthermore, Tinkisso-Antenna collaborates with various local NGOs and associations in social marketing. The objective is to insert "communication packages" into the already existing activities of those organizations, to create synergies and to better reach the local population. The DRS help with identifying potential partners which are then and evaluated and selected based on a standardized evaluation process. Once collaboration is decided Tinkisso-Antenna educates and supports its partners in administration, logistics, promotion and financing. However, this support had lately been rather limited due to financial constraints. Partnerships exist either on a formal or on an informal basis and both forms of collaboration have their advantages. Formal partnerships allow for tangible long-term planning while unofficial partnerships are usually cheaper and can be very useful for informational purposes and to maintain a network with potential future partners. Non-financial incentives seem to be the main drivers for Tinkisso-Antenna's partners to collaborate. The collaboration with local partners positive is at large but there are some problems like exaggerated expectations, a lack of follow-up and support, and initial lack of trust.

5.6 Expansion: Summary of best practices and problems to avoid

Expansion: Best practices in a nutshell

The following best practices worked well for Tinkisso-Antenna and may bear insightful lessons with regard to the replication of similar projects. Of course, different circumstances must be considered.

- ☺ **Always start your social marketing activities in rural areas/villages:** *When targeting a new intervention zone, always start your social marketing activities in small villages and not in the cities. For various reasons, people there are much easier to teach and the impact of your work will be more visible. Furthermore, you can build up sort of a pressure on the urban areas as they do not want to lack behind their rural compatriots.*
- ☺ **Always start your commercial activities in urban centers. In a second step, connect to the villages:** *Gain foothold with a local wholesaler and connect him with the village-level merchants you identified during your social marketing campaigns.*
- ☺ **Try to engage regional health structures for your social marketing activities:** *People who visit health centers for treatment are most likely to be receptive for health prevention advice, especially if it comes from health care professionals. Furthermore, this is one of the most cost-effective ways to spread your social marketing messages and your product among the population.*
- ☺ **Lobby for your product to be added to the list of essential medicaments and prescribed in case of diarrhea:** *This is one of the best ways to make sure health centers actually procure your product and actively participate in social marketing by prescribing it to patients.*
- ☺ **Engage with local partners for social marketing:** *Local NGOs and associations know the conditions on the ground, speak the local language, enjoy public confidence and are therefore better suited to acquire acceptance for your product.*
- ☺ **Use your existing network with health structures to identify capable local partners:** *Regional health authorities are used to work with local NGOs in the area of water and sanitation. They know which NGOs and associations are most likely to live up to your expectations.*
- ☺ **Evaluate potential partners using a standardized framework:** *Evaluation of potential partners based on a score-system is a pragmatic and useful way to assess their capabilities, compare them to others and not least to tailor your support for them. Besides organizational resources it is also important to evaluate their standing and acceptance with the local population.*
- ☺ **Educate and support your partners:** *Educate and support your partners based on the initial assessment of their capabilities. Oftentimes, already minor assistance can substantially improve your partner's work. Hold regular evaluation-meetings to improve collaboration and build trust.*
- ☺ **Play your "local-card" towards authorities:** *Both regional health authorities and local NGOs seem to value working with a local partner. Hence, stressing your "localness" can be a plus for your project when it comes to negotiating the terms of cooperation (However, the "local card" can have the adverse effect with customers as will be shown later).*

Expansion: Problems to avoid in a nutshell

Tinkisso-Antenna had to deal with the following main difficulties. Being aware of them might be useful for the replication of similar projects. As with best practices, different circumstances must be considered.

- ☹ **Try to respect the step-by-step approach:** *In practice expansion rarely follows the model case and is subject to various constraints and expectations. Nevertheless, from a financial perspective it is best to target one new zone at a time and to only move on when enough revenues to re-invest have been accumulated.*
- ☹ **Balance your budget:** *Although it is advisable to spend most of the budget on social marketing activities in the first year, commercial marketing needs to be gradually increased starting from the second year. At some point, more money should be spent on commercial- than on social marketing activities in order to ensure financial independency in the long run.*
- ☹ **Exclude health authorities from the revenue-transfer and from the distribution process as soon as possible:** *Start linking health centers with a functioning commercial distribution system as soon as possible. Revenue transfer and distribution via DRS and DPS might be an option for the beginning. However, in the long run it bears substantial financial risks and is too slow.*
- ☹ **Ensure enough working capital at the beginning:** *As long as revenue-transfer and distribution go via DRS and DPS you need to dispose of enough working capital in order to keep production going.*
- ☹ **Maintain a modest appearance when dealing with your local partners:** *Small local NGOs and associations can easily jump to the conclusion that your organization is well-heeled and generate expectations you are not able to meet.*

6. Social Marketing

This chapter describes and evaluates Tinkisso-Antenna's social marketing approach based on Lee and Kotlers (2011) 10-step-framework described in chapter 2.2.⁶⁷ Even though the framework had been developed to serve social marketers during the planning process it is also a very useful guide to describe and evaluate existing social marketing strategies and campaigns in a structured way. Furthermore, any serious attempt to replicate a similar project will inevitably have to deal with exactly those steps.

As mentioned in the previous chapter not many social marketing activities have been carried out in the course of the expansion yet because of a lack of resources.

6.1 Background, purpose and focus

Tinkisso-Antenna's project emerged against the background of repeated cholera epidemics caused by a lack of hygiene practices and an insufficient access of the population to safe drinking water. The purpose of the project is to diminish the prevalence of waterborne diseases and to eradicate cholera in its five intervention zones by spreading the home-based water treatment approach with Chlore'C.

6.2 Situation analysis

The aim of the situation analysis is to identify factors and forces in the internal and external environment that are likely to have some impact on the project. A SWOT-Analysis allows to identify the strengths, weaknesses, opportunities and threats within the microenvironment of a project.⁶⁸ The same assessment needs to be done with regard to the macro-environment as shown in chapter 9.5.

Before entering a new intervention zone it is vital to make an assessment of the local situation and to clearly define the factors that will be used to measure the success the project. Only this will allow for purposeful monitoring and evaluation of the activities and to showcase reliable results in the end.

Although Tinkisso-Antenna was aware of important internal and external factors it did not pursue a proper situation analysis at the beginning of the project. This was at times a disadvantage in dealing with authorities and it is now complicating evaluation efforts to some extent (measuring impact, etc.).

6.3 Target audience

As Tinkisso-Antenna pursues both commercial and social activities it is important to distinguish between the entireties of people Tinkisso-Antenna sells its product to and the people being targeted by social marketing activities. Hence, the target audience of social marketing activities is different from the target audience of commercial market activities. Only the former are of interest in this chapter and will therefore be referred to in the following.

With its social marketing activities Tinkisso-Antenna targets the most disadvantaged among the Guinean population with insufficient access to drinking water in both, urban and rural zones. Special attention is given to those zones that had been affected by cholera epidemics.

⁶⁷ Lee & Kotler, *Social Marketing: Influencing Behaviours for Good*, 2011, p. 39 ff.

⁶⁸ See chapter 9.5 for a SWOT-analysis on Tinkisso-Antenna today.

Furthermore, social marketing activities focus on people who are more or less actively seeking to improve their health and living conditions. Having an appropriate mindset they will be the most receptive to messages, the most likely to permanently change their behaviour and the most willing to pay a small price for an appropriate product on a regular basis in spite of their weak buying power.

Tinkisso-Antenna stresses the importance to include secondary target audiences⁶⁹ into the communication efforts as they will be critical in allocating funding and social acceptance for your product. Although the survey on the household level showed that in more than 70 percent of all cases women are responsible for water management and treatment it is mostly the man of the household who manages household funds and ultimately pays for the product. Hence, it is important to include him as a secondary target audience. Men need to be convinced of the value of this additional expense item in spite of tight budgetary constraints. Another example of potential secondary target audiences are village- or opinion leaders. Without consent and goodwill on their behalf social marketing activities can become almost impossible and the product might be rejected by the local population. Hence, for each intervention zone all relevant secondary target audiences need to be carefully analyzed and identified.

It is vital to understand the characteristics of your primary and secondary target audience as profoundly as possible. You need to know how they live, what language they speak and who they listen to in order to adapt your social marketing strategy and the means employed. This is one of the reasons why Tinkisso-Antenna collaborates with local partners who are closer to the local population. Not only are they better suited to communicate to the target population but also can they be helpful to gain a deeper understanding on regional circumstances. More on partnerships for social marketing can be found in chapter 5.4.

6.4 Behaviour objectives and goals

As shown in chapter 2.2 objectives can be divided into behaviour objectives, knowledge objectives and belief objectives.

Behaviour objectives

Tinkisso-Antenna pursues two behaviour objectives. The first and primary is to lead as much of Guinea's population to adopt the practice of water chlorination on a regular and sustainable basis in order to prevent waterborne diseases like diarrhea. The second behaviour objective is to encourage the target audience to adopt hygienic and sanitation practices not just to prevent recontamination of treated water but also to contribute to improving the countries overall public health situation.

Knowledge objectives

Tinkisso-Antenna wants the target audience to know more about the ways in which water can be contaminated and what this means for people's health. Users of Chlore'C should be aware of causes and effects of waterborne diseases and about how to prevent them. This is the primary *knowledge objective*.

⁶⁹ In social marketing literature sometimes referred to as „midstream target audiences“. These typically include friends, family and opinion leaders/influential others.

Belief objectives

It is Tinkisso-Antenna's *belief objective* that people using Chlore'C are convinced by its effectiveness in safeguarding their own and their family member's health. Furthermore, they should make confidence in its quality and feel at ease when using it.

6.5 Target audience barriers, benefits, the competition, and influential others

The analysis of barriers, benefits, competition and influential others aims at deepening the understanding of your target audience in order to adapt and improve the social marketing strategy⁷⁰. Barriers need to be decreased, benefits increased, competition alleviated and influential others engaged in order to achieve the behaviour objective of adopting the regular and proper use of Chlore'C. Tinkisso-Antenna's way of dealing with this challenge will be discussed in the following.

Price-related barriers

There are several Barriers to adopting the desired behaviour. First of all there is the price of 5000 GNF which can be a lot of money to spend at once for some households. This means that people have to give up something else in order to be able to purchase Chlore'C. Some households

However, 75% of all households asked said that the price of 5000 GNF is "affordable" while only 25% thought that it is "expensive". Interestingly, many people who answered that the price is expensive added "but not for our health". Hence, the price can be a barrier to some people but it is no barrier per se. Another barrier that is linked to the price has to do with the "willingness to pay". During epidemics the product Chlore'C is often distributed for free by organizations like UNICEF, ACF, and others. This constitutes a barrier to the "behaviour of paying" for the product and not to using the product as such.

Tinkisso-Antenna's method to overcome price-related barriers relies mainly on communicational efforts⁷¹. For example, they use messages that compare the monthly costs for a bottle of Chlore'C to the amount of money paid if someone needs to go to the hospital. The survey showed that such treatment costs almost 45'000 GNF on average which is nine times the price for a bottle of Chlore'C.

Availability-related barriers

Another barrier to adopting the behaviour objective is insufficient availability of the product. In some areas Chlore'C is not available at all and in some others the next selling point is very distant, especially for people without any means of transport. This is not only a problem for people who are willing to buy the product today but it can also derogate social marketing efforts. If people do not have the possibility to buy Chlore'C after seeing it in a social marketing campaign they are likely to forget about it after a while. Hence, a "commercial follow-up" in order to ensure long-term availability of the product is crucial as will be discussed later.

⁷⁰ Lee & Kotler, *Social Marketing: Influencing Behaviours for Good*, 2011, p. 188 ff.

⁷¹ See the section on promotion in chapter 6.7.4.

In order to improve the availability of Chlore'C Tinkisso-Antenna constantly works on improving its distribution network. Chapter 7 illustrates these efforts to create a solid commercial distribution system.

Knowledge and belief-related barriers

There are various knowledge and belief-related barriers. The most simple one is that people just do not know Chlore'C and what it is useful for (about a third of all people asked in the household survey have never heard of the product). A second one is lack of knowledge about the fact that drinking untreated water can cause sicknesses like diarrhea and a third one is constituted by the notion that it is more important to treat water during the rainy season. This is heavily reflected by the monthly amount of sales.⁷² Furthermore, almost 65% of people answered yes to the question whether it is more important to treat water during the rainy season. Finally, 57.7% of households responded that their water is not contaminated and 70.9% were convinced not to fall sick if they do not treat their water before drinking it. Those are clearly belief-related barriers to adopting the behaviour objective.

While knowledge-related barriers are easier to overcome, belief-related barriers can be a challenge. With its social marketing campaign Tinkisso-Antenna communicates a lot on the product and makes Chlore'C and its purpose known to the target audience⁷³. Furthermore, they explain people about the microbes in the water, about what they do and that water needs to be treated at any moment in order to stay in good health. However, to actually make them perceive a risk and belief that the very same water they had been drinking for years is likely to be a bearer of diseases is not easy.

One respective communication strategy that worked out for Tinkisso-Antenna is to showcase an experiment during social marketing campaigns: You present a glass full of water to the audience and ask them whether they see anything in it. The answer is going to be "no". Then you take a sugar cube and make everyone see how you put it into the water. Ask if they can see the cube in the water. The answer is "yes". You leave the glass where the audience can see it and after about ten minutes when the sugar dissolved you present the glass again and ask if they can see the sugar now. After getting the "no" you explain that it is the same thing with microbes. They are in the water but no one can see them.

Product-related barriers

The household survey and other interviews revealed three product-related barriers. However, those barriers do not seem to be very high. Of all users of Chlore'C that have been questioned almost 70% responded that the product cannot be improved. 23.7% said that the small inner lid should be modified and made easier to remove. This is the first product-related barrier identified. As second one is taste. A few people said that they do not like the taste of chlorine in the water. On the other hand, some respondents mentioned exactly the opposite. The taste of treated water conveys them a sense of security. At large it seems that taste is a barrier at the beginning but can turn into one of the positive attributes of the product once consumers got used to it. Hence, it is advisable to include taste into the messages communicated during campaigns from the beginning. Taste and good health

⁷² See Figure 17.

⁷³ See "promotion" in chapter 6.7.4.

should be linked by telling the target audience that the product's unique taste is a good thing as it proves that the water had been treated and is now safe to consume.

Motivational barriers

It is very difficult to make an educated guess on the clout of motivational barriers. The household level survey showed that consumers of Chlore'C are usually very motivated to use the product as they are aware of its health benefits. Nonetheless, when users of the chlorination method⁷⁴ were asked whether they do treat their drinking water "never", "sometimes", or "always", 66% responded that they "always" treat it. However, when asked for a small water-sample to do a Wata Blue- test more than 50% of them admitted not to have treated water at the moment, because they simply forgot to buy new stock or to put chlorine into the water.

The example shows that motivational barriers can be quite an obstacle to making the target audience adopt the desired behaviour (which involves treating water on a *regular* basis, not just sometimes). Unfortunately, these "human nature"- type of barriers are not easy to get a grip on. There is not much more Tinkisso-Antenna can do other than to repeatedly tell people how important it is to treat drinking water on a regular basis. In its social marketing messages, Tinkisso-Antenna does exactly that.

Benefits

Benefits are what your target audience values about what you offer in your social marketing campaign and what motivates them to act.⁷⁵ While these benefits might be multiple for other ventures, in the case of Tinkisso-Antenna's project it all boils down to "health". It seems that these health benefits are very clear to Tinkisso-Antenna's consumers. 100% of users of Chlore'C answered "yes" to the question whether they think it is good for their health. Furthermore, when asked why they use the product all answers were clearly health-related like "to avoid diseases", "it's good for my family's health", "to kill microbes in the water", "preventing diarrhea", and so on. Hence, Tinkisso-Antenna's offer consists of one benefit only which is very clear to the target audience. This might be a strength of the project as it is simple to communicate and easy to understand for everyone.

Competition and the social marketing process

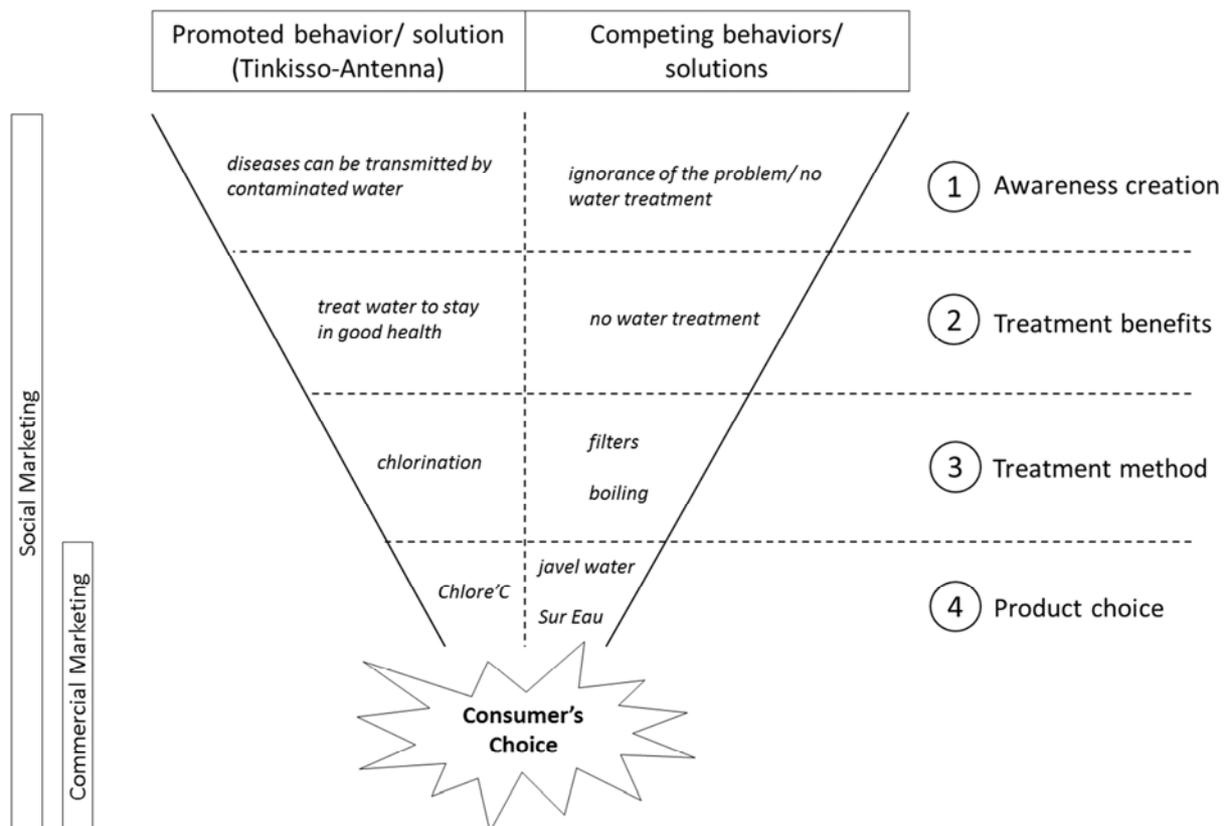
It is important to distinguish competition in social marketing from competition in commercial marketing. In commercial marketing the focus lies on competing products that threaten to reduce sales of your own product. Competition in the area of social marketing however focusses on *competing behaviours*, that is, behaviours the target audience would prefer over the ones Tinkisso-Antenna is offering⁷⁶. These can either be other behaviours people have been doing "forever" (old habits) or just the alternative of doing nothing at all.

In order to analyze Tinkisso-Antenna's competition as well as its strategy in the area of social marketing it is important to appreciate the step-by-step process on which it is based. This process can be visualized by a funnel including four steps that lead social marketing efforts from a very broad to the specific level:

⁷⁴ Either Chlore'C or Sur Eau.

⁷⁵ Note that it is not only Chlore'C that Tinkisso-Antenna offers in its social marketing campaign but also the behaviour of using it consistently and properly together with other hygiene-related practices.

⁷⁶ See: Lee & Kotler, *Social Marketing: Influencing Behaviours for Good*, 2011, p. 191 ff.

Figure 8: The social marketing process

First of all, awareness for the problem is created by giving the target audience information and explanations on diseases that can be transmitted through contaminated water and how this affects their daily lives (awareness creation). Second, Tinkisso-Antenna explains its target audience that treating water is a solution for their problem which is better than doing nothing (treatment benefits). In a third step, it presents the method of chlorination (treatment method). Whenever people come up with alternative water treatment methods they had been using before Tinkisso-Antenna tries to convince them that chlorination is the most suitable option. In order to have respective arguments ready for every objection competition needs to be carefully identified for each one of these steps. The fourth step can only be taken once people are convinced of the chlorination method. This last step is about leading people to Tinkisso-Antenna's product Chlore'C and it is the only of the four steps where commercial marketing activities start to come into play and to interact with social marketing efforts (product choice).

On the first and on the second level, "not treating" is the single one but nevertheless very deep-rooted competing behaviour to Tinkisso-Antenna's behaviour objective. People who have never heard of waterborne diseases and who for decades have never felt a need to treat their water before consuming it are hard to convince of the opposite. Hence, on these two levels Tinkisso-Antenna's social marketing campaign is lucky to face only one directly competing behaviour, even though a very resistant one.

The competing behaviours on the third level are "using filters" and "boiling" which are other methods than chlorination to disinfect water at home. It is part of Tinkisso-Antenna's social marketing campaign to convince its target audience that after all, chlorination is the most suitable one. Buying bottled water is not seen as competing. First of all, bottled water is very expensive, mainly distributed in urban areas and therefore inaccessible to Tinkisso-

Antenna's target audience. Second, it is not based on the same idea that water sourced from some public well is being disinfected at home.

On level four there are two main competing products to Chlore'C: Sur Eau and javel water. Both are based on the same method of using a solution of chlorine to disinfect drinking water although there are differences in terms of price, volume and quality. It is the joint effort of social and commercial marketing to make Chlore'C the consumer's choice.

Influential others

Influential others are those people the target audience is most likely to listen to or to adapt the desired behaviour from. During social marketing activities Tinkisso-Antenna or its local partners seek to identify and engage such opinion leaders. On the village-level these are the village-chiefs, community agents who regularly interact with the local population or various leaders of village-level associations (women's associations, football clubs, etc.). Furthermore, doctors, nurses and health agents who are among Tinkisso-Antenna's partners do have an exemplary function and considerable influence on people's behaviour when it comes to health practices. Tinkisso-Antenna also works with priests and imams to include messages on water treatment in their communication during funerals or Masses. Finally, in Conakry pharmacists play an important role in promoting the desired behaviour and Chlore'C.

6.6 Positioning statement

The positioning statement describes how you want the behaviour and the product you market to be seen by the target audience relative to competing behaviours. Such a statement had not formally been brought on paper by Tinkisso-Antenna but it can be derived from interviews and from the messages it communicates in its promotional videos and radio spots.⁷⁷ The latter directly or indirectly contain the following messages:

- *"Chlore'C helps you to protect you and your family against dangerous diseases"*
- *"A responsible mother and wife uses Chlore'C for the well-being of her family"*
- *"Chlore'C can be used for both, making water potable and for cleaning vegetables, fruits and other aliments"*

In a nutshell, Tinkisso-Antenna wants⁷⁸ people (especially women) responsible for water management in poor households to see regular water treatment with the everyday and multiple-use product Chlore'C as a good and responsible way of safeguarding their family's health.

6.7 Strategic marketing mix (4 P's)

The strategic marketing mix is one of the key elements of every social marketing campaign. It describes the strategy with regard to *product*, *price*, *place*, *promotion* and their interaction. On a conceptual level the 4 P's can be seen as the independent variables used to influence the dependent variable (desired behaviour).⁷⁹

⁷⁷ The main promotional video is available on Youtube: <<http://www.youtube.com/watch?v=YOTYaGjLSYA>> [Last visited: 26.05.2014].

⁷⁸ Adapted from Kotler and Lee's (2011) basic framework to develop a positioning statement (p. 220): "We want [*target audience*] to see [*desired behaviour*] as [*set of benefits*] and more important and beneficial than [*competition*]."

⁷⁹ For more theoretical background refer to: Lee & Kotler, Social Marketing: Influencing Behaviours for Good, 2011, pp. 46 ff., 239 ff.

At the beginning of Tinkisso-Antenna's project in the region of Faranah the NGO used to provide for all of the 4 P's on its own. Today, they still actively manage *product* and *price* on their own while *place* and *promotion* are largely effectuated with the help of partners.

6.7.1 Product

There are three product levels which should be considered in social marketing: *Core product*, *actual product* and *augmented product*.

Core product

The core product consists of the benefits the customer receives. As shown in chapter 6.5 the major benefit to people who regularly treat their water with Chlore'C is "individual- and family health".

Figure 9: Chlore'C bottle



Actual product

Tinkisso-Antenna's actual product Chlore'C is shown in Figure 9. A bottle contains 250 ml of chlorine⁸⁰ and purifies 1000 liters of contaminated water. Usage is easy and visually explained on the label on the backside of the bottle: One puts the content of the small inner lid (5 ml) into 20 liters of water, shakes it and waits 30 minutes before drinking.

Augmented product

The augmented product includes any additional product elements that are promoted or provided with the actual product. 20 liters cans are an augmented product to Chlore'C. Together with the small inner lid of 5 ml they simplify the correct dosage of chlorine and are part of the explanations on the back of the bottle (Figure 9, back view). Tinkisso-Antenna promotes the use of these cans in its social marketing campaigns but has not provided or distributed them to date.

6.7.2 Price

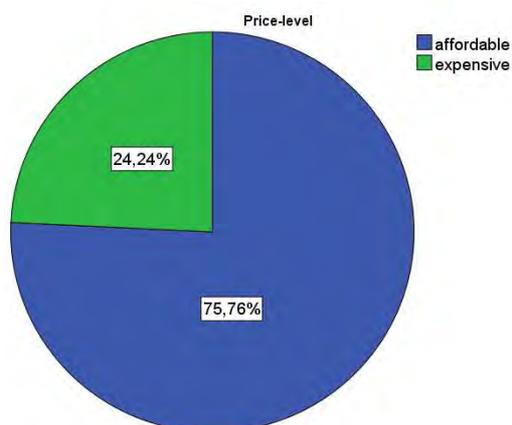
In social marketing "price" is seen as both *monetary* and *nonmonetary costs* that the target audience associates with adopting the desired behavior.⁸¹ Monetary costs are directly related to buying the product (or service) while nonmonetary costs are more intangible but not less real for the target audience and often even more important for social marketing products. They include costs associated with time, efforts or psychological discomfort that may be related to the desired behaviour.

Monetary costs

The price per Chlore'C bottle is 5000 GNF for the end user. Chapter 6.5 already showed that 75% of all households asked said that the price of 5000 GNF is "affordable". Only 25% thought that it is "expensive" and often they added "but not for our health".

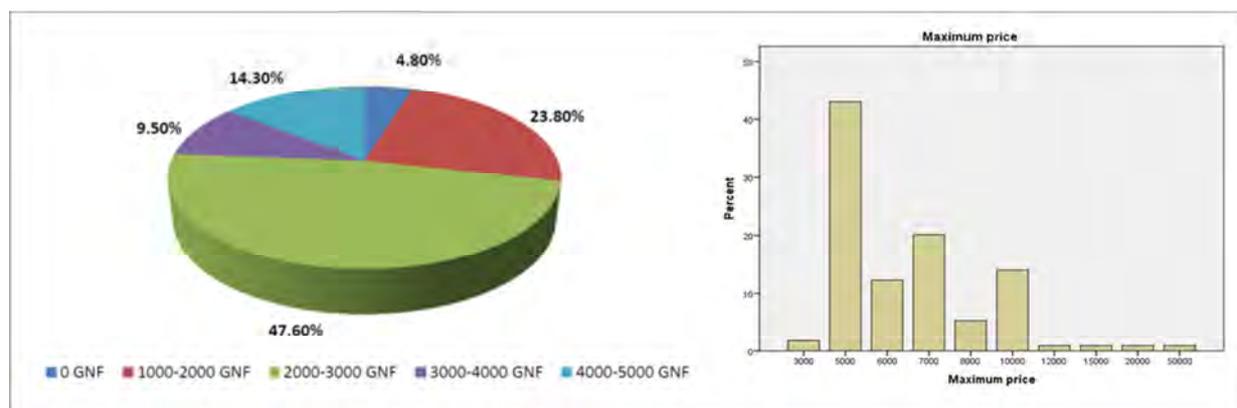
⁸⁰ Which is in line with WHO recommendations: <<http://tinyurl.com/nls75r3>> [Last visited: 27.05.2014].

⁸¹ Lee & Kotler, Social Marketing: Influencing Behaviours for Good, 2011, p. 268 ff.

Figure 10: Price-level of Chlore'C

This is an interesting observation as a survey conducted in 21 households within the scope of a field study⁸² in Dabola in September 2009 showed that 85% of people think that Chlore'C (which was named "Wata Eau" at the time) is too expensive. Furthermore, when asked about the maximum price they are willing to pay almost 50% of the people in 2009 responded with 2000 to 3000 GNF and another 24% were only willing to pay up to 2000 GNF (see Figure 11). In 2014, 43% of people who responded to the question were willing to pay a maximum of 5000 GNF, the

average response was as high as 7026 GNF and the median respondent would go up to 6000 GNF per bottle. Only two people out of 175 named a maximum price under the actual price of 5000 GNF.

Figure 11: Comparison maximum price (left: 2009, right: 2014)⁸³

The comparison of the two surveys might bear an indication that the willingness to pay for the product has been increasing within the past five years, probably as a result of social marketing activities. However, the analysis should be interpreted with caution as the survey in 2009 included a smaller number of households and had been carried out in Dabola, Guinea's poorest region. The 2014 survey was conducted in different areas of the country including Conakry where people tend to have more money.

During epidemics Chlore'C is often distributed for free by UNICEF, the WHO, the government and other institutions. Therefore, monetary cost for Chlore'C falls at time to zero which has an impact the people's willingness to pay. Households that never paid for the product need first to be convinced that it is something worth spending money on.

Tinkisso-Antenna's ability to pursue price-related strategies is rather limited because it is usually not directly selling to the target audience. Therefore, it can only do as much as grant

⁸² Available online: <<http://www.poverty.ch/documents/Masterarbeit%20Oezge%20Aydogan.pdf>> [Last visited: 27.05.2014].

⁸³ The figure for 2009 has been retrieved from: (Aydogan, 2010).

Chlore'C for a price of 3500 GNF to its partnering NGOs and associations as well as to health structures to support their work with the target audience.

Nonmonetary costs

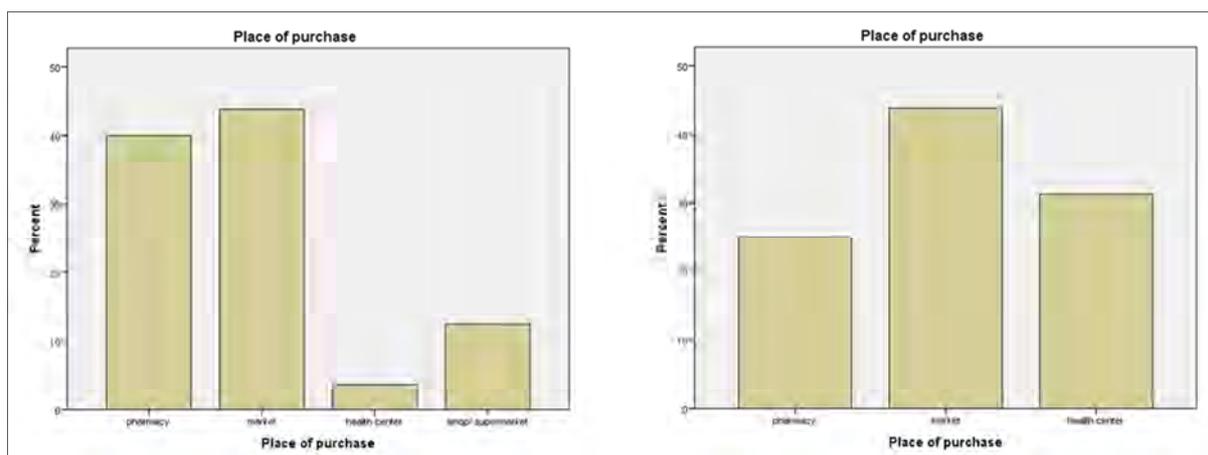
Nonmonetary costs are closely related to *barriers* which have already been discussed in chapter 6.5. They include time and effort used for procurement (especially for people living in an area where easy availability of Chlore'C is not always guaranteed), having troubles with removing the inner lid and finally being displeased with the chlorine taste of the water. As only few people mentioned problems with the lid or that they do not like the chlorine taste "time and effort for procurement" seems to be the main nonmonetary cost to regularly using Chlore'C.

6.7.3 Place

Place is *where* and *when* the target audience performs the desired behaviour and acquires any related goods⁸⁴. As shown earlier, only convenient access will lead to long-term adoption of the desired behaviour and therefore well-functioning distribution channels are extremely important. Thus, "place" is where commercial and social aspects of a social business start to interact. As shown in chapters 5.4.1 and 5.4.2 NGOs, associations and health structures take part in the distribution of Chlore'C even though their primary focus is on awareness- and demand creation. The actual distribution channels ought to be provided by the commercial side of Tinkisso-Antenna's operations.

The place of procurement varies between urban and rural areas as data from the survey shows (Figure 12). In cities 95% of people buy Chlore'C through purely commercial distribution channels (40% in pharmacies, 44% on the market and 12% in shops of supermarkets) while only 4% purchase it in health centers. In rural areas where the commercial distribution system is not as developed yet only 69% buy through commercial channels (25% in pharmacies and 44% on markets) and 31% with health centers.

Figure 12: Place of purchase urban (left) versus rural (right)



6.7.4 Promotion

Promotions are communications that highlight the product's benefits and features and that are designed to encourage the target audience to take action. There are four major decisions

⁸⁴ Lee & Kotler, Social Marketing: Influencing Behaviours for Good, 2011, p. 291 ff.

that need to be included in the planning process and which will be presented in the following⁸⁵: *Messages, Messengers, Communication channels and means, and communication strategy.*

Tinkisso-Antenna mentions that the true challenges of promotion is not about announcing the product and make people like it but to have them actually buy and use it regularly once you are not there to promote it anymore. They compare it to someone who says he wants to learn a language. Will he just keep talking about it and maybe learn a few words or is he going to actually spend some of his hard-earned money as well as leisure time on a language course? Only the latter can be seen as a behavioural change.

Messages

Messages are about the content of social marketing communications. They are based on what you want your target audience to do (desired behaviour), to know (key facts about the product and its use) and to believe (barriers and benefits). Tinkisso-Antenna wants its target audience to treat water with Chlore'C on a regular basis. They want them to know how it should be used because only proper use leads to the desired benefits. Furthermore, the target audience should be aware of waterborne diseases, hygiene practices and about the fact that Chlore'C can be used for multiple purposes (treat drinking water, rinse fruits and vegetables and for general cleaning purposes). Last but not least Tinkisso-Antenna challenges belief-barriers identified in chapter 6.5 so that people perceive the risk of drinking contaminated water and feel obliged to do something about it. Messages are tailored to audience, circumstances and communication channels but remain the same in principle and usually contain the following elements:

- *"Untreated water contains microbes that make people and especially children sick"*
- *"Chlore'C kills the microbes in the water and safeguards your family's health. Using it on a regular basis saves you a lot of money for medical treatment"*
- *"A responsible mother always treats water before giving it to her family"*
- *"Water needs to be properly treated at home and stored correctly in order to prevent re-contamination"*
- *"Treating water with Chlore'C is not enough. Basic hygienic practices need to be applied to stay in good health"*
- *"Chlore'C is useful for multiple purposes: Disinfect water, rinse vegetables, fruits and other ailments and for household cleaning"*

Messengers

Tinkisso-Antenna uses health professionals (chapter 5.4.1), local NGOs and associations (chapter 5.4.2) and opinion leaders/ influential others (chapter 6.5) to deliver its messages to the target audience.

Communication channels and means

Communication channels and means are about when, where and how your messages will appear. It is not always straightforward to distinguish them from messengers. Tinkisso-Antenna and its partners communicate through the following channels and means:

⁸⁵ Lee & Kotler, Social Marketing: Influencing Behaviours for Good, 2011, p. 319.

Door-to-door communication: Maybe the most effective ways to get people's undivided attention is to talk to them directly at their homes. Door-to-door communication is done by Tinkisso-Antenna's NGO partners, by community agents but also with health schools who send their students to households for sensitizing campaigns. This channel allows for tailoring arguments to very individual circumstances and questions, to eliminate reservations in the first place and to show how the product can be used with the means available in the respective household. At the same time however, door-to-door communication is one of the most time-consuming communication channels.

Health professionals: As shown in chapter 5.4.1 health professionals are among the most important partners of Tinkisso-Antenna. They communicate to the target audience on Chlore'C either in health centers or during household visits.

Schools: Communication via schools has several advantages. First, children are easier to teach than adults. Second, it is easy to reach a large audience at once and third, educating children is believed to be one of the most sustainable approaches as people who grow up with certain behaviour are more likely to adhere to it during their entire life.

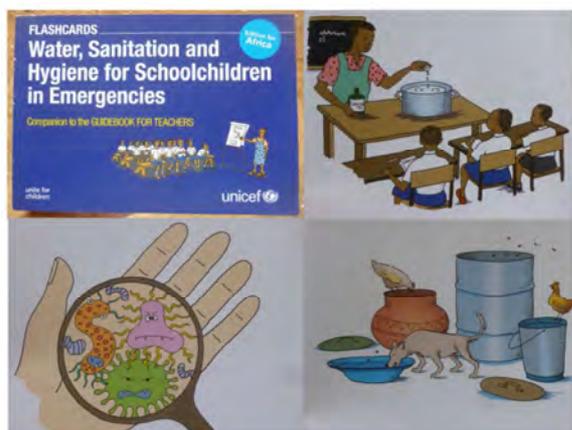
Figure 13: Seynette at a primary school in Conakry



One of the means that can be used in schools are "seynettes" in which groups of students prepare a small role-play that includes a central message like "wash your hands before eating" or "treat water with Chlore'C before drinking it". A jury consisting of teachers, parents and sometimes local authorities rate these plays and nominate a winning team. This competitive but still playful environment motivates the students to improve their performance and to attentively

follow what the other children are doing. This is a very effective way to internalize the messages and to reach many children and parents at once.

Figure 14: UNICEF Wash-guidebook for schools



Another mean are guidebooks with simple illustrations of basic WASH-practices provided to schools by UNICEF.⁸⁶ Those books contain easily understandable messages and explanations for hygiene education. The method of chlorination is presented as well.

Because of a lack of funding such seynettes and other school-based events for the promotion of Chlore'C have only been planned but not executed by Tinkisso-Antenna and its partners yet.

⁸⁶ An example of such a guidebook is available online: <<http://tinyurl.com/po96edn>> [Last visited: 28.05.2014].

Weekly markets: Chlore'C is being promoted in local markets by megaphone and by showcasing of the product. This is a cost-efficient way to reach a large public mainly consisting of Tinkisso-Antenna's primary target audience (women responsible for water treatment in the household).

Mosques and churches: As explained before priests and imams can constitute an important communication channel people are likely to listen to.

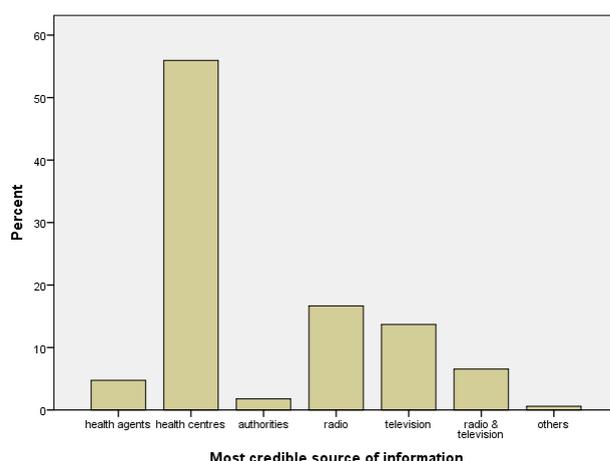
Local radios: Many Guineans regularly listen to their local radio. Therefore, the radio is one of the communication channels with the largest coverage. Unfortunately, it is one of the most expensive communication channels as well. Producing a single spot incurs costs of about 2'500'000 GNF (approx. 260 EUR) and every transmission costs another 100'000 GNF (10 EUR). Furthermore, the timing of the transmission needs to be carefully planned as you risk losing your investment if the target audience suffers from one of the very frequent power blackouts during the time of transmission.

Television: Television is mostly used for commercial marketing purposes. Poor people in rural areas do often not have a television. Television-spots are even more expensive than those on the radio.

Posters: Posters have the potential to reach a large public and they can be useful supporting means during social marketing campaigns if attached at much-frequented places. Even though their production might not be cheap they can be used several times which makes them good value for money.

Pharmacies: Although pharmacies are commercially oriented they do nonetheless participate in awareness creation and are therefore another communication channel. Several interviews conducted with pharmacists show that most of them explain cause and treatment of waterborne diseases as well as the use of chlorine to their clients. Many pharmacists claimed that they do so not to increase sales but to help people to protect themselves from diseases.

Figure 15: Most credible source of information



When asked for the most credible source of information there are three that clearly stand out (Figure 15): Health centers (56%), radio (16.7%) and television (13.7%). 6.5% of respondents named radio and television together. These facts support Tinkisso-Antenna's strategy to use health centers as a channel for social marketing.

Communication strategy

The communication strategy describes how messages, messengers, means and communication channels interact and translate into specific actions. Several interviews with

Tinkisso-Antenna and with its partners disclosed three basic strategic approaches for social marketing activities at the village level. One is active which means it directly involves Tinkisso-Antenna and its partners while the two others work in a more passive way.

Active promotion with partnering NGOs and associations: The first approach is to mandate your partnering NGOs and associations with a social marketing campaign. As shown, Tinkisso-Antenna's partners do either go from door to door with a bottle of Chlore'C to individually show its use to the villagers or they performs a community event where many people are targeted at the same time. The leader of the NGO AGDID in Mamou city explains the process of such a community event as follows⁸⁷:

"Before leaving for the village we inform the health center or the health-post in charge as well as the village-chief of our coming. After arriving at the village the latter introduces us to the community and asks them to listen to what we say. Then, the community presents itself in turn. Those are important steps to build trust and to receive their undivided attention. Now we thank them for welcoming us to their village and we show them a bottle of Chlore'C and ask if someone knows the product. Most of the time there is someone who has seen it before and this person will then explain what it is to the others. After he finishes we thank the person for speaking out and we say that he was right with most of what we said. It is very important to include the community into the communication because they express themselves in the language and ways that their fellow villagers understand best. Furthermore, the others will think that if he used Chlore'C before or knows what it is they should try it as well because they suffer from the very same problems. Then we open the discussion by asking if someone has something to add to what he said. People will start to discuss and to think about Chlore'C which facilitates the learning process. Our role is to steer and moderate the debate. We complete the information and make little corrections if necessary. During these events it is important never to embarrass someone by stating that what he or she said is wrong even if it was. You need to make corrections with care. Only then will people keep listening to you and welcome you the next time you visit that village."

This "active" approach is either used alone or after one or both of the two "passive" ones has already successfully been employed. The latter are based on the assumption that people living in a village are better suited to convince people of Chlore'C. If a son, neighbor or friend uses a product people tend to trust it more easily. The two approaches are often used simultaneously.

Passive promotion with a village-level partner: In a first step, Tinkisso-Antenna or one of its partner NGOs identifies a promoter (early adopter) in a village, educates him in the use of Chlore'C and gives him a box with the product. The promoter will start to use Chlore'C in his own household and go and tell family, friends and other people in the village. Usually, the other villagers become curious where he was given these bottles and some want to know why he got them for free while they did not receive anything. They start to ask all sorts of questions and try to use it on their own. Although the process takes time it often leads to sort of a domino-effect that results in awareness of and demand for Chlore'C. If necessary Tinkisso-Antenna organizes an additional "active" social marketing campaign and starts to ensure a commercial follow-up. For this purpose it links the promoter to its distribution network and gives him the opportunity to earn some money by selling bottles in his village.

⁸⁷ Free translation from French.

Passive promotion through the village-chief: In addition to the tactic described above Tinkisso-Antenna often seeks to include the village-chief into the social marketing efforts. To that end it provides a box of Chlore'C bottles to the latter through the initial promoter. The village-leader will then face the challenge to distribute 50 bottles of Chlore'C among, say, 300 villagers in a fair way. The promoter who had earlier been trained by Tinkisso-Antenna advises the chief to install several "water-treatment points" in the village and to deploy someone in charge of water treatment to each of them. The villagers would then line up for water treatment at these points and learn about the product while waiting for their turn. According to Tinkisso-Antenna's experience this process creates kind of an "excitement" where people do not want to wait to treat their water and start to ask where they can obtain Chlore'C by themselves. Once this point is reached the promoter starts to buy more bottles with Tinkisso-Antenna and to sell the product on the village-level. Often, one of Tinkisso-Antenna's NGO partners organizes an additional "active" community event in order to accelerate the process and to enhance people's knowledge of WASH practices.

6.8 Monitoring and evaluation

Tinkisso-Antenna has always been reporting on its social marketing activities. However, a comprehensive evaluation plan with clearly defined measures is only now about to be developed. For replication of similar projects it is highly recommendable to implement a proper evaluation system from the very beginning even though budget might be severely limited.

Before entering a new intervention zone it is vital to make an assessment of the local situation and to clearly define the factors that will be used to measure the success of the project. Only this will allow for purposeful monitoring and evaluation of the activities and to showcase reliable results in the end.

Although Tinkisso-Antenna was aware of important internal and external factors it did not pursue a proper situation analysis at the beginning of the project. This was at times a disadvantage in dealing with authorities and it is now complicating evaluation efforts to some extent.

6.9 Conclusion social marketing

Tinkisso-Antenna's success in social marketing is based on many factors. First of all, primary target audiences need to be profoundly understood in order to adapt the social marketing strategy. Furthermore, secondary target audiences should be identified and included in the communication efforts. To plan any social marketing activities and effectively use the available means it is important to clearly define what the knowledge objectives and the behavioural objectives of the campaign are.

There are several barriers to adopting the behavioural objective. Price-related barriers do exist but as the household survey indicates they do not seem to be as high as one could think given the poverty of the country's population. Availability-related barriers are a problem in some areas that only the constant improvement of Tinkisso-Antenna's distribution network can alleviate. Furthermore, there are several knowledge- and belief related barriers. Some of them can be difficult to overcome and adept communication strategies need to be employed. Product-related barriers seem to be low while motivational barriers are rather hard to actually estimate and even harder to tackle.

Tinkisso-Antenna's offer consists of one single benefit, which is "health". This makes its offer simple to communicate and easy to understand which can be seen as a strength of the project.

Competing behaviours to Tinkisso-Antenna's behaviour objective can be found on four different levels of the social marketing process which are "awareness creation", "treatment benefits", "treatment method" and "product choice". Influential others play an important role during social marketing campaigns and are therefore actively engaged by Tinkisso-Antenna. In these campaigns Chlore'C is promoted as an everyday product with multiple applications that every responsible household should use to protect its members from falling ill.

Tinkisso-Antenna's actual product is "individual- and family health", the core product is Chlore'C and 20 liter cans are an augmented product that has been promoted but not distributed during campaigns.

The monetary cost for a bottle of Chlore'C is 5000 GNF. Data suggests that the willingness to pay for Chlore'C has been rising during the past five years. Nonetheless, Tinkisso-Antenna's ability to pursue price-related strategies is very limited. While everything related to *product* and *price* is done by Tinkisso-Antenna alone, *place* and *promotion* requires partnerships. As far as *place* is concerned people in cities usually buy their Chlore'C through commercial distribution channels while in rural areas health centers still take an important part in making the product available.

Messages are tailored to audience, circumstances and communication channels but contain the same basic elements. There are numerous communication channels and means that can be used as circumstances and the available budget require. People name health centers, radio and television as the most credible source of information. With regard to communication strategies on the village-level there are "active" approaches that directly involve Tinkisso-Antenna or its partnering NGOs and more "passive" ones where an early adopter is educated to do promotion in his village. Active and passive approaches often complement each other and go in pairs.

In conclusion, Tinkisso-Antenna developed a very successful social marketing structure which is ready to execute the planned activities as soon as enough funding is available.

6.10 Social Marketing: Summary of best practices and problems to avoid

Social Marketing: Best practices in a nutshell

The following best practices worked well for Tinkisso-Antenna and may bear insightful lessons with regard to *the replication of similar projects*. *Of course, different circumstances must be considered.*

- ☺ **Identify and include the most important secondary target audiences:** *Women are the appropriate primary target audience of your social marketing campaign when it comes to water treatment. However, it is often their husband who manages household funds and pays for the product. Furthermore, opinion leaders like the village chief can be crucial in order to gain social acceptance for your product.*
- ☺ **Engage with local partners:** *Local partners are important to better understand and communicate to your target audience.*
- ☺ **Price-related barriers:** *Compare the costs of sending someone to the hospital for treatment with the monthly costs for a bottle of chlorine.*
- ☺ **Availability-related barriers:** *Constantly work on improving your commercial network if you don't want your communicational efforts to be lost. Without a timely follow-up people will forget about your social marketing campaign after a while.*
- ☺ **Knowledge-and belief-related barriers:** *Use the "sugar experiment" explained in chapter 6.5 to effectively convey your message of invisible microbes in the water.*
- ☺ **Product-related barriers:** *Communicate on taste from the beginning of your campaign. Overcome negative first reactions by linking chlorine taste of the water with its health benefits.*
- ☺ **Benefits:** *Having only one benefit makes your offer simple to communicate and easy to understand which might turn into strength of your project.*
- ☺ **Competing behaviours:** *Analyze all levels of the social marketing process for competing behaviours and develop a strategy for each of them.*
- ☺ **Influential others:** *Identify local opinion leaders and engage them in your social marketing campaign to gain acceptance for your product.*
- ☺ **Identify and promote important augmented products:** *20 liter cans are very important augmented product of Tinkisso-Antenna's offer that allows for proper use. Such augmented products should always carefully be identified and included in social marketing campaigns and distribution efforts if necessary.*
- ☺ **Communication channels:** *Health centers and local radios are among the most credible sources of information for the target audience. Furthermore, schools are a very useful channel to promote your product to a large audience in a sustainable and effective way.*
- ☺ **Communication Strategy:** *Use village-level promoters, village-chiefs and community events to create demand for your product.*

Social Marketing: Problems to avoid in a nutshell

Tinkisso-Antenna had to deal with the following main difficulties. Being aware of them might be useful for the replication of similar projects. As with best practices, different circumstances must be considered.

- ☹ **Conduct a situation analysis at the beginning:** *Only a proper situation analysis allows for purposeful planning, implementation and evaluation of your activities.*
- ☹ **Constantly improve messages:** *The way your target audience uses your product bears important information on how you can improve your messages. With regard to Chlore'C, messages should target the perceived seasonality of the product (much more sales during the rainy season).*

7. Commercial Marketing

The commercial side of Tinkisso-Antenna's project is not part of the focus of this report. Nonetheless, some of its aspects and problems are important to understand the interaction with social marketing activities. Especially effective distribution channels ("place") are vital for the functioning of Tinkisso-Antenna's project. This chapter provides a brief discussion of how the commercial side increasingly starts to contribute to the availability of Chlore'C and highlights some of the most important problems.

7.1 The objective of commercial marketing

Even though Guinea is a rather small country measured by square kilometers, the distances between the different zones of intervention are considerable in terms of road conditions and means of transport available. The ultimate objective of commercial marketing is to overcome these obstacles and to ensure the easy and permanent availability of Chlore'C for the population. In social marketing language availability is referred to as "place". In short, it is about the supply-side of Tinkisso-Antenna's project.

In addition, commercial marketing activities allow the NGO to generate revenues which are essential to fund the social marketing activities and to allow for a sustainable and permanent financing and for the expansion of the project.⁸⁸ Revenues are important for Tinkisso-Antenna's long-term self-conception as a social business instead of being a purely donor-funded NGO.

7.2 Building an effective distribution system

As shown earlier Tinkisso-Antenna's approach is to start developing its commercial distribution system once demand for Chlore'C has been created through social marketing activities. While the latter target rural areas first, the development of a commercial marketing system usually starts in urban centers and then gradually connects to the village-level promoters.

In the capital Conakry Tinkisso-Antenna supplies about 100 of the cities' over 200 pharmacies as well as some stores and supermarkets. Due to short distances and low transportation costs this Conakry-based distribution system is effective and generates revenues for the NGO. However, bringing Chlore'C to the other, often very remote regions is costly. Profits are hard to make without a solid network of professional distributors. Therefore, Tinkisso-Antenna recently started to collaborate with the Guinean distributor "Good Job".⁸⁹

The basic idea is to find a wholesaler in each region who disposes of an effective network of commercial clients like merchants, pharmacies, stores, kiosks etc. This allows Tinkisso-Antenna to only supply that single wholesaler with Chlore'C. All the other commercial clients of the region do then have the opportunity to procure Chlore'C with the latter and to sell it to the population.

The main challenge in each new region is to find such a wholesaler who is willing to add Chlore'C to his range of products. The initial hesitation on the side of Tinkisso-Antenna's

⁸⁸ As shown in Figure 1.

⁸⁹ <<https://www.facebook.com/profile.php?id=100008162294589&fref=ts>> [Last visited: 01.06.2014].

commercial clients is understandable. Anytime they spend money on a new item they need to make sure that it is going to leave the shelves within a reasonable period of time. Therefore, if some organization offers a new product the wholesalers usually request support with commercial marketing. More precisely, they want Tinkisso-Antenna to communicate on the brand "Chlore'C" and on where it can be bought towards the urban population by posters, radio- and television spots, etc. This sort of communication is expensive which is where Good Job comes into play.

Given the prospect of becoming Tinkisso-Antenna's exclusive national distribution partner Good Job agrees to bear half of the commercial marketing costs and to provide delivery to the regional wholesalers. This allows Tinkisso-Antenna to save substantial costs and to tap the latter's already existing commercial network.

7.3 Main challenges in commercial marketing

There are several closely product-related problems in the commercial marketing domain. Examples are confusion in product names on the market, bottle-material related problems, difficulties with package and transportation, expiry dates, etc. Moreover, some of Guinea's regions dispose of a very weak commercial sector with almost not functioning distribution channels which makes it difficult to find a suitable wholesaler. Under these conditions, revenues often fail to make up for expenditures.

Those rather technical or structural problems are not analyzed in the present report. However, some main challenges that directly or indirectly affect social marketing activities will be discussed.

Double circuits

Double circuits emerge when Tinkisso-Antenna's product Chlore'C is sold on the market to prices other than 5000 GNF. There are two kinds of double circuits.

This first type of double circuits evolves because Tinkisso-Antenna sells its product to partners like UNICEF who distribute it for free among the population (especially in cases of epidemics, etc.). However, these bottles end up to be sold by vendors to discount prices, that is, to a price below 5000 GNF. The availability of Chlore'C at lower market prices can result in a reduced willingness to pay the normal price and hence in a reduction of Tinkisso-Antenna's sales.

The second type of double circuits is linked with the fact that Tinkisso-Antenna cannot actually set and control the end price of its product because it is not directly selling to the population. The vendor that sells Chlore'C to the end consumer can ask a higher price than the 5000 GNF that Tinkisso-Antenna envisages for its product. Tinkisso-Antenna has caught pharmacies and market-vendors selling bottles for 10'000 GNF in Conakry, which is double the official price. This results in two main problems: First, less people will buy the product at the higher price, diminishing Tinkisso-Antenna's revenues. Second and more severely, Tinkisso-Antenna risks losing its social image with the public and with Guinea's authorities who might start to see it as a revenue-oriented production site instead of a social non-profit NGO. At worst, this could result in a loss of government support and make the political decision makers look out for other partners to pursue the national health strategy. It is not easy to estimate the scale of the problem.

Figure 16: Price at which customers buy Chlore'C

Figure 16 plots the customer's responses to the question "at which price do you buy Chlore'C". Of 113 people who answered to that question 93 (82.3%) indicate that they buy the product at its official price of 5000 GNF. A total of 9 respondents (8%) procure it for 3000 GNF and 11 persons (9.7%) pay too much. Two customers pay as much as 15'000 GNF. All people who paid too much for Chlore'C did so either on the market, in pharmacies or in small shops. Hence, it seems that the problem of double circuits is

linked with commercial sellers and not to NGOs and health structures. Although it appears not to be overly severe yet one needs to consider that outside of Conakry, where test-purchases by Tinkisso-Antenna are difficult to conduct, the commercial branch is only about to develop.

In order to mitigate the problem of double circuits Tinkisso-Antenna started to print the end price of Chlore'C on the bottle label for everyone to be seen. Moreover, it communicates the price during promotional activities in order to reach out to the illiterate population as well. Furthermore, Tinkisso-Antenna seeks the dialogue with those vendors who are known to overprice their Chlore'C.

Threat of new entrants

To date, only PSI sells a direct substitute to Chlore'C (Sur Eau) in Guinea. However, there is a risk that new competitors enter the market if Tinkisso-Antenna keeps creating demand and generating revenues from sales. Looking at the business side of Tinkisso-Antenna, profits are almost only realized in Conakry as demand here is relatively high and transportation costs are low. Selling Chlore'C to the regions is in most cases not profitable and sometimes even a losing deal. Hence, if a new entrant was to enter the market he is likely to start production and sale of similar products in Conakry only. Losing market share to new entrants would reduce Tinkisso-Antenna's revenues and seriously threaten the social side of Tinkisso-Antenna's engagement as it is highly dependent on the Conakry revenues in order to expand its project to other regions, especially the expensive social marketing activities. New and commercially oriented competitors would likely cater to Conakry only and ignore the remote areas of the country where the chlorine is most needed. So far there is no new competitor in sight. Nonetheless, this is a scenario Tinkisso-Antenna should prepare for.

Heavy fluctuating sales and slow demand creation

Table 3 shows Tinkisso-Antenna's intended and effective sales from April to November 2013: 448'000 bottles had been targeted but only 220'512 or 49% have actually been sold. While almost 80% of envisaged sales could be effectuated in Conakry the numbers in the other regions are less optimistic and hint to the fact that despite efforts and social marketing

activities demand for Chlore'C has not been created as hoped for. There are several factors to be considered in the explanation.

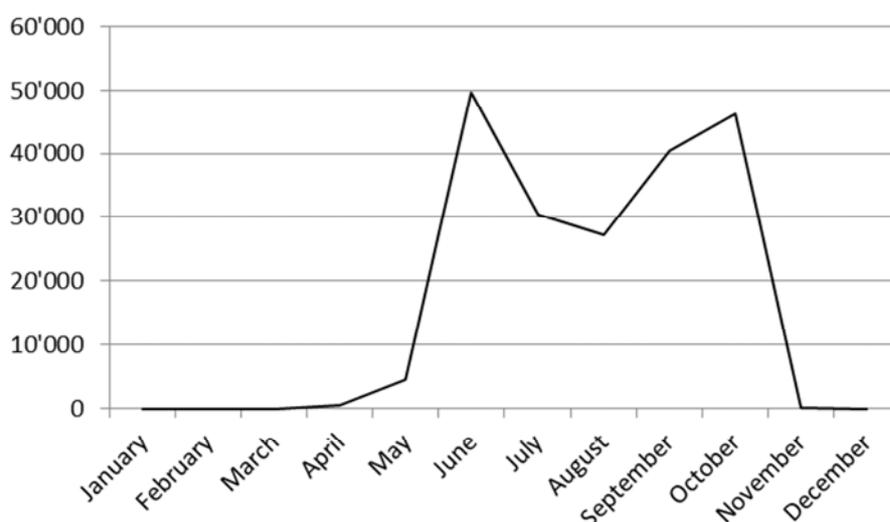
Table 3: Intended and effective sales (April - November 2013)

Region	Intended sales (bottles)	Effective sales (bottles)	Percentage
Conakry	174'200	138'543	79.5
Boké	90'000	16'260	18.1
Kindia	72'000	23'220	32.3
Mamou	72'000	18'900	26.3
Labé	37'743	21'489	56.9
Kankan	2'857	2'100	73.5
Faranah	0	0	
Nzérékoré	0	0	
Total	448'800	220'512	49.1

Intervention
Zone

First, part of the population is still not used to pay for Chlore'C. As UNICEF and other donors used to distribute the product for free during epidemics like the one in 2012, some people still need to get accustomed to the fact that Tinkisso-Antenna's product has a price. More importantly, increased awareness for WASH practices needs to be brought about by social marketing campaigns in order to convince the population that the benefits they receive from Chlore'C is worth the 5000 GNF.

Figure 17: Season depending sales (2013)



Furthermore, there is a heavy fluctuation in sales amounts as shown in Figure 17. This can be explained by people's beliefs towards season depending health issues. In 2013 Chlore'C sales surged to monthly records of almost 50'000 bottles sold during the rainy month May, June, July, August and September. From October to March they plummeted to a few dozens.

Figure 18: Importance of constant water treatment

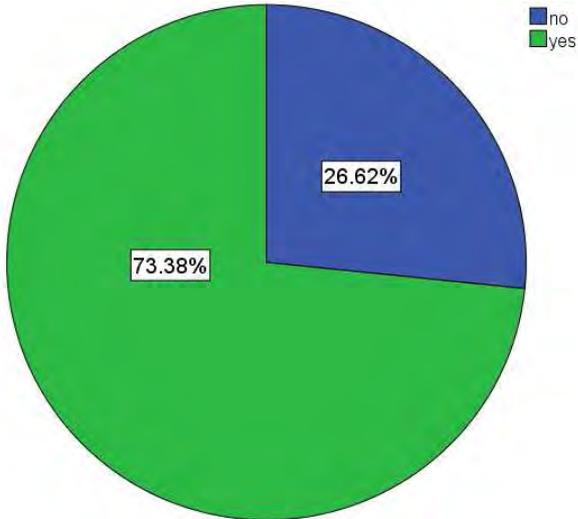


Figure 18 shows the respondents answers to the question of whether treating water with Chlore’C is more important during the rainy season. Almost three-quarters of users think that this is true. Hence, they do not see Chlore’C as an everyday product yet.

Season depending sales provide a textbook example of the close interaction of the social and the commercial aspect of Tinkisso-Antenna’s project. Change in behaviour and attitudes can impact the sales amount of Chlore’C and stabilize it

over the entire year. Hence, this sort of change is extremely important for Tinkisso-Antenna’s financial stability but it can only be brought about by social marketing activities.

7.4 Conclusion commercial marketing

In conclusion Tinkisso-Antenna is only today about to develop a commercial marketing network outside the city of Conakry. The objective is to allow for an effective and uninterrupted availability of Chlore’C in all intervention zones. Moreover, strengthening Tinkisso-Antenna’s commercial branch aims at increasing sales revenues that can be re-invested in social marketing activities.

8. Health Impact Evaluation

The vision of Tinkisso-Antenna's work is to improve the population's access to safe water in order to diminish the frequency of waterborne diseases. Hence, having a positive impact on people's health is one major objective. However, it is extremely difficult to isolate the health effect of Tinkisso-Antenna's work in Guinea. First of all there are countless third variables at play that are very difficult to control for. Safe water is only one component for health improvement. Furthermore, there is PSI who offers a solution based on the same water-treatment method. Second, there is no assessment of the population's health at the time when Tinkisso-Antenna started its project. Hence, it can be questioned whether a truly valid scientific evaluation on the health impact of Tinkisso-Antenna's work is feasible or not.

Despite the difficulties this report seeks to provide an estimation of the impact that Tinkisso-Antenna's work has on people's health in the intervention zone. The analysis is based on two steps: First, we need to know more about the ratio between users and non-users of Chlore'C. In other words, the report tries to determine how many direct beneficiaries the project has and what their percentage of the total population is. In a second step we need to find out whether or not the users (or beneficiaries) of Chlore'C are likely to experience a positive impact on their health or not. This judgment will be made based on the simplifying assumption that the following four necessary conditions serve as reliable proxy variables for a positive impact on people's health:

1. *Easy, affordable and permanent access to the product*
2. *Proper and consistent use of the product*
3. *Proper storage of the product*
4. *Sufficient education in hygiene practices*

In other words, a positive health impact can only be assumed if all of the four conditions are true for any given region.

This impact evaluation does not evaluate the extent of behavioural change that has been brought about by Tinkisso-Antenna's work. Apart from the awareness raising efforts done by health centers Tinkisso-Antenna has only recently started its social marketing activities in the new intervention zones based on the strategy described above. As behavioural change is a long-term endeavor it is too early to evaluate its extent brought about by Tinkisso-Antenna's activities yet. To date, it must be assumed that the major part of the awareness creation had been done by PSI. This is why the impact study is focusing on the health impact of Tinkisso-Antenna's work only. It would be very recommendable to pursue a new evaluation in about two years and to compare the findings with the ones presented in this report.

Data has been collected for the regions of Conakry, Kindia, Mamou and Labé but not for the region of Boké. Hence, an assessment will only be provided for four out of Tinkisso-Antenna's five intervention zones. How the data has been collected is described in chapters 1.3 and in Annex I.

8.1 Method of measurement

Reliably measuring of the number of beneficiaries and the presence or absence of the four necessary conditions is no easy task. This chapter discusses the applied methods.

8.1.1 Number of beneficiaries

It is important for any organization working in development to determine its number of beneficiaries. External funding and standing towards governments and other institutions may depend on it. However, determining this number is no easy task and ultimately depends on how you define “beneficiary”. A rather simple method is needed to make measurement feasible but on the other hand there is a risk to oversimplify and loose validity. Governments and the various actors in the WASH sector apply different methods to determine this indicator.

According to Tinkisso-Antenna’s information the WHO uses the measure “coverage ratio” to evaluate the number of beneficiaries of such a project. With this method a region is considered as entirely covered as soon as the product is available at least in one place (in the regional capital for example). The WHO argues that it is the responsibility of the population to approach the seller and that the product is eventually going to spread throughout the entire region once the process has been initiated.⁹⁰ According to this measure, all residents of Conakry, Labé, Boké, Mamou, Kindia and Faranah are beneficiaries of Tinkisso-Antenna’s project.

Another method of measurement is applied by PSI who determines the number of beneficiaries based on the disinfected volume of water. They claim that one bottle renders a certain volume of water drinkable and that a person drinks four liters every day.

Unlike PSI, Tinkisso-Antenna promotes Chlore’C for multiple uses. It is not only to be applied to obtain drinking water but also to rinse aliments and for other household purposes. Therefore, Tinkisso-Antenna argues that the volume of disinfected water is no proper base to determine the number of beneficiaries. Its calculation is based on the simplifying assumption that every household buys consists of seven people and buys just one bottle of Chlore’C at a time. Hence, the number of bottles sold times seven equals the number of beneficiaries according to Tinkisso-Antenna’s calculation.

The major flaw intrinsic to all of these methods is the fact that it is not possible to determine if any given household or person uses the product correctly and if it buys it only once in a while or on a regular basis. However, this is important to know because an actual health impact can only be derived from proper and consistent use.

It is ultimately a question of resources how the number of beneficiaries is measured. Any method based on number of bottles sold, volume of disinfected water or covered region does inevitably blind out many important factors. Only a statistically relevant survey on the household level can yield a valid answer to the question of how many people benefit from a given project. However, such a survey is time-consuming and costly and therefore not suitable as a regular monitoring method. Nonetheless, it should be conducted from time to time.

8.1.2 Condition 1: Easy, affordable and permanent access to the product

First of all, Chlore’C needs to be available to the population at any time if a Chlore’C user is supposed to treat water on a regular basis. If people cannot or only at certain times buy the product there will be no or only a limited health benefit from it. Limited time and resources

⁹⁰ Hence, if for example 100’000 bottles are delivered to the region of Mamou, all of its inhabitants are considered as beneficiaries.

make it impossible to visit all villages in the intervention zone. Therefore, a judgment on the availability of Chlore'C for any region is made based on three indicators:

Household survey: In the household-level survey people were asked the question whether it is easy or difficult for them to buy Chlore'C. Of course, only answers of Chlore'C users are considered.

Judgment of health authorities: Where available, interviews with regional health authorities offer valuable clues on the accessibility of Chlore'C within their area of responsibility.

Development status of Tinkisso-Antenna's distribution network: Various discussions with Tinkisso-Antenna as well as with their commercial and social partners provide further insights of how densely Chlore'C is being distributed in a given region.

The combined picture of those three factors will allow for a founded estimation on the population's access to Chlore'C.

8.1.3 Condition 2: Proper and consistent use of the product

A substantial health impact of Chlore'C can only be assumed if people know Chlore'C and treat their water with it both in the correct way and on a regular basis. If they do not use the product properly it is not going to bear the desired effect. Also, if they only treat once in a while there is no durable impact.

Condition 2 is arguably the most difficult to evaluate. Several factors need to be combined in order to arrive at a conclusion. It is for example not enough to simply ask people whether or not they consistently use Chlore'C. The household level survey showed that there are households who claim to always treat their water but when asked for a sample they admitted that right now they did not. The judgment on condition 2 will be based on the following indicators:

Household survey and observations: The household survey and the observations made by the three interviewers offer several indicators to measure condition 2. The answers to the following questions will be considered (of Chlore'C users only):

- "Do you use Chlore'C?"
- "Do you always, sometimes or never treat your water before consuming it?"
- "Is it more important to treat water during the rainy season?"
- Furthermore, people were asked to explain or to show how exactly they use Chlore'C whereupon the interviewer made a judgment (correct/not correct). In addition to that, the residual chlorine concentration had been measured in those households where treated water was available. Here, users of Chlore'C and users of Sur Eau are both included since both products are applied equally (10ml chlorine, 20 liters of water, 30 minutes idle time)

Judgment of health authorities: The judgment of health authorities offers further insights.

Regardless of the intervention zone it should be mentioned that anyone using Chlore'C is exposed to the easy understandable, visual instructions on the bottle label.⁹¹

⁹¹ Shown by Figure 9.

8.1.4 Condition 3: Proper storage of the product

Proper storage is important because it critically affects the quality and therefore the efficacy of the product. There are two main factors that need to be considered. First, Chlore'C should not be exposed to the sun because this derogates its concentration which is important to guarantee the disinfectant action. Second, the expiration date must not be exceeded for the same reason. Condition 3 is measured by the following indicators:

Household survey and observations: Households were asked where they store their Chlore'C. Whenever possible the interviewers observed the depository. To increase the number of valid answers Chlore'C and Sur Eau users are considered equal because both products depend on the same storage requirements.

Judgment of health authorities: As health authorities regularly interact with the local population their judgment on proper storage is being considered.

8.1.5 Condition 4: Sufficient education in hygiene practices

Hygiene education is a critical co-factor because water disinfection is not sufficient if re-contamination occurs or if diseases are transmitted through other pathways. Sufficient education in hygiene practices will be evaluated using the following indicators:

Household survey and observations: Households have been asked if they had been given explanations of hygiene practices and if yes, of which ones.

Judgment of health authorities: As health authorities regularly interact with the local population their judgment on the level of education in hygiene practices is being considered.

8.1.6 Additional indicators

There are some additional indicators which allow to draw conclusions on the health impact of Tinkisso-Antenna's work.

Judgment of health centers and hospitals: Interviews with the directors of health centers and hospitals produced valuable insights on the following questions:

- "Do you state a difference since you use chlorine in your center?"
- "Do you state a difference since you sensitize the population of your region in the use of chlorine?"
- "From your point of view what is the impact of the use of chlorine in your region?"

It should be noted here that some of the interviewed directors did not make a difference between Chlore'C and Sur Eau even if asked to. Hence, it is difficult to attribute their responses to Tinkisso-Antenna's work only.

Judgment of pharmacists: Interviews with pharmacists show how the latter judge the health impact of Chlore'C in their region.

Self-assessment of users: Users of Chlore'C were asked whether they observe a difference with regard to their family's health since they use Chlore'C.

Official health statistics: Comparison with official health statistics (cases of cholera, etc.) are used to complete the picture. However, those numbers are the most difficult to attribute to Tinkisso-Antenna's work.

8.2 Analysis

The following analysis is conducted region by region in order to provide an individual evaluation for all of them. The overall health impact will be discussed in the conclusion.

8.2.1 Number of beneficiaries

Table 4 is based on the number of sales per region in 2013. The third column “number of users” shows the number of beneficiaries according to Tinkisso-Antenna’s measurement (number of bottles times seven). The last column depicts how many people could permanently use Chlore’C based on the assumption that that every person uses 1’460 liters per year which equals four liters every day.

Table 4: Number of beneficiaries in 2013

Region	Number of bottles sold	Number of users	Number of litres treated	Number of permanent users
Conakry	138'543	969'801	138'543'000	94'892
Boké	16'260	113'820	16'260'000	11'137
Kindia	23'220	162'540	23'220'000	15'904
Mamou	18'900	132'300	18'900'000	12'945
Labé	21'489	150'423	21'489'000	14'718
Kankan	2'100	14'700	2'100'000	1'438
Faranah	0	0	0	0
Nzérékoré	0	0	0	0
Total	220'512	1'543'584	220'512'000	151'036

* Assumes that every household consists of 7 people

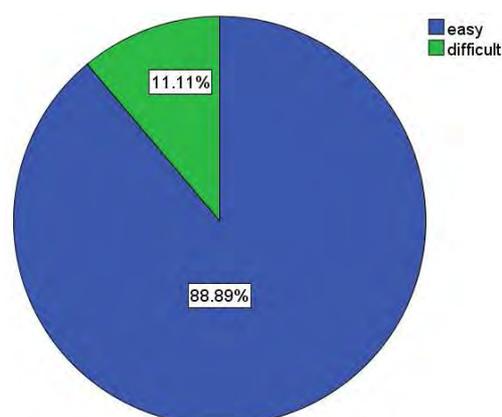
** Assumes consistent use of 1'460 litres/person per year (4 litres per person per day)

8.2.2 Conakry

Condition 1: Easy, affordable and permanent access to the product

Of all regions Tinkisso-Antenna’s distribution network is best developed in Conakry. According to Tinkisso-Antenna’s information virtually all of the 27 health centers contribute to the distribution of Chlore’C and about half of Conakry’s slightly over 200 pharmacies sell the product. Furthermore, Chlore’C can be bought on markets, in supermarkets and in numerous smaller stores according to information from Tinkisso-Antenna’s commercial partner Good Job. Almost 90% of Chlore’C users said it is easy to buy the product in Conakry.

Figure 19: Buying Chlore’C in Conakry



Of all questioned Chlore’C users in Conakry 70.4% think the price per bottle is affordable, 29.6% think it is expensive.

In conclusion, Chlore’C is easily accessible in Conakry. Although a third of respondents think that the product is expensive no one used the available category “too expensive”. Therefore, Chlore’C is also affordable for its customers in the capital and *Condition 1* is fulfilled.

Condition 2: Proper and consistent use of the product

Of the 99 interview partners in Conakry 84% use the method of chlorination. From these, 31.5% use Chlore’C, 68.5% use Sur Eau. 78.6% of Chlore’C users responded that they always treat their water before drinking it but at the same time 80% were convinced that it is more important to treat water during the rainy season. 73% of people knew how to use Chlore’C correctly. However, some of the incorrect users fell in this category because they employ the outer lid instead of the smaller inner one which does not diminish but even improve the efficacy of treatment.

Residual chlorine tests could only be conducted with seventeen users of the chlorination method. Of these, nine added either enough or too much chlorine and another eight applied no sufficient amount. Interestingly, of those users who claimed to always treat their water more than 58% did not have treated water at home. However, this should not be over-interpreted given the very small number of tests conducted.

In short, about a third of people who apply the chlorination method in Conakry use Chlore’C. The rest buys Sur Eau. The majority of Chlore’C customers seems to know how to use the product and does so on a regular basis. Hence, *Condition 2* is met in Conakry.

Condition 3: Proper storage of the product

The survey showed that a total of 97% of users of the chlorination method in Conakry store their Chlore’C or Sur Eau correctly. Hence, *Condition 3* is fulfilled.

Condition 4: Sufficient education in hygiene practices

72,9% of people questioned in Conakry indicate that they had been educated on the basic hygienic practices. Almost all of them said that they had been shown how and when to wash their hands and how to clean toilet and kitchen. Even though the percentage could be improved this report sees *Condition 4* as satisfied.

Additional indicators

In Conakry interviews have been conducted with the director of the “Communal Health Center Minière”, the director of the “Health Center Hafia” and with the director of the “Health Center Lambanyi”.⁹² They assess the impact of Chlore’C as follows:

Table 5: Impact assessment by directors of health centers in Conakry

“Do you state a difference since you use chlorine in your center?”		
Minière: <i>“Yes, the number of new infections in our center substantially diminished.”</i>	Hafia: <i>“The people who work in our center almost never fall ill. For me, this signifies that hygienic practices, in which</i>	Lambanyi: <i>“Yes, the frequency of new infection in our center has decreased.”</i>

⁹² See chapter 12 “References” for more information on the interview partners.

	<i>Chlore’C plays an important role, are well respected.”</i>	
“Do you state a difference since you sensitize the population of your region in the use of chlorine?”		
Minière: <i>“Yes, the number of patients we receive has diminished. Especially the ones coming for diarrhea-treatment.”</i>	Hafia: <i>“The frequency of all waterborne diseases has decreased.”</i>	Lambanyi: <i>“Yes, the number of patients we receive has decreased.”</i>
“From your point of view what is the impact of the use of chlorine in your region?”		
Minière: <i>“The impact is very big. The frequency of waterborne diseases has diminished substantially.”</i>	Hafia: <i>“All diseases have decreased in our commune. Part of this success can be attributed to Chlore’C because it allows the population to keep a certain hygienic standard.”</i>	Lambanyi: <i>“We denote less diseases that are linked with hygiene in our commune since people use Chlore’C.”</i>

All of five randomly selected pharmacies interviewed in Conakry are convinced that Chlore’C is significantly contributed to diminish waterborne diseases with their clients. Of course, a tendency of pharmacists to praise the efficacy of the products they are selling must be considered.

Finally, the self-assessment of Conakry-citizens who use Chlore’C is unambiguous. 100% of users think that Chlore’C is good for their health.

Conclusion Conakry

In conclusion, all four conditions are met for Conakry which implies that the users of Chlore’C do have a direct health benefit from it. In contrary to the other regions the household survey in the capital does make a claim to be statistically significant.⁹³ Hence, it can be derived that 26.5%⁹⁴ of Conakry’s population does use Chlore’C. 20.8%⁹⁵ of people

⁹³ Chapter 1.3.

⁹⁴ $0.84 \cdot 0.315 \cdot 100$

⁹⁵ $0.84 \cdot 0.315 \cdot 0.786 \cdot 100$

always treat their water with Chlore'C before drinking it. Based on this calculation Tinkisso-Antenna can claim to improve the health of more than a fifth of Conakry's population which equals approximately 400'000 people.

8.2.3 Analysis Kindia

Condition 1: Easy, affordable and permanent access to the product

Tinkisso-Antenna's commercial branch is only about to develop in Kindia. In April 2014 five pharmacies have randomly been visited and questioned in Kindia city. None of them offer Chlore'C. They all mentioned that they sell Sur Eau which they procure with a local wholesaler named Laborex who does not provide Chlore'C. No other commercial seller of the product could be identified in Kindia city. Therefore, all distribution of Chlore'C in the region of Kindia is done by the social branch of Tinkisso-Antenna (either by health centers or by NGOs).

This situation was reflected by the household survey which has been conducted in Kindia's main hospital (Hôpital Régional Alpha Oumar Diallo de Kindia) and in its surrounding households. Only five out of 29 questioned people use Chlore'C while 20 use Sur Eau and 4 do not treat their water with any of the two.

Kindia's Regional Director for Hygiene assesses the availability of Chlore'C as follows⁹⁶:

"Chlore'C is available in the whole region of Kindia as it can be bought in health centers in the city and in rural areas. Nonetheless, the population knows Sur Eau much better because PSI did a lot of publicity on it. Furthermore, it has invested more money to make Sur Eau available through commercial distribution channels. Therefore, Sur Eau is much easier available than Chlore'C."

He adds that although Sur Eau is much easier available in Kindia city this is not the case for Kindia's rural areas because it is not distributed through health centers like Chlore'C.

Speaking with Figure 1 Tinkisso-Antenna's work in Kindia seems to be at step 4. Step 5 has only recently been initiated. Chlore'C is available in Kindia but only through health centers and NGOs (Tinkisso-Antenna's social branch). In comparison to its competitor Sur Eau it is not very well known.

In conclusion, *Condition 1* is only partly fulfilled. While affordability of Chlore'C is given, easy and permanent access is not guaranteed at any time. Access to Chlore'C is limited (not easy) for people who do not live close to a health center particularly because of the fact that only few people dispose of an effective means of transport to cover larger distances. Second, distribution through health centers only is subject to frequent interruptions as shown in chapter 5.4.1. Hence, permanent access is not guaranteed.

Condition 2: Proper and consistent use of the product

Out of 29 interview partners in Kindia 25 use the chlorination method. Five respondents (17.2%) use Chlore'C and 20 (69%) treat water with Sur Eau. All of the five Chlore'C users answered that they always treat their water before drinking it. However, based on such a

⁹⁶ Interview conducted on April 8, 2014 in Kindia city. Free translation from French.

small number of cases a reliable judgment is rather difficult to make. If the users of Sur Eau are added to the sample, 59.1% respond that they always treat their water before drinking it, 40.9% only treat “sometimes”. Almost 60% of them think that it is more important to treat during the rainy season. More than 90% of Chlore’C and Sur Eau users knew how to correctly apply the product.

Kindia’s Regional Director of Hygiene mentions that the population had been informed on how to use the product. According to his information UNICEF financed supervision by government authorities in the two prefectures of Forécaria and Téliélé in 2010. The Wata Blue tests conducted during household visits showed that 90% of people used chlorine correctly. He adds that the information he receives from health centers supports the conclusion that the majority of people uses the product correctly.

In short, although people know how to use chlorine to treat water in Kindia more than 40% do not use it consistently and two thirds think it is more important to treat during the rainy season. Therefore, out of the two requirements (proper use/ consistent use) for *Condition 2* only proper use is given in the region of Kindia⁹⁷.

Condition 3: Proper storage of the product

More than 95% of people asked store their chlorine correctly. Furthermore, Kindia’s Regional Director of Hygiene confirms that correct storage could be observed during the 2010 assessment. *Condition 3* is met.

Condition 4: Sufficient education in hygiene practices

89,7% of people questioned in Kindia city had been given information on hygiene practices. Kindia’s Regional Director of Hygiene claims that the population had largely been informed on these practices through various information channels (health agents, radio spots, etc.). According to the feedback he receives from health centers people in the whole region of Kindia sufficiently know about them. Hence, *Condition 4* is fulfilled.

Additional indicators

All interviewed users of Chlore’C or Sur Eau believed that it is good for their health. The general director of Kindia’s hospital assesses the impact of Chlore’C as follows:

Table 6: Impact assessment by the general director of Kindia's hospital

“Do you state a difference since you use chlorine in your center?”
“Yes, the number of post-surgery infections has substantially decreased since we use chlorine in a systematic way.”
“Do you state a difference since you sensitize the population of your region in the use of chlorine?”

⁹⁷ Note that the survey has been conducted in Kindia city. Although some villagers have been questioned in the hospital the situation in rural areas might be different.

“Yes, we receive less people who suffer from waterborne diseases.”
“From your point of view what is the impact of the use of chlorine in your region?”
“It is without doubt very substantial.”

Conclusion Kindia

According to the analysis Chlore’C is not yet well known in the region of Kindia. As far as the four conditions are concerned, easy and permanent access (part of *Condition 1*) and consistent use (part of *Condition 2*) must be put into question. The distribution system and the level of information of the population must be improved in order for Tinkisso-Antenna’s project to claim a sustainable and permanent positive impact on the population’s health.

8.2.4 Analysis Mamou

Condition 1: Easy, affordable and permanent access to the product

As in Kindia, Tinkisso-Antenna’s commercial branch is only about to develop in Mamou. Out of seven randomly picked pharmacies only one sold Chlore’C in April 2014. The latter is a very big pharmacy located directly next to Mamou’s hospital where Chlore’C is available. No other commercial seller could be identified. Hence, all distribution of Chlore’C in the region of Mamou is done by the social branch of Tinkisso-Antenna.

The household survey in Mamou has been conducted in the health center and in the households of a small village called Soyah. Only five out of 29 questioned people use Chlore’C while 20 use Sur Eau and 4 do not treat their water with any of the two. Of 24 people questioned 10 were current users of the chlorination method and 10 respondents said they stopped using chlorine for the following reasons: “lack of money”, “run out of chlorine” and “expiry date has passed”. Out of the 10 former users 7 used Chlore’C and 3 indicate to have used both (Chlore’C and Sur Eau).

According to information from the Prefectural Health Director of Mamou city Chlore’C had been sufficiently available at the time when production was at the local level (DRS). Also during cholera epidemics there had always been sufficient amounts of Chlore’C from Tinkisso-Antenna distributed by UNICEF and its partners or NGOs like MSF or ACF. However, during “normal times” the availability of Chlore’C is not sufficiently given and health centers often run out of stock. Furthermore, people are still very much used to the cost-free distribution of the product and are often not willing to pay.

The situation in Soyah shows that relying on health centers as distribution channels does not guarantee a permanent access to Chlore’C in the long run. Although Soyah’s residents live very near to such a center many of them cannot use Chlore’C because it is out of stock. The assessment of the Regional Health Director of Mamou city comes to the same conclusion that permanent access to Chlore’C is not given in the region of Mamou. Hence, *Condition 1* is not fulfilled.

Condition 2: Proper and consistent use of the product

Almost all of the current and former users know how to properly apply the product. 60% of users of Chlore’C indicate that they only “sometimes” treat their water before drinking it. Only 40% claim to “always” treat. This fact is more related to interruptions in Chlore’C supply than to people’s willingness. More than 80% of the people responded that treating water is more important during the rainy season. Despite this, the Prefectural Health Director stresses that people had repeatedly been given information on the proper use of Chlore’C during awareness-raising campaigns.

In short, people in Mamou seem to know how to add Chlore’C to the water. However, they lack some important information on the product like that it should be used throughout the whole year. Use of Chlore’C seems not to be consistent primarily because of supply limitations. Based on this assessment *Condition 2* is not met in the region of Mamou to date.

Condition 3: Proper storage of the product

There is no indication that the requirements of proper storage are not met in the region of Mamou. Chlore’C and Sur Eau were properly stored in every household. *Condition 3* is fulfilled.

Condition 4: Sufficient education in hygiene practices

87.5% of the interviewed villagers of Soya had been given information on hygiene practices. The Prefectural Health Director of Mamou city claims that the population had largely been informed on these practices. *Condition 4* is fulfilled.

Additional indicators

All interviewed users of the chlorination method believed that treating water with chlorine is good for their health (self-assessment of users). Furthermore, the director of the health center of Soya estimates the impact of Chlore’C as follows:

Table 7: Impact assessment by the director of Soya’s health center

“Do you state a difference since you use chlorine in your center?”
“Yes, the number of new infections in the center has diminished.”
“Do you state a difference since you sensitize the population of your region in the use of chlorine?”
“Yes, the number of diarrhea-patients has decreased.”
“From your point of view what is the impact of the use of chlorine in your region?”

“The number of diarrhea-cases has substantially decreased.”

Conclusion Mamou

In the region of Mamou Chlore’C is not easily and permanently accessible. Many people do not use it on a regular basis. Like in Kindia, the distribution system and the level of information of the population must be improved in order for Tinkisso-Antenna’s project to claim a sustainable and permanent positive impact on the population’s health.

8.2.5 Analysis Labé

Condition 1: Easy, affordable and permanent access to the product

There is no commercial distribution network for Chlore’C in Labé. Five out of five randomly selected pharmacies did not sell Chlore’C in April 2014 (Sur Eau was sold by all of them). No other commercial seller could be identified. As for Kindia and Mamou the only distribution channel for Chlore’C goes through health centers, a local health school, NGOs and associations although the latter did not yet execute any social marketing activities to date (with the exception of one event executed by Labé’s health school).

The household survey has been conducted in Popodara, a small village about 20 kilometers outside of Labé city. 7 out of 23 people avail themselves of Chlore’C and 5 use Sur Eau while the remaining 11 respondents apply neither of the two.

An interview with the Regional Director of Hygiene, the Regional Director of Prevention and the Prefectural Health Director of Labé city showed that the region of Labé had only once been provisioned with a substantial amount of Chlore’C. The interviewed did not know whether or not health centers stock up on the product.

In conclusion, easy and permanent access to Chlore’C seems not to be guaranteed in the region of Labé (*Condition 1*).

Condition 2: Proper and consistent use of the product

Two thirds of people who treat their water with either Chlore’C or Sur Eau knew how to correctly apply the product. All Chlore’C users asserted that they always treat their drinking water. Of all people questioned in Labé more than 70% think that treating water is more important during the rainy season. The interviewed authorities assure that much sensitizing work has been done through health and community agents.

In short, a third of the questioned people do not know to use Chlore’C correctly. Furthermore, lacking availability renders consistent use of the product difficult. Based on this assessment *Condition 2* is not met in the region of Labé to date.

Condition 3: Proper storage of the product

There is no indication that the requirements of proper storage are not met in the region of Labé. Chlore’C and Sur Eau were properly stored in every household. *Condition 3* is fulfilled.

Condition 4: Sufficient education in hygiene practices

87% of the interviewed villagers of Popodara had been given information on hygiene practices. The interviewed authorities assure that the population had largely been informed on these practices. Furthermore, the director of the local health center organizes sensitizing activities every week. *Condition 4* is fulfilled.

Additional indicators

The self-assessment of Chlore'C users in Popodara shows that all of them think that it is good for their health. Table 8 shows the director of the health center of Popodara's opinion on the impact of Chlore'C.

Table 8: Impact assessment by the director of Popodara's health center

<i>"Do you state a difference since you use chlorine in your center?"</i>
<i>"Yes. Both the number of new infections and the mortality rate in the center have decreased."</i>
<i>"Do you state a difference since you sensitize the population of your region in the use of chlorine?"</i>
<i>"Yes, the number of diarrhea-patients has decreased."</i>
<i>"From your point of view what is the impact of the use of chlorine in your region?"</i>
<i>"The prevalence of many diseases has been reduced."</i>

Conclusion Labé

The conclusion for the region of Labé is similar to the one of Mamou. Chlore'C is not easily and permanently accessible as health centers often run out of stock. Hence, many people do not use it on a regular basis. The distribution system and probably the relationship with the local authorities and health structures need to be improved in order for Tinkisso-Antenna's project to claim a sustainable and permanent positive impact on the population's health.

8.3 Conclusion health evaluation

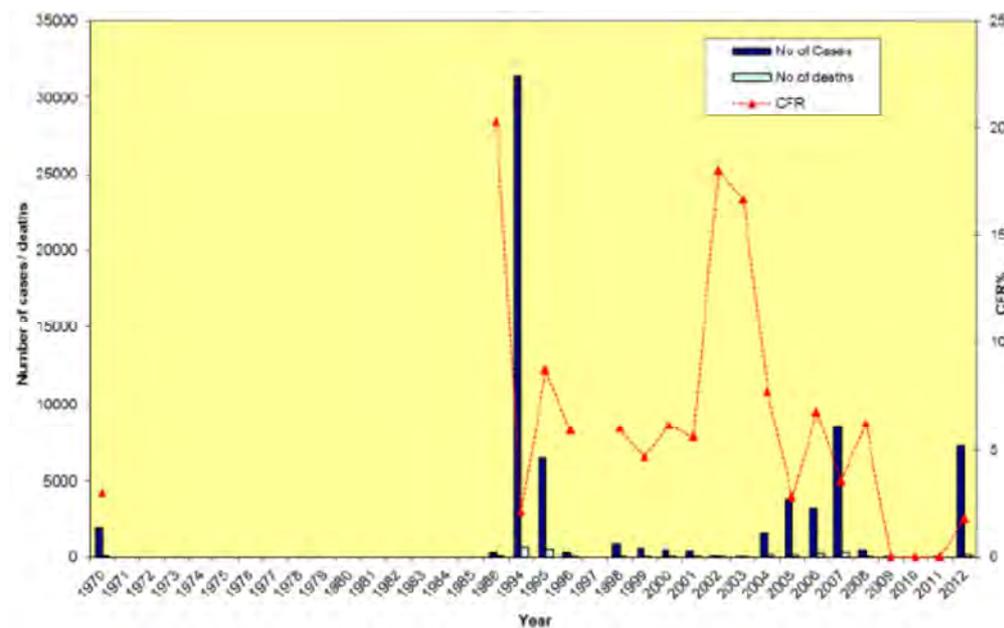
There are two basic types of health benefits Tinkisso-Antenna provides: Emergency response and long-term prevention.

Emergency response

As shown in chapter 4 the Guinean authorities saw (and arguably still see) Tinkisso-Antenna as a local partner in emergency response. Whenever there is an epidemic (especially cholera

outbreaks) Tinkisso-Antenna produces chlorine on a large scale for the Government, for UNICEF and for other institutions who then distribute it for free in the affected areas. It started its work in 2007 at the time of one of the worst cholera outbreaks that Guinea has seen in recent times (8'546 cases and 310 deaths⁹⁸). Figure 20 shows that the number of cases fell to 513 (32 deaths) in 2008 and to zero in the years of 2009, 2010 and 2011. Only in January 2012 did a new heavy outbreak with 7'350 deaths occur.

Figure 20: Guinea cholera cases, deaths and CRF notified to WHO 1970 to 2012⁹⁹



The actual impact of Tinkisso-Antenna in this context is hard to assess and cannot be ascribed to the NGO alone as its actions go in concert with those of other players. However, without Tinkisso-Antenna's considerable local production capacity emergency response in the area of water treatment would be significantly slower and at times even impossible. The National Director of Quality Control credits a big part of the success in fighting cholera in 2007 and of the calm during the following years to the work of Tinkisso-Antenna.¹⁰⁰ At the same time he emphasizes that much more work needs to be done in the area of prevention as the new outbreak in 2012 shows. According to his judgment people started to rigorously use Chloro-C and to apply hygienic practices in 2007 but after a few years of calm they started to become negligent again. Therefore, he sees an urgent need to invest in further social marketing activities.

Long-term prevention

Although emergency response is important and helps to maintain a solid relationship with the authorities Tinkisso-Antenna sees its work primarily in the area of long-term prevention where the health impact is even more difficult to measure. Therefore, the present evaluation used four proxy variables¹⁰¹ to determine whether or not an effect can be

⁹⁸ WORLD HEALTH ORGANIZATION (WHO), 2013.

⁹⁹ Available online: <<http://who.int/cholera/countries/CountryProfileGuinea2013.pdf?ua=1>> [Last visited: 11.06.2014]

¹⁰⁰ Dr. Cherif, 2014.

¹⁰¹ Four necessary conditions: *Easy, affordable and permanent access to the product, Proper and consistent use of the product, Proper storage of the product, and Sufficient education in hygiene practices.*

assumed for the regions of Conakry, Kindia, Mamou and Labé. As mentioned before this impact evaluation does not claim to be statistically valid except for the region of Conakry where enough cases have been randomly selected. Nonetheless, the inclusion of various indicators and sources of information allows for an estimation of the preventive health impact of Tinkisso-Antenna's project. All four conditions are met for Conakry which implies that the users of Chlore'C do have a direct health benefit from it. In Kindia, Mamou and Labé people have benefited from Tinkisso-Antenna's work but not on a permanent basis. *Condition 1* and *Condition 2* pose the main challenges: Inefficient distribution systems and unstable availability does not guarantee for a permanent and easy access to Chlore'C (*Condition 1*). Furthermore, many people still think that Chlore'C is a seasonal product that should primarily be used during the rainy season (*Condition 2*). *Condition 3* and *Condition 4* have not been found to be problematic in the analysis.

9. Discussion, Outlook and Replication

This chapter highlights the key findings of the report. It discusses the most important lessons for replication of the project and identifies opportunities and risks for Tinkisso-Antenna in the future.

9.1 Role of politics & international organizations

Without support from Guinea's authorities and international organizations expansion of the joint project of Tinkisso-Antenna and Antenna Technologies would have been much slower and much more difficult to achieve. The fact that the authorities supported the project by certifying the quality of Chlore'C and by including health structures throughout the whole country in distribution and marketing was a key component in its expansion and in earning trust with the target audience. This should be considered in any efforts of scaling up comparable projects.

In a country where many NGOs operate and where new local NGOs and associations are founded almost every day it is a major challenge to attract the attention and ultimately the support of the authorities, especially on the national level. In this regard, two factors were crucial for Tinkisso-Antenna: First, a reliable partnership with a Swiss Foundation that provides reliable technology and advice, and second, the approach through the WHO (OCHA) and UNICEF. Both factors allowed Tinkisso-Antenna to acquire credibility and to be heard in the first place.

The inclusion of several stakeholders right from the beginning allowed for long-term confidence building and for Tinkisso-Antenna to become an important partner in the area of WASH interventions in Guinea. Interestingly, when it comes to efficient use of funds and subsidies Tinkisso-Antenna seems to be seen by many as a more reliable partner than many government structures. Today, the NGO has in fact become a public-private partner that assumes important government functions. This remarkable standing could only be developed by staying independent from the authorities at any time.

In the future Tinkisso-Antenna faces several important challenges vis-à-vis the authorities. On the national level it needs to strengthen its standing as a partner for prevention who needs support in the absence of emergencies as well. At the same time, good relations with the authorities on the regional and on the prefectural level need to be maintained and strengthened in order to receive sufficient support. All demands towards the authorities must be skillfully placed and take their (financial) capabilities into account.

In conclusion, a solid network with international organizations and the partnership agreement with the Guinean authorities have been crucial for Tinkisso-Antenna to acquire legitimacy for its work and for scaling up the project.

9.2 Interaction social marketing & commercial marketing

A well-functioning interaction of social and commercial marketing is very important but at the same time difficult to achieve. It needs to be addressed on both the organizational- and on the operational level.

On the operational level there it is important to understand the main functions of the two: Social marketing creates awareness for a problem and demand as well as a willingness to

pay for an efficient solution. Commercial marketing provides this solution in the form of a product makes it available through distribution channels and generates revenues from sales. Tinkisso-Antenna's experience shows that the effect of social marketing campaigns is often lost if the commercial follow-up (effective distribution for easy availability) takes too long. People simply forget about the product if they cannot quickly include it into their daily routine. Commercial marketing is vital to keep up the demand that has been created by social marketing activities. Therefore, social and commercial marketing are both needed to guarantee success.

Good interaction requires coordination. Tinkisso-Antenna made the experience that it is sometimes difficult to effectively coordinate the activities in the regions from its Conakry office. As the commercial branch is about to develop there needs to be someone who knows exactly what activities are carried out by which organization at any moment in order to ensure an effective interplay between social and commercial actors. Therefore, Tinkisso-Antenna has started to work with a local coordinator for the region of Kindia and is currently about to look for people in the other regions as well.

On the organizational level the question of how to strike the balance between the social and the commercial side of the project must be addressed. The answer to that question depends on the vision and on the goals of an NGO.¹⁰² More specifically, the management must know and define what role it wants its social- and its commercial branch to play within the entirety of the project. In any case the commercial branch is going to be responsible for effective distribution of the product. But besides that many questions remain open: Is it supposed to ensure the financing of the whole project in the long run? Or should it rather be considered as one among several sources of revenues that allows to recover some expenses in order to ease the need for external funding? Is the project ought to be a business with a social aspect or a socially oriented enterprise with a business aspect? These questions may seem simple at first sight but they have crucial implications on the character of the project. Furthermore, they will determine whether you are seen as an NGO or as a company and where, when and how the budget is used.

9.3 Tinkisso-Antenna: "Rôle fédérale"

Tinkisso-Antenna's role has been changing since the start of the project in 2007 in Dabola. At that time, the NGO produced chlorine, conducted social marketing campaigns, set up small kiosks and other selling points where their Wata Eau¹⁰³ could be sold on a commercial basis. Moreover, it ensured transport and supply.

With the expansion of the project Tinkisso-Antenna increasingly started to assume the role of a manager. While production and delivery are still done in-house, social marketing activities have almost completely been outsourced to various partners. Tinkisso-Antenna is identifying, educating and supporting the partners who then pursue social marketing activities on their own. Tinkisso-Antenna's role is to monitor their activities and to coordinate them with the commercial side. As soon as demand starts to evolve in certain villages or in a region Tinkisso-Antenna seeks to link them with a reliable distribution channel through their commercial sector partners like Good Job who dispose of a respective

¹⁰² If two NGOs form a partnership like Tinkisso-Antenna and Antenna Technologies it is essential that the two agree on what this vision and goals are.

¹⁰³ At that time, Chlore'C was still called „Wata Eau“.

network. In order for these activities to work Tinkisso-Antenna is in permanent direct contact with political authorities and seeks financing from external donors.

On the whole, Tinkisso-Antenna has become a coordinator between various actors. Its role is to make sure that these actors' activities are in line with each other and work towards the same goal. It oversees all activities and provides punctual support where necessary. Furthermore, Tinkisso-Antenna has become a government partner who assumes a role in the implementation of the national health strategy in the area of safe water and hygiene. Together with Antenna Technologies it organizes external funding for these activities.

9.4 Tinkisso-Antenna: Added value in Guinea

Tinkisso-Antenna is one of multiple players in Guinea's WASH-sector. There is PSI with Sur Eau, UNICEF, ACF, MSF and many more. This begs the question: What is added value of Tinkisso-Antenna's work in Guinea? The main contributions are discussed in the following:

Awareness creation, permanent health impact and prevention

One of the most important contributions of Tinkisso-Antenna in Guinea is in health prevention. Most other actors in the field focus their activities on emergency response which does not contribute to sustainable development. Hence, Tinkisso-Antenna is probably the only actor that pursues a long-term preventive approach to safe water development in Guinea.

By working with health centers Tinkisso-Antenna has contributed to awareness creation in the area of waterborne diseases. Furthermore, it has developed a network with various partners for social marketing. However, to date not many of the planned social marketing activities have been carried out yet because of financial constraints.

Chapter 8 has discussed the health impact of Tinkisso-Antenna's work in Guinea. A permanent impact is very likely in Conakry but must be put into question for the other intervention zones. With enough funding and the start of social marketing activities this situation could be changing soon.

Distribution channels and availability of chlorine

Tinkisso-Antenna has substantially contributed to making chlorine available to the rural population. According to the former Sur Eau is almost exclusively available with merchants in urban areas while the rural population does not profit from it. Through numerous health centers many villagers now have access to Chlore'C who were cut off from the market before. However, before a permanent commercial distribution system is put in place the access to Chlore'C will be prone to protracted interruptions.

Tinkisso-Antenna's contribution to crisis response

Tinkisso-Antenna has become an important government partner during times of epidemics. Its considerable local production capacities allow for rapid delivery of Chlore'C to affected regions. No other organization is capable of providing such quick response. As shown in chapter 4 the experience that chlorine had to be strenuously amassed in neighboring countries during past cholera outbreaks was a strong incentive to lead Guinea's government into supporting Tinkisso-Antenna. The Ebola-outbreak at the time of research for this report provides a good example for how quickly everyone from authorities, schools, health centers

and NGOs want Chlorine when an epidemic strikes. Without Tinkisso-Antenna crisis response in the area of hygiene would be much slower in Guinea today.

National health strategy and health structures

Guinea's National Director for Quality Control stated in an interview that Tinkisso-Antenna has had an impact on Guinea's national health policies.¹⁰⁴ First of all it has raised awareness among policy makers that home based water treatment is an appropriate approach for Guinea's safe water problem. Moreover, it offered a feasible solution and managed to convince the authorities that the latter is not in competition with existing efforts but rather a useful complement that allows for previous investments not to be lost.¹⁰⁵ Therefore, Tinkisso-Antenna has become a partner for the implementation of the national health strategy.

In addition to that, the NGO supports Guinea's health structures by giving health structures the opportunity to generate some revenues from selling Chlorine. This is an important contribution given Guinea's helplessly underfunded health system. Furthermore, they started to contribute to the education of health professionals especially with regard to practical experience.

Positive side-effects

There are some positive side-effects of Tinkisso-Antenna's work. First of all, some jobs are created, especially for unemployed young people working for the partnering NGOs. Furthermore, the more people use Chlorine the less need to boil water. With increasing scale of the project this might lead to a reduction in CO2 emissions in the long run.

In conclusion, Tinkisso-Antenna substantially contributes to the improvement to Guinea's WASH-conditions and the potential for future development of its activities is high. This report sees the main added value in the fact that Tinkisso-Antenna is a determined actor in health prevention, a rather ingrate field where authorities and many others hesitate to invest because results are difficult to show and to attribute. Not least, Tinkisso-Antenna is an organization that has proven to be able to deal with money efficiently. This makes it an important partner for donors who do not want to risk losing their investment because of corruption and bad governance. Hence, Tinkisso-Antenna attracts foreign investment to Guinea which would otherwise not occur.

9.5 Tinkisso-Antenna: SWOT- Analysis

The following SWOT-Analysis identifies organizational strengths and weaknesses (microenvironment/internal) and environmental opportunities and threats (macroenvironment/external). The sequence is random and does not imply the importance of each individual point:

Strengths

- Partnership with Antenna Technologies: Tinkisso-Antenna has a long standing partnership in technological cooperation with Antenna Technologies. In addition to technological consulting and support the partnership with Antenna Technologies allowed

¹⁰⁴ Dr. Cherif, 2014.

¹⁰⁵ Recall that numerous wells had already been built when a study in 2007 showed that in 87% of the cases drinking water is contaminated between its source and the actual point of use.

Tinkisso-Antenna to be taken seriously by authorities and international organizations at the beginning of the project. Furthermore, Antenna Technologies provided financing over many years and repeatedly gapped financial bottlenecks.

- Network and relations with authorities: Tinkisso-Antenna disposes of strong personal relations to national policy makers and authorities at the highest level. They are convinced of Tinkisso-Antenna's approach and trust in its capabilities. Political ties are also strong in some regions but can be improved in others.
- Partnerships for social marketing: Tinkisso-Antenna has developed a network of capable local social marketing partners who stand ready to start their activities as soon as respective funding is granted.
- Local NGO with a good standing: As a Guinean NGO Tinkisso-Antenna enjoys a level of trust from authorities, local NGOs and other stakeholders which an internationally oriented organization like PSI never managed to acquire. Many NGOs and associations want to work with Tinkisso-Antenna which makes it easy to acquire new partners.
- Experienced and well-connected coordinator: The NGO's coordinator is well-connected and as a Guinean he has profound knowledge of local circumstances. Being the founder of Tinkisso he grew with the organization and acquired substantial experience in all areas of Tinkisso-Antenna's activities.
- Well-connected coordinator and dynamic team: Tinkisso-Antenna's team is young and dynamic which allows for considerable flexibility.
- Strong product: The product Chlore'C is easy to understand for everyone and promises the straightforward benefit "health" which basically everyone is interested in. Furthermore, it disposes of an official quality certificate that inspires trust with customers.
- Chlore'C listed as essential drug: The fact that Chlore'C got listed as an essential drug that every health center should dispose of vitally supports the spread and acceptance of Chlore'C.

Weaknesses

- Dependence on external funding: At the time of writing external funding for social marketing activities has not been granted in the budgeted amount. This bears the risk of losing partnerships because of non-compliance with agreements or other commitments.
- Financial bottlenecks: Although Tinkisso-Antenna's approach to sell on credit to some institutions is important in many respects it also bears the risk of losing investments and of producing serious financial bottlenecks if no sufficient working capital is available.
- Weak commercial branch: Tinkisso-Antenna's commercial branch is clearly underdeveloped outside of Conakry. It is not capable to live up to its expectations of providing permanent and reliable delivery to (rural) customers of all kinds.
- Diverging visions: There are indications that Tinkisso-Antenna and Antenna Technologies might have diverging visions on some basic aspects of the project like the question of how to ideally balance the social and the commercial branch of the project.
- Overdependence on individual staff: Tinkisso-Antenna's functioning largely depends on its coordinator. It must be assumed that the project would not endure if he resigns.

Opportunities

- Substantial untapped market: If the further scaling up of the project is successful and cost-effective distribution channels are put in place there is a big potential for sales considering that Guinea is a market with 12'000'000 potential customers.
- Project DGIS: Tinkisso-Antenna might pursue social marketing activities within the scope of an upcoming WASH project in Guinea to safe costs. However, this would induce a change of the intervention zone and probably jeopardize the results of past activities.
- New partnerships: New partnerships with telecom providers or mining companies might bear potential.
- Epidemics: As bad as epidemics are on the humanitarian side as helpful they can be for Tinkisso-Antenna to market Chlore'C effectively and to receive considerable support from various actors.

Threats

- Reputation of being rich: Particularly small local NGOs tend to see Tinkisso-Antenna as a forceful and rich organization. Thus, their expectations of the benefits of collaboration might often be too high and eventually lead to disillusion and threaten existing partnerships.
- Disgruntled partners: Local partners who have been promised support for their social marketing activities may terminate the collaboration if a respective follow-up is lacking.
- Rising poverty/ Economic situation: Rising poverty and a deteriorating economic situation are a treat for Tinkisso-Antenna's project as the 5000 GNF per bottle might become more expensive in relative terms. In 2013 the IMF's asserted that the incidence of poverty has increased at the national level, moving from 53% in 2007 to 55,2% in 2012.¹⁰⁶
- Political risks: Political tensions, weak rule of law, lacking security, corruption and ineffective governance make Guinea a difficult environment for any business. In addition to that, personal changes at the government level could jeopardize Tinkisso-Antenna's strong network with the authorities.
- "Made in Guinea"-Effect: Some customers might hesitate to buy the product once they know that it is produced in Guinea. As interviews with people showed "Made in Guinea" seems to stand for bad quality for many people.¹⁰⁷
- Overly demanding authorities: Political authorities tend to shift political pressure down to others. Hence, being pushed into heavy commitments is a threat to Tinkisso-Antenna.
- Entry of new competitors: Tinkisso-Antenna is creating demand for chlorine with which people can treat their drinking water. With rising sales and revenues a new commercial producer of chlorine may enter the market and become a competitor for Tinkisso-Antenna. As a commercial producer he would likely sell only to higher-income populations in higher-density locations (Conakry), thus not only failing to reach the poor in rural and other remote settings, but also depriving social marketers from needed volume over which to spread their fixed costs (Tinkisso-Antenna needs the Conakry sales to finance activities in distant regions).

¹⁰⁶ International Monetary Fund, 2013, p. 8.

¹⁰⁷ This is opposed to the effect the „Made in your own country“-slogan bears in some other nations where these products are associated with national pride (German cars, Swiss chocolate, Italian pasta, etc.).

9.6 Replication of the project in other countries

Successful replication of Tinkisso-Antenna's social business depends on countless factors of which only a few can be discussed here. Basically, the following two questions are important: Where is such a project desirable? And where it is feasible?

A similar project is desirable in poor countries where a majority of the population does not have access to safe drinking water, not because they do not have access to water in general but because they do not dispose of the means to effectively disinfect it. Hence, desirability is basically given in water-rich but cash-poor countries where no effective and sustainable development approach to safe drinking water exists yet.

The approach is feasible for countries where water as a commodity is more or less easy available but not clean. With regard to economic conditions almost any context is viable if production costs can be kept at a moderate level (especially the costs for the bottles). As shown, even in an extremely poor country like Guinea people can afford Chlore'C. To reach remote villages where the product is needed most it should be possible to keep transportation at a viable cost.

Even though the political environment may be difficult and the rule of law weak Tinkisso-Antenna's example shows that being in line with national health priorities as well as a solid network with political authorities can prove extremely helpful. This can open the door to the entire national health infrastructure and substantially facilitate the conditions for the project. Gaining access to the authorities in the first place it is easier by selling yourself as an effective partner for crisis response although this bears the risk to become trapped in that role in the future. Furthermore, political authorities may best be convinced if an approach is sold as a complement to already existing efforts which allows for sunk-costs not to be lost. Hence, countries where money had been invested into the improvement of water systems that do not directly cater to households are particularly suited for promoting the TED approach to the authorities.

There are no constraints with regard to social marketing as it can be applied in almost any context. However, in-depth knowledge on cultural and social norms and habits is crucial in order to pursue successful campaigns. Furthermore, countries with many civil society organizations like NGOs and associations facilitate the development and upkeep of an effective network of partnering organizations.

Tinkisso-Antenna's coordinators stresses the importance that production, social and commercial marketing harmonize from the very start if the project is designed to be a self-sustaining social business and does not receive external funding. In retrospect, he sees the fact that the commercial marketing branch of Tinkisso-Antenna took several years to start as a mistake. Furthermore, he emphasizes not to rely on information of the authorities with regard to the situation on the ground as their statistics are often heavily biased for various reasons (to reach the MDG, etc.). Hence, a proper situation analysis including household surveys must be conducted at the beginning in order to know where to go and what to do.¹⁰⁸ According to the coordinator one should also prepare that much lobbying and persuasion of

¹⁰⁸ It happened to Tinkisso-Antenna to be told by authorities that there are x number of people with access to water in a certain region. So they decided to deliver x numbers of bottles. In reality however, only half of them actually had access to water. Therefore, Tinkisso-Antenna would not be able to sell all the bottles they delivered which would then turn into a bad record on behalf of donors and jeopardize future funding.

the political authorities is going to be necessary. Last but not least it is important to make sure that no big commercial producers of a similar product are active in the respective country. They are likely to pursue an aggressive price-strategy and make any small NGO uncompetitive in urban areas where revenues for social marketing activities ought to be generated.

10. Follow-up

This chapter briefly summarizes how future missions can tie in with the present one. Furthermore, it presents some of the challenges and problems the author had to deal with in order to facilitate their work.

Overall analysis on WASH-intervention

The present report primarily focuses on Tinkisso-Antenna's work and on how they interact with politics, partners and others. However, it does not provide an overall analysis on what has been done in terms of WASH-education and social marketing by the entirety of actors in Guinea. It has been shown that those interventions mostly focused on emergency measures and that preventive efforts have widely been neglected by actors other than Tinkisso-Antenna. An in-depth analysis of the activities of all actors in the area of WASH interventions in Guinea would be an important contribution. Furthermore, a comparative analysis with the situation in other countries today or a historical analysis of the situation in Europe in the past might bear useful insights with regard to most effective methods and means to be applied by Tinkisso-Antenna.

Measure health impact and behavioral change

This report has presented an estimation of the health impact of Tinkisso-Antenna's work in Guinea. As no similar efforts have been done in the past this measurement cannot provide much more than a snap-shot. Only through comparison over time can actual change be measured. Therefore, I recommend that a health impact assessment is conducted on a regular basis, say, every two or three years.

The same applies to behavioral change, awareness creation and the "willingness to pay". Tinkisso-Antenna is about to push its social marketing activities. The data and information collected for this report should be compared with similar data in two or three years in order to estimate the amount of awareness created and whether or not people start to change their behavior.

Develop effective and cost-efficient measurement tools and methods

Measuring health impact, behavioral change and awareness creation is a very difficult task, especially with limited financial and human resources. One very interesting and challenging task on a conceptual level (which might be suitable for a master thesis) is to develop effective and at the same time cost-efficient measurement methods. In particular, methods and tools are needed to measure Tinkisso-Antenna's health impact as well as the amount of awareness creation and behavioral change realized.

For the author of the present report the following main challenges emerged: (1) How to isolate Tinkisso-Antenna's effect from other interventions, (2) how to ensure random distribution and maximal coverage in the household-survey, and (3) how to be as cost- and

time efficient as possible. The ways these challenges have been dealt with are subject to discussion and may constantly be improved by future missions.

As to (1) I decided to take four necessary conditions as a proxy variable for a positive health impact as shown in chapter 8 and collected data from various sources (household interviews, interviews with authorities, etc.). (2) and (3) were addressed by doing interviews in health centers under the assumption that people from the entire commune visit the center on a purely random basis.

Further challenges I met might be important to anticipate for future missions. While I could do many household-interviews on my own in the Capital this was sometimes not possible in rural areas. Often, I had to be accompanied by a local translator and some interviews had to be terminated because it was obvious that people felt a pressure to give “the right answer” and thereby contradicted themselves. Therefore, interviews with households in these areas were mostly done by the two local collaborators while I pursued the discussions with authorities, health centers, NGOs, associations, pharmacies, etc.

Designing the questionnaire might seem easy but my experience showed that enough time should be considered for this. First of all, questions should be as direct and simple as possible in order to obtain valid answers. For example the question “which is the least credible channel of information” did not work out at all because people did not understand what we mean by that. The 38 questions were feasible but definitively at the upper end. I recommend future missions to ask a maximum of 30 questions for a number of reasons. Some questioned people start to become impatient after a while and the expenditure of time per questionnaire increases with every question, especially with those that need further explanation. In this respect, it is also very important to test the questionnaire in at least 5 to 10 households beforehand. Only through these tests can inconsistencies be identified and does one know that the questions are going to work out as planned. Furthermore, you get a feeling of how much time is needed per questionnaire which is vital for proper planning of the survey.

“Access” is very important for interviews on all levels. In Guinea it was very important to always carry an “ordre de mission” (mission statement) for various reasons. First of all, numerous police and army checkpoints along the way can seriously delay the mission and result in random fines if such a statement is missing. Second, while most health structures and local authorities are welcoming there are those who do not like your presence and ask for proof of your mission. On the household level it is extremely important to gain access through someone people know and trust (health- and community agents are very useful in this regard). In villages, permission of the village chief should always be requested. Not only does this diminish the risk of lengthy discussions but also will people be more ready to talk to you. Most people are willing to answer your questions but be prepared that not everyone likes this. To do interviews you will most of the time have to step into someone’s backyard and explain why you are here. To avoid tricky situations it is advisable to do this in company of a local person if you are an obvious foreigner.

11. Conclusion

This report has shown best practices and problems by dealing with authorities and with regard to social marketing. Furthermore, it has attempted to estimate Tinkisso-Antenna's health impact and added value in Guinea. In conclusion, Tinkisso-Antenna's social business is an effective and feasible approach for long-term safe water development which is apt for replication in other countries. Although the project faces many challenges it largely remains a success-model and constitutes the only sustainable preventive approach to safe water development in Guinea. Tinkisso-Antenna's experience bears useful lessons for replication, some of which have been discussed in this report. Nonetheless, every country follows its own rules and local circumstances must be considered.

12. Recommendations

Given their close partnership the following recommendations are likewise addressed at Tinkisso-Antenna and at Antenna Technologies:

Politics/authorities

- Strengthen relations with local authorities: While relations with national authorities are positive it seems that not all local authorities in the intervention zone support Tinkisso-Antenna's work with the same commitment. However, their goodwill has substantial implications on the functioning of the project in their respective region or prefecture.
- Communicate Tinkisso-Antenna's ambitions and seek support: The authorities primarily see Tinkisso-Antenna as a partner for emergencies. Therefore, the latter should persistently communicate its main ambitions in long-term development and preventive health and seek support in return for its help during epidemics. As Tinkisso-Antenna has become an important partner for the authorities it can afford to be more demanding.
- Exclude health authorities from the revenue generating process whenever possible: Health centers should directly be linked with commercial distributors. This allows for fast and uninterrupted distribution. Furthermore, there is no risk that local authorities claim too high margins and thereby deprive them of their compensation for their work with Chlore'C.

Social and commercial marketing

- Link chlorine-taste with good health during social marketing campaigns: As some people dislike the taste of chlorine in the water it should be linked with the health benefit during social marketing campaigns. At best, people will start to take the taste as a warrant for safe water.
- Include messages on seasonality into communication efforts: In order to insure a durable health impact and a more stable sales volume Tinkisso-Antenna should include messages on seasonality into social marketing communication. Chlore'C should to be seen as an everyday product.
- Promote the use of 20 liter cans: As shown 20 liter cans are an augmented product which allows applying the correct dosage. They should be promoted during social marketing campaigns because the health impact substantially depends on proper use of Chlore'C.
- Install more regional coordinators: Regional coordinators ensure a functioning coordination between social and commercial activities. Furthermore, they can be a valuable source of information and maintain close relations to local authorities on an ongoing basis.
- Define the proper balance of social and commercial activities: Tinkisso-Antenna and Antenna Technologies should collectively define the proper balance of social and commercial marketing activities. As a basic strategic decision this balance has substantial implications on the project and should be maintained based on a mutual agreement.
- Improve commercial distribution: An effective commercial distribution network is vital for easy and permanent access of Chlore'C.

Monitoring and evaluation

- Strengthen monitoring and evaluation: Tinkisso-Antenna has only recently created the position of a responsible person for monitoring and evaluation. This position should get all necessary support because it allows to measure outcomes and improve strategic and operational decisions.
- Conduct an impact evaluation on a regular basis: An impact evaluation based on a similar approach to the one chosen for this report should be conducted on a regular basis (e.g. every two or three years). Only comparison over time and not snapshots allows for a proper impact assessment.
- Collect information on the household level on a regular basis: Tinkisso-Antenna can improve its data collection with the aid of its partners. NGOs and associations who do social marketing activities for Tinkisso-Antenna could also be used for regular data collection on the household level. Questionnaires and Wata Blue tests are just two examples to measure the effect of social marketing campaigns.

Other

- Reduce dependence on single staff members: More management responsibilities should be handed down to staff in order to reduce the dependence of Tinkisso-Antenna on its coordinator.
- Test additional sources of income: Given its experience in social marketing and in the TED approach Tinkisso-Antenna could offer consulting or seminars as additional sources of income.
- Select contracting partners and staff on a professional basis and based on actual needs: All partners and staff should be chosen and employed on a purely professional basis. This ensures selection of the most capable people and organizations and helps to avoid problems like overpricing, overcapacities and insufficient reporting and documentation of activities.

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14. Annex

Annex I: Data and information collection

Conakry

- **Tinkisso-Antenna**
 - Numerous discussions with staff
- **Authorities**
 - Interview with the National Director of Quality Control
- **Health Structures, Communal Health Center Minière**
 - Interview with the Director of the health center
 - Interview with one health agent
- **Households**
 - 15 people in the health center Minière
 - 21 households around the health center Minière
- **Health Structures, Health Center Hafia**
 - Interview with the Director of the health center
 - Interview with one health agent
- **Households**
 - 6 people in the health center Hafia
 - 25 households around the center Hafia
- **Health Structures, Health Center Lambanyi**
 - Interview with the Director of the health center
 - Interview with one health agent
- **Households**
 - 13 people in the health center Lambanyi
 - 19 households around the center Lambanyi
- **Pharmacies**
 - Interview with 5 pharmacies
- **Commercial Partners, Good Job SARL**
 - Discussion with the Director of Good Job SARL

Kindia

- **Authorities**
 - Interview with the Regional Director of Hygiene
 - Discussion with the Regional Health Director
- **Health Structures, Regional Hospital Alpha Oumar Diallo**

- Interview with the Director of the hospital
- **Households**
 - 29 people in the regional hospital
- **NGO/Association**, *Association des Volontaires pour le Développement Communautaire (AVDC)*
 - Interview with the head of the association
- **Pharmacies**
 - Discussion with staff of 5 pharmacies

Mamou

- **Authorities**
 - Interview with the Prefectural Health Director of Mamou city
- **Health Structures**, *Health Center of Soyah*
 - Interview with the Director of the health center
 - Interview with one community agent
- **Households**
 - 24 households around the health center of Soyah
- **NGO/Association**, *Association Guinéenne intégrée pour le développement durable (AGDID)*
 - Interview with the head of the association
- **NGO/Association**, *Center d'Ecoute, de Conseils et d'Orientation des Jeunes (CECOJE)*
 - Interview with the head of the two association
- **Pharmacies**
 - Discussion with staff of 7 pharmacies

Labé

- **Authorities**
 - Interview with the Director of Hygiene
 - Interview with the Prefectural Health Director of Labé city
- **Health Structures**, *Health Center of Popodara*
 - Interview with the Director of the health center
 - Interview with one health agent
- **Households**
 - 13 people in the health center of Popodora
 - 10 households around the health center of Popodara
- **Health Schools**, *Communal Health School of Labé*
 - Interview with the Director of the health school

- **Pharmacies**
 - Discussion with staff of 5 pharmacies

- **Merchant**
 - Discussion with a local wholesaler and distributor of Sur Eau

Annex II: Questionnaire household survey

N°

Projet Tinkisso-Antenna, Guinée Conakry*Social Marketing & Impact Santé: Questionnaire ménages*

Madame, Monsieur, je m'appelle Alain Bühlmann et je suis en train d'effectuer une enquête pour l'ONG Tinkisso-Antenna dans le cadre de son projet "Traitement de l'eau à domicile". Le but de ce projet est l'amélioration de l'accès à l'eau potable de la population Guinéenne.

Si vous me permettez, je souhaiterais vous poser certaines questions relatives à l'utilisation du chlore dans votre ménage. Votre contribution serait très valable pour l'évaluation du projet.

Information sur le ménage	
Date	
Lieu	Région..... <input type="checkbox"/> Ménage Préfecture/Commune..... <input type="checkbox"/> Centre de Santé
Enquêteur	
Niveau Social/ Education	<input type="checkbox"/> non alphabétisé <input type="checkbox"/> alphabétisé <input type="checkbox"/> école primaire <input type="checkbox"/> collège/lycée <input type="checkbox"/> éducation supérieure
N. des personnes sous le toit (totale/m/f/enfants)	/ / / /
Utilisateur de la méthode (chlorination)	<input type="checkbox"/> Oui, depuis.....mois : <input type="checkbox"/> Sur Eau <input type="checkbox"/> Chlore'C <input type="checkbox"/> Non-utilisateur <input type="checkbox"/> Plus, utilisé pendant.....mois
Langue	

VOLET 1**Questions Générales & Traitement de l'eau**

1	De quelle source obtenez-vous votre eau de boisson?	
2	Votre eau de boisson est-elle contaminée ?	<input type="checkbox"/> Oui <input type="checkbox"/> Non <input type="checkbox"/> Je ne le sais pas
3	Est-ce que vous tombez malade si vous buvez de l'eau non traitée ?	<input type="checkbox"/> Oui <input type="checkbox"/> Non
4	Traitez- vous votre eau avant de la consommer ?	<input type="checkbox"/> jamais <input type="checkbox"/> parfois <input type="checkbox"/> toujours
5	Comment le traitez-vous ?	<input type="checkbox"/> Avec le chlore <input type="checkbox"/> Avec des filtres <input type="checkbox"/> Avec autre, lequel ?.....
6	Les fois que vous ne traitez pas , c'est parce-que...	<input type="checkbox"/> j'ai oublié <input type="checkbox"/> je n'avais pas du chlore <input type="checkbox"/> ce n'était pas nécessaire parce que..... <input type="checkbox"/> autres raisons :..... <input type="checkbox"/> je traite vraiment toujours

VOLET 2**Connaissance du Produit Chlore'C**

7	Est-ce que vous connaissez la bouteille bleue ?	<input type="checkbox"/> Oui <input type="checkbox"/> Non
8	Présentation deux flacons	<input type="checkbox"/> Sur Eau <input type="checkbox"/> Chlore'C
9	De quelle manière avez-vous entendu parler du Chlore'C pour la première fois? (canaux de communication)	<input type="checkbox"/> Radio <input type="checkbox"/> Télévision <input type="checkbox"/> Par des amis <input type="checkbox"/> Par des agents communautaires <input type="checkbox"/> Autres ? <input type="checkbox"/> Je n'ai jamais entendu parler du Chlore'C
10	Entre les différents	Le plus crédible <input type="checkbox"/> Les Agents communautaires

canaux des informations : Lequel est le plus crédible / Le moins crédible ?	<input type="checkbox"/> Les Centres de santé <input type="checkbox"/> Les autorités <input type="checkbox"/> La radio <input type="checkbox"/> La télévision <input type="checkbox"/> Les pharmacies <input type="checkbox"/> Autres.....
	<p>Le moins crédible</p> <input type="checkbox"/> Les Agents communautaires <input type="checkbox"/> Les Centres de santé <input type="checkbox"/> Les autorités <input type="checkbox"/> La radio <input type="checkbox"/> La télévision <input type="checkbox"/> Les pharmacies <input type="checkbox"/> Autres.....

VOLET 3

Approvisionnement, Utilisation et Attitude

11	Depuis quand utilisez-vous le chlore (CC/SE)?	<input type="checkbox"/> Je l'utilise depuis mois <input type="checkbox"/> Je n'utilise pas le chlore <input type="checkbox"/> Je ne l'utilise plus parce que.....
12	Pourquoi vous l'utilisez/ ne l'utilisez pas ?	<input type="checkbox"/> J'utilise le chlore parce que..... <input type="checkbox"/> Je n'utilise pas le chlore parce que.....
13	Qui vous a montré l'utilisation du chlore (CC/SE) ?	<input type="checkbox"/> Un agent communautaire <input type="checkbox"/> Un pharmacien <input type="checkbox"/> Autre : <input type="checkbox"/> Non-utilisateur
14	Pour quel usage utilisez-vous le chlore (CC/SE) ?	<input type="checkbox"/> Pour potabiliser votre eau de boisson <input type="checkbox"/> Pour rincer des légumes <input type="checkbox"/> Pour laver les mains <input type="checkbox"/> Pour le nettoyage <input type="checkbox"/> Autre, lequel ?..... <input type="checkbox"/> Non-utilisateur
15	Où approvisionnez-vous le chlore (CC/SE) ? (lieu, payé, gratuite, etc.)	<input type="checkbox"/> Je l'achète ici : <input type="checkbox"/> Distribution gratuite par..... <input type="checkbox"/> Non-utilisateur
16	Est-il difficile	<input type="checkbox"/> C'est difficile parce que :

	d'obtenir le chlore (CC/SE)? Si oui, quels sont les obstacles ?	<input type="checkbox"/> C'est simple, le chlore se vend partout <input type="checkbox"/> Non-utilisateur
17	Pensez-vous le chlore (CC/SE) est bon pour votre santé ?	<input type="checkbox"/> Oui <input type="checkbox"/> Non <input type="checkbox"/> Non-utilisateur
18	Veuillez me donner un avantage et un désavantage du chlore (CC/SE)	Avantage :..... Désavantage :..... <input type="checkbox"/> Non-utilisateur
19	Vous achetez le chlore à combien ?	J'achète à..... GNF <input type="checkbox"/> Non-utilisateur
20	Le prix du chlore est...	<input type="checkbox"/> Bon marché <input type="checkbox"/> Abordable <input type="checkbox"/> Cher <input type="checkbox"/> Trop cher <input type="checkbox"/> Non-utilisateur
21	A quel prix maximum êtes-vous prêt à payer le chlore (GNF)? GNF <input type="checkbox"/> Non-utilisateur
22	Y-a-t'il une différence entre le Chlore'C et le produit Sur Eau ?	<input type="checkbox"/> Non, il n'y a pas de différence <input type="checkbox"/> Oui, la différence c'est <input type="checkbox"/> Non-utilisateur
23	Comment le Chlore'C pouvait-il être amélioré ?	<input type="checkbox"/> Emballage différent <input type="checkbox"/> Présentation différente <input type="checkbox"/> Langue sur l'étiquette <input type="checkbox"/> Autre :..... <input type="checkbox"/> Il ne peut pas être amélioré <input type="checkbox"/> Non-utilisateur
24	Est-ce que vos amis et vos voisins utilisent le chlore (CC/SE) ?	<input type="checkbox"/> Les pluparts de mes amis et de mes voisins utilisent le chlore <input type="checkbox"/> Quelques de mes amis utilisent le chlore <input type="checkbox"/> Mes amis n'utilisent pas le chlore
25	Est-ce que c'est plus important de traiter l'eau pendant la saison pluvieuse ?	<input type="checkbox"/> Oui <input type="checkbox"/> Non

VOLET 4		
Impact Santé		
26	Est-ce que on vous a expliqué des pratiques liées à l'hygiène ?	<input type="checkbox"/> Oui, lesquels ?..... <input type="checkbox"/> Non
27	Quelles sont les maladies les plus fréquents dans votre ménage ? Combien de fois vous ou vos enfants le font par mois ?	<input type="checkbox"/> Le paludisme, ___ fois par mois <input type="checkbox"/> La diarrhée, ___ fois par mois <input type="checkbox"/> Les infections respiratoires, ___ fois par mois
28	Quelles maladies sont les plus problématiques ?	
29	Comment vous les soignez ?	<input type="checkbox"/> Je vais à l'hôpital/centre de santé <input type="checkbox"/> Automédication <input type="checkbox"/> Médecine traditionnelle <input type="checkbox"/> Je ne fais rien
30	La diarrhée est...	<input type="checkbox"/> Un problème <input type="checkbox"/> Pas de problème
31	Si quelqu'un dans votre ménage a la diarrhée vous faites quoi pour protéger les autres ?	
32	Si vos enfants ont la diarrhée vous payez combien à l'hôpital ? (couts du traitement, médicaments, etc.)	Je paye environ GNF
33	Observez-vous une différence en ce qui concerne la santé dans votre famille depuis que vous utilisez le chlore (CC/SE) ?	<input type="checkbox"/> Oui, le taux des maladies a diminué <input type="checkbox"/> Non, il n'y a pas de différence <input type="checkbox"/> Non-utilisateur

VOLET 5		
Observation de l'Usage		
34	Qui est responsable de traiter l'eau dans votre ménage ?	<input type="checkbox"/> La femme <input type="checkbox"/> L'homme <input type="checkbox"/> Les enfants <input type="checkbox"/> Pas de personne spécifié <input type="checkbox"/> Non-utilisateur
35	Pouvez-vous me montrer comment vous utilisez chlore (CC/SE) ?	<input type="checkbox"/> Correct <input type="checkbox"/> Pas correct <input type="checkbox"/> Non-utilisateur
36	Pouvez-vous me montrer ou vous entrepousez votre chlore (CC/SE) ?	<input type="checkbox"/> Correct <input type="checkbox"/> Pas correct <input type="checkbox"/> Non-utilisateur
37	Chlore résiduel	<input type="checkbox"/> Circle blanc <input type="checkbox"/> Circle bleue légère <input type="checkbox"/> Circle bleue intense <input type="checkbox"/> Non-utilisateur
38	Bouchon utilisé (seulement Chlore'C)	<input type="checkbox"/> Grand <input type="checkbox"/> Petit <input type="checkbox"/> Non-utilisateur

Declaration of Authorship

"I hereby declare

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- That I have mentioned all the sources used and that I have cited them correctly according to established academic citation rules,
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