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Master of Arts in International Affairs and Governance

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**Master Thesis**

**Marketing Drip Irrigation to the BOP in Burkina Faso**

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## I. Abstract

Over a billion people have to survive with an income of less than a dollar a day and live therefore at the bottom of the economic pyramid (BoP). One of the United Nations' "Millennium Development Goals" is to halve this number. Many traditional top-down development approaches by donor countries have so far failed. C.K Prahalad and Stuart Hart invented therefore a new approach on how multinational corporations can make a profit by addressing this lowest tier of the pyramid. This thesis critically reviewed the current state of BoP-research and found that the newest adaptations of the BoP-approach view the poor not merely as consumers but also as sellers and entrepreneurs. Furthermore, companies (or Non-governmental Organizations) have to collaborate with different players from both the public and the private sector to be successful in marketing to the BoP.

In this thesis, the case of the NGO iDE Burkina Faso has been addressed to show an NGO, which successfully distributes low-cost drip irrigation systems to smallholder farmers. Cross-sectional partnerships, a functioning last mile distribution and a market creation approach with demonstration farms were the most important factors for iDE Burkina Faso's success story.

In order to make iDE's business model sustainable and viable, it will be necessary to assist the Farming Business advisors who install the drip irrigation systems and who offer an after-sales service in becoming independent entrepreneurs. This thesis suggests five strategies to achieve this goal: increasing promotional activities, including new products into iDE's product portfolio, changing the structure of the margins, increasing the prices of the drip irrigation kits or charging farmers for the installation and the after-sales service. To implement these strategies, further studies will be necessary.

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## V. Abbreviations

BoP:	Bottom/Base of the Pyramid
FAO:	Food and Agricultural Organization of the United Nations
FBA:	Farming Business Advisor
FCFA:	Franc des Communautés Financières d'Afrique
GDP:	Gross Domestic Product
HDI:	Human Development Index
HKI:	Hellen Keller International
iDE:	International Development Enterprises
iDE BF:	International Development Enterprises Burkina Faso
IFAD:	International Fund for Agricultural Development
IFC:	International Finance Corporation
JICA:	Japan International Cooperation Agency
MMW4P:	Making Markets Work for Poverty
MNC:	Multinational Corporation
NGO:	Non-Governmental Organization

OPEC:	Organization of Petroleum Exporting Countries
PIGEPE:	Small scale Irrigation and Water Management Project
SDC:	Swiss Agency for Development and Cooperation
SUMIT:	Scaling Up Micro Irrigation Technologies in West Africa
UN:	United Nations
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme
US\$:	United States Dollars
USAID:	United States Agency for International Development
WASCAL:	West African Science Service Center on Climate Change and Adapted Land Use

## 1. Introduction

**“We resolve (...) to halve, by the year 2015, the proportion of the world’s people whose income is less than one dollar a day.”**

(United Nations, 2000, p. 5)

The United Nations first Millennium Development Goal set in 2000 was to “halve, between 1990 and 2015, the proportion of people whose income is less than US\$ 1.25 a day” (United Nations, 2014). While with 1.22 billion extremely poor people (21 percent of people in the developing world) this goal according to estimates by the World Bank was achieved in 2010, prognosis tells us that in 2015 still over 1 billion people will live in extreme poverty. Furthermore, if we take a broader definition of poverty of a daily income of US\$ 2, the numbers have not changed that much. In 1981 2.6 billion people lived under these conditions whereas in 2010 2.4 billion people did. This is only a very slight decline (The World Bank, 2014). Living under these extreme conditions means that people cannot even fulfill their basic human needs, such as safe water, healthy nutrition, shelter, or education.

In the past, many organizations have tried to eradicate poverty through a top-down donor approach but have so far failed. Authors like the Zambian-born economist, Dambisa Moyo, argued that aid has even harmed Africa’s economic development. Even though their traditional strategies failed, donor countries and NGOs continued to do the same again and again. New development methods on the other hand stress the importance of private initiatives and propose a more market-based development approach. These methods do not have to be invented, since they already exist in the private sector and only have to be put in practice. This thesis will present and critically reflect one of these new approaches, the so-called Bottom of the Pyramid-proposition.

A report published in 2013 by the International Fund for Agricultural Development (IFAD) showed that 1 billion out of the 1.2 billion extremely poor people live in rural areas where agriculture is their main source of income. Also, an estimated 2.5 billion people worldwide are involved in full- or part-time smallholder agriculture. These



smallholder farmers play a great role in food production. According to the report, they manage approximately 500 million small farms and provide over 80 per cent of the food consumed in large parts of the developing world, thus contributing to food security and poverty alleviation. Hence, it makes sense to support smallholder farmers to play a greater role in food production if we want to lift the 1.22 billion people out of poverty and sustainably nourish a growing world population at the same time (International Fund For Agricultural Development (IFAD), 2013, p. 6). Achim Steiner, UN Under-Secretary-General and UNEP Executive Director said that smallholder farmers should be “recognized as catalysts for a transformation of the way the world manages the supply of food and the environmental services that underpin agriculture in the first place” (International Fund for Agricultural Development (IFAD), 2013). Another focal point of the thesis will therefore be the inclusion of smallholder farmers into a market-based development approach. The NGO iDE Burkina Faso will serve as a practical example to illustrate a market-based approach, which targets smallholder farmers as their customers.

## 1.1 Research questions and structure

The thesis focuses on three main research questions:

- 1. How has the BoP-theory evolved in the last decade?**
- 2. How does the practical example of iDE Burkina Faso correspond with the BoP-approach?**
- 3. With which strategies can iDE Burkina Faso ensure the sustainability of their last mile distribution?**

In the first part, the thesis will present the theoretical background of the BoP-proposition and will provide a literature review about the most recent developments of the BoP-theory. In a second part, the case of the NGO iDE Burkina Faso, their business model, their customers and their partners will be presented. In the last part

the author will give an analysis of the current situation of the Farming Business Advisors (FBA). He will present five possible strategies on how the NGO could make the FBAs independent in the long run. The thesis will end with an overall conclusion.

## 1.2 Methods

For the theoretical part, journal articles, books and case studies, which focus on the BoP-thematic, have been reviewed.

For the second part about the case of iDE Burkina Faso, the author collected different data about the socio-economic situation of the country. Additionally, he relied on data, which he gathered from an internship he did between March and June 2014 in Burkina Faso. The author visited and interviewed 40 clients (see chapter 3.8) and talked to seven Farm Business Advisors (see chapter 3.7) and to four local dealers (see chapter 3.6) in the central region Kadiogo and in central west regions Boulkiemdé and Sanguié. These interviews were semi-structured. Furthermore, additional documents from iDE BF's website such as the product catalogue were used as sources.

For the last part, which focuses on the independence of the Farming Business Advisors (FBA), the author used sales data from the nine FBAs who were working for iDE during the author's stay in Burkina Faso.

## 2. The BoP-proposition: a market-based approach to alleviate poverty

Efficiency and effectiveness of foreign aid and international development are often criticized. Conventional development cooperation used to apply a top-down government approach, which has often failed (Heierli, 2008, p. 23). William Easterly, professor for economics at New York University, mentions two tragedies of the world's poor: first, they suffer for lack of inexpensive remedies and second, they suffer from the inefficiency and ineffectiveness of the conventional aid system (Easterly, 2006, p. 6). According to him, this kind of top-down development policy is made by "planners" whose goal is to erase (or reduce) poverty. They tend to set ambitious aims (such as the United Nation's Millennium Development Goals) and stick to a strict plan. Easterly believes that there is a better way of helping the poor. He advocates the type of a "searcher". Searchers do not have a fix plan, but they try to find out what works in development aid. When they have a promising opportunity at hand, they try to find a way to implement it (Heierli, 2008, p. 23 & Easterly, 2006, p. 5). Easterly strengthens his book with a work by the author and professor at Columbia Business School William Duggan.

Duggan wrote an unconventional book about business strategy. He describes what people have to do to be successful, not only in business terms, but also in one's private life. Most importantly, they should give up unreachable goals. It is not about "what you want, (...) but what you can achieve" (Duggan, 2003, p. 38). His advice to people who want to be successful: "By fighting where you can win and holding back where you can't, you conform to circumstances instead of trying to bend them to your will. That may seem weak, but it's the source of the greatest strength" (p. 39). The unpredictability of the future makes goal-setting unrealistic. Duggan introduces, therefore, the term "expert intuition"; the ability to learn from successful tasks in the past and to adapt them to the present problems (p. 25). He calls this approach "the Art of what works". Even though Duggan focused his work on success in general and not specifically on development aid, it is exactly this "Art of what works" which can be applied to the field of poverty alleviation in a market-based approach. In the

developed world this “searcher”-approach of finding opportunities and looking for innovative solutions has been used very successfully by entrepreneurs (Easterly, 2008, p. 26). Why should this approach not work in the developing world? A free market system favours the “planners”-approach of “finding out what works”. Easterly argues, that the aid system should be designed “so that it rewards successful searchers and scales them up to achieve widespread benefits for the poor” (Easterly, p. 24). Why then not promote business-oriented thinking in the field of development? This master thesis argues that the poor should be provided with the necessary tools for reaching economic self-sufficiency and that the poor should actively participate in finding solutions to reduce poverty (Aydogan, 2010, p. 13).

In this chapter, a market-based approach for poor countries called “the Bottom of the Pyramid proposition” will be discussed. Firstly, it will be explained what is meant by “market-based approaches”. Secondly, the original BoP-proposition by Prof. C.K. Prahalad and Stuart Hart will be presented. Additionally, critiques of this approach will be discussed and an overview over the development of the proposition in the last years will be given. Lastly, a framework called the “four A’s” will be presented which discusses the success factors of market-based approaches.

Before the BoP-proposition is presented, it is important to note what is meant by a “market-based approach” and what is not. It is wrong to ideologically assume that markets will necessarily and automatically solve all the problems of poverty (Heierli, 2008, p. 35). A pure laissez-faire approach is probably not a good market-based approach. It is true that this approach stresses the importance of markets for poverty alleviation, which has been neglected in conventional development aid systems. Markets were long “seen as the domain of the rich and market reforms a process from which the poor must be protected” (Ferrand, Gibson, & Scott, 2004, p. 1) However, markets can also fail, and a true market-approach also means that failed markets should be corrected. Gibson et al. mention in a paper on how “making markets work for the poor” (MMW4P) “(..) if the market isn’t delivering well, we should replace it and provide finance, advice, materials and expertise directly” (p. 8).

## 2.1 The original BoP-proposition

**“These unhappy times call for the building of plans that rest upon the forgotten, the unorganized but the indispensable units of economic power, for plans (...) that build from the bottom up and not from the top down, that put their faith once more in the forgotten man at the bottom of the economic pyramid”**

(Roosevelt, 1932)

U.S. President, Franklin D. Roosevelt in a 1932 radio address famously used the phrase “Bottom of the Pyramid”, when he was talking about “the forgotten man at the bottom of the economic pyramid”. It is the largest and poorest socio-economic group of a society. Today, the term “Bottom of the Pyramid“ or “BoP” is mainly used for describing new business models that target this economic sector. C.K. Prahalad and Stuart Hart were one of the first who defined this concept in a working paper in 1999, and in 2002 in a full-fledged article. The main argument of their theory states that companies should not only address middle and top sectors of the socio-economic pyramid but also the poorest members of a society. Thus, reducing poverty and making profit for private companies can go hand in hand. The idea that profit-seeking by private companies can alleviate poverty is of course not a recent idea. Economists from Adam Smith (1776) to Milton Friedman (1990) have already argued that free market will lead to a prosperous society. However, Prahalad’s proposition has developed a more elaborate business case (Kolk et al., 2014, p. 339).

„If we stop thinking of the poor as victims or as a burden and start recognizing them as resilient and creative entrepreneurs and value-conscious consumers, a whole new world of opportunities will open up” (Prahalad C. , 2005, S. 1). C.K. Prahalad, Professor for Corporate Strategy at the University of Michigan, opened his bestseller “The Fortune at the Bottom of the Pyramid” with this sentence. By targeting poor people as potential customers rather than aid recipients, the BoP theory states, both the BoP and private companies will benefit. According to Prahalad and Hart (2002, S.

1), multinational corporations (MNCs) have so far only targeted rich and middle-income customers in the developing world, but ignored the poorest members of the socio-economic pyramid. Prahalad and Hart (2002, S. 4) divide the economic pyramid into four tiers of potential customers, depending on the annual per capita income. The top of the pyramid consists of people with middle- and upper income. Most of them are living in developed countries but a minority belongs to a rich elite from the developing world. Only 75 – 100 million belong to this wealthy group. Tiers 2 and 3 entail poor customers of the developed world and the middle class in developing countries. The authors argue that MNCs mainly focused their business strategies for developing nations on these 1.5 – 1.75 billion people. However, in tier 4, at the bottom of the pyramid, live 4 billion people. Their annual per capita income is less than \$ 1500 (p. 4). Later, Prahalad (2005, p. 4) changed the definition of the per capita income of the bottom tier to “less than \$2 per day”. Prahalad (2005) estimates that tier 4 represents an untapped “1.3 trillion dollar market” (p. 21) for the MNCs. As we will see in chapter 2.3, these numbers were later contested by other authors.

Annual Per Capita Income*	Tiers	Population in Millions
More Than \$20,000	1	75-100
\$1,500-\$20,000	2 & 3	1,500-1,750
Less Than \$1,500	4	4,000

Figure 1: The World Economic Pyramid (Prahalad and Hart, 2002, p. 4)

The authors explain this unused opportunity with six assumptions about potential customers from the BoP, which obscure the value of the market at the BoP. (Table 1)

Assumption #1	The poor are not our target consumers because with our current cost structures, we cannot profitably compete for that market
Assumption #2	The poor cannot afford and have no use for the products and services sold in developed markets
Assumption #3	Only developed markets appreciate and will pay for new technology. The poor can use the previous generation of technology.
Assumption #4	The bottom of the pyramid is not important to the long-term viability of our business. We can leave Tier 4 to governments and nonprofits.
Assumption #5	Managers are not excited by business challenges that have a humanitarian dimension.
Assumption #6	Intellectual excitement is in developed markets. It is hard to find talented managers who want to work at the bottom of the pyramid

**Table 1: Six Assumptions that influence MNC's views of developing countries. Adopted from Prahalad and Hart (2002, p. 4).**

Managers of MNCs have therefore to re-examine and overcome these assumptions in order to profit from the fortune at the BoP. They have to “radically rethink how to go to market” (p. 5). Prahalad and Hart make the argument that by targeting the poor the MNCs can help “lifting billions of people out of poverty and desperation” (p. 3).

Marketers who believe that the BoP is a valuable unserved market also believe that the poor can be good customers. If companies take the correct steps and devote sufficient resources to satisfying the needs of the BoP, they can overcome barriers

to consumption. (Pitta, p. 395). Therefore, Prahalad and Hart (2002) propose four key elements for MNCs to thrive in the low-income market (Table 2).

1. creating buying power
2. shaping aspirations through product innovation and consumer education
3. improving access through better distribution and communication systems
4. tailoring local solutions

Table 2: The four keys to a thriving tier 4 market. Adopted from Prahalad & Hart (2002, p. 6.)

Companies who want to be successful in doing business with the Tier 4 consumers, and at the same time help them by “creating buying power” (p. 6), have to intervene at two points simultaneously: providing access to credit and increasing the earning potential of the BoP. Prahalad and Hart provide the example of Muhammad Yunus and the Grameen Bank which pioneered a lending service for the poor. Yunus founded the Grameen Bank in Bangladesh in 1983 and he received the Nobel Prize. Before the Grameen bank revolutionized the market of micro-credit, lenders would charge exorbitant interest rates for poor borrowers. The reasons were obvious: borrowers from the BoP were a higher credit risk, and it was more difficult to enforce contracts in poorer areas (p. 7). The Grameen Bank started to lend money to the poor – mainly to women who were traditionally the entrepreneurs in rural areas and had a lower credit risk – without the usual paperwork and without asking them for collateral. Employees of the Grameen bank would frequently visit the borrowers in their communities and got to know the projects they invested in. Yunus reduced the transaction cost of traditional credit systems by grouping poor borrowers into saving groups and allowed group lending (Heierli, 2008, S. 37). Today Grameen Bank’s 2’565 branches (Grameen Bank, 2011) serve 8.35 million borrowers (97% of them are women) in 81’379 villages in Bangladesh (grameen-info.org). But the most important measure of Grameen Bank’s success in Prahalad’s eyes is “the global explosion of institutional interest in microlending it has stimulated around the world” (p. 7).

Prahalad and Hart’s early work focuses on one main idea: the poor as consumers are a great market opportunity for MNCs. The fortune at the BoP is seen like the



proverbial \$20 bill which lies on the street had not been picked up (p. 4). At the same time, if several profit-driven business strategies are to be followed (table 2), they will automatically be combined with the social target of poverty alleviation. In Prahalad and Hart's (2002, p. 3) words: "MNC investment at "the bottom of the pyramid" means lifting billions of people out of poverty and desperation (...)". It is important to note that Prahalad and Hart saw the main driver as MNCs. Especially, this fixation has led to some criticisms, as shown in the next section.

## 2.2 Critique of Prahalad's Thesis

MNCs can make a fortune by selling products to the poor and at the same time help eradicate poverty? For many critics, the BoP-proposition sounded too good to be true. One of Prahalad's fiercest critics, Aneel Karnani (2007), Professor at the University of Michigan, stated that the BoP approaches were deceptive. The BoP approach was "at best a harmless illusion and potentially a dangerous delusion" (Karnani, 2007, S. 99). The concept is in Karnani's eyes illusionary for several reasons. First of all, the targeted market segment at the Bottom of the Pyramid is not clearly defined by Prahalad. Kolk et al. (2014), confirming that the usage of the term "BoP" in the literature is "often blurred and frequently imprecise, leading to different articles studying very different "bases" of the pyramid" (p. 351). Depending on the definition of "poverty", the 4 billion people and multi-trillion dollar market is hugely overestimated (Karnani, 2007, S. 100 ff.). The global BoP market, according to Karnani's calculations, is worth less than 0.3 trillion dollars, while other researchers (Economist 2004, Worldbank 2001) estimate the size of the market to be between 600 million and 2.7 billion people. This makes "the BoP a difficult place to look for a fortune" (Karnani, p. 101).

In addition to the smallness of the market, Karnani believes that it is not a very profitable one either (p. 101). While Prahalad and Hart (2002) try to refute the widespread assumption that the poor spend their money only on basic goods and are very price-sensitive, Karnani does not agree with them. He cites a study by Gangopadhyay and Wadhwa (2004), which says that the poor spend about 80% of their income on food, clothing and fuel. Karnani deduces from this that "companies following the BoP proposition often fail because they overestimate the purchasing

power of poor people and set prices too high". Karnani also implies that Prahalad makes the mistake of viewing the BoP-market as a homogenous one, when in fact "the poor are often geographically dispersed (...) and culturally heterogeneous" (p. 101).

Karnani's second main point of critique is that the BoP proposition is dangerously delusional and he questions if it will "hurt the very people it is trying to help" (p. 106). He argues that, economically speaking, the BoP proposition proposes that the consumption choices of the poor can be increased by targeting various products and services at the BoP. Since the consumer has a constant income, he can only buy the new product if he diverts his spending from another product. It is true that this increased choice will increase the poor customer's welfare, but only if the person is a rational consumer. If the poor consumer happens to act irrationally in his allocation of resources, he will spend money on a product he does not really need, like a television, and divert spending from higher-priority needs such, as nutrition, education or health. In this case, the BoP-approach is a potentially dangerous one (p. 106).

Karnani underlines his point of products which can be potentially dangerous for the poor with the example of "Fair & Lovely", an example which is also used by Prahalad (2004). Fair & Lovely is a skin cream marketed by Unilever in Asia and Africa, particularly in India, which promises to make dark skins lighter. This product is especially attractive to poor people, since people believe that whiter skin can result in higher chances of rising socially (Heierli, p. 38). While Prahalad and Hammond (2004) cite this example as a success story for BoP-marketing (the poor customer "has a choice and feels empowered because of an affordable consumer product formulated for her needs" (p. 36)), Karnani especially accuses the product for its advertisements which were cementing sexist and racist prejudices and for its potentially negative health side-effects. In his eyes, Fair & Lovely does not lead to more empowerment of poor women but can, in the worst case, entrench their empowerment (p. 106). He stresses that the only way to truly empower a woman is to make her "less poor, financially independent and better educated". The problem he sees with Prahalad's BoP proposition is that it is not satisfied with just giving Unilever the right to sell these products, but even applauds the company for empowering women and helping eradicate poverty.

Prahalad's suggestion that MNCs should sell products to the poor and treat them as customers is heavily criticized by Karnani. "Getting the poor to consume more will not solve their problem (...). The only way to help the poor and alleviate poverty is to raise the real income of the poor" he writes. Therefore, companies should not focus on selling to the poor: the BoP should be viewed as producers and not just consumers. Karnani states that consumption alone will not eradicate poverty unless the real income of poor people increases sustainably.

Karnani agrees with Prahalad that the field of microcredit can create better job opportunities for the poor. He thinks that microfinance can probably help to alleviate poverty. However, there are studies suggesting that microcredit is only beneficial to a limited extent (Economist, 2006). While Karnani does not dismiss microcredit entirely, he does not share Prahalad's overly optimistic hopes in micro-enterprises. Self-employed poor usually do not possess specialized skills and often have several jobs at the same time. Therefore, they compete in a business environment with low entry barriers and too much competition (Karnani, p. 108). This makes it extremely hard for them to become "resilient and creative entrepreneurs" (Prahalad, 2004, p. 1). Another main argument of Prahalad contested by his critics is the notion that MNCs are the best-equipped actors to lead the process of selling to the poor. Pitta states that MNCs are "too large, too rigid and too far from the customer to be effective" (Pitta, 2008, S. 398). He makes the point that Prahalad and Hart (2002) actually follow a top-down approach with their BoP-proposition, executed by MNCs (McFalls, 2007). Karnani, on the other hand, believes that a true bottom up process is necessary (Karnani, 2007a) to really reach the BoP. D'Andrea et al (2004) suggest in the context of retailing in Latin America, that small scale independent supermarkets are more likely to reach emerging consumers than MNCs.

While Karnani does not dismiss the BoP-proposition entirely, he contests its fixation with the poor as consumers. He agrees with Prahalad that "private companies should try to market to the poor" (p 109). However, he states that a more cautious approach should be advised. He suggests that private companies should invest in upgrading the skills and productivity of the poor and help create more employment opportunities for them. To achieve these goals, the efficiency of the market, where the poor sell their products, have to be improved. Furthermore, private companies have to work together with the government in order to create jobs (p. 107).

Another form of critique comes from the British magazine, “The Economist”. In their business column “Schumpeter”, the magazine writes that “when it comes to the bottom of the pyramid in the rich world, the [BoP-] Gurus lose interest”. According to the article, the BoP-market is not only a business opportunity in developing countries, but also in America, still one of the richest countries in the world. Of course, even the poorest Americans are rich compared to many other countries. However, American companies have long assumed that the USA would always stay a rich country. Only few companies have thought about the implication of economic stagnation. This may well be a chance for companies from the emerging world, who already have experience in tapping the BoP-markets in their home countries. They already have “frugal innovation in their DNA” (The Economist, 2011, S. 80).

### 2.3 What has become of the BoP concept in the last decade?

Kolk et al. (2014) wrote an excellent literature review about how the BoP concept evolved following Prahalad’s original proposition. They reviewed 104 articles published in journals or conference proceedings from the decade after Prahalad and Hart’s first proposition (2000 – 2009). One of their goals was to find out “how important aspects of BoP studies have developed over the years” (p. 344). They categorized their findings into four main topics: 1) the definition of the BoP, 2) the initiators of BoP initiatives, 3) the characteristics of BoP business model, and 4) the outcomes of BoP initiatives (p. 350).

They found that there is an uncountable number of definitions of the term “poverty” in the BoP literature. Depending on how the authors of an article define it, they study very different bases of the pyramid. However, proposing an exact definition of the BoP might not only be difficult but also counterproductive. As long as the authors define explicitly the type of BoP population they discuss, this should not be too big a problem. Kolk et al. also suggest that authors articulate the different segments of the BoP (different poverty levels, urban versus rural locations, or the degree of isolation from mainstream markets) (p. 352).

A crucial development of the BoP concept over the years clearly lies in the main initiators of BoP-initiative. Prahalad and others used to stress the importance of MNCs in the BoP markets. Kolk et al., however, note that overall only a small number of reported BoP initiatives are led by MNCs. The examples mentioned the

most in the BoP literature are Hindustan Lever Ltd. in India, Hewlett-Packard in Africa, Avon in South Africa, Cemex in Mexico and SC Johnson in Kenya (p. 352). This little number of for-profit firms is not representative of the set of initiatives in the BoP-market. Most of the initiators are not, in fact, MNCs that Prahalad aimed at with his proposition. Many initiatives are initiated by small (not large) and local (not multinational) companies. Furthermore, many BoP initiators mentioned in the literature are not even for-profit firms. This finding may be surprising, since the main core of Prahalad's proposition is the combination of making profits and alleviating poverty. But one of the most cited creator of a BoP-project in the literature is not a private company but a non-profit organization: Grameen Phone is a joint enterprise created by a for-profit company, Telenor, and the nonprofit organization, Grameen Telecom Corporation. These findings suggest that different actors such as MNCs, large and small domestic companies, social entrepreneurs, NPOs and also governments can have an active role as initiators in BOP projects (p. 353).

Regarding the role of BoP business models, the current BoP-literature (Simanis & Hart, 2009; Karnani, 2009) stresses the importance of treating the BoP not only as consumers, but as entrepreneurs and "to engage the poor not just as recipients of existing products but also as coinventors of BoP initiatives" (Kolk et al, 2014, p. 354). However, "the vast majority of the examples provided in the articles engaged the poor as recipients rather than as coinventors" (p. 355). However, many of them adapted an existing product or service for the poor. Furthermore, the few examples of BoP entrepreneurship by the poor found by Kolk et al. in the literature are often introduced by the BoP initiative itself, rather than being proposed by the poor (p. 354). Kolk et al. summed up their review up with the statement that "most BoP initiatives may not involve coinvention in the strict sense, but a majority of initiatives do require a significant level of adaptation of an existing product or business model". The last topic Kolk et al. looked into were the outcomes of the different BoP initiatives mentioned in the literature of the decade between 2000-2009. The BoP-literature measures the economic, social and environmental impacts of the different initiatives. Most articles measure economic impact, using a variety of indicators such as price, cost, margin, profit, revenue, market penetration, customer-base growth, number of customers, dividends or market capitalization as measures of performance. However, Kolk et al. found that half of the reviewed articles do not

actually measure the economic impact on the firm, but only focus on potential market size and therefore do not explicitly measure profitability. Furthermore, some authors only use profit indicators at a firm-based level, rather than at BoP-initiative level, making it difficult to assess the real profitability of the initiative. Nevertheless, when reported, the general economic impact of the initiatives is generally positive, even though an exact assessment is difficult. Kolk et al. conclude that the lack of true profit reporting in the examples could undermine the profitability claim of the BoP proposition (p. 357).

The social impact of BoP initiatives is also measured in the BoP-literature. In fact, more articles deal with social impact than with the economic impact. (p. 358). Again, the authors of BoP-articles use a variety of indicators for measuring the social impact of a BoP-initiative, such as education, health care, water quality, employment, business income generation or empowerment, quality of life and reduced exploitation. As with economic impact, social impact is generally positive. Kolk et al. suggest a need for more explicit measures of social impact.

The environmental aspect of a BoP-initiative receives the least attention, and most of the articles focus exclusively on waste generation. Thus, only a minority of articles considers or measures the environmental impact of different BoP-initiatives (p. 359).

## 2.4 The next generation of BoP-theorists

Stuart Hart & Erik Simanis (2008) have reacted to the criticism of Karnani and his colleagues. In the introduction to their Paper “The Base of the Pyramid Protocol: Toward Next Generation BoP Strategy”, they wrote: “Since the idea was first introduced by C.K. Prahalad and Stuart Hart at the turn of the 21<sup>st</sup> century, the list of large corporations transforming their business models to achieve the price points and cost positions required to reach the poor has grown. (...) Yet, in the rush to capture the “fortune” at the base of the pyramid, something may have been lost – the perspective of the poor themselves”. (p. 1). Therefore, in their 2011 book, “Next Generation Business Strategies for the Base of the Pyramid”, Hart and London shifted the focus from Prahalad’s famous phrase “fortune at the pyramid” to a “fortune with the BoP” (London & Hart, 2011, S. 2). In line with Karnani’s critique, this new generation of BoP-theorists (“BoP 2.0”) (see also Lager, 2011) regard the

poor not only as customers but “as buyers, sellers and entrepreneurs” (London & Hart, 2011, S. 9), Furthermore, they also take environmental impacts into account when proposing BoP-targeted activities, and stress the importance of main actors other than MNCs. They believe that many actors have to work in “partnerships across different sectors” (London & Hart, 2011, S. 10).

As mentioned earlier, critics of the BoP proposition have declared that the poor are not a culturally, religiously or geographically homogenous market. Also, economically speaking, there are huge differences within the BoP in terms of income, preferences and needs. In an updated version of his proposition, Prahalad (2005) acknowledges that business models need to respond to the demands of the specific BoP segments.

In Prahalad and Hart’s early version of their theory (2002), they had stressed that MNCs need to cooperate with NGOs, local and state governments and communities. However, due to their resources, their abilities to transfer knowledge from one market to another, and even transfer innovations up-market to the top of the pyramid, Prahalad believes that MNCs have to take the lead in BoP-marketing (p. 12). On the other hand, Pitta argues that mainly other actors, especially NGOs, have developed the business model infrastructure in many cases of BoP markets (Pitta, 2008). Because NGOs often have more experience in working in an underdeveloped business environment and are closer to the people at the BoP, they often take the lead in tapping into the BoP market. The public sector also has an important role to play in developing the BoP proposition. Instead of acting out a traditional governmental assistance delivery, they can help in creating a sustainable business environment for aiding the BoP. An example that Pitta gives would be to engineer supportive tax structures that promote private sector investment in BoP initiatives (pp. 398). Prahalad (2005) then also admits that the capacity to cooperate and build up a local business environment is much more important than the investment capacity, since MNCs do not have the necessary resources to create a BoP market. Hammond (2011, p. 198) even proposes a new form of “hybrid organizations”. They form a partnership between the business and non-business structures. The idea is that these organizations can benefit from both elements: non-business structures can support corporations with funding and information, and business corporations can take responsibility for the technical and operational expertise.

Whereas Prahalad and Hart did not really say much about environmental issues, the new generation of BoP theories deals with them. In his article, “Taking the Green Leap to the Base of the Pyramid”, Hart (2011) points out that due to the high growing rates of developing countries in both population and consumption, environmental problems especially, are getting more severe in BoP regions. Typical BoP-innovations, such as single-serving sachet packaging, are helpful in generating profits for private companies, and may make products more suitable for BoP-consumers. However, these new inventions often have a damaging effect on the environment. Hart argues in his article that the BoP proposition can also be true in accordance with an environmentally sustainable development. He therefore promotes the commercialization of “green” technology in the BoP; technical innovations which then can be transferred to the top of the pyramid markets. With these “Green Leap Strategies” (Hart), BoP market solutions can be environmentally friendly and at the same time serve as incubator for sustainable development innovations in the developed world.

Erik Simanis (2011) makes the point that there is a huge difference between market entry and market creation. Because there are needs at the BoP does not mean that there also exists a market for those needs. This means that companies who want to access the BoP, first have to create a market. It is crucial for these companies that they realize the difference between market entry strategies and market creation strategies. They need to use completely different tools to create a market than to enter one. The key to this is to integrate new products into the customer’s life. The values of the customers have to connect with the values of a product or a service. Until a product is truly embedded into a BoP community, it takes a lot of time. Companies need to conduct a lot of research first until they can create a new market. Therefore, BoP business stakeholders and investors need to be patient if they want to make profits (Simanis, 2011). In the next section, a framework will be introduced on how companies can be successful and how they can create a new market at the BoP.



## 2.5 Success factors for BOP Marketing: The four A's

Although Prahalad and his various successors gave some indications for how companies can be successful at the BoP, their suggestions often remained vague. The question remains as to what exactly companies have to do in order to be successful at the BoP. Anderson and Bilou (2007) looked into successful companies at the BoP and created a framework called the “four As”, meaning ‘affordability, availability, acceptability and awareness’. These four concepts represent the main challenges that companies have to overcome to serve BoP markets.

Anderson and Billou (2007) define the term **availability** as “the extent to which customers are able to readily acquire and use a product or service” (p. 15). Distribution channels in BoP-markets are often fragmented or even non-existent. Especially in rural areas, roads consist of small dirt tracks and during the rainy season it can be impossible to use them. Companies who want to serve the BoP-market have to overcome these hurdles and reinvent or completely change pre-existing distribution channels. One of the best examples of BoP initiative which overcame this hurdle, and which the author of this thesis has also seen during his stay in Burkina Faso, is the mobile phone revolution of the BoP, which started in the Philippines. Smart Communications Inc. wanted to find a way to distribute mobile telecommunications easier to their rural and poor customers. The resellers of its pre-paid cards were storeowners and often only worked in bigger towns or cities and the company was underrepresented in the poor, rural area of the country. Since the Philippines consists of more than 7'000 islands it was really difficult to serve the BoP-customers with pre-paid cards. The company therefore invented an over-the-air payment system, which allowed resellers to reload electronically air-time for customers without having to physically possess a pre-paid card. Retailers did not have to purchase a stock of cards, gaining from expensive inventory costs. This distribution was so popular that it spread world-wide, especially in Africa and other BoP-markets.

**Affordability** means “the degree to which a firm’s goods or services are affordable

to BoP consumers.” (p.15). Many BoP consumers have a low disposable income and cannot afford many products or services. Furthermore, many of them are paid daily, which makes the cash-flow of a typical BoP- customer completely different to that in developed countries. As we already know from Karnani (2007, p. 101), the poor are price-sensitive and a huge portion of their income is spent on food. With the income left over other products have to be bought. Companies have therefore to adapt the price-structures of the products and services they are selling, so that even the poorest consumers can purchase them. Smart recognized this and offered to transfer tiny units (as low as US\$ 0.03 in 2004) of air-time to the customers. The company copied this pricing system from Unilever and Protect, who sold micro-packs (or “sachets”) to the BoP-consumers.

**Acceptability** is defined as “the extent to which consumers and others in the value chain are willing to consume, distribute or sell a product or service”. In other words, companies have to adapt their products to specific national or regional cultural or socioeconomic aspects. This aspect is really important, since, as mentioned above, the BoP is not a homogenous segment. Acceptability is not only key for customers, who have to accept the product, but also for the other actors in the value chain: retailers, producers and distributors all have to identify themselves with the product or service. Anderson and Bilou (2007) again give the example of the mobile phone telecommunication market in the Philippines. Retailers were not accepting the high inventory costs and security concerns for stocking pre-paid cards. So, as mentioned before, Smart introduced the over-the-air recharge technology and the sachet-based pricing structure. In a second step, to appease the retailers, the company ensured that the start-up costs for the retailers were minimal. Thus, the low capital requirement attracted many retailers as Smart partners in a few months. (p. 19).

The last barrier which a successful company in the BoP-market has to overcome is **Awareness**. It is “the degree to which customers are aware of a product or service” (p. 15). Conventional advertising media such as radio or TV are not as easily available in rural markets as in the developed world. Building awareness is therefore a huge challenge for companies in the BoP-market. Advertisement has to be often made on billboards along roads and through word-to-mouth propaganda. Smart

worked very closely with its biggest local dealers who would then train sub-dealers and others in the distribution channel through workshops in universities and in communities. It turned out that these workshops were very successful in attracting new retailers. In turn, these retailers were very active in winning new customers, since they would sell air-time over the air to their friends, family and other members of their community (p. 19).

## 2.6 Summary

The author of this thesis agrees with the critics of Prahalad and Hart's original proposition, that while the original BoP-approach has its validity, its original fixation on MNCs should be reconsidered. Pitta's notion, that NGOs often play a leading role in a BoP-market approach since they are closer to the customers and have more experience in developing markets, seems to be more reasonable. Furthermore, the often neglected environmental aspect (Hart) should also be taken into account when creating a BoP market for a new product. The case of iDE Burkina Faso is therefore a suitable example for a market-oriented NGO which follows a BoP-approach and cooperates with different partners "across sectors" (London & Hart, p. 10). This thesis will therefore focus on this example and try to show ways in how iDE Burkina Faso's business model can be made sustainable.

### 3. The Case of iDE Burkina Faso

After the theoretical part, this chapter focuses on the case study of the NGO iDE (International Development Enterprises) in Burkina Faso and its supply chain of low cost drip irrigation systems. The author spent three months in Burkina Faso to study iDE's business model and how they market their products to the BoP. First, some background information about Burkina Faso's agriculture will be given. Second, the NGO iDE and its products, supply chain, retailers, clients and partners will be presented. Throughout the description of iDE Burkina Faso, the 4 As will be applied to show how iDE Burkina Faso corresponds with this approach.

#### 3.1 Burkina Faso's agriculture

Burkina Faso is a landlocked country in western sub-Saharan Africa. It does not matter which indicator one takes into account to realize that it is a very poor country. Burkina Faso's last year GDP per capita was at current US\$ 684, (The World Bank, 2014). In 2009, 46.7% of all Burkinabe lived below the nationally defined poverty line (CIA World Factbook, 2009). The average life expectancy was according to the UNDP (2013) at 56 years. In the Human Development Index (UNDP 2013) which measures a country's average achievements in the development areas health, knowledge and income, Burkina Faso ranks at number 183 out of 186 countries, scoring only higher than Chad, Mozambique, Congo and Niger.

In 2011, the World Bank estimated that 43% of its land area is agricultural area. Agricultural area is defined by the World Bank as the share of land area that is arable, under permanent crops and under permanent pastures. The importance of the agricultural sector is huge in Burkina Faso. 92% of the total labour force works in agriculture (Food and Agriculture Organization (FAO), 2014). Sadly, nearly one-third of the population is acutely malnourished and the child malnutrition rates remain among the highest in the world. 13% of the Burkinabe children are wasted, 30% are low in weight-for height and 30% are low in weight-for-age. These rates are much higher than the allowed maximum thresholds set by the WHO (FAO, 2012).

Food security is therefore a key issue in Burkina. However, Burkina Faso's climate with its long dry season makes it rather difficult for farmers to grow crops. Two main seasons may be distinguished: a rainy season (June – October), and a dry season (October – June). Furthermore, three different climate zones can be defined (Figure 2).

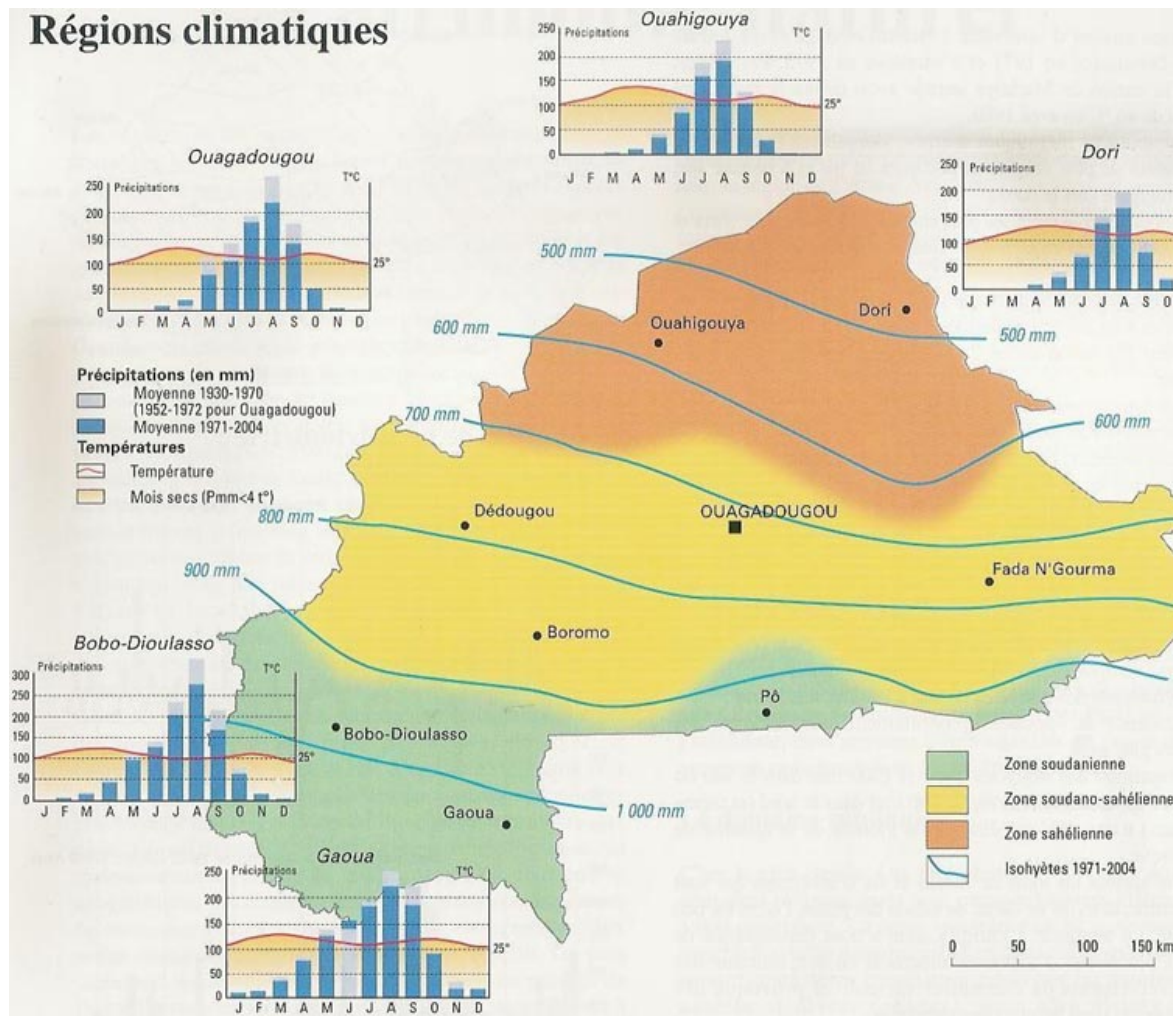


Figure 2: Climatic Regions of Burkina Faso. Retrieved June 10 from <http://www.fructifera.org/ENG/HTML/Climate.htm>

- The Sahelian zone in the north of the country is Burkina's driest part with a rather short rainy season (three to five months) and a long dry season (seven to nine months). The average rainfall per year is only 300-600 mm and its vegetable growing season is less than 100 days per year.
- The north sudanian zone in the center of the country has a rainy season which lasts four to five months. The average rainfall per year is 600-900 mm.

- The south sudanian zone in Burkina's south is its wettest part with the longest rainy season (starting already in mai and lasting up to 7 months). The average rainfall is 900-1200 mm per year. The growing season is up to 160 days per year (FAO, 2013).

Other than the scarcity of rainfall, other factors have recently posed serious challenges to food security of the farmers. In early 2012 an influx of refugees from Mali and the aftermaths of the Sahel food and nutrition crises led the Government to declare a national emergency. Due to serious droughts, cereal production fell by 20 percent which led to families having to consume their seed stocks of cereals and beans, reducing the seed to plant for the next season.

It is not only the scarcity of water and the climate that hinders small farmers to step out of poverty, but also the access to the water. There are an estimated 8 billion m<sup>3</sup> of surface water in Burkina Faso and 9.5 billion m<sup>3</sup> of groundwater. However, the geology makes it very difficult for smallholder farmers to access the groundwater. Of the 165'000 ha of land which has the potential to be irrigated, only 29'730 ha are irrigated by controlled use of water (FAO, 2013). The greatest part (13'700 ha, 47%) is cultivated by small-scale farmers with an area surface of less than 20 ha. From the 1960ies onwards, the government has constantly pushed the development of irrigated land. In the 90ies Burkina Faso engaged itself in an economic reform process. The state withdrew itself more and more from the agricultural sector and allowed the private sector to grow. This in turn favored the rise of private or cooperative irrigation. In 2008, Norman Mess, the United Nation's International Fund for Agricultural Development's (IFAD) country programme manager for Burkina Faso said "There is a new political will to boost small-scale irrigated agriculture in the country" (IFAD, 2008).

Irrigated land is a vital source for food and nutrition security in Burkina Faso. In fact, even though the irrigated area consists only 1% of all the cultivated land, around 10% of all the agricultural production was produced by irrigation. Further more, irrigated agriculture is also a source of income for input suppliers and transporters and can create jobs. In 2011, the number of jobs in irrigated agriculture was estimated at 1.2- 1.5 million (FAO, 2013). It is a social ladder for vulnerable parts of

societies such as women and young people. In the vegetable sector, women have a quasi-monopoly on the distribution and traditional processing of vegetables in urban centers.

Small-scale farmers are the most vulnerable parts in Burkinabe society. Their income relies heavily on the difficult climatic environment and on their access to water. The non-governmental organization (NGO) iDE (International Development Enterprises) wants to create income opportunities for smallholder farmers. Since water scarcity is one of the most pressing problems in Burkina, iDE focused on selling drip irrigation systems to smallholder farmers according to the BoP-approach. The NGO and its supply chain are presented in the next sections. The author spent three months in Burkina Faso to observe the supply chain and visit retailers, farm business advisors and clients.

### 3.2 iDE Burkina Faso

International Development Enterprises (iDE) is an international non-governmental organization (NGO) based in Denver, USA. Its goal is to end poverty in the developing world by helping farm families access the tools and knowledge they need to increase their income. iDE uses a market-based approach/BoP-approach to fulfill this goal and focuses on smallholder farmers by treating them as consumers, producers and entrepreneurs. iDE strongly believes that giveaways are harmful to local markets and cannot be sustained in the long term. iDE views productive water as the entry point to creating income opportunities for the small scale farmers – the world's poorest people. Access to irrigation water provides a substantial productivity gain and increases the food production. Therefore, iDE is constantly looking for affordable technologies for lifting, storing and distributing water. In eleven countries in Asia, Africa and Latin America, iDE created thus markets and supply chains for different irrigation systems. iDE uses an approach called PRiSM (Prosperity Realized through irrigation and smallholder markets) (Figure 3).



Figure 3: iDE's PRISM approach. Retrieved July 1 from [www.ideorg.org](http://www.ideorg.org).

The goal is to link suppliers of irrigation systems with small farmers and small farmers with markets where they can sell their products. In turn, these networks should generate income for everyone involved. IDE distributes and promotes irrigation products such as drip irrigation systems, treadle pumps and water storage systems.

In March 2011, iDE arrived in Burkina Faso. Due to the climatic and economic environment (chapter 3.1), they decided that they would focus on drip irrigation systems. iDE Burkina Faso created a unique supply chain and distribution model in order to market the drip irrigation system to the Base of the Pyramid. iDE Burkina Faso chose to start its business in the four regions Sanguié (Central-West), Kadiogo (Center), Boulkiemdé (Center West) and Yatenga (North). iDE installed a Technology Center in Ouagaodougou, where it tests different drip irrigation systems, pumps and storages. Furthermore, it created a number of demonstration farms as promotional tools for producers. It also implemented a supply chain, consisting of local dealers and Farming Business Advisors (FBAs). With assistance from the Swiss Agency for Development and Cooperation (DDC), Project SUMIT (Scaling up Micro Irrigation Technology) started its activities in the four regions of the country. The first main goal of the project was to create and develop demand for micro-irrigation products. The second goal was to assure an efficient distribution system for the products. In



the following sections, iDE Burkina Faso's business model will be presented. The focus of this thesis is on the assurance of an efficient supply chain and distribution system and sustainability of the business model.

### 3.3 Product: Drip Irrigation Kit

iDE Burkina Faso's main product is a microtube drip irrigation kit, which is sold to small-holder farmers in the four regions Boulkiemdé, Kadiogo, Sanguié and Yatenga. Drip irrigation technology already existed in the developing world. However, it still mostly targets modern farms with high-tech solutions (Heierli & Katz, 2007) or is only suitable for larger areas, so that poor farmers cannot use or afford it. iDE therefore introduced a more affordable drip irrigation system: Microtube drip irrigation systems bring water efficiently to just the roots of rows of crops, trees and other high value crops



**Figure 4: Microtubes.** Photo taken by Alexander Krizan, March 2014.

The system works with simple gravity pressure. A water tank (polytank) is 0.75 m- 3 meters above the ground, which is sufficient for water pressure. The farmer only has to open the valve. From this tank, the water flows into the main tubes and from there into the micro-tubes. These micro-tubes (figure 4) bring water to the base of each

plant. Studies have shown that farmers achieve water savings of 30 – 70 percent as compared to traditional surface irrigation methods (iDE, 2011). Furthermore, it will lead to an improved yield and better quality of crops. Further advantages are the reduced labor needed for irrigation, and an enormous saving of time for irrigation. Also, interviews with farmers showed that they profit from less weeding, compared to traditional irrigation methods. Studies have shown that the drip irrigation system leads to a reduction of water-borne diseases, compared to traditional irrigation systems. iDE sells different kits for areas of 20 sqm, 50 sqm, 100 sqm, 200 sqm, 500 sqm (see figure 5) and 1000 sqm. Every iDE-kit consists of:

- a water supply line, which is coupled to a water tank
  - a water filter which cleans the impurities in the water
  - a main line with connectors which allow the connections to the lateral lines
  - lateral lines on the level of the cropland
  - two drills which allow the drilling of small holes for the micro-tubes
  - micro-tubes which have to be inserted in each lateral line to allow the water to reach the crops
- (iDE, 2011).

### KIT DE 500 m<sup>2</sup> : SCHEMA ILLUSTRATIF

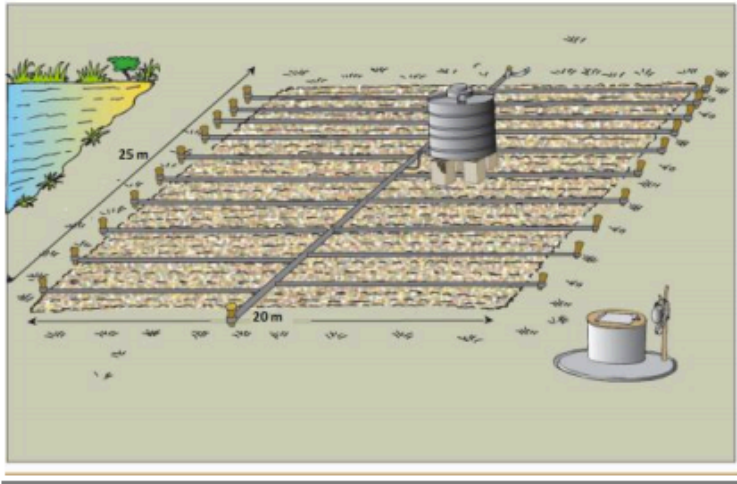
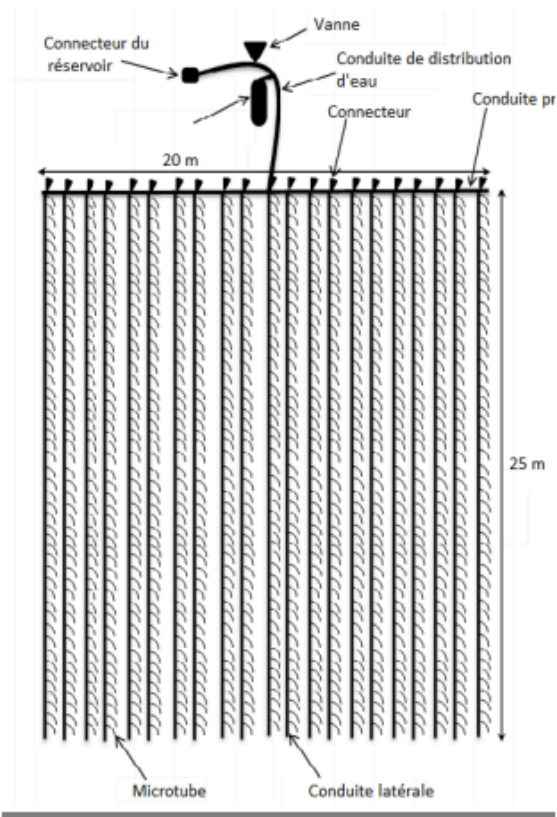


Figure 5: 500 sqm drip irrigation kit. IDE Burkina Faso Product Catalogue, 2013.

### 3.4 Price

iDE Burkina Faso managed to offer affordable prices for its products.

Kits	Price iDE (FCFA / US \$)	Price Netafim	Price Chapin
1000 sqm	170'500 / 350		
500 sqm	71'000 / 145	131'000 / 267	150'000 / 305
200 sqm	36'500 / 75		
100 sqm	17'600 / 36		
50 sqm	14'500 / 30		
20 sqm	8'000 / 16		

**Table 3: Prices Drip irrigation kits in the Burkina Faso market. Own figure. Data retrieved from iDE Burkina Faso product catalogue and Abric et al.**

Other drip irrigation systems on the Burkinabe market are twice as expensive. The price for a 500 sqm kit of the iDE's competition are twice as high than the iDE kit (Netafim: 131'000 FCFA; Chapin: 150'000 FCFA; iDE: 71'000 FCFA). (Abric, et al., 2011, p. 24). The price difference could be achieved by replacing traditional emitters with holes and micro-tubes and by extending water distribution lines to crops (Stauffer, 2011). This price difference is important for the Affordability of the drip irrigation system (see chapter 2.5)

## 3.5 The warehouse and the Tech Center –

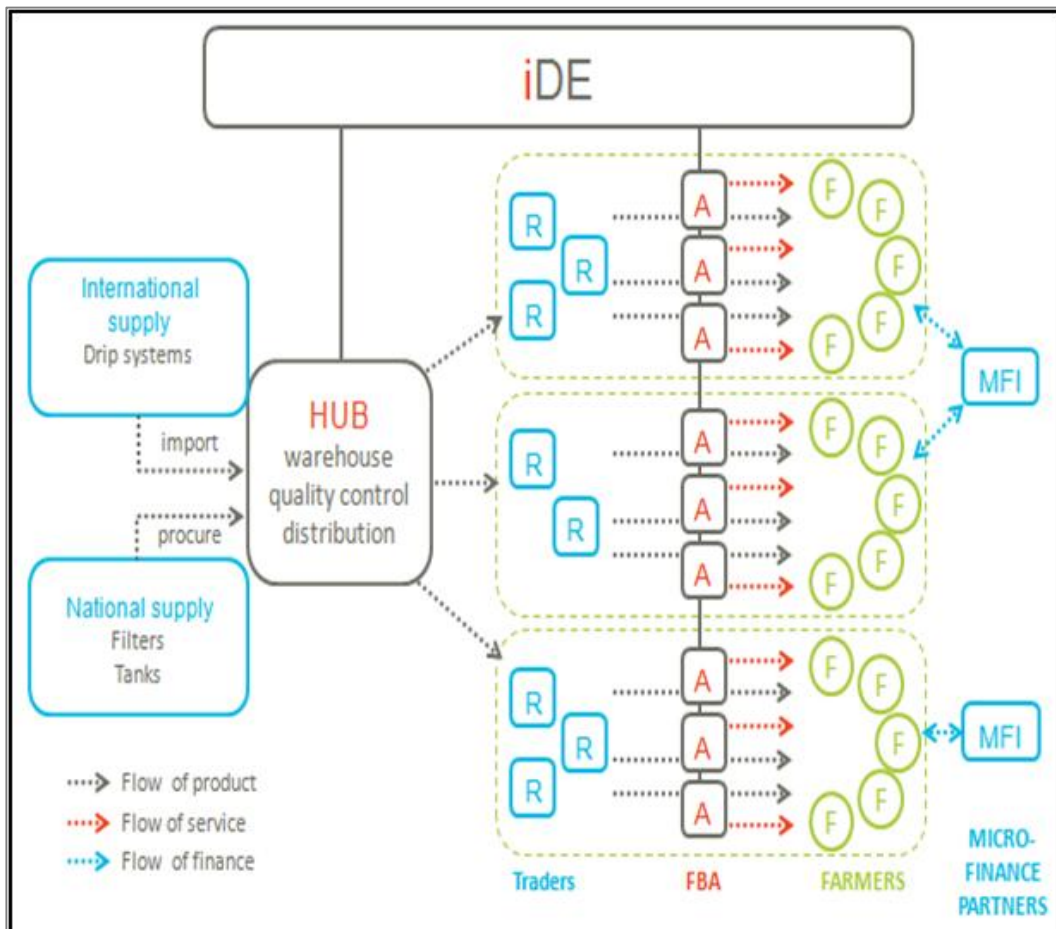


Figure 6: iDE Burkina Faso's supply chain. Retrieved from [www.ideorg.org](http://www.ideorg.org).

iDE drip irrigation systems are produced in India and Nepal and then shipped via Ghana to Burkina Faso. The products are stored in a warehouse in Ouagadougou, where they are also tested for quality. If a kit contains broken material, the whole kit will not be sold. However, pieces in the kit that do work will be used as spare parts.

iDE Burkina Faso has installed a Technology Center in Yamtenga, Ouagaodougou with a surface of 3'000 m<sup>2</sup>. The Tech Center helps to tailor the technologies to the context, needs and demands of the customers for different products, such as storage systems, pumps, drip irrigation and reservoirs. The center's goal is to reduce the costs and to improve the quality of the products. In the Tech Center, iDE tests the quality of the drip irrigation kits, different types of supports, reservoirs and other products. iDE also conducts research on possible new products, such as the "Impluvium" (rain water collection system), or the "Desert Fridge", an electricity-free

refrigeration system (see figure 10). In the Tech Center, iDE also tests different kinds of plantations and how they react to the drip irrigation system. The findings of the research are used to offer the best products possible to the needs of the customers. Furthermore, the center serves as a showcase for the different technologies and welcomes interested farmers and other visitors. In line with Anderson and Bilou's framework, the Tech Center plays an important part in raising the BoP's awareness of the product. The Tech Center is also the place where iDE offers trainings and workshops to its dealers, customers and partners for the maintenance of the drip irrigation system.

### 3.6 Local Dealers

iDE Burkina Faso's indoor sales force consists of ten retailers in the four different regions. These retailers all own a store, where they sell agricultural products such as seeds, fertilizers and irrigation systems, and not only iDE products. They are self-employed entrepreneurs and are well experienced in the agricultural business. However, they are under contract with iDE and sell the drip irrigation kits in their stores. Their job description involves promoting the drip irrigation kits and selling them to the clients. They install billboards in front of their offices (see figure 7). Additionally, advertisement posters in their villages promote the drip irrigation systems. Every time they sell a kit to an interested customer, they contact iDE's outdoor sales force, the Farm Business Advisors (FBA, see chapter 3.6). This also works the other way round: when the FBAs find a client, they contact the local retailers. Also, when a customer addresses the iDE's head office, they will immediately be put into contact with a retailer and a FBA. For each drip irrigation kit sold, the dealers receive a margin of 11%. The retailers work for iDE under commission. They have to pay for the kits to iDE, as soon as they sell them to their clients. These local retailers are also the final suppliers who distribute the kits to the clients.



Figure 7: Billboard in front of a retail store. Photo taken by Alexander Krizan, April 2014.

Since the retailers are well positioned in the local agricultural market environment, they already bring a big pool of possible future clients to iDE. These local dealers can be viewed as the first clients of iDE and they are the link between iDE and the final client. In Anderson and Billou's framework, they are important for the Availability of the Product. Through their stores, they can get in touch quickly with the final clients and are an important contributor to the last mile distribution. Interviews with the dealers showed that they are happy with the work relationship with iDE and the FBA.

### 3.7 Farming Business Advisors

Next to the local retailers, who represent iDE Burkina Faso's indoor sales force, there are currently nine "Farming Business Advisors" (FBA), who represent the outdoor sales force. In contrast to the local retailers, they work exclusively for iDE. The FBA have three different tasks to fulfill: They are in charge of the maintenance of a demonstration farm, they promote the drip irrigation kits and sell them to interested customers, and they provide after-sales service to the consumers. They receive a monthly salary from iDE, a margin of 13% for each sold kit and a bonus, which is based on different factors (see chapter 3.7.4). iDE Burkina Faso's long term

goal is to make the FBA financially independent, so that the supply chain can be sustainable in the future. The following chapters discuss and analyse the idea of how to make them independent.

### 3.7.1 Maintenance of the demonstration farms

Currently, there are in total 30 iDE demonstration sites operated by the FBA (ten of them for the Project SUMIT and twenty for other projects). These sites serve as a promotional tool for interested customers. The goal of these sites is to show interested customers how the drip irrigation system works and what advantages it brings (see chapter 3.4). Farmers lend their land to iDE Burkina Faso for the installation of a demonstration site. The installation and the equipment is fully paid by iDE Burkina Faso and includes the costs of the first production cycle. With the beginning of the second production cycle, the owner of the land has to pay for maintenance of the site. He will use the revenue produced by the first production cycle to support the site. The FBA's job is to maintain these sites and keep them in good shape. Furthermore, they organize visits to the sites for interested customers and explain the functioning and the advantages of the system. They have to keep an operating account of their site and hand in monthly reports of the state of their site to the iDE head office.

### 3.7.2 Promoting and selling the drip irrigation kits

The FBA use their demonstration farms to promote the drip irrigation kits. They organize guided tours for interested customers to their farms. Furthermore, they drive through villages and look for new customers. Some FBAs have an album with pictures of their demonstration sites, which they show to farmers in the villages (interviews with FBAs). They also distribute leaflets, which describe the advantages of the drip irrigation system. Furthermore, they have a product catalogue, which they can show to interested customers. The FBAs all wear iDE-T-shirts and hats in order to raise awareness of the iDE-brand. The FBAs have to know the regions where they are working very well so they can promote their products. They attend various workshops in marketing and communication. Interviews with the FBA have shown that some of them even go to weddings to promote their products. Many of



the FBAs started their promotion with sales to family members and close friends. After they find an interested customer, the FBAs get in contact with one of the local dealers. The dealers then distribute the kits to the customers or the customers pick them up from the dealer's store. The customers receive a six-month guarantee card from the FBA and the dealers. These cards also serve as the base for calculation of the FBA's bonus and the margin..

### 3.7.3 After-sales service: installation and consultation

After the FBAs sell a kit to the client, they have to help with its installation. An installation usually consists of three parts: observation and measuring of the terrain, preparation and cleaning of the ground, and then installation of the kit. Depending on the size of the kit, the installation may vary between one hour (for the 20 sqm kit) and 8 hours (for the 500 sqm kit) (interviews with FBAs). The FBAs are very well trained in the installation of the kit. After installation, the FBAs train the clients in how to maintain their kits: how they should clean the water tank, the filters and the micro-tubes. Furthermore, they explain to clients, when and how they should fertilize their products and how exactly they have to operate the drip irrigation system. They have a brochure where the maintenance and the installation of the kit are explained. Some FBAs also give advice as to which products the customers should plant and when they should sell them (interviews farmers).



**Figure 8: Two FBAs measure and observe the ground of a new client. Photo by A. Krizan, April 2014.**

After the installation, the FBA remain available as a consulting service. Customers can call them and ask questions if they have problems with the kit. The FBAs also visit their clients frequently to see if everything works well. According to interviews with customers, they are very satisfied with the service offered.

#### 3.7.4 Earnings

The FBA's earnings consist of three different parts: the margins of the sold kits, a monthly salary of FCFA 100'000 and a monthly bonus. The FBAs have to report each month to the iDE office in Ouagadougou, how many visitors they had on their demonstration farms. This number of approached customers, the number of sold kits, the condition of the demonstration farm and the FBA's attitude towards customers are the bases of the monthly bonus. From their earnings, the FBAs have to pay fuel for the transportation costs (ca. 20'000 FCFA/month), maintenance of their motorcycles, telephone costs and tools for the installation or reparation of the drip irrigation kits.

### 3.8 Clients

Since its beginning in 2011, iDE Burkina Faso has sold 3'614 kits in total. 1698 of them have been sold to individual smallholder farmers, and 1916 to organizations. Their clients range from smallholder farmers through small associations to NGOs, such as Helen Keller International (HKI) and Helvetas. In total, there are 750 clients: 25 organizations and 725 individual clients (Interview with Yeni Yaro, Program Director). In the following chapter, four examples of clients, who have been interviewed will be presented. They represent the different types of iDE-clients: individual smallholder farmers and associations. The clients contribute to the success of the each of the four As (see chapter 2.6).

#### 3.8.1 APAD au Sanguié

The French association APAD (Sanguié aims at promoting and popularizing Sustainable Agriculture in the province Sanguié. APAD's goal is to disseminate as widely as possible the philosophy, ethics and practices of agro-ecology (APAD, 2014). The association organizes trainings for farmers and pupils throughout the year. Total of 1 ha, but bought a drip irrigation kit of 200 sqm. The association owns an educational farm in central-western Burkina Faso. The farm extends over one hectare field. The field is divided into several areas dedicated o the demonstration of agro-ecological production techniques. In an interview, the gardener N'Do said he was very satisfied with the drip irrigation kit. Even though the association had not yet sold the products they produced with the drip irrigation kits, he already expects a gain in production. The revenue will be used for the maintenance of the educational farm and into the salary of the work force who works on the site. The farmers who visit the various workshops on the training farm are very interested in the drip irrigation kit. Clients like the APAD serve as kind of demonstration farms and have a promotional effect for iDE. It raises the awareness of iDE's products .

### 3.8.2 Prosper Babiné

Mr. Prosper Babiné is a retired civil servant who spent part of his pension fund on buying drip irrigation kits. His plan is to found a gardeners' field school for rural women in the region of Boulkiemdé, who used to water their plants with traditional irrigation systems, such as watering cans or buckets. He said that these women only gain little with these methods and have to work hard to water their fields. Their little revenue is often given to their husbands and not much can be kept by the women. IDE's drip irrigation system could help them to produce more, work less and in the end, gain more money. Mr. Babiné's goal is to educate the women on how they can use the drip irrigation kits and how they can water their plants with less pain and effort. Motivated and engaged clients like Mr. Babiné may not be part of the BoP. However, due to their engagement, they serve as a kind of extra demonstration farm, which attracts new customers and raises the acceptability of the drip irrigation technology. In the interviews, some farmers stated that they were skeptical about the drip irrigation kits. They falsely believed that if the water only touched the roots of the crops, they will not grow. Thanks to the FBAs and social customers such as Mr. Babiné, the acceptability of the drip irrigation systems will further increase..

### 3.8.3 Jardins du monde

"Jardins du Monde" (JDM) is a French humanitarian association. Its main goal is the promotion of the use of medicinal plants in communities where having access to conventional medicine is rather complicated. JDM Burkina Faso started its activities in 2003 in the region Boulkiemdé. After botanical studies, non toxic medicinal plants were chosen, whose therapeutic activities were proven in the scientific literature, they set up botanical gardens to cultivate these selected medical plants. Thanks to these gardens, the medicinal plants were made available in a reachable place. In February 2014 the association bought one kit of 500 m<sup>2</sup> and one kit of 200 m<sup>2</sup> in order to irrigate its medical plants. The gardener Yabré Zongo estimates in an interview, that the association gained about 3 – 4 hours a day with the new system (interview farmer). This gained time can be used for other activities on the field such as weeding or teach visitors about the medicinal usage of common plants. For

example, the gardener stated in an interview that the banana fruit could be used for ulcer treatment (Jardins du Monde, 2014). Visitors of the center are also interested in the drip irrigation system. These institutional clients serve also as sort of demonstration farms for iDE. They raise both the awareness and the acceptability of the drip irrigation system.

#### 3.8.4 Pema Jacob Bado

Mr. Pema Jacob Bado is a smallholder farmer in the town of Koulkoudou in Sanguié. He received a micro-credit from the Prodia institute and installed a 500 m<sup>2</sup> kit on his field. In total, he owns one hectare of irrigated land, which he irrigates with a watering can. The drip irrigation system saves him 4 hours a day. During the time saved, he takes care of cattle farming and irrigates the rest of his field. Although he has not yet sold his harvests, he estimates that he will sell more products than with the traditional irrigation method. During one year, he had three production cycles of onions, instead of only two with the traditional water-can irrigation method. With the predicted increase in sales he will start paying off the credit and the rest he will invest in the education of his children and eventually buy more irrigation kits. He is very satisfied with the services of the FBAs and said he could always reach the advisor by telephone. According to him, the greatest impact of the drip irrigation system lies in time saving and the saving of physical effort for watering the plants. He and all the other smallholder farmers who have been interviewed had received a lot of visitors who were interested in the drip irrigation technology. Like the associations, smallholder farmers raise both awareness and acceptability for other smallholder farmers.

### 3.9 Partnerships

As mentioned in the theoretical part, companies who want to be successful in marketing to the BoP have to be in partnerships with private companies, NGOs and governmental institutions (London and Hart, p. 10). Therefore, iDE BF is in partnerships with different organisations. In this chapter some partners will be presented.

#### 3.9.1 Swiss Agency for Development and Cooperation

The Swiss Agency for Development and Cooperation (SDC) finances the SUMIT project since 2011. The SUMIT project's first goal is to reach smallholder farmers by boosting the market for small-scale irrigation. This is done by market-creation approaches such as the installation of demonstration farms, the constant improvement of the quality of the product and affordable prices. The project's second goal is to ensure an effective distribution to meet the demand. The supply chain with the local dealers and the FBAs described above, was created for this project.

#### 3.9.2 Microfinance partnerships

One main limitation in marketing the drip irrigation kits to small-scale farmers is their access to finance. Smallholder farmers who are interested in buying a kit often do not possess the necessary means. As seen in the theoretical part, Prahalad stated in his BoP proposition that companies who want to market to the BoP have to increase the BoP's buying power. This can be done through micro-finance. Therefore, iDE Burkina Faso signed a partnership for a pilot project with the international commercial Bank "Ecobank" to overcome this barrier. Ecobank is a panafrikan bank which contributes to the integration and the economic development of the African continent. The project is called "Favoriser l'Accès au Financement des Petits Producteurs" (FAFPP) and focuses its activities on the center region of Kadiogo. Its main goals are to secure access to finance for smallholder farmers interested in installing micro-irrigation technologies on their fields in order to increase their revenue and the quality of their crops. Under the Development Credit Authority (DCA) of the United States Agency for International Development (USAID),

Ecobank agreed to offer credits to smallholder farmers with an interest rate of 13.5 % instead of the traditional 18%, so they can buy iDE's drip irrigation kits. Ecobank requires less guaranties and less paperwork to assist the needs of smallholder farmers. iDE's side of the agreement consists of helping the farmers with loan application and to educate them in credit management. The project started with cooperatives consisting of several smallholder farmers. A similar project in the regions of Sanguié and Boulkiemdé has been signed with the credit institute Prodia. Since these projects are still under evaluation, it is too early to analyse the results. The microfinance projects raise the affordability of iDE's products.

### 3.9.3 IAMGOLD

iDE BF works together with the mining company IAMGOLD. Their goldmine Essakane is situated in the northern part of the country in the Sahel region. Due to the harsh living conditions with temperatures reaching over 45° Celsius, populations largely rely on livestock breeding and gold mining for their livelihood. To improve security and combat poverty in the region, IAMGOLD committed to develop alternate revenue sources for communities living near the site. The project therefore focused on promoting market gardening to the community. The goldmine bought a part of iDE's irrigation kits and installed them to allow 500 smallholder farmers to increase their production, their revenue and offer better living standards for the people living close to the mine. iDE BF has also agreed to provide demonstration of their drip irrigation kits on demonstration farms and training on the functioning of their system in the Tech center. The results of the project are encouraging. Nearly 400 producers have earned additional revenue and there has been an increase in people choosing gardening over gold mining (The Mining Association Canada, 2014). In 2014 the project has won the TSM (Towards Sustainable Mining)-award for Community Engagement and Environmental Excellence from the Mining Association of Canada. Partnerships with private companies like IAMGOLD have a promotional effect and help to raise the awareness of iDE's products.

### 3.9.4 WASCAL

WASCAL (West African Science Service Center on Climate Change and Adapted Land Use) is “a large-scale research-focused program designed to help tackle climate change and thereby enhance the resilience of human and environmental systems to climate change and increased variability. It does so by strengthening the research infrastructure and capacity in West Africa related to climate change”. (WASCAL, 2014). WASCAL is coordinated by the Center for Development Research (ZEF, Bonn University). iDE Burkina Faso supports research projects of WASCAL with the supply and the installation of drip irrigation systems, because the impact of the drip irrigation technology is also an environmental one. Drip irrigation technology uses significantly less water and has therefore a smaller impact on climate change. iDE raises with the partnership with WASCAL the awareness that their product is also an environmental sustainable one and follows the theory of Hart et al. (see chapter 2). Especially in developing countries like Burkina Faso, the results of climate change like droughts may have severe consequences.

### 3.9.5 PIGEPE and the Ministry of Agriculture

iDE BF has a partnership with the Project PIGEPE (Small scale Irrigation and Water Management Project) and the ministry of agriculture. PIGEPE’s goal is to fight against poverty and to contribute to the implementation of the rural development strategy by the Burkinabe government. It meets the objectives of the Government and of IFAD (International Fund for Agricultural Development) to improve the incomes and the living conditions of rural populations, to increase their productivity and facilitate smallholder farmers’ access to technology. The project is funded by the government of Burkina Faso, IFAD and the OPEC (Organization of the Petroleum Exporting Countries).

iDE BF leads a project in cooperation with the Ministry of Agriculture called SUDSPI (Support to Sustainable Distribution of small scale irrigation systems) which is integrated in PIGEPE. The project involves installing 60 drip irrigation kits on demonstration sites to develop a demand for drip irrigation kits in six regions. IDE also plans to offer training to 90 technical officers of agriculture and 60 local merchants and artisans on the installation and the maintenance of the drip irrigation



kits. iDE will deliver 2700 drip irrigation kits to the trained merchants. These kits will be sold at subsidized prices (iDE Burkina Faso, 2014).

For iDE it is important to cooperate with the government. It raises the trustworthiness of iDE's products. During the interviews, some farmers said they were first skeptical towards the micro-irrigation technology. Some did not believe that so little water will be sufficient to grow crops (interviews farmers). Partnerships with the government can help to raise the acceptability of iDE's drip irrigation kits.

### 3.9.6 Other partners

iDE cooperates with other partners such as the Japan International Cooperation Agency (JICA). JICA focuses on the pillars of field-oriented approach, human security, and enhanced effectiveness, efficiency and speed. In Burkina Faso JICA's goal is to improve life conditions in rural areas by improving agricultural productivity. iDE trained JICA agents on agricultural production techniques and has set up drip irrigation systems to improve yields (iDE Burkina Faso, 2014).

Another partner is the Rainwater Harvesting Implementation Network (RAIN). It aims to improve access to water in developing countries through the collection of rainwater. iDE BF began a collaboration with RAIN to organize a training in the MUS-approach (Multiple Use of Water Service). The goal of SUM is to achieve a better water management in rural areas to meet the needs of each water user and to improve food security, revenue and health. With funding from RAIN, iDE is currently developing and testing a rainwater collection system ("Impluvium") in their technology center.

Recently, the International Finance Corporation (IFC) World Bank Group has selected iDE Burkina Faso to conduct a study on irrigation technology for small farmers in Burkina Faso. The title of the study is "inclusive Business Study on Irrigation Technologies for Small Farmers" (iDE Burkina Faso, 2014).

## 4. The FBA's road to autonomy

To create a financially sustainable supply chain, the FBAs have to become independent entrepreneurs. At the moment, iDE Burkina Faso pays them a monthly salary of 100'000 FCFA. Additionally, iDE pays them a monthly bonus, calculated on the bases of number of approached customers, number of sold kits, the quality of their demonstration farms and their attitude towards customers (measured by complaints). On special occasions, when the FBA does not hand in his monthly report, the FBA suffer from a malus and doesn't receive any bonus in this month. Between March 2013 and March 2014, the bonus has varied between 0 FCFA (malus) and 66'500 FCFA (67% of the monthly salary). Additionally, the FBAs profit from a margin of 13% for each drip irrigation kit sold. Their monthly salary and the bonus are currently funded by DDC's project SUMIT. iDE's goal is to make the FBAs completely independent entrepreneurs, so they can live from their margins alone. In this chapter, the monthly income between March 2013 and March 2014 of the FBAs are analyzed and four strategies are proposed on how to reach the goal of FBAs autonomy.

### 4.1 Situation today

During the author's stay in Burkina Faso, there were nine FBAs working for iDE. Three are working in the central region of Kadiogo, three in the region of Sanguié, two in Boulkiemdé and one in the northern region, Yatenga. The monthly income of each FBA will be presented. Additionally, as the economic situations in the regions vary, the four regions are analyzed separately.

The current monthly income includes the salary (100'000 FCFA), bonus and 13% margin for the kits sold. As an example, the monthly income in June 2013 from a FBA is given in table 4. In cooperation with the local dealer, the FBA sold two kits for a surface of 500 sqm. The price for two 500 sqm kit is 142'000 FCFA. The FBA earn a margin of 13% (18'460 FCFA), and the local dealer profits from a margin of 11% (15'620 FCFA).

Total income	Bonus	Salary	Margin
<b>150'460</b>	32'000	100'000	18'460

Table 4: Total income of an FBA in June 2013. Data retrieved from iDE Burkina Faso.

The bonus of 32'000 is calculated from the number of kits sold, the condition of the demonstration farm, the attitude towards clients and the number of customers approached. The maximal bonus is 75'000 per month. The number of sold kits counts for 60% of the bonus. When a FBA sells 10 kits in a month, he earns the maximum of 45'000 FCFA ( $0.6 * 75000$  FCFA) towards the final bonus. In this example, the FBA who sold two kits earns only 20% of this amount (9000 FCFA). (see table 5)

Total kits	# kits / 10	First part of Bonus (60%)
2	20 %	<b>9000 FCFA</b>

Table 5: First part of Bonus. Data retrieved from iDE Burkina Faso.

The rest (40%) of the bonus is calculated on the number of approached clients, the attitude towards clients and the condition of the demonstration farm. The maximum number of clients is 60. In this example, the FBA approached 36 clients and therefore earned 60 points. For the condition of the demonstration farm and the attitude towards clients, the FBA receives a grade between 0-100. His average performance is the mean between the points for the approached clients, the condition of the demonstration farm and the attitude towards existing clients. This means, when a FBA approaches 60 clients in a month, and the condition of his demonstration farm and his attitude towards clients is perfect, he will receive the maximum amount of 30'000 FCFA (40% of 75000 FCFA). In the example below, the FBA earned in the month of June 2013, 23'000 FCFA for this part of the bonus

Visited clients	# clients / 60	Demo-farm	Attitude/clients	Average	Second part of Bonus (40%)
36	60%	80 %	90 %	76.66 %	<b>23'000</b>

Table 6: Second part of Bonus. Data retrieved from iDE Burkina Faso.

In total, the FBA earned 32'000 FCFA (9000 FCFA for the first part and 23'000 FCFA for the second part of the bonus). (table 7).

First part of bonus	Second part of bonus	Total bonus
9000 FCFA	23'000 FCFA	<b>32'000 FCFA</b>

Table 7: Total Bonus of a FBA in June 2013. Data retrieved from iDE Burkina Faso.

According to interviews with the FBAs, it will be assumed that the current income is sufficient to keep the FBAs motivated and help them support their family. A timeframe between March 2013 and March 2014 will be analyzed and their average monthly income will be calculated. Furthermore, the average number of sold kits will be presented for each of the nine FBAs. (see table 8)

In Kadiogo the three FBAs (FBA 1 -3) earned in average 141'347 FCAF per month and sold about 3.3 kits per month. In Boulkiemdé two FBAs (FBA 4 & 5) earned 136'873 FCAF per month and sold 2.25 kits per month. The three FBAs in Sanguié (FBA 6 – 8) earned 118'301 FCFA per month and sold 1 kit per month. The one FBA in Yatenga (FBA 9) sold 0.5 kits a month and earned 107'186 FCFA. (see table 9)

	FBA 1	FBA 2	FBA 3	FBA 4
Income/month	156'659	139'257	128'094	136'844
Kits/month	4	3	3	2
Highest numbers of sold kits in one month	12	14	12	8

	FBA 5	FBA 6	FBA 7	FBA 8	FBA 9
Income/month	136'902	126'270	115'396	113'238	107'186
Kits/month	2	1	1	1	0.5
Highest number of sold kits in one month	9	5	2	4	1

Table 8: Average monthly income and sold kits for the nine FBAs. Data retrieved from iDE Burkina Faso.

	Kadiogo	Boulkiemdé	Sanguié	Yatenga
Income/month	141'349	136'873	118'301	107'186
Kits/month	3.3	2.25	1	0.5

Table 9: Average monthly income and sold kits per region. Data retrieved from iDE Burkina Faso.

## 4.2 Goal

In order to turn the FBAs into independent entrepreneurs, they have to earn their income only from margins. For financially independent FBAs, the monthly salary of 100'000 and the bonus (between 0 and 75'000 FCFA/month) will fall away and have to be replaced by the margins.

However, the current official monthly minimum wage in Burkina Faso is at 30'864 FCFA. A newer study suggests that the minimum income needed to survive in Burkina Faso should be 48'255 FCFA. Both these numbers are easily achieved today by the FBAs and should not be taken as a point of reference. Unfortunately, there is no number in the literature which describes the living costs in Burkina Faso. Nevertheless, interviews with the FBAs have shown that their current income is sufficient for them to pay for the job costs (fuel for transportation, tools for installation, telephone costs and maintenance of their motorcycle) and make a living. Furthermore, interviews with independent mobile phone retailers in the university campus of Ouagadougou showed that an independent retailer in Ouagadougou can earn up to 150'000 FCFA per month with his margins. As a goal for the FBAs, we take the average income of all the nine FBAs, which is approximately 130'000 FCFA. When the FBAs earn this amount per month, they can be financially independent and the sustainability of iDE's supply chain can be guaranteed.

The 500 sqm drip irrigation kits are in most demand and will serve as a point of reference. The price of one 500 sqm kit is 71'000 FCFA and the FBAs profit 13% for each sold kit. This means that they earn 9'230 FCFA for each sold kit. To reach the target amount of 130'000 FCFA per month from selling drip irrigation kits, each month they have to sell 14 kits for a field of 500 sqm. Even the FBA who sells the most drip irrigation kits (FBA 1) currently sells 4 kits per month. In his best month in January 2014 he sold 12 kits, earning 103'818 FCFA. Even the sales of the best-selling FBA in his best month are currently not enough to be independent without the salary and bonus.

### 4.3 Strategies

In order to discuss the question on how the FBAs can be financially independent from salary and bonus in the future, the author proposes five possible ways and lists risks and opportunities for each proposition. Naturally, these strategies are not mutually exclusive, and can be combined with each other.

#### 4.3.1 increase volumes of sold kits

As stated in chapter 4.2, FBAs should earn a margin of 130'000 FCFA to be financially independent. In terms of sold drip irrigation kits, this means they have to sell 14 drip irrigation kits for 500 m<sup>2</sup>. At the moment the average numbers of kits sold per month is between 0.5 (FBA 9) and 4 (FBA 1).

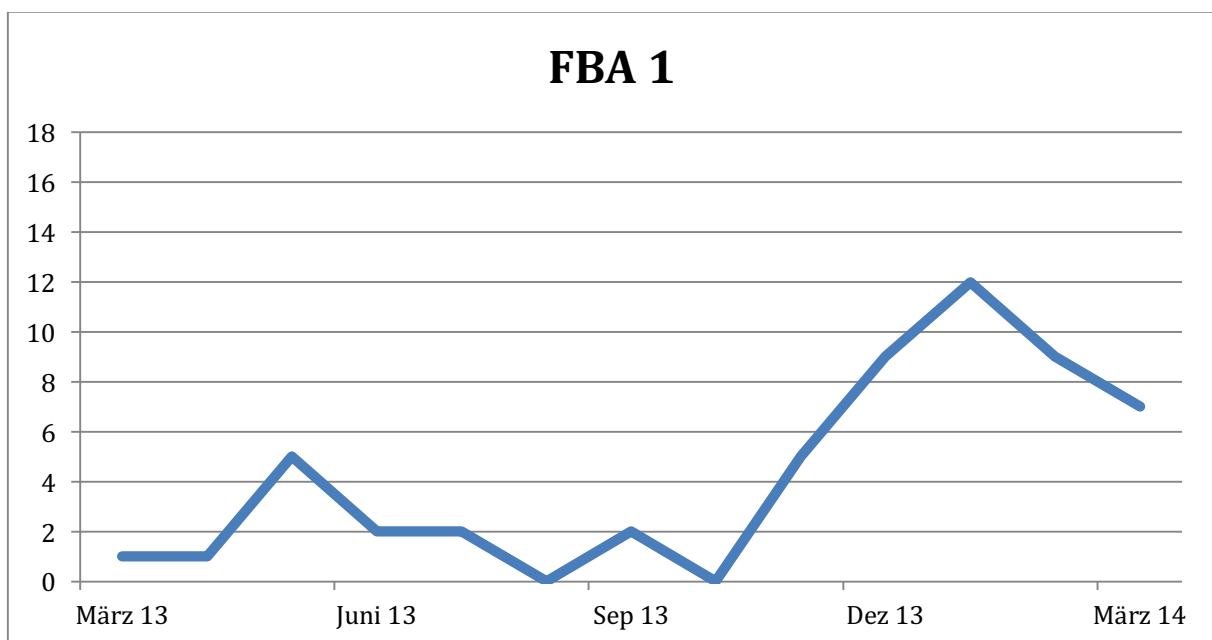


Figure 9: Number of sold kits between March 2013 and March 2014. Data retrieved from iDE Burkina Faso

Figure 9 shows the amount of sold kits by the best selling FBA between march 2013 and march 2014. To achieve an average sale of 14 drip irrigation kits per month, the FBAs have to sell significantly more kits. For this, they have to constantly find new clients. This could be achieved through more promotional activities, for example, during wedding ceremonies, sport events or in local markets. However, FBAs also have to sell more kits in periods when the demand for drip irrigation kits is quite low anyway (the rainy months July & August). The advantage of this strategy would be that iDE does not have to implement new products into their product line. A

downside of this strategy is that even if the FBAs manage to find new customers and sell 14 kits per month, they will have too many customers and won't have time to install every kit and guarantee good after-sales service for every existing customer. Since the drip irrigation technology is still relatively new in Burkina Faso, the market will probably grow. Interviews with clients showed that their drip irrigation kits attracted a lot of interested neighbours. However, it is questionable if demand is big enough to ensure these high sales numbers. This could be tested in a further study. In the region Kadiogo, where there are a lot of associations and organizations interested in buying drip irrigation kits for their own projects, the high numbers could eventually be achieved. However, in the regions Sanguié, Boulkiemdé and Yatenga, these high goals seem too ambitious.

#### 4.3.2 Introduction of new iDE-products into the market

As seen in the previous chapter, higher sales of drip irrigation kits alone probably cannot guarantee financial independence for the FBAs. Therefore, other strategies have to be found. A solution could be the introduction of new iDE-products into the market. FBAs have to rely on other sources of income when they want to reach the target income of 130'000 FCFA. Currently, iDE is testing a "desert fridge", which is an electricity-free conservation system for vegetables. It is a so-called pot-in-pot refrigerator. It consists of two terracotta pots, sand and water. It uses evaporation to keep food fresh for up to ten times longer than in the open air. Especially in the dry climate of Burkina Faso, the demand for this product could be high. Furthermore, the functioning of the product is not very complicated. The *Acceptability* of the product may be higher than that of the drip irrigation system.





Figure 10: Desert Fridge. Photo taken by Alexander Krizan, April 2014.

Another idea for a new product is solar-powered pumps to make the water access easier. Interviews with FBAs and clients have shown that diesel-powered motor pumps, which are usually used by farmers, lead to high fuel costs. In a dry and sunny climate like Burkina Faso, solar-powered pumps may be a good supplementary product to the drip irrigation kits. These products could be sold by the same retailers as the drip irrigation system and the margins could also be split between the retailers and the FBAs (see chapter). This way, the same supply chain can be used for the new products.

This strategy has the advantage that the FBAs can sell these products to existing customers, since they complement the drip irrigation kit. The author would suggest conducting a study to find out the market demand and the willingness to pay for these new products. Once the price sensitivity is known, the new products can be accordingly priced and implemented into the product line of iDE BF.

### 4.3.3 Increase margins of FBAs – decrease margins of dealers

Another strategy could be to increase the margin for the sold kits. Currently, the FBAs earn 13% for each sold kit and they have to sell 14 kits a month if they want to reach the target income of 130'000 FCFA. If we want to reduce the target number to a more realistically achievable, 9 kits per month, the margin for the FBAs has to be increased to 20%. If iDE did this and kept the prices for the kits as they are, one sold kit would produce revenue of FCFA 14'200 for the FBA. This number is already achieved by some FBAs in some months but it is still too high in the rainy months, when the demand for drip irrigation is low. However, if this strategy were combined with introducing new products into the product line, the targeted number would decrease once again and may be achieved.

However, if iDE increases the margin for the FBAs and keeps the prices for the kits at the current level, iDE's profit will be smaller for each sold kit. Although iDE is a non-profit organization, it needs its revenue to pay its workers. Currently, the total margin of each kit is 24% (13% for the FBAs and 11% for the local dealers). If iDE wants to keep its revenue, it would have to cut the margins for the retailers (chapter 3.7) from 11% to 4%. This involves risk, since the local dealers are also responsible for the last mile distribution. If the 4% margins are not enough to motivate the dealers to sell and distribute iDE products, the iDE BF's supply chain would be in danger. Furthermore, it could damage the good relationship between local dealers and FBAs and lead to jealousy. The dealers and the FBAs are two parts of the sales force and have to work together.

The author believes that this strategy can only be implemented in combination with introducing new products. A study could be implemented to find out how much iDE can increase the FBAs margins and how much the margins of the local dealers can be decreased without risking their motivation to work for iDE.

#### 4.3.4 Increase price of kits

If it is not possible to increase the FBA's margins and decrease the dealers' margins, there is the possibility of leaving the margins as they are and increasing the price of the drip irrigation kits. If we stay with the scenario we used in chapter 4.3.3 and say that the target number of sold kits should be 9, then the price of a kit would have to increase from 71'000 FCFA to 110'000 FCFA. With a margin of 13%, the FBA would benefit from 14'300 FCFA per sold kit.

While it is true that compared to other drip irrigation kits on the market (see chapter 3.5), the price for an iDE 500 m<sup>2</sup> drip irrigation kit is currently quite low, for many smallholder farmers, 71'000 FCFA is a lot of money and many of them have to apply for micro-credits to afford them (chapter 3.8.2). It is highly questionable if IDE's price-sensitive clients would accept a price increase. Nevertheless, a study about customer price sensitivity may be a good start to identify if there are any possibilities for raising prices without losing too many customers. This strategy could then be combined with others, such as the implementation of new products.

#### 4.3.5 Clients pay extra for installation and after-sales service

Another way to increase FBA's revenue would be to leave the prices and the margins as they are, but charge more for installation and after-sales service. Currently, customers do not have to pay for the FBA's services, as these are included in the price of the drip irrigation kit. As mentioned before, the FBA's working costs for the installation and after-sales service are currently paid from their income (salary, bonus and margins). In other words, a client who needs a lot of consultations and visits from a FBA currently does not pay more than a client who never needs consultation. In order to ensure the financial independence of a FBA, iDE could introduce a system where clients pay for consultations, installations and visits. The prices could be calculated on the bases of the distance the FBAs have to drive, the duration of the consultation and the type of work the FBA has to do. This could be a question for a further study to assess the exact prices for the services and find out clients' willingness to pay for them.

During the interviews with farmers, the majority said they would currently not pay extra for after-sales service since they do not have enough money. However, some farmers who have not yet had a harvest with the drip irrigation system told the author that they would be willing to pay extra for the services next year if they experience an increase in their harvest and their sales. During the interviews with clients and the FBAs, it became clear that not all FBAs gave the same kind of advices. Some FBAs provided advice on how to commercialize and sell their harvests, but not all of them did. If the FBAs would focus more on giving tips on how to sell the harvest as part of their after-sales service, producers would benefit even more and may be more willing to pay for services. Of course, this strategy can be combined with introducing more products, increasing the margins and trying to increase the volume of the sold kits.

#### 4.4 Summary

The current sales are too low to ensure financial independence of the FBAs. Therefore, the author suggests five different strategies, which could be combined with each other. A higher number of sales through more promotional activities by the FBAs will not lead to financial independence on its own, and should be complemented with introducing more products into the product line of iDE. The margins of the FBAs could be increased, but it risks dissatisfying local dealers, who would suffer a corresponding decrease in their margins. A general price increase of the kits would probably be difficult to achieve, but the price-sensitivity of farmers could be tested to identify if there are any possibilities. Clients could be willing to pay for after-sales services and installations if FBAs gave more suggestions on the selling of the harvests and how to make sure the profits are high. The author thinks that introducing new products in the product line is probably the first way to go. iDE Burkina Faso's journey to a fully sustainable and unsubsidized supply chain is still young and needs more time to be successfully achieved, given the difficult market situations of Burkina Faso. Thus, a hybrid solution is also conceivable in the near future: private or governmental donors could continue to subsidize a basic, but lower, salary for the FBAs, and simultaneously, some of the above-mentioned strategies can be introduced. Depending on the success of the different strategies

implemented, the salary could then be reduced gradually until full financial independence is achieved.

## 5. Conclusion

This thesis dealt with three different questions. The first one was to find out how the BoP-theory has evolved in the last decade. Prahalad and Hart's (2002) original proposition, that by targeting the bottom of the pyramid, multinational cooperations can help "lifting billions of people out of poverty" (p. 3) has been praised, criticized and updated in the last fifteen years. Many critical authors argued their prominent focus on MNCs. More recent BoP-projects have been initiated not only by MNCs but also by NGOs, governmental organizations or even small local businesses. Additionally, Hart revised his original proposition by including environmental aspects into his approach ("Taking the Green Leap to the Bottom of the Pyramid", 2011). In their original BoP-proposition, Prahalad and Hart looked at the poor mainly as customers and consumers. Proponents of a more modern approach such as London and Hart (2011) deal with the BoP as "buyers, sellers and entrepreneurs". According to the newest BoP-theories and case studies, this thesis argues that successful and truly sustainable BoP-initiatives are not necessarily founded by MNCs, take into account environmental problems and deal with the poor not only as customers, but also as sellers and entrepreneurs.

How then, does the case of iDE Burkina Faso correspond with the most current state of BoP-research? As shown in the third chapter of this thesis, iDE Burkina Faso used a market creation approach to build their supply chain. Demonstration farms were built in order to create a demand for drip irrigation system. The targeted BoP-segment is not only viewed as clients but also as producers and as entrepreneurs. In the future it will remain important to connect the smallholder farmers with functioning markets and to support them in the commercialization of their products. Here, the FBAs could contribute even more of their expertise to the smallholder farmers. Microfinance institutes are supporting smallholder farmers with attractive conditions and help them to create buying power. Awareness, Availability, Affordability and Acceptability of the drip irrigation products are achieved by

demonstration farms, educated Farming Business Advisors, locally accepted dealers, fair and affordable prices and motivated customers from the middle of the pyramid who also raise the awareness and the acceptability of the drip irrigation products. Collaborations with partners from both the private and the public sector also have promotional effects.

Finally, the third research question addressed the viability of iDE Burkina Faso's supply chain. One of the most crucial parts of iDE BF's business model are the Farming Business Advisors. Currently, their salary is paid by SDC funds. However, iDE's goal is to make them independent and self-employed entrepreneurs. The analysis of their current cost structure and interviews with them showed, that they will not be independent without including other products into their product portfolio. Other measures, which may help to lead to the sustainability of the last mile distribution, include: changing the margins, increasing the promotional activities, increasing the price of the drip irrigation kits or selling the after-sales service. For all these steps, it may be necessary to conduct further studies to test the true market demand for other products and to determine the willingness to pay for the installation and the after-sales service.

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## VI. Appendix

### A) List of Interviews

#### FBA:

Name of FBA	Date	Region
Yaro Batikiré	01.04.2014	Kadiogo
Bazié Pascal	07.04.2014	Boulkiemdé
Kaboré Arouna	09.04.2014	Boulkiemdé
Bationo Lucien	14.04.2014	Sanguié
Bassolé Bazonma	15.04.2014	Sanguié
Toé Jacques	28.04.2014	Kadiogo
Yabré Roger	29.04.2014	Kadiogo

#### Retailers:

Name of retailer	Date	Region
Tiendrebogo Xavier	01.04.2014	Kadiogo
Konkobo Honoré	09.04.2014	Boulkiemdé
Baky Alphonse	16.04.2014	Sanguié
Yaogo Guy-Arsène	30.04.2014	Kadiogo

#### Clients:

Name of client/organization	Date	Region
Komi Balguissa	01.04.2014	Kadiogo
Soeurs de St Joseph D'Aoste	08.04.2014	Boulkiemdé
Kaboré Hermann	08.04.2014	Sanguié
Kaboré Titi josias	08.04.2014	Boulkiemdé
Yameogo-Simpore Esther	09.04.2014	Boulkiemdé
Zagré Hilaire	09.04.2014	Boulkiemdé
Zongo Yabré	09.04.2014	Boulkiemdé
Kogambéga Souleymane	10.04.2014	Boulkiemdé
Groupement Song-y-Koada	10.04.2014	Boulkiemdé
Babiné Prosper	11.04.2014	Boulkiemdé
Traoré Marie	11.04.2014	Boulkiemdé
N'Do Olivier	11.04.2014	Boulkiemdé
Bado Nicolas	14.04.2014	Sanguié
Badiel Bali	14.04.2014	Sanguié
Bakyono Maurice	14.04.2014	Sanguié
Kanki Ezona	15.04.2014	Sanguié
Bassono Baloua	15.04.2014	Sanguié
Bazié Saint-Bernard	15.04.2014	Sanguié
Bayala-Bali Jean Bernard	15.04.2014	Sanguié

Bationo Boubié	16.04.2014	Sanguié
Bado Koulma	16.04.2014	Sanguié
Bassolé Boubié	16.04.2014	Sanguié
Bamoné Foussini	16.04.2014	Sanguié
Bado Pema Jacob	16.04.2014	Sanguié
Bado Evariste	18.04.2014	Sanguié
N'Do Appollinaire	18.04.2014	Sanguié
Bationo Benoit	18.04.2014	Sanguié
Zango Rasmane	28.04.2014	Kadiogo
Oudraogo Omar	28.04.2014	Sissli
Dipama Joseph	29.04.2014	Kadiogo
Nikiema Eric	29.04.2014	Kadiogo
Ouedraogo Issa	29.04.2014	Kadiogo
Dakuyo Lili	30.04.2014	Kadiogo
Lamizana Issa	30.04.2014	Oubritenga
Sawadogo Paul	30.04.2014	Ourgou-Manega
Laugué Malmadou	30.04.2014	Kadiogo

## B) Questions FBA

## 1. DONNEES INTERVIEW

1.1	NOM DE L'ENQUETEUR	
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1.2	DATE DE L'INTERVIEW										
		J	J		M	M		A	A	A	A

1.3	REGION	
1.4	PROVINCE	
1.5	COMMUNE	
1.6	VILLAGE	

## 2. DONNEES CBA

2.1	NOM	
2.2	PRENOM	

2.3	GENRE	Homme	
		Femme	

2.4	Depuis quand est-ce que vous travaillez avec IDE ?	
-----	--	--

## 3. KITS GAG

3.1	Combien de clients est-ce que vous avez ?	
-----	---	--

3.2	Combien de kits est-ce que vous avez vendus (total) ?		Quantité
		1000 m2	
		500 m2	
		200 m2	
		100 m2	
		50 m2	
	20 m2		

3.3	Combien de kits est-ce que vous vendez par mois (environ) ?		Quantité
		1000 m2	
		500 m2	
		200 m2	
		100 m2	
		50 m2	
		20 m2	

3.4	Combien de kits avez- vous vendu en mois du mars 2014 ?		Quantité
		1000 m2	
		500 m2	
		200 m2	
		100 m2	
		50 m2	
		20 m2	

#### 4. Promotion

4.1	Combien de fois par mois vous faites de visites commentées sur les sites démonstrations ?	
-----	---	--

4.2	Combien de temps (heures) est-ce que vous nécessitez pour une visite commentée ?	
-----	--	--

4.3	Combien de visiteurs vous avez eu sur votre site ?	
-----	--	--

4.4	Combien de fois vous passez au site de démonstration ? (Par semaine)	
-----	--	--

4.5	Quels autres types de promotion vous faites ?	
-----	---	--

#### 5. Installation

5.1	Combien de fois par mois est-ce que vous installez le système pour un nouveau client ?			
5.2	Combien de jours passent en moyenne entre l'achat de GAG et l'installation ?			
5.3	Combien de temps (heures) est-ce que vous nécessitez pour la préparation du sol (creuser)?	KIT	Temps (h) (terrain mou)	Temps (h) (terrain dur)
		1000 m2		
		500 m2		
		200 m2		
		100 m2		
		50 m2		
5.4	Combien de temps (heures) est-ce que vous nécessitez pour la mise en place de kits ?	KIT	Temps (h)	
		1000 m2		
		500 m2		
		200 m2		
		100 m2		
		50 m2		
20 m2				
5.5	Combien de déplacements par installation ?			
5.6	Combien de clients (en moyenne) sont disponibles et contribuent à l'installation ?	100%	>50%	<50%
5.7	Problèmes avec l'installation?			

## 6. Le Service après-vente

6.1	Combien de temps est-ce que vous nécessitez pour le service après-vente ?		Fois/client	Heures
		Réparation		
		Consultation agricole		
		Commercialisation		
		Autres services (spécifiez)		

6.2	Problèmes avec le service après-vente?	
-----	--	--

6.3	Comment est la relation avec les clients ? Problèmes ?	
-----	--	--

### 7. Agenda/Divers

7.1	Comment est votre agenda de travail typique ?	Matin :	
		Après-midi :	

7.2	Comment est la relation avec les commerçants ? Problèmes ?	
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7.3	Comment est la relation avec le bureau de iDE ? Problèmes ?	
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7.4	Autres commentaires ?	
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*– FIN DE L'INTERVIEW –*

## C) Questions Retailers

## 1. DONNEES INTERVIEW

1.1	NOM DE L'ENQUETEUR	
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1.2	DATE DE L'INTERVIEW										
		J	J		M	M		A	A	A	A

1.3	REGION	
1.4	PROVINCE	
1.5	COMMUNE	
1.6	VILLAGE	

## 2. DONNEES COMMERCANTS

2.1	NOM	
2.2	PRENOM	

2.3	GENRE	Homme	
		Femme	

2.4	Depuis quand est-ce que vous travaillez avec IDE ?	
-----	--	--

## 3. KITS vendus

3.1	Combien de clients ont acheté GAG kits?	
-----	---	--

3.2	Combien de kits GAG est-ce que vous avez vendu ?		Quantité
		1000 m2	
		500 m2	
		200 m2	
		100 m2	
		50 m2	
	20 m2		

3.3	Quelle part de votre chiffre d'affaires est constituée par les kits GAG d'IDE ?	
-----	---	--

3.4	Quels autres produits est-ce que vous vendez ?	
-----	--	--

3.5	Est-ce que vous vendez autre système d'irrigation ?	Oui (spécifier) :	
		Non	

3.6	Quel est le part de GAG-kits de tous vos systèmes d'irrigation vendus? (en %)	
-----	---	--

#### 4. Les clients

4.1	Comment est-ce que vous faites la promotion pour les kits d'irrigation ?	
-----	--	--

4.2	Combien de temps (heures/semaines) est-ce que vous mettez pour la promotion de kits GAG ?	
-----	---	--

4.3	Est-ce que les clients viennent vers vous ou vous allez vers les clients ?	Commerçant → client	Client (via CBA) → commerçant
		Fois (en%) :	Fois (en%) :

4.4	Est-ce que le client pose des questions avant l'achat ?	Oui	Non
		% :	% :

4.5	Quelles questions ?	
-----	---------------------	--

4.6	Combien de temps moyen pour répondre aux questions (par client)?	
-----	--	--

4.7	Problèmes avec les clients ?	
-----	------------------------------	--

### 5. Le CBA

5.1	Combien de fois est-ce que vous nécessitez l'aide du CBA pour répondre aux questions des clients? (%)	
-----	---	--

5.2	Est-ce que le CBA vous aide avec des autres services ? Spécifiez	
-----	--	--

5.3	Comment est la relation avec les CBA ? Problèmes ?	
-----	--	--

### 6. Modèle de distribution

6.1	Comment est-ce que vous ramenez les kits à votre magasin ?	
-----	--	--

6.2	Combien de temps vous mettez pour ramener le kit de la gare à votre magasin ?	
-----	---	--

6.3	Combien de temps vous mettez pour le versement des ventes ?	
-----	---	--

6.4	Quelles sont les difficultés ?	
-----	--------------------------------	--

6.5	Comment est votre agenda typique ?	Matin	
		Après-midi	

6.6	Comment est la relation avec iDE ? Problèmes ?	
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7.1	Autres commentaires ?	
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*- FIN DE L'INTERVIEW -*

## D) Questions Clients

## 1. DONNEES INTERVIEW

1.1	NOM DE L'ENQUETEUR	
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1.2	DATE DE L'INTERVIEW										
		J	J		M	M		A	A	A	A

1.3	REGION	
1.4	PROVINCE	
1.5	COMMUNE	
1.6	VILLAGE	

## 2. DONNEES CLIENT

2.1	NOM	
2.2	PRENOM	

2.3	GENRE	Homme	
		Femme	

2.4	Quelle est votre activité principale?	
-----	---------------------------------------	--

## 3. Irrigation

3.1	Taille superficie irriguée	totale	
		GAG	

3.2	Taille de KIT en m2		Quantité
		1000	
		500	
		200	
		100	
		50	
	20		

3.3	Méthode d'irrigation antérieure	
-----	---------------------------------	--

3.4	Quelle technique d'exhaure utilisez-	Seau, puisette, etc.	
-----	--------------------------------------	----------------------	--

	vous ?	Pompe pédales	
		Motopompe	
		Pompe solaire	
		Autres (spécifier)	

3.5	Quel type de réservoir ?		
-----	--------------------------	--	--

3.6	Comment avez-vous acheté la technologie d'IDE ?	Projet	
		Fonds propres	
		Crédit	
		Cadeau	
		Autres	

3.7	Problèmes avec le système GAG ?		
-----	---------------------------------	--	--

3.8	Pourquoi avez-vous acheté le kit ?	
-----	------------------------------------	--

3.9	Quels sont les bénéfices immédiats par le Goutte-à-Goutte ?	
-----	---	--

3.10	Quels sont les bénéfices à long terme ?	
------	---	--

#### 4. Temps et argent gagné par l'irrigation GAG

4.1	Temps pour remplir réservoir et arrosage avec l'irrigation antérieur	Superficie (m2)	Temps (min/jour)

4.2	Temps pour remplir réservoir et d'arrosage avec le GAG	Taille de kit (m2)	Temps (min/jour)
		1000	
		500	

		200	
		100	
		50	
		20	

4.3	Temps pour entretenir les plantes avec le système antérieur ? (désherbages, etc.)	Superficie (m2)	Temps (heure/jour)

4.4	Temps pour entretenir les plantes avec GAG ?	Taille de kit (m2)	Temps (heure/jour, fois/semaine)
		1000	
		500	
		200	
		100	
		50	

4.5	Temps gagné avec le GAG en total (h/jours)	
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4.6	Activités avec le temps gagné	
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### 5. Commercialisation

5.1	Est-ce que vous vendez les produits ?	Consommation	
		Consommation + Vente	
		Vente	

5.2	Avez-vous augmenté votre revenu avec le GAG ? Combien ?	
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5.3	Qu'est ce vous faites avec l'argent gagné ?	
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5.4	Problèmes avec la commercialisation ?	
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## 6. Les CBA

6.1	Combien de déplacements par installation de CBA ?	
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6.2	Est-ce que vous étiez disponible et a contribué à l'installation ?	
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6.3	Combien de jours passaient entre l'achat de kit e l'installation ?	
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6.4	Combien de visites avez-vous reçu du CBA en total ?	
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6.5	Quels services le CBA a offert?	Type de service			Fois
		Installation	Oui	Non	
		Réparation de kits	Oui	Non	
		Consultation agricole	Oui	Non	
		Commercialisation:	Oui	Non	

6.6	Etes-vous satisfait de la qualité des services et des conseils offerts par le CBA ?	Très satisfait		1
		Assez satisfait		2
		Neutre		3
		Un peu insatisfait		4
		Très insatisfait		5
	Spécifiez pourquoi			

6.7	Voudriez-vous payer pour les conseils du CBA à long terme? Pourquoi ?	
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## 7. Le commerçant

7.1	Comment avez-vous connu iDE et les systèmes GAG d'iDEAL ?	Opérateur économique (commerçants)	
		CBA	
		Siège iDE	
		Campagne publicitaire	
		Amis/famille	
		Projet (ONG)	
		Autres :	

7.2	Où avez-vous acheté le kit ?	Client → Commerçant	Commerçant → Client	CBA → Client	Client → CBA
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7.3	Etes-vous satisfait de la qualité des services et des conseils offerts par le commerçant ?	Très satisfait		1
		Assez satisfait		2
		Neutre		3
		Un peu insatisfait		4
		Très insatisfait		5
	Spécifiez pourquoi			

7.4	Autres Commentaires	
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- FIN DE L'INTERVIEW -

## E) Report Draft



## Les CBA de Boulkiemdé et Sanguié

Le présent rapport contient une analyse du travail des conseillers business agricole (CBA), une analyse de leur capacité de devenir autonome, de l'agenda de leur travail quotidien et du besoin d'avoir un agent de bureau à Koudougou. J'ai accompagné les quatre CBA Pascal Bazié, Arouna Kaboré, Lucien Bationo et Bazonma Bassolé pendant deux semaines (avril 7 – avril 18) pour consulter des anciens et de nouveaux clients.

### 1. La qualité des CBA

Tous les clients (29) avec lesquels j'ai parlé étaient satisfaits ou très satisfaits de la qualité des conseils des CBA. Selon les clients, les CBA les ont aidés avec la préparation du sol, l'installation des kits et ont donné des conseils sur l'entretien du kit, l'engrais, sur les pesticides et aussi sur la conservation des produits. Tous les clients n'ont pas reçu des conseils sur la commercialisation des produits. Un client a dit qu'il avait eu une mévente l'année passée, car les prix étaient trop bas. Il a dit qu'il espérait que les CBA vont lui donner plus de conseils sur la commercialisation à l'avenir.

Pendant les deux semaines que j'ai accompagné les CBA, ils ont rencontré des nouveaux clients, installé des kits, donné des conseils après-vente aux anciens clients et se sont occupés de leurs sites de démonstration. Ils étaient toujours très professionnels vis-à-vis les clients. Beaucoup des clients m'ont dit qu'ils appréciaient le service après-vente et qu'ils pouvaient appeler les CBA tout le temps s'ils ont une question. Un autre aspect très positif est que les CBA ont réussi à convaincre un nombre de jardiniers qui avaient des doutes sur la technologie Goutte-à-Goutte.

Un grand problème que j'ai observé parfois, était les malentendus entre les nouveaux clients et les CBA. Une fois, nous voulions rencontrer un client pour la préparation de son terrain avant d'installer les kits. On est arrivé sur le terrain, mais le client n'était pas préparé pour la rencontre. Il était en retard de plus de 45 minutes et il n'avait pas les outils et la main d'œuvre nécessaires pour la préparation du terrain. Je ne suis pas sûr si les CBA avaient communiqué de manière suffisamment claire au client qu'il devait les assister pendant la préparation du sol. Le client m'a dit qu'il ne savait pas qu'il devait contribuer à l'installation. En tout cas, le CBA était très professionnel et il a organisé une nouvelle rencontre avec le client, même un samedi soir.

Une autre fois, on roulait plus de 40 kilomètres en moto vers un ancien client à Thyou pour une enquête. Quand nous sommes arrivés le client n'était pas disponible car il était dans une réunion avec le maire du village. Le CBA m'a dit, qu'il avait

informé le client plusieurs fois que nous voulions le voir. Peut-être le CBA n'était pas suffisamment clair concernant le temps du rencontre.

Ces malentendus sont très mauvais pour le travail des CBA car ils perdent du temps précieux. Je pense que si les CBA donnaient des informations plus claires aux clients, ils éviteront les malentendus et gagneront du temps. Spécialement dans la province Boulkiemdé où quelques clients habitent très loin de Koudougou (parfois plus de 50 km), une matinée entière peut être perdue si le client n'est pas prêt pour l'installation. Avant une nouvelle installation (ou avant la préparation du terrain ou même le service après-vente) il faut que les CBA insistent que les clients soient disponibles et que la main d'œuvre et les outils nécessaires soient mis en place.

En résumé, la qualité du travail des CBA est très bonne. Les clients sont contents du service offert par les CBA. Les CBA passent souvent et régulièrement au marché ou aux villages pour faire la promotion et pour chercher des nouveaux clients. En plus, ils passent presque tous les jours aux sites de démonstration pour les entretenir.

La seule faiblesse que j'ai observée est la communication entre les nouveaux clients et les CBA.

## **2. Le chemin vers l'autonomie**

Afin de fonctionner de manière autonome, les CBA doivent en premier lieu vendre au moins 10 kits de 500m<sup>2</sup> par mois pour gagner avec les marges de 13% l'équivalent de leurs salaires actuels. En mois de mars, les deux CBA du Boulkiemdé ont vendu 20 kits ensemble ; chaque CBA 10 kits de 500m<sup>2</sup>. En avril, ils ont déjà trouvé des nouveaux clients qui souhaitent acheter encore une vingtaine de kits de 500 m<sup>2</sup>. Je pense que spécialement à Boulkiemdé où il y a beaucoup d'associations et de groupements, le but de vendre 10 kits par mois par CBA est bientôt réalisable. A Sanguié, un CBA a vendu 8 kits en mars et un autre CBA seulement 2 kits. Il faut noter qu'actuellement beaucoup de paysans souffrent d'un manque d'eau et beaucoup de producteurs veulent attendre la période pluvieuse avant d'acheter un kit Goutte-à-Goutte. Les CBA cherchent des nouveaux clients chaque jour ; aux marchés locaux, dans les villages ou sur leurs sites de démonstration. En plus, la promotion « bouche-à-oreille » marche très bien. Tous les clients que j'ai interviewés ont reçu des visites de producteurs et voisins intéressés au système goutte-à-goutte. Le Polytank et les réservoirs d'IDE se remarquent dans les jardins.

Le second moyen pour devenir autonome est la vente de nouveaux produits comme le « frigo de désert », des engrais ou des semences. Beaucoup de nouveaux produits d'IDE sont maintenant dans la phase de teste et je pense qu'à l'avenir les CBA peuvent les vendre avec une marge.

Le troisième facteur pour devenir autonome est la volonté des clients de payer les conseils agricoles des CBA (service après-vente). La plupart des clients ont dit qu'au moment ils ne peuvent pas payer les conseils des CBA, mais quand ils vont gagner assez d'argent avec la vente de leurs produits, ils les payeront. Une minorité des clients a dit qu'ils ne veulent jamais payer pour les conseils, seulement « un petit cadeau ». Je pense que si les clients ont du succès avec le Goutte à Goutte, ils vont aussi payer pour les conseils. Ça peut prendre encore un ou deux ans, vu que c'est toujours la phase initiale de Goutte à Goutte pour beaucoup des clients.

Les CBA eux-mêmes sont très motivés et ils croient qu'ils peuvent être autonomes à l'avenir. Quelques clients m'ont dit qu'on voyait que les CBA aiment leur travail. En résumé, je crois que les CBA seront capables de devenir autonomes, si les clients payent vraiment les conseils agricoles.

### **3. L'agenda de leur travail**

Le chef d'antenne Bazie Pascal passe chaque matin au bureau avant d'aller sur le terrain. Il m'a dit qu'il restait au bureau de 7.30 jusqu'à 10 heures pour s'occuper de l'administration, des rencontres avec des visiteurs ou avec les autres CBA. Il est responsable du « cahier des visites » et de l'organisation de sa site de démonstration. Il aide aussi les autres CBA s'ils ont des problèmes avec leurs sites de démonstration. A 10 heures, il part sur le terrain pour s'occuper de son site, faire le marketing, donner des conseils après-vente ou installer des nouveaux kits. Normalement, il reste sur le terrain jusqu'à 17 heures. Puis, il rentre au bureau pour écrire son rapport.

Les autres CBA m'ont dit qu'ils ne passaient pas souvent au bureau. Une fois par mois, tous les CBA font le rapport mensuel. En plus, 2 ou 3 fois par mois ils donnent des informations sur des nouveaux clients ou la situation de leurs sites de démonstrations au chef d'antenne. Les CBA passent aussi au bureau, s'il y a un rencontre avec un client ou un visiteur à Koudougou. Mais normalement, ils rencontrent les clients sur le terrain ou sur les marchés de Réo ou Tenado.

Kaboré commence sa journée souvent très tôt, car il a beaucoup de clients qui vivent loin de Koudougou. Parfois, il part déjà à 6 heures à la rencontre de ses clients ou vers son site. Les autres commencent normalement entre 7 et 8 heures. Ils visitent les marchés de Réo et Tenado pour faire de la promotion, des visites des clients pour donner des conseils et s'occupent de leurs sites ou installent un nouveau kit. Pour faire la promotion, ils amènent toujours des photos de leurs sites et des brochures d'IDE qu'ils montrent aux producteurs.

Normalement, les CBA finissent la journée entre 17 et 18 heures. Ça dépend des besoins des clients. J'ai observé que les CBA sont très flexibles et qu'ils sont aussi disponibles pendant le weekend si un client les appelle. Normalement, ils font une pause chaque jour entre 13 heures et 15 heures, quand ils se reposent au bureau ou chez leurs familles. Mais ça dépend aussi des besoins des clients ou s'il y a une grande installation sur le terrain à faire.

### **4. Un agent de bureau ?**

Tous les CBA m'ont dit qu'un agent de bureau aiderait beaucoup. Quand le chef d'antenne Pascal Bazié a des installations chez les nouveaux clients à faire, il doit quitter le bureau. Parfois, il est sur le terrain pour une journée entière. Si un visiteur passe au bureau pendant ce temps, il le trouve fermé.

Un agent de bureau pourrait remplacer M. Bazié quand il a beaucoup d'installations ou de services après-vente à faire. M. Bazié m'a dit que c'était difficile pour les autres CBA pour le remplacer, car eux aussi sont souvent sur le terrain.

## Declaration of Authorship

" I hereby declare

- that I have written this thesis without any help from others and without the use of documents and aids other than those stated above,

- that I have mentioned all used sources and that I have cited them correctly according to established academic citation rules."

Adliswil, September 19 2014

Alexander Krizan