

**Spirulina Candies:**  
**A Business Approach to Combat Malnutrition**  
**– Marketing Lessons from the Base of the Pyramid**



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## **Abstract**

It is a silent, insidious massacre that needs our full attention to stop it as fast as possible: malnutrition. If it can not be combatted within early childhood the life long negative impacts upon the individual's life are devastating leading to a negative spiral for the whole population.

Business approaches at the base of the pyramid build upon the legacy of Prahalad and bring forward sustainable solutions to improve supply channels, looking at both the supply and demand side. Together with Spirulina, a vegetable algae high in nutrients such as vitamin A and protein, ANF, a social enterprise in Madurai, India has discovered a promising strategy to alleviate malnutrition at the base of the pyramid.

This thesis has analysed the Spirulina Candy business model of ANF by the value-based business model framework. The lessons drawn from this case study analysis have been developed further and improved within the social marketing plan outlined in the second part of this thesis.

As part of this educational and awareness-creating approach, a game targeted at the children has been proposed to grasp and hold their attention, improve their knowledge about malnutrition and provide a philosophy to enable them to develop healthy attitudes towards nutrition.

## **Acknowledgements**

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## Abbreviations

### Abbreviations

ANF	Antenna Nutritech Foundation
bfu	Swiss Council for Accident Prevention
BINP	Bangladesh Integrated Nutrition Project
BSH	Bosat and Siemens Hausgeräte GmbH
CDM	Clean Development Mechanism
CNBC	Community-based nutritional
CNO	Community Nutrition Organizer
CNP	Community nutrition promoters
Eawag	Swiss Federal Institute for Environmental Science and Technology
FAO	Food and Agricultural Organization of the United Nations
FVS	Road Safety Fund
GDFL	Grameen Danone Food Ltd.
GDP	Gross Domestic Product
IDA	Iron Deficiency Anaemia
IDD	Iodine Deficiency Disorder
MDG	Millennium Development Goals
NFHS	National Family Health Survey
NGO	Non-Governmental organizations
OECD	Organization for Economic Co-operation and Development
Sandec	Water and Sanitation in Developing Countries
SHG	Self Help Group
Sodis	Solar Disinfection System
SVV	Swiss Assurance Association
SWOT	Strength, Weakness, Opportunities and Threats
UN	United Nation
USD	US Dollar
VNMC	Village Nutrition Management Committee
WHO	World Health Organization
WCED	World Commission on Environment and Development

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## 1 Outline and Scope

*“Famines lay waste to countries: bad diets cripple them silently”*

Economist, March 26<sup>th</sup>, 2011b, p. 18

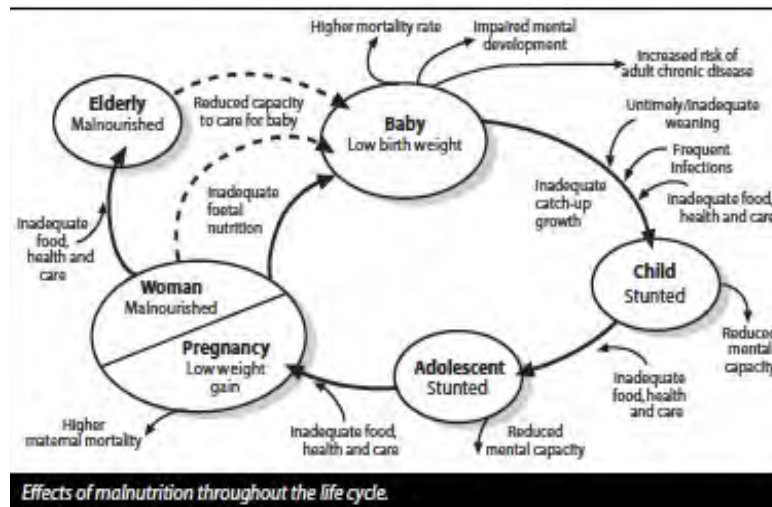
### 1.1 Problem Definition: Malnutrition is Number One Problem

Hunger is one of the most challenging problems in the world: the United Nations [UN], World bank, Organization for Economic Co-operation and Development [OECD] and several non-governmental organizations [NGO] rank it as the number one challenge on their list of the eight Millennium Development Goals [MDG] (UN, 2010). Discussions about ever growing hunger around the world, with nations facing limited resources but a growing world population, was also put under the spotlight on October 16<sup>th</sup> – the world hunger day (Imhasly, 2011). 925 Million people mainly located in the southern hemisphere suffer from hunger (FAO, 2010).

Yet despite hunger being the number one problem (according to the MDG) in terms of calorie consumption the situation around the world has improved according to Joachim von Braun of the University of Bonn (Economist, February 26<sup>th</sup>, 2011). The big question remains with nutrients, especially zinc, iron, iodine and vitamin A. Resulting illnesses of micronutrient deficiencies of iodine and vitamin A lead to stunting and anaemia. In India, 44.9 % of children aged under three suffer from a reduced growth rate. The rate of anaemic children even increased from 74.2 % in 1998/99 to 78.9% in 2005/06 on the national level (NFHS, 2007a). This increase is also true for the state of Tamil Nadu in India (NFHS, 2007b). Among women however, Tamil Nadu faces a small decrease, although on a national level the anaemic prevalence among women has increased.. Further consequences of lack in micronutrients are: the mortality rate of both pregnant women and new born children increases, the mental development of surviving children is impaired and their mental capacity reduced. A child becomes also more vulnerable to infections due to micronutrient deficiencies. According to the World Health Organization (WHO, 2011), the early childhood is pivotal to reduce major risk factors for illnesses throughout the course of life. Lack of nutrient-rich food in this decisive stage has thus life-long negative impacts (figure 1).



Figure 1: Effects of malnutrition throughout the life span



Source: FAO (n.d.)

The Copenhagen Consensus 2008 also arrived at the conclusion that malnutrition is the number one problem. Based on cost-benefit-analysis, the Copenhagen Consensus set priorities to address the global challenges. Five of the top ten solutions are related to malnutrition. It was shown that an investment of 60 million US Dollars a year in micronutrient provision could yield benefits worth of 1 billion US Dollars in terms of improved health, lower mortality and increased income opportunities (Copenhagen Consensus, 2008).

## 1.2 Focus Case: Spirulina and Behaviour Change to Fight Malnutrition

A challenge paper of the Copenhagen Consensus proposed behaviour change as a cost-effective tool to improve nutrition. Households at the base of the pyramid<sup>1</sup> may not be able to buy more food, yet they are able to change the way the food is allocated among the family members, or the type of food or method of preparation in order to increase the nutritional value of the diet (Horton, Alderman & Rivera, 2008).

Another strategy to enhance the nutritional value of the diet is Spirulina. This spiral shaped algae is a rich source of protein and vitamin A – both of these nutrients are lacking in the daily diet at the base of the pyramid as most of the protein sources are not affordable for them. Spirulina in contrast is an inexpensive protein source but it is not widely known. Antenna Nutritech Foundation [ANF], a social enterprise in Madurai, India, produces and

<sup>1</sup> Base of the pyramid is a terminology introduced by C.K. Prahalad and refers to the lowest income group of the world living below the poverty line. Chapter 2.1 presents this in more depth.

## Outline and Scope

distributes Spirulina products and enhances its popularity to combat malnutrition. Even more promisingly ANF has established decentralised production units and organised part of the distribution as a business opportunity for rural women.

### **1.3 Aim of the Thesis: Social Marketing Campaign to Combat Malnutrition**

Triggering behaviour change and Spirulina are promising tools to alleviate malnutrition. However intervening only on the supply side and distributing Spirulina for free will not have sustainable effects as the appreciation and awareness will often be very low. On the other hand, combating malnutrition with a business approach will reach a larger number of beneficiaries resulting from performing and profitable supply channels, constituting meanwhile a business opportunity for the base of the pyramid. Combining this with demand-side interventions such as social marketing, builds a sustainable and successful strategy to combat malnutrition (Heierli, 2008).

This thesis builds upon the already existing business approach of ANF, alleviating malnutrition with Spirulina and decentralised production and distribution units. The aim is to contribute to combat malnutrition at the base of the pyramid by improving the business model and marketing of ANF's Spirulina Candies. The goals of the thesis are:

- Summarising the theoretical backgrounds of business approaches in the realm of the base of the pyramid, presenting the characteristics of the base of the pyramid and to present and to summarise the theoretical background of two tools, business models and social marketing (Part I – Theoretical Basis)
- To analyse the case study of ANF and to develop suggestions aimed at improving the business model and the marketing campaign of ANF by proposing a new campaign strategy and instrument (Part II – Analysis)

To attain these goals the author combines theoretical concepts and practical experience. Theoretical bases are derived from international literature discussing business approaches in the realm of the base of the pyramid and social marketing. This examination is enriched with examples derived from interviews or from literature to learn more about applying the theories, which is important for the second part of this thesis. The analytical part builds upon the authors four months stay in Tamil Nadu, India and her experiences gathered during her internship within ANF.

## Part I – Theoretical Basis

**2 Business Models in the Realm of the Base of the Pyramid**

This chapter departs with a historical examination and presents the evolution of the business approach in the realm of the base of the pyramid. Characteristics of the people living at the base of the pyramid are presented within the second part based upon both the literature and the authors experience. Consequently, the business model ties in with the base of the pyramid approach and is in a first step theoretically explained. A second step illustrates the business model tool. This chapter closes with a short resume.

**2.1 Legacy of Prahalad: There is a Market at the Base of the Pyramid**

*“Much like the proverbial iceberg with only its tip in plain view, this huge segment of the global population – along with its massive potential market – has remained largely invisible to the corporate sector.”*

Hart, 2010, p. 143

In 2004, a promising and stimulating book challenged the current role of business in the realm of development aid and poverty alleviation. Prahalad (2004) postulated that there is a fortune to be made for businesses if they would start including the base of the pyramid within the economic cycle and consider them as consumers. This thinking implies a shift within the hitherto accepted view of the world's poor. No longer should they be seen as pitiful victims – but be treated as consumers and producers, be seen as integral parts of the supply chain (Pitta, Guesalaga & Marshall, 2008; Simanis & Hart, 2008<sup>2</sup>). Yet this demands a shift of thinking within enterprises as well. Conventional products, services or business models cannot be applied directly to the base of the pyramid (Herrndorf & Waibel, 2011). According to Weidner, Rosa and Viswanathan (2010), in order to successfully operate in the marketplace at the base of the pyramid, enterprises need to understand the unique characteristics of the consumers in this market. This will be presented in chapter 2.2 in more depth.

Of course, the promising numbers in Prahalads (2004) book – The fortune at the bottom of the pyramid - attracted numerous enterprises and organizations engaging in developing

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<sup>2</sup> Simanis and Hart (2008, p. 1) have changed the terminology of “bottom of the pyramid” to “base of the pyramid” due to the formers negative connotation.

products for the promising and newly discovered marketplace around the size of four billion people. Countless anecdotes of successful base of the pyramid approaches now fill business journals and encourage even more enterprises. One of many examples is the reduction of the price of the products by offering small packages. Yet, some critics quickly challenged Prahalads innovative thinking, questioning the success of the many anecdotes and enhanced his theory with scrutinizing and critically inputs.

The perceived untapped purchasing power is overestimated and rarely translates into profits for enterprises. Furthermore, the single-serve revolution is ineffective and its claim to make products affordable by creating small packages leaves out the negative impacts on the environment. However it does increase convenience and helps in managing cash flow for the poor, who have only little money to spend per day and no savings to draw from resulting from their low and unpredictable income. Karnani (2007) further criticizes the radical application of the free market ideology within Prahalads work. According to Karnani (2007), Prahalad considers the poor as rational and well-informed individuals, and thus attributes them the right to decide how they spend their income, and claims they know best how to maximize their needs. Contrarily in Karnani's view (2007), the poor are constrained by several limitations, such as income, education, information and by economic, social and cultural deprivation and thus should not be romanticised as value-conscious consumers. Rather, they are vulnerable and their preferences are malleable and shaped by their cultural background and experience. The Economist (February 26<sup>th</sup>, 2011, p. 15) accurately quotes George Orwell's "Road to Wigan Pier" on the British working class, which could be seen as a parallel to Karnani's understanding of the base of the pyramid customer:

*"The basis of their diet is white bread and margarine, corned beef, sugared tea, and potatoes – an appalling diet. Would it not be better if they spent more money on wholesome things like oranges and wholemeal bread (...)? Yes it would, but the point is, no ordinary human being is ever going to do such a thing. (...) And the peculiar evil is this, that the less money you have, the less inclined you feel to spend it on wholesome food. A millionaire may enjoy breakfasting off orange juice and Ryvita biscuits; an unemployed man doesn't."*

Hence, the base of the pyramid concept goes further than only offering products to the

poor – cultural and social changes are needed in order to eliminate the causes of deprivation of the poor (Karnani, 2007). For this, contrarily to Prahalad (2006), Karnani (2007) commends private companies, motivated by social responsibility and not profit, to create ways to increase the real income of the poor. Habib and Zurawicki (2010) follow this yet accept the profit motivation of enterprises too: “business motive must be combined with the corporate social responsibility motive” (2010, p. 24) “no one sector can go it alone” (2010, p. 31). Meanwhile they also take up the issue of sustainability and put forward another condition businesses have to consider when acting in the realm of the base of the pyramid. Therefore, according to the definition of sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987, 43), resources have to be preserved for future generations, resulting in short-run socio-economic adjustments (Habib & Zurawicki, 2010). A firm focusing on existing resources and the possibilities in subsistence marketplaces rather than considering the limitations is more successful in poverty alleviation (Elaydi & Harrison, 2010). This mindset enables a firm to think innovative resulting in long term success (Yunus, 1999).

In conclusion, the debaters commonly base their arguments upon the widespread opinion that aid and philanthropy alone were not able to solve the problems at the base of the pyramid, and thus demand the corporate sector to take up the lead. Furthermore, although the business potential in these marketplaces is enormous, the daily resources required for survival of the population are limited. This is balanced by the abundance of resources in areas such as community and family networks. However, the clash between resources needed to survive and the need to preserve them to maintain the environment can only be resolved by shifting the base of the pyramid marketplaces into sustainable marketplaces (Viswanathan & Rosa, 2010).

Yet the debate about the firms motivation and aim in engaging and targeting the base of the pyramid marketplaces remains. Furthermore, the value creation of an enterprise in these markets can be defined either in monetary terms, or public welfare units or in a combination of the two (cf. Dahan et al, 2010). Business models focus exactly on value creation within different contexts and looks more closely on the variety and depth of value businesses create. The context of economical opportunities in threshold countries (Bieger & Reinhold, 2011) is of special interest for this thesis and is thus examined in chapter 2.3

and brings more light into this debate.

## 2.2 Characteristics of the Base of the Pyramid

*“To break out of the vicious cycle of poverty firms must think beyond their own limitations and the limitations of the environment they operate in”*

Elaydi & Harrison, 2010, p. 654

This section addresses issues which improve the understanding of the limitations at the base of the pyramid, and illustrates the needs and characteristics of the people involved<sup>3</sup>. Without thoroughly understanding these characteristics, engaging in the realm of the base of the pyramid becomes even more difficult and the efforts rarely translate into successes (Weidner, Rosa & Viswanathan, 2010).

Limited infrastructure is one common shared characteristic at the base of the pyramid. Most of the people live in remote and subsistent areas, hard to reach due to lack of adequate roads and poor public transportation. Limited infrastructure however also includes lack of water resources, sanitation services, power supplies, financial services and basic health care (World Resources Institute, 2007). Consequently, these infrastructures have to be developed based on the local resources and by engaging the poor directly in order to create a steady income, and to meet the long-term needs of the community in terms of sustainability (Habib & Zurawicki, 2010).

The constraints at the base of the pyramid create a burden on the environment by trade off decisions of the consumers between short and long term use of resources (Hart, 2005). Only a sustainable strategy at base of the pyramid (Hahn, 2009) overcomes this and meets the environmental challenges. Chapter 2.1 has already taken up the issue of sustainability at the base of the pyramid.

In addition, there is a strong emphasis on one to one interaction and the social network system. Economic and social relationships of the agents in the marketplace are combined and create interdependency among them. Hence group influence and word of mouth communication share an increased role and can be very effective (Viswanathan, 2007).

In terms of money, as per definition of the base of the pyramid, the people live on less than

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<sup>3</sup> Of course, this section is not exhaustive, and according to the different countries and culture where the base of the pyramid is placed, these characteristics can differ. However, some generalisation of similar issues can be made.

two dollar a day<sup>4</sup>. Furthermore, most of their income is spent on daily necessities such as food and clothing (Viswanathan, 2007). However, although the poor clearly face constraints in terms of liquidity, it should be borne in mind that they also share additional resources, such as different assets and investments in the realm of their social system. Findings of interviews with different women of Self Help Groups (SHGs) in Tamil Nadu (Appendix I) suggest the families possess assets, such as goats, cows or money given to family members because of a social event (birthday, hair cutting or other cultural rites). The latter asset has to be considered as an investment, translating into cash at the next occasion of a family celebration. Figure 2 presents the average amount of money a family earns monthly based on the interviews (Appendix I).

Additionally, these interviews have also indicated the existence of the so called informal sector existing in the base of the pyramid market places. According to De Soto (2000), this sector makes up over half of the economic activities in the developing world. In addition to the purchasing power of money, the hidden economic system meanwhile includes barter, a community of small enterprises, subsistent farmers and sustainable livelihood activities (London & Hart, 2004).

Habib and Zurawicki (2010) also discriminate between the consumers thinking on consumption. The western thinking focuses on creating new needs whereas the base of the pyramid prioritises the satisfaction of essential needs. Therefore usefulness and affordability are important criteria of the products as well as an educative approach in delivering them. Satisfaction of needs is thus not only met by a material product, but with the whole value chain, or services of the product. The different elements of a product are highlighted and explained within chapter three social marketing.

Finally another characteristic has to be considered. The vulnerability of the people at the base of the pyramid is often translated into health-related issues and are closely linked to their poverty status. Shekar and Lee (2006) examined the relationship between malnutrition and economic growth and established that it is bidirectional. Haddad (2002) and Baudoury and Sabbib (2006) focused more on the aspects of micronutrient

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4 Alas, there is some difficulty in measuring poverty in general (Karnani, 2007). Prahalad and Hart (2002, p. 3) claim that around 4 billion people earn less than 1500 USD a year (=4 USD a day) and a quarter of these 4 billion people earn less than 1 USD a day. Contrarily, Karnani (2006) uses the 2 USD a day threshold, which consists of 2,7 billion consumers. The author presents the income of a typical family in Tamil Nadu based on the interviews of appendix I within figure 2.

deficiencies and their impact on the GDP. ANF's business focus lies exactly in the combat of malnutrition and will be presented in more depth within chapter 4.1.

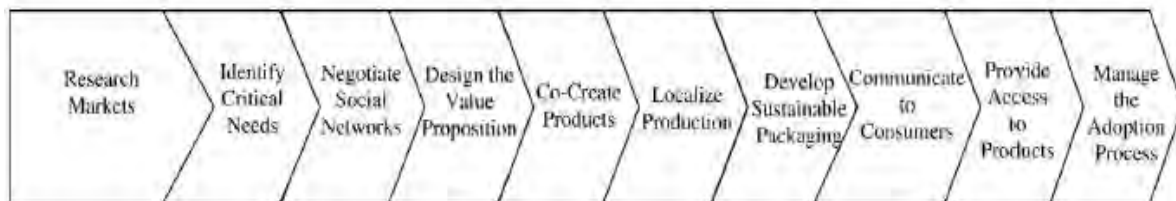
*Figure 2: Representative woman at the base of the pyramid*



*Source: own illustration, photograph taken by author in June 2011*

In order to increase the reader's understanding of the living conditions at the base of the pyramid, figure four presents a representative character based on the interviews (Appendix I). Learning about the constraints that the poor face, but from their point of view, introduces successful business strategies and a significantly better life for the people living at the base of the pyramid (Hart, 2005). To understand the subsistent consumers fully and to address them successfully, Weidner et al. (2010) bring forth the process chain depicted in figure 3. The second step within this process has already been “identified” resulting from the topic of this thesis: combating malnutrition. Social Marketing, a more specific part of marketing, puts further emphasis on behavioural influence and social gain by addressing social problems (Kotler, Roberto & Lee, 2002). Chapter three presents the framework of social marketing and will then apply it in the second part of this thesis to address the issue of malnutrition at the base of the pyramid.



*Figure 3: Marketing to subsistence consumers*

Source: Weidner et al. (2010), p. 562

### 2.3 Value-based Business Model applied at the Base of the Pyramid

Business models are commonly used in managerial practices and research mainly for three reasons – to analyse, to plan and to communicate (Bieger & Reinhold, 2011). In addition, business modelling is a common tool to describe the mode of operation of an enterprise and is often used within annual reports or strategy papers. Thus, the definitions are numerous and different business model approaches are used depending upon the particular sector and type of organisation.

Business models in the realm of threshold countries and the base of the pyramid approach of Prahalad look mainly at their monetary value creation and their contribution to public welfare (cf. Dahan et al. 2010). Yet, Yunus, Moingeon and Lehmann-Ortega (2010) differentiate their social business model approach clearly from the “(...) 'bottom-of-the-pyramid' strategies, where multinational companies merely seek financial profits, and social profits are only a by-product of economic profit” (p. 323, footnote 5).

Social businesses position themselves between profit-maximizing businesses and non-profit making organisations. From the former, it borrows the self-sustainability axiom, aiming to repay the invested capital. From the latter, the social business model takes the social profit maximization, and its primary purpose to serve the poor and improve their lives (Yunus et al. 2010). Furthermore, Yunus et al. (2010) introduce three adjustments necessary to switch from the traditional business model to a social business model. Firstly the value proposition and value constellation have to be expanded to all the targeted and specified stakeholders, not only the customers. Secondly, a social profit equation is defined, compromising the desired social profits. Thirdly the economic profit equation works differently. Full recovery of capital is the name of the game rather than maximisation of financial profit.

Spremann, Hoffmann and Frick (2011) use the value-based business model of Bieger and Reinhold (2011)<sup>5</sup> and see it as an extension to Prahalad's framework and are not concerned that financial profits are weighted higher than social profits. In fact, Spremann et al. (2011) focus on Prahalad's suggestion to help the poor to get profitable work in order to improve the paying capabilities at the base of the pyramid allowing them to meet their new preferences for world-class products and services. However, Spremann et al. (2011) see the contribution of the private sector in the economic allocation as limited and argue that, revenues from a third party could also be from a source other than the private sector. Bosat and Siemens Hausgeräte GmbH [BSH] uses state-of-the-art technology and has a strong brand image, as Prahalad demands in the realm of the base of the pyramid (Prahalad, 2004). However, BSH did not consider creating income-generating possibility. Based on the precondition that the products offered at the base of the pyramid are generally improving the quality of life for the poor, side effects are created instead. Thus, the poorest are offering something else besides money to purchase the product: value resulting from the recognition of the remaining population for reducing the suffering of the poor by the product offered. This value is viewed as a positive side effect and constitutes a possibility for the producer or its partner organisation to translate it into additional income. Of course this is only possible if the product offered is not of a consumptive or entertaining nature, but has positive effects for the poor that are also perceived by the upper pyramid as such. Hence, the value-based business model can be considered as an extension of Prahalad's framework (Spremann et al. 2011).

The case study of PROTOS reveals how the value-based approach to business modelling is applied within the realm of the base of the pyramid. This environment presents several challenges. Customers at the base of the pyramid expect excellent products, strong brand names and the newest technology. However, their willingness and ability to pay are below the costs of manufacture and distribution of goods produced in developed countries. A few years ago this discrepancy was overcome by the reduced quality of the products or by governmental subsidies. But neither cheap products of reduced quality, nor subsidies can contribute to a sustainable solution in alleviating poverty and improving the lives of the people at the base of the pyramid. Hence, the positive effects of base of the pyramid products create a possibility to overcome the discrepancy between paying capability and

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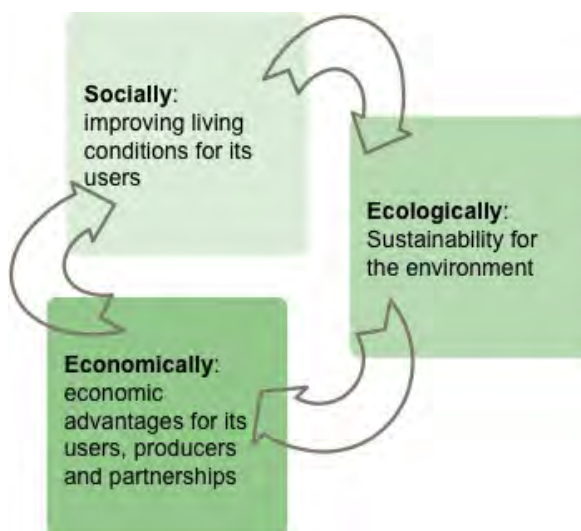
<sup>5</sup> Changes in the world, such as increased globalization and volatility of markets, led from the business model to the value-based business model (Bieger, Zu Knyphausen-Aufsess & Krys, 2011).

costs of production at the base of the pyramid by translating the positive externalities into profit. The value-based business model at the base of the pyramid tries to address the challenge of how to collect profit from these positive side effects and not letting them go up in smoke. In order to make use of the profits resulting from the externalities to subsidise the products at the base of the pyramid, the externalities have to be transferable because very rarely the producer can utilise them (Spremann et al. 2011).

BSH have developed a high-tech cooking utensil which addresses the issue of cooking on an open-fire. This issue has negative impacts. Firstly according to the world health organization (WHO, 2007), 1.6 million people die annually from the fatal consequences of poor indoor ventilation and air pollution. Secondly 700 kg of non-renewable fuel, are used annually per family which results in deforestation, and increases the risk of flood and mudslides. The PROTOS-Jatropha-System<sup>6</sup> uses a new combustion technology which enables the cooking utensil to use nearly all liquid combustible materials which are mainly vegetable oil from a renewable source. Pressure and heat evaporate the vegetable oil and burn the resulting gas residue-free. No indoor air pollution occurs by using the PROTOS-Jatropha-System to cook (Spremann et al. 2011).

Based on the triple bottom line, PROTOS draws profits and generates value in three aspects (figure 4).

*Figure 4: The triple bottom line of PROTOS*



*Source: own drawing based on Spremann et al. (2011), p.356*

<sup>6</sup> PROTOS is the cookers name. Jatropha is the name of the harvested vegetable oil.

The value generated within the first pillar of the triple bottom line (socially) is the improved health condition of the PROTOS users. The second pillar (ecologically) generates value by reducing the deforestation and combustion of fossil fuel and using a CO<sub>2</sub> neutral technology. Furthermore, the Jatropha plant is inedible for humans which makes it independent from the food chain and stabilizes arid and eroding earth, and can be grown organically diversified. The third pillar (economically) implies economic advantages, such as affordability for the users, lowering running costs and improving the families prestige by using a cooking machine with modern technology (Spremann et al. 2011).

The PROTOS business model is attractive to more stakeholders not just its users. The government can profit from long-term economic advantages resulting from reduced energy costs. The producers of vegetable oil can enlarge their business market because their farmer families also become users of the cooking utensil. Further, the families using the cooking utensil gain not only time but also security (Spremann et al. 2011).

But how exactly are the positive externalities of the PROTOS business model activated and used?

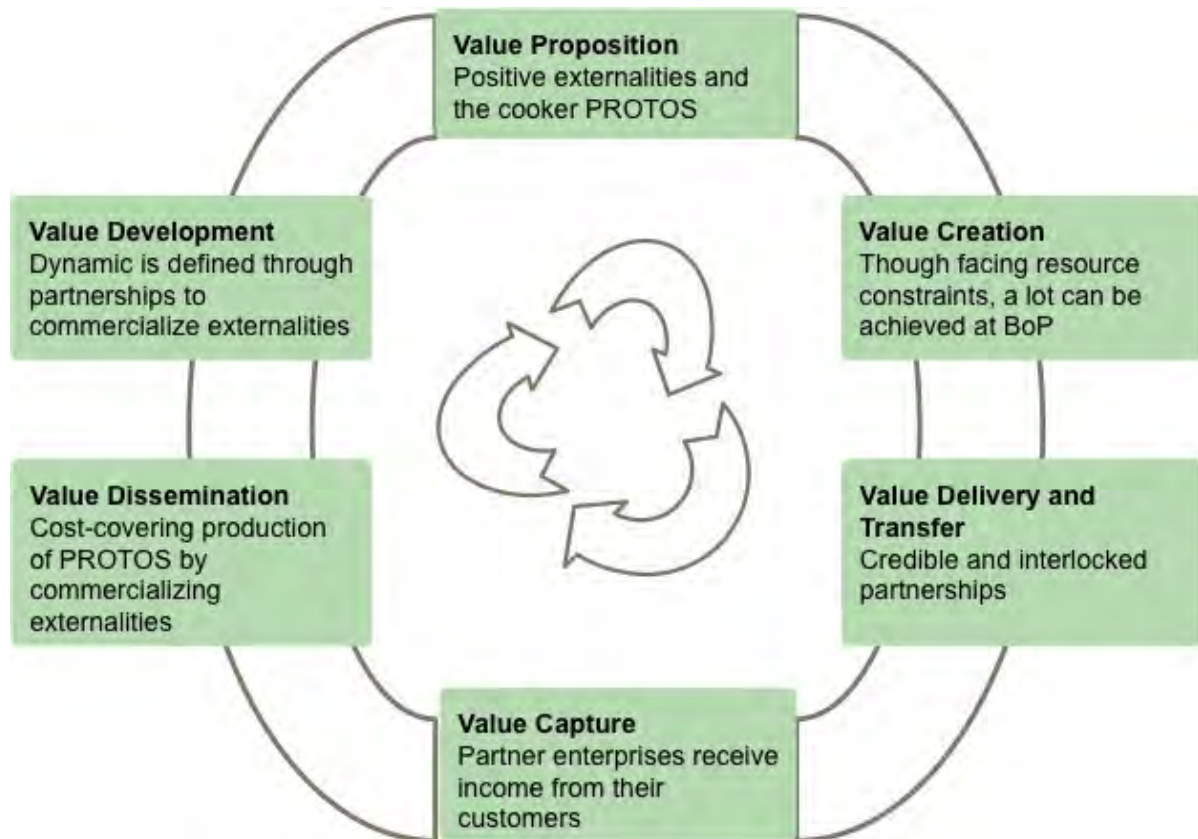
The first positive externality is the CO<sub>2</sub> emission reduction. These savings can be sold on the market using the Clean Development Mechanism (CDM)<sup>7</sup> and are thus quantifiable. The second externality is difficult to quantify: the positive prestige the poor gain in the view of prosperous people. This is very important in order to attract more customers and enlarge the business, however it is very difficult to generate income from this externality. Building partnerships with organisations, able to use the benefits resulting from this externality can overcome this difficulty. In the case of BSH, foundations in the realm of environment and energy, governmental divisions and international assurance companies are part of their partnership.

Figure five depicts the six dimensions of the value-based business model of Bieger and Reinhold (2011) applied on the PROTOS-Jatropha-System.

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<sup>7</sup> The CDM defined within Article 12 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change promotes clean development in developing countries as part of the flexibility mechanism.

Figure 5: The six dimensions of the PROTOS-Jatropha business model



Source: own illustration based on Spremann et al. (2011), p. 364

The first dimension, value proposition, includes material as well as immaterial goods (Bieger & Reinhold, 2011). Further, a modern company is not only offering goods to its customers but to all its stakeholders (Williamson, 2002). Thus, the value proposition of BSH is not only the high-tech cooker PROTOS but mainly by its positive externality resulting in an enhanced reputation among the more prosperous world population. Spremann et al. (2011) see the following three value propositions:

1. Positive externalities, used as an input by other enterprises.
2. The high-tech cooker itself, with its positive effects on ecology and health.
3. The PROTOS-Jatropha-System as an long-term solution to governments in developing countries.

The second dimension of the PROTOS business model looks at value creation. How are internal and external resources combined to create value? It follows that output has to have a higher value than the input. The value added within the PROTOS-Jatropha-System

result mainly from its sanitary and ecological effects. The first recipients of the additional value are the people at the base of the pyramid who are able to live in better and healthier conditions. The ecological effects resulting from the value creation affects all other human beings and the government. A further value creation is the increased reputation among families using the cooker.

Value communication and transfer is part of the third dimension together with channels delivering the message. Table one summarizes the values, channels and messages disseminated within this presented case study.

*Table 1: Value communication and transfer of BSH*

Value	Channel	Value used after transfer
CO <sub>2</sub> rights and its social and ecological effects	Partnership with other enterprises	Enterprise gains customer loyalty, increases willingness to pay due to the enterprise's ecological engagement
Data and information	Visits and presentation of BSH to government	Social and ecological advantages can be used by government as their initiatives and improve their image
Cooking utensil	Physical distribution channels into villages	The population can make use of the cooking utensil and its positive effects on them

*Source: own illustration, based on Spremann et al. (2011), p. 362*

In the beginning of this chapter, the challenge of capturing the value of the positive externalities was outlined. The fourth dimension of the Bieger-Reinhold-concept shows how value can be captured. BSH has adopted three ways:

1. Partnerships handing over the positive externalities to other enterprises than the producer in return-to-transfer payment.
2. Sales of CO<sub>2</sub>-rights and technology and sales of the cooker.
3. Reduction of costs resulting from the use of idle land.

How these captured values are disseminated is the focus of the fifth dimension. The users of the cooker face improved health conditions, whereas the partners have an enhanced

reputation. BSHs increased reputation further improves the strength of their brand.

The sixth and final dimension has more important points to tackle: value development. The business model is thus not static but dynamic and able to develop further in both quantity and quality. In the realm of the business model at the base of the pyramid the value development in terms of quantity is considered first. Due to its size, the base of the pyramid constitutes a high growth potential for the market of the cooker. However, the main value does not lie within the cooker itself, but in its positive externalities as explained above. Thus, the dimension of value development has to tackle the question of how to attract more beneficiaries of the positive externalities.

## **2.4 Resume**

There is a very promisingly market at the base of the pyramid but the opinions and strategies about the best way to serve this market and to address the different characteristics vary to a large degree. To know the characteristics and needs of the base of the pyramid is certainly crucial. Business models are used as an instrument to structure and implement initiatives for the base of the pyramid that create and capture value beyond profit for all stakeholders involved.

### **3 Social Marketing Plan**

This chapter outlines the theoretical basis of social marketing. The first part will focus on its history, the differences between social and commercial marketing and why it is used. The second part of this chapter illustrates how a social marketing campaign is planned and carried out in order to successfully trigger social change. Both parts draw on theoretical discussion within literature whereas the second part is additionally enriched by a practical and illustrative example. The third part of the chapter contrasts two practical examples of social marketing campaigns in order to arrive at a thorough understanding and basis of social marketing in the realm of the base of the pyramid and draws important lessons for the second part of this thesis. This chapter closes with a brief conclusion.

#### **3.1 Specifics of Social Marketing**

Andreasen (2003) traces the birthplace of social marketing back to the 1960s, contrasting the growth of the field over the past 40 years metaphorically with the growth and maturity of a human being. Hence, every stage, from infancy to adolescence and finally maturity show important conflicts forming its identity (Andreasen, 2002). Based on Andreasen (2006), social marketing is now just entering early maturity and still needs to affirm its identity and find its future path.

Part of this identity is the name. In 1971, Kotler and Zaltman (1971) used the term “social marketing” for the first time and define it as “the design, implementation and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution and marketing research” (p. 12).

The aim of social marketing to influence only the acceptability of social ideas, shifted to influencing a target audience to voluntarily change their behaviour. Social marketing does not create structural changes such as regulations to arrive at behavioural change. Behavioural change is understood as accepting a new behaviour, to reject a potential behaviour, to modify a current behaviour or even to abandon an old behaviour (Kotler et al, 2002). Different theories and models declare a variety of determinants as factors necessary for behaviour change. The health belief model for instance, asserts conditions that are responsible to bring an individual to adopt the new behaviour, whereas the theory



of planned behaviour builds on intention to change the behaviour. The transtheoretical model puts the individual into the spotlight and illustrates the different stages of an individual on the way of adopting a new behaviour. Contrarily, the diffusion of innovations theory looks instead of the individual at the innovation itself, and how it moves through the population over time. The social cognitive learning theory combines both, factors within the individual and factors of the environment to explain how the behaviour change is triggered (Weinreich, 1999). Andreasen (2006, p. 94) uses therefore the more generic term behavioural influence instead of behaviour change because social marketing aims not only at influencing people with “bad behaviour” but also preventing certain behaviour. The “Slow Down. Take it Easy” campaign highlights also behavioural influence, and aims at both by, for example, influencing people who drive too fast, and preventing people from adopting a fast driving style due to their increased daily stress levels (Appendix II). Part 3.2, Structure of a Marketing Plan, will take this campaign to illustrate the theory.

Although traditional marketing principles and techniques, such as customer orientation, market research, target markets and the classical four Ps (product, price, place and promotion) are used within social marketing, there exist substantial differences.

Firstly, the type of the product sold within commercial marketing are goods and services whereas social marketing sells behaviour change, or alternatively behavioural influence.

Secondly, commercial sector marketing aims at financial gain by focusing on market segments with the greatest volume of profitable sales. Social marketing on the other hand aims at individual and social gain selecting market segments by the prevalence of social problems.

Thirdly, competitors within commercial marketing are other organizations which offer similar goods and services whereas the current behaviour of the target market constitutes the competitor within social marketing. As a result, social marketing can be considered as more difficult which constitutes the fourth difference. To influence the target audience to voluntarily change the current behaviour is not an easy task because they probably have to give up an addictive behaviour or change a comfortable lifestyle (Kotler et al. 2002).

Important similarities meanwhile exist. As mentioned above, customer orientation is crucial for both commercial and social marketing. Thus, the offer has to appeal to the target audience. Furthermore the exchange theory is fundamental. The customer only buys the

offer if he perceives that its benefits are equal to or greater than its perceived costs (Bagozzi, 1978). In order to successfully design strategies for commercial and social marketing, marketing research throughout the process is essential. To further tailor the strategies, the audiences are segmented to identify and to understand specific needs and characteristics of the target audience. Both marketing fields use the classical four Ps and measure the results of its strategies applied to further improve and learn from the mistakes made (Kotler et al. 2002).

Though certain definitions of social marketing have been presented which distinguish the term from classical marketing, it has not yet been clearly discussed why we use social marketing to intervene and change behaviour. There exist other means and mechanisms to influence public behaviour including technology (automatic seat belts), economics (tax on cigarettes), legal and political policy making (laws on drunk driving) and education (information on AIDS). How can we determine the appropriate mechanism to initiate social change?

Rothschild (1999) presents a table (Figure 6) with eight different cells, revealing the relationship among:

- a) Individuals being prone, resistant or unable to change their current behaviour
- b) The individuals motivation, opportunity and ability (MOA) (MacInnis, Moorman, & Jaworski, 1991) to process information
- c) And the three tools: education, marketing and law.

The combination of these result in eight different cells, determining the conditions under which law, education and marketing are effective in achieving the desired behaviour of the individuals reducing a social issue.

Figure 6: Applications of education, marketing and law

MOTIVATION		yes		no	
OPPORTUNITY		yes	no	yes	no
ABILITY	yes	① prone to behave  <i>education</i>	② unable to behave  <i>marketing</i>	③ resistant to behave  <i>law</i>	④ resistant to behave  <i>marketing, law</i>
	no	⑤ unable to behave  <i>education, marketing</i>	⑥ unable to behave  <i>education, marketing</i>	⑦ resistant to behave  <i>education, marketing, law</i>	⑧ resistant to behave  <i>education, marketing, law</i>

Source: Rothschild (1999), p. 31

Education in this realm includes informative messages of any type, without any direct or immediate reward or punishment. Thus the priority lies on creating awareness about the benefits to voluntarily change the behaviour and to this end the individual needs a strong motivation to quest the benefits and to voluntarily comply (Squares: 1, 5, 6, 7, 8) (Rothschild, 1999).

In contrast to the high emphasis in voluntary change in behaviour within the tool of education, law uses coercion and threat to arrive at the targeted behaviour and limits the individuals alternatives. The law is therefore an appropriate tool if an individual does not want to act or prefers alternatives not in line with social welfare (Squares: 3, 4, 7, 8).

The tool of marketing is defined as:

*“Marketing refers to attempts to manage behaviour by offering reinforcing incentives and/or consequences in an environment that invites voluntary exchange.”*  
(Rothschild, 1999, p.25)

This environment is constructed by creating comparative advantage (product), remunerative cost-benefit relationship (pricing), and efficient channels of distribution.

In the vast majority of cases, the target audience is open to change, but is reluctant to act, does not see opportunities or lacks ability. Hence, social marketing is the best tool in most

cases (Squares: 2, 4, 5, 6, 7, 8) (Rothschild, 1999).

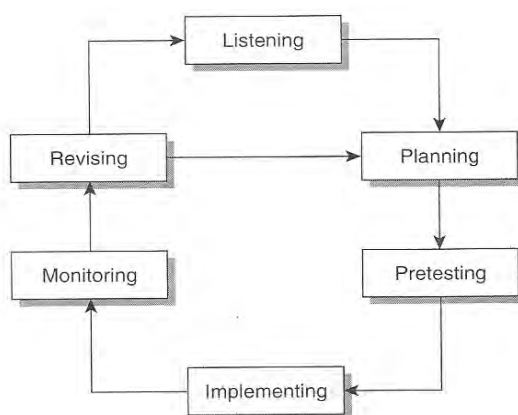
However, seeing these tools as antagonistic and mutually exclusive is very shortsighted. There is not only one mechanism to trigger social change but there are several ways in which education, law and social marketing work together (Andreasen, 2002). Social marketing is even defined as “a mix of economic, communication, and educational strategies” (Kotler et al., 2002, p. 19). If these strategies are unsuccessful, the next step to trigger social change can be found in technological solutions – if available. The law is considered as a last alternative when everything else has failed to achieve behavioural change (Kotler et al., 2002).

### 3.2 Structure of a Social Marketing Plan

If one is to use the tool of social marketing successfully, i.e. by triggering behavioural change in a target audience or influencing its behaviour, a thorough social marketing plan needs to be developed. This section will present two different processes arriving at a social marketing plan. The first process will be enriched with practical insights based on the Interview with the Swiss Assurance Association [SVV] (Appendix II) about their “Slow Down. Take it easy”- Campaign. The aim was to trigger change in the driving behaviour of the majority of the drivers in Switzerland and to reduce the number of car accidents resulting from driving beyond the velocity limitations.

Andreasen (2006, p. 96) presents a circular process, with six different stages leading to a social marketing campaign<sup>8</sup> (figure 7).

*Figure 7: The social marketing campaign process*



*Source: Andreasen (2006), p. 96*

<sup>8</sup> The term “campaign” is used in a very broad sense by Andreasen (2006, p. 98) and consequently also in this thesis.

The process starts with *listening*. Before the campaign can be developed, the planners need to know the attitude, feelings and the behaviour of the targeted audience. Within the Slow Down Campaign, an agency led several conversations with young drivers, constituting the targeted audience, and traffic psychologists. As a result of these interactions, it was learned that most people drive too fast because they face a high level of stress and pressure in their daily activities and rush from one meeting to another. Hence, this increased stress level is transferred to their driving behaviour (Appendix II).

In addition the target audience's perception of the campaigns advantages and the competition the campaign faces are important factors which the planner needs to understand and implement. Insufficient listening skills endanger a social marketing campaign. Thus this first stage is the key to success (Andreasen, 2006).

The *planning* stage transforms the information and learning of the preceding stage into concrete programs of action. A product is developed, offering attractive benefits to the target audience and minimizes their costs in terms of both monetary and non-monetary aspects that could deter behaviour (Andreasen, 2006). In the realm of the “Slow Down. Take it easy.”- Campaign, the information gathered led to the choice of a “hang loose” angel character (figure 8), instead of the stereotype blond curly hair angel. He literally embodied the message, to take it easy and slow down (Appendix II).

*Figure 8: Frankie, the Slow Down angel in the TV spot: garage*



*Source: Slow-n-Easy (2011b)*

In addition, communication strategies, informing the target audience about the product are designed (Andreasen, 2006). The strategy of the “Slow-Down. Take it easy”-Campaign focused on a cross-media strategy. The aim was to meet the targeted audience in their everyday life and also to highlight the links between their daily stress levels and their

driving style. The balance between an educative yet appealing and not finger-pointing message was difficult to find. The message of the campaign should therefore be applicable not only to the driving style, but also to the whole lifestyle: “Slow down and take it easy, man” (Appendix II)!

Goal setting, schedules and coalitions to carry out the campaign are also part of the planning stage (Andreasen, 2006). The campaign with Frankie builds on a coalition of three agencies: the SVV, the Swiss Council for Accident Prevention [bfu] and the Road Safety Fund [FVS] (Slow-n-Easy, 2011a).

Though a concrete program originates from the planning process, it cannot yet be implemented. It needs to be *pretested* before being *implemented* within the subsequent stage. The reason for this lies in the diverging reactions to the program between the campaign planner's anticipation and the target audiences actual reaction. The only way to find out about the target audiences reaction to the campaign, is to pretest it (Andreasen, 2006).

The fourth stage launches the campaign, after adjustments have been made if necessary after the pretesting stage. The classical four P's are translated into the realm of social marketing and put in place. A product is a “package of benefits that a recommended behaviour offers to the target audience” (Andreasen, 2006, p.106). Price implies the perceived cost of the target audience when applying the recommended behaviour. For example, the perceived costs of reaching the work place slower yet safer and without hassle. Andreasen (2006) further defines place as “creating opportunities to act at particular times, in particular places, and through particular modalities” (p. 106). Communicating the recommended behaviour through various channels is addressed using promotion. Hence, the use of different media, from banners on different websites, Facebook, TV spots, a song – which was present over 12 weeks in the Swiss Single Charts (Hitparade, 2011) - and even a few posters informed the target audience (Appendix II). Finally the stage of *implementation* also defines which control mechanisms are to be utilised.

*Monitoring* makes sure that the campaign does not get out of control and keeps on target. A tracking system helps to assess the campaign's performance using key performance indicators and tells the campaign managers how they can react to changes in a next step.

The performance measurement of the “Slow-Down. Take it Easy.” - Campaign focused upon the broad effect of the campaign in terms of raising awareness. It is not realistic and too difficult to measure the change in behaviour for example whether people are driving slower because of Frankie and his friends or if other factors led to this change in behaviour (Appendix II).

*Revising* the data of the *monitoring* stage can lead the manager to pass through the *listening* and or *planning* stage again and the campaign manager may need to review the *listening* and/or *planning* stage again.

Another planning process to arrive at a social marketing strategy is presented by Kotler et al. (2002, p. 35) depicted in figure nine. Eight steps are presented in the realm of four broad strategic plan components.

Figure 9: Social marketing plan outline



Source: own illustration based on Kotler et al. (2002), p. 35

Within the first step, the social marketing environment is analysed in order to define the

target market, to set objectives and goals and to arrive at a strategy. To that end, a SWOT (strengths, weaknesses, opportunities and threats) analysis identifies potential internal and external stakeholders that influence the success or failure of the strategy.

Steps two to four define the path the social marketing strategy wants to go. Hence, step two segments the market into similar groups and selects targets. In a further step, the strategy planners decide what they want their target audience to do (objectives), and what knowledge is needed to initiate such a behavioural change. Important in this third step is to establish quantifiable measures (goals), relative to the objectives to be able to assess the strategy's effectiveness. Step four focuses more on the target audiences perception, knowledge and believe in relation to the defined objectives and goals. Furthermore, perceived competition of the target audience, benefits and barriers to action are identified.

After clarifying which direction the strategy needs to take, the fifth step looks at how it will arrive at its goal. The classical four P's constitute the marketing mix and set the strategy as to how to arrive at the behavioural change. The first P, product, simply defines the market offering. Price addresses the question of what the target audience has to "give up" when changing their behaviour; Place determines the product availability and promotion creates the message spread through various channels.

The final three steps aim at staying on course and address the social marketing program management. Thus, monitoring and evaluation to learn about the projects success or failure is undertaken within the sixth step. Of course, a social marketing strategy also requires financial sources which are compared with available and potential funding sources in step seven. The final and eighth step develops an implementation plan and answers "who will do what, when, and for how much" (Kotler et al. 2002, p.43).

Both processes explained above stress the importance of listening first to the target audience and learning about their attitude and perception. Only if the strategy planner pays close attention and addresses their views can realistic strategic objectives be set which increases the probability of the strategies success. Andreasen stresses this aspect more in two strongly ways.

Firstly, before the strategy is implemented, a pretest is undertaken in practise. Kotler et al. remain only in theory with their SWOT analysis and thus base their marketing strategy only on an assumptive and theoretical perception of the target audiences attitude.



Secondly, Andreasen's circular process takes the strategy planner back to step number one if the revision of the analysed monitoring data reveal important failings within the strategy. However, he does not address the financial sources necessary to carry out a social marketing strategy contrarily to Kotler et al. Hence, the following figure 10 brings together aspects and elements of both processes to plan a successful social marketing strategy.

Figure 10: Social marketing process reloaded and combined



Source: own illustration based on Kotler et al. (2002), p. 35 and Andreasen (2006), p. 96

### 3.3 Example of a Social Marketing Plan

This chapter provides two examples of social marketing in the realm of the base of the pyramid: Sodis and the Bangladesh Integrated Nutrition Project (BINP). The two cases are presented subsequently to inform the reader about the aim of these campaigns. From each campaign, the main findings are highlighted. The aim is to collect practical

information about social marketing in the realm of the base of the pyramid and then use that information to develop the social marketing campaign to combat malnutrition in the second part of this thesis.

In Yaoundé, a city in southern Cameroon with a population of two million, 60% of its inhabitants live in slums, where access to clean water is lacking for most of them. Every sixth child dies before his fourth birthday because of diarrhoea resulting from drinking contaminated water. The most important thing therefore for the population of Yaoundé is to realise that they should not drink untreated water. Meanwhile they have to learn how to purify contaminated water, even though they lack monetary resources at the base of the pyramid (Plate, 2011).

This is where social marketing kicks in to deliver the message to the people exposed to contaminated water. The present chapter investigates Sodis, the **Solar Disinfection System** and its elements of social marketing.

Sodis is only one of many methods to purify water but is the cheapest. Developed by a Lebanese microbiology professor Aftim Acra, Sodis works by exposing PET-bottles filled with water over a period of six hours to direct sunlight exposure. One PET-bottle costs 25 Francs, which is also worth one banana, one cigarette or one matchbox (Plate, 2011). In order to apply the Sodis method, the user needs to be educated accordingly. The costs per family for this education lies between five and ten Swiss francs (Bickel, M. 2011). Responsible for the material is the Swiss Federal Institute for Environmental Science and Technology [Eawag], Eawag's Department of Water and Sanitation in Developing Countries [Sandec] and Antenna Technologies Foundation in Geneva. The Sodis Project furthermore delivers not only information concerning Sodis and how it works, but also illustrates the necessity of purifying water before consumption, and to lower the acceptance of diarrhoea throughout the population by delivering the message that they can undertake something against it (Plate, 2011). In Kenya, the health ministry has already adopted the Sodis method within their formation program for health consultants (Meierhofer, 2011).

The success of the Sodis Method can partly be explained by the supportive material, as part of the augmented product (figure 18, chapter 5.3 ). The flyer, leaflet, poster and sticker are very appealing and generate attention for the actual product – the desired behaviour.

Furthermore, the variety of material used, a selection is depicted in figure 11, communicates the benefits of the desired behaviour in a memorable way.

Figure 11: Examples of educative material of Sodis



Source: Sodis (2011) with own additions

The second example draws learnings from a failed project (White & Masset, 2007). The Bangladesh Integrated Nutrition Project (BINP), launched in 1995, targeted the improvement of the nutritional status of malnourished children and pregnant women. Three elements constituted the project (Worldbank, 2001):

- National nutrition activities
- Community-based nutrition (CNBC)<sup>9</sup>: growth monitoring, food supplementation and nutritional counselling
- inter-sectoral nutrition program development: supporting schemes such as home gardening and poultry rearing

Community nutrition promoters (CNPs) in collaboration with the women's group were

<sup>9</sup> CNBC constitutes the biggest part of the project and thus White and Masset focus mainly upon that in their paper.

responsible for carrying out the project activities under the supervision of the community nutrition organizer (CNO) and by the support of the village nutrition management committee (VNMC). The BINP thus worked on the community level and involved the members of the community directly. Further, the CNBC activities were based upon the assumption that bad practices led to malnutrition in Bangladesh and that by changing bad practice into good practice the nutritional status of the population would be improved. White and Masset (2007, p. 630-631) presented a causal chain behind this:

1. The right people (those making decisions regarding under-nourished children) are targeted with nutritional messages.
2. These people participate in project activities and are exposed to these messages.
3. Exposure leads to acquisition of the desired knowledge.
4. Acquisition of the knowledge leads to its adoption (i.e. a change in practice).
5. The new practices make a substantial impact on nutritional outcomes.

The target group for nutritional messages were pregnant and lactating women and adolescent girls. But in order to influence health behaviour the message should include everybody involved in making health decisions. Yet women have been addressed who are most likely to decide on food preparation in terms of cooking. However, this power in decision-making is constrained. It is not the women's responsibility to decide upon the food items purchase but the men. Consequently, the nutritional message of the project was too narrowly addressed and avoided impacting and reaching the target group.

In addition, White and Masset (2007) identified further factors restricting the participation in the program such as remoteness and restricted female mobility. Furthermore the food supplements did not always reach the children and mothers but were given to other family members or resold. Such evidence of leakage and lack in participation reduced the effectiveness of the program. Furthermore, not only the women enrolled in the project increased their nutritional understanding, but also women outside the project gained knowledge resulting from spillover effects and word of mouth influence. However, both groups of women did not put this newly gained knowledge into practice. Reasons for this knowledge-practice gap included lack of resources, excessive workload and family opposition. Hence, constraints on resources and time hindered their ability to put

knowledge into practice according to White and Masset (2007).

For the social marketing campaign within the part II of this thesis which also aims at behavioural change in terms of nutrition to succeed, two points are pivotal: Firstly, identify the right target group whom the nutritional message is addressed to. Secondly, limit the perception of costs in terms of constraints. It is crucial to deliver the whole product package – the desired behaviour, the associated benefits and the tangible objects and services (Part II – chapter 5.3).

### **3.4 Resume**

Social marketing is a promising tool with which behavioural change is triggered and to arrive at increased welfare due to this change in behaviour. A thorough plan to design a successful social marketing campaign is the key to success which was highlighted by three practical examples (Sodis, BINP and “Slow-Down. Take it Easy”). Lessons learned will be applied within the second part of this thesis, where a social marketing plan is developed in order to trigger behavioural change among the people living at the base of the pyramid in Tamil Nadu, India.

## Part II – ANF Case Study

### 4 ANF Business Model

This first chapter of part II of this thesis presents a practical example of the Spirulina business located in Tamil Nadu, India to combat malnutrition. Firstly, ANF's business focus is outlined. Secondly, the business activities of ANF are explained. Thirdly, the Spirulina business model is analysed with the value-based business model (chapter 2.3) and finally suggestions for improvement in order to colour more tongues green are made.

#### 4.1 ANF's Business Focus: Combatting Malnutrition

The medical encyclopedia defines malnutrition as “(...) the condition that occurs when your body does not get enough nutrients” (n.d.). But malnutrition appears in different ways and is not only linked to the shocking pictures printed in western newspapers of undernourished, screaming and skeletal children. Malnutrition can be divided into two basic categories.

The first is the lack of protein and food providing energy measured in calories called protein-energy malnutrition (Worldhunger, 2011). This definition refers to the shocking picture and to the term hunger.

The second type of malnutrition, micronutrient deficiency, is less transparent but certainly of no less importance – quite the contrary (Worldhunger, 2011). Hence, the term hidden hunger is commonly used. The effects upon the country and its population resulting from nutritional malnutrition are decreased education levels resulting from lower concentration from lack in nutrients. As a result the earning power weakens and even marriage chances diminish steadily (Economist, March 26<sup>th</sup>, 2011a). Lately, this second type of malnutrition has been redefined and the term no longer only refers to lack of nutrients resulting from lack of calories but includes the lack of nutrients even though the calories are in excess. Thus, obesity is increasingly considered as a third type of malnutrition (Worldhunger, 2011).

When visualising and addressing the severity and widespread occurrence of nutritional deficient status among people, especially in developing countries, the question arises: how we can combat this status and sustainably change something in order to reduce the

suffering of so many people?

Sadly, it is not an easy task to undertake. Development will not bring malnourishment to an end. Even high-income European countries face levels of Iodine deficiency disorder [IDD] (FAO, 1997). Bhalotra (2008) claims economic growth can reduce child mortality in India, but limits her findings as not being the only way to reduce the mortality rate. Political economy has also a high influence on a countries health status, and thus the rate of child mortality. But policies which include handing out Vitamin A supplements does little to improve the state of malnutrition – rather the opposite is true and the term “the great vitamin-A fiasco” is used (Economist, March 26<sup>th</sup>, 2011b, p. 18). Government policies which include the issue of cheap food is no answer to the problem because such foodstuffs do not contain sufficient micronutrients. The government of Tamil Nadu for example hands out 20kg of free rice per family monthly – yet in Madurai the maternal mortality rate rose from 53 in 2009-10 to 68 during 2010-11 (Shastry V. Mallady, 2011). Anaemia, the prime reason for maternal death resulting from iron deficiencies, is thus now increasingly being focused upon by the Health Department of Madurai (Shastry V. Mallady, 2011).

Good food according to the Economist (March 26<sup>th</sup>, 2011b) depends on stealth, education and policy “nudges” - not cheap rice. As a measure to improve the nutritional status of the population, handing out diet sheet will not earn a nobel prize in solving one of the severe problems in the world. A diversity of tools and methods have to be applied – ranging from education, supplements, and fortifying processed food, to growing crops and marketing to children for the taste and to mothers for the nutritional value (Economist, February 26<sup>th</sup>, 2011). Yach et al. (2010) puts the food companies into the spotlight to address the major social problem of malnutrition. New innovative public-private sector partnership, addressing stakeholders from various sectors, can sustainably solve the issue of malnutrition. The HJ Heinz Company of Pittsburgh Pennsylvania is one successful example of such a collaboration together with a research group. Micronutrient rich Sprinkles have been developed to sprinkle over daily food to combat Iron deficiency anaemia [IDA]. However, Kraemer and Zimmermann (2007) state at the same time: “Fortified foods alone are not enough. Successful delivery of such interventions requires the strengthening of health systems, increased awareness, and financial investment.” (p. 9) Also, industrially fortified food bears a financial risk for developing countries, that the vulnerable consumers at the base of the pyramid in need of the nutrients cannot afford it

(Heierli, 2007). Further, most of these food fortification programmes deliver only one micronutrient instead of providing a mixture of important micronutrients, which is crucial to combat hidden hunger effectively and sustainably (Appendix V).

Hence people lack the ability to access food due to monetary constraints. This is the second variable of Mukherjee's (2004) regime of the right to food not being fulfilled and thus one reason why people lack food and nutrients. The following five variables, based on the “entitlement and deprivation thesis” of Sen (1981), build a framework to analyse and explain the prevalence of hunger and malnourishment:

Firstly, food needs to be available. Secondly, the people have to have the ability to access the food. Thirdly, there exist institutional sanctions<sup>10</sup> to access that food. Fourthly, the individual is free to choose food which is culturally acceptable and lastly, there exists a secondary food system<sup>11</sup>.

Even though Mukherjee (2004) mainly addresses the increasing hunger and events of famine, the five variables of the regime of the right to food highlight meanwhile important aspects when considering how to reduce malnutrition – or to secure the right to nutritious food. When all five variables are satisfied people are able to not only still their hunger beyond sufficient calorie intake but also consume the micronutrients needed for good health. Therefore, initiatives addressing malnutrition issues should also take into account the amplitude covered within the variables presented above, and be aware for example of the cultural realm in which the individual is fighting against malnutrition. Hidden hunger can thus be combatted by eating a balanced diet consisting of all essential micronutrients.

In Switzerland, a health magazine promotes Spirulina as a supplement together with a purification regime to ensure the intake of important minerals and micronutrients (Jenzer, 2011). The nutritional benefits of Spirulina and its merits are also noted in the United Nations Assembly Report (2005). Further research and reports, as well as action research programs deliver the same message again and again: Spirulina is a wonder weapon, due to its high and valuable content of nutrients. Furthermore, it is easy to grow as it only needs brackish water, a warm climate where it rapidly reproduces itself simply by dividing

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10 Allowance to access that food based on cultural traits, customs, religion or value system. For example, a Hindu is not allowed to eat meat – even though the individual faces crop shortfall due to severe weather and meat would be the only alternative (Mukherjee, 2004).

11 Food provided by forests, like fruits and nuts, common property resources, like fish and snails and micro-environments, like birds and animals. (Mukherjee, 2004)



as a photosynthetic organism. Likewise, it is also in line with institutional sanctions and can be locally produced within secondary food systems (Mukherjee, 2004). ANF has understood the importance of and chances Spirulina delivers and focuses thus its business activity upon combatting malnutrition with Spirulina (chapter 4.2). Consuming Spirulina directly after harvest limits its potential as it is not conservable without treatment. In order to make it nonperishable, ANF has developed several Spirulina products. Freshly harvested Spirulina needs to be dried after which the Spirulina flakes are then ground to a powder. This powder is either consumed directly, together with lime juice, or further processed into tablets and candies. Since the candy colours the tongue greenish, children are also really fond of it in addition to its taste, and hence “show malnutrition literally their green tongue” (figure 12)!

*Figure 12: Children showing malnutrition their green tongue*



*Source: picture taken by author in village nearby Madurai, May 2011*

## **4.2 ANF's Business Activities**

ANF is a social business company located in Madurai, Tamil Nadu, India. Its mission is to combat malnutrition by producing and selling Spirulina. Demographical criteria and institutionalisation segment the market. The former criteria leads to the differentiation between private and social markets while the latter criteria further segments the social market into institutional and base of the pyramid market.

The private market segment targets health conscious consumers, for example athletes. Higher margins on the three Spirulina products offered within this market segment deliver higher profits for ANF. These profits cross-subsidise the lower margins within the social market.

*Figure 13: Private market Spirulina products of ANF*



*Source: ANF (2011). From left to right: Spiru Power Tablets (50g Spirulina), Spiru Power Capsules (50g Spirulina), Spiru Power Tablets (75g Spirulina)*

The institutional market, as part of the social market segment, promotes Spirulina products to big institutions in India, such as Child Fund India. They are providing Spirulina Candies to children at their centres and are also involved in research projects. The profits generated within this segment result from the high quantity of the Spirulina Candies sold, though the margins are low within social market. One example of a research project is the Nilgiri project. Its aim was to find out about the effect of Spirulina Candies upon children who consume candies daily. To that end two groups of children were formed. The first received two Spirulina Candies daily whereas the second group received two normal candies daily. Findings showed that the children within the Spirulina Candy group gained weight, improved their health status and showed higher concentration level in school compared to the control group (Appendix IV).

Another segment of the social market is the base of the pyramid market. ANF is able to offer affordable Spirulina products to the vulnerable customer of this segment by cross subsidising the losses resulting from low margins with the profits from private market segment, or the institutional market segment. This discriminating pricing strategy is possible because the product design has a different image and appearance according to its segment but the product itself is the same and within all market segments high Spirulina quality is assured. Figure 14 shows the Spirulina Candies, on sale within both social market segments, and the Spiru Power Tablets, only on sale within the base of the pyramid market.

*Figure 14: Spirulina Candies and Spiru Power Tablets*



*Source: ANF (2011). From left to right: Spirulina Candies (25g Spirulina), Spiru Power Tablets (i.e. 60s or flasks, 45g Spirulina)*

The Spirulina Candies depicted on the left (figure 14) are of special interest for this thesis as it is designed for children who are very vulnerable due to micronutrient deficiencies. Other products of Spirulina within all three market segments are to swallow and designed for adults.

This thesis will not consider further the private market segment, as the emphasize lies in the combat of malnutrition in the realm of the base of the pyramid. The institutional market as part of the social market highly contributes to improving the health status of many children at the base of the pyramid. Yet, the institutional market segment is not as difficult to address as compared to the base of the pyramid market. Also, in February 2011, ANF launched the rural farm project as part of the social market. The analysis of the Spirulina Business Model will thus be the focus of this project. However, the social marketing strategy developed within the chapter six might also have important components that could be adopted within the second social market segment - the institutional market. For example, it constitutes a great opportunity to educate children involved in research projects like Nilgiri about nutrition and the severe effects of malnutrition. Further, by raising awareness among the children, spill-over effects could lead to a change in behaviour of their parents. Hence, the strategy developed within chapter six is not intended to be applied exclusively within the base of the pyramid segment of ANF.

The selection process of the partner NGOs for the rural farm project led to a choice of four NGOs eligible to carry out the project. The project consists of two parts, production and promotion of Spirulina. The aim is to raise awareness and knowledge about Spirulina and its benefits, both among the NGOs and the rural population. Furthermore, by engaging

rural women in both production and promotion, an income generating possibility emerges for them. Each NGO had thus two SHG women educated by ANF capable of producing and promoting Spirulina. However, only two out of the four NGOs are producing Spirulina, each with 10 tanks, because the other two were not able to meet all the necessary requirements in time (e.g. land to construct the 10 tanks, provision of water for the Spirulina culture). The main facts about the rural farm project are summarized within table 2.<sup>12</sup>

*Table 2: The rural farm project in a nutshell*

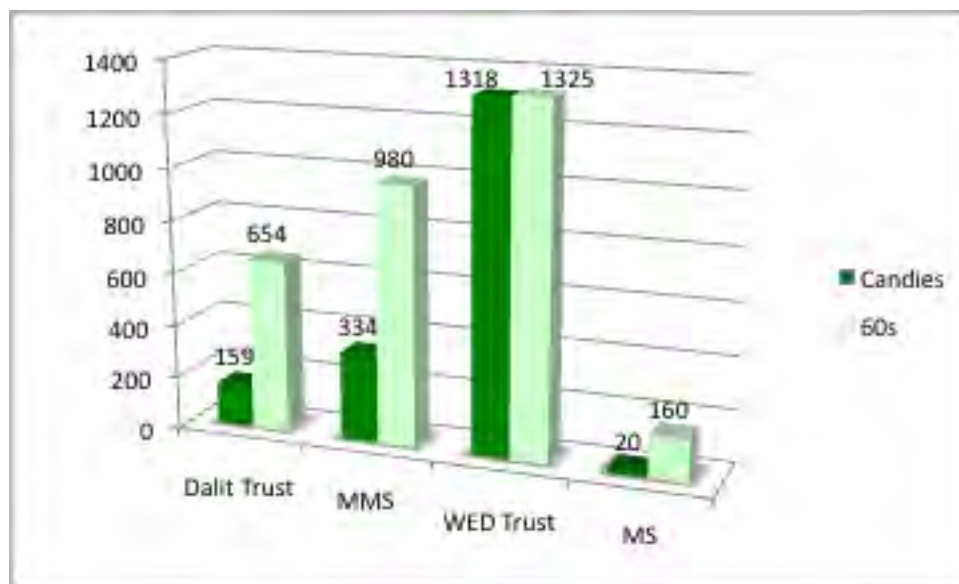
	<b>Dalit Trust</b>	<b>WED Trust</b>	<b>MMS</b>	<b>MS</b>
<b>Location of NGO</b>	Vatipatti, Tamil Nadu	Usilampatti, Tamil Nadu	Chinnamanur, Tamil Nadu	Periyakulam, Tamil Nadu
<b>Sales March - September</b>	Candies: 159 packs 60s: 654 flasks	Candies: 1318 packs 60s: 1325 flasks	Candies: 334 packs 60s: 980 flasks	Candies: 20 packs 60s: 147 flasks
<b>Production April-October</b>	249.4 kg Spirulina	273.7 kg Spirulina	No Production	No Production

*Source: own illustration*

Table two reveals the gap between the different NGOs in promoting the Spirulina products between March and September 2011. WED Trust achieves by far the highest sales. MMS, not involved in production, achieves considerably high rates, followed by Dalit. MS shows by far the lowest sales figures. Another gap exists between the product sales. The 60s tablets (figure 14) are sold among all four NGOs in higher quantities compared to the candies. The report in Annex III discusses this in more depth. Relevant for this thesis is the very low performance in promoting the Spirulina Candy (figure 15).

<sup>12</sup> Please refer to the report of the author in appendix III to learn more about the rural farm project.

*Figure 15: Promotion Spirulina candies compared to 60s tablets – from March to September 2011 within the rural farm project*



*Source: own illustration*

The rural promotion already works with educational material, explaining where Spirulina comes from and its benefits, why and how the people can improve their health status by using it. However, the material and the way the meetings are held fail to address the children directly. The meetings are usually held in public in the villages where between 10 to 20 people participate, of whom most are women (figure 16). They usually sit passively gathered in a circle on the floor, listening to the SHG women who deliver the educative Spirulina message. In order to grasp the message and in order to get involved this manner of presentation is not suitable for children. They need more stimulation to capture and hold their full attention – and more importantly to memorise the message delivered to them!



*Figure 16: Rural farm promotion – illustrative example of the educative meetings*



*Source: pictures taken by author in villages nearby Madurai, March 2011*

This generally poor presentation to the target audience will be improved by developing the social marketing campaign in chapter six. Beforehand, the Spirulina candy business model of rural promotion will be analysed in order to draw lessons from this practical experience and to either include or improve them within the social marketing campaign of chapter six.

### **4.3 Analysis of ANF's Spirulina Candy Business**

Based on the theoretical background presented in chapter two, the framework value-based business model builds the basis in order to analyse the Spirulina candy business model of the further above discussed rural farm project. The five components (value proposition, value creation, value delivery and transfer, value capture, value dissemination and value development) are analysed below.

First, the value proposition determines by what means, tangible and intangible, and for which group of customer value is created. The value proposition for this business model can be seen in the following points:

- Positive externality: improved health status resulting in reduction of health costs to the family, increasing ability to work and/or study and thus boost economic development of Tamil Nadu.

- Spirulina Candy as a tangible object.
- Long term solution for combatting malnutrition of both children and adults because Spirulina can be produced locally, using their resources.
- Business generating activities for women of SHGs – both in production and promotion.

The second part of the value-based business model builds value creation and determines how internal and external resources are combined to create value. Thus, it is viewed as a “cradle to cradle” chain, even though the saying would be different – from the “cradle to grave”. However, the final recipient of the value creation chain is a child, improving his health status by consuming the Spirulina Candy. Thus, the term grave would dismiss the created cradle for this child, because he is able to improve his health and to lead a better and healthier life. The value created and its recipients are listed below:

- Children consuming the candy improve their performance in school because they are better able to concentrate, health improves, and the burden and risk to their families is reduced (who fear high health costs resulting from malnutrition-caused illnesses).
- The production and distribution of Spirulina products creates income-generating possibilities for SHG women.
- The government and state of Tamil Nadu faces decreased vulnerability of the population at the base of the pyramid which is currently a great burden in terms of not being able to improve their status by their own means (Shastry V. Mallady, 2011).

Third, the interaction between ANF and its customers as well as the nature of value dissemination are part of the value communication and transfer. Table 3 presents which value is transferred by what kind of channel and how it is used after the transfer.

*Table 3: Value communication and transfer of Spirulina Candies*

Value	Channel	Value used after transfer
Spirulina Candies	Physical distribution channels into villages	Consuming Spirulina Candies and improving their health status
Business opportunities to increase the real income	Partnerships with NGOs and their SHGs	SHG women have an income generating activity, giving them money and feeling of independency
Combating malnutrition	ANF	ANF gains reputation and resources to further invest in business activities and enlarge recipients.

*Source: own illustration*

The fourth element presents some challenges. Capturing the value and turning it into profit in order to keep the business running is not an easy task. At first sight, the margins resulting from the sales of Spirulina Candies constitute captured value for ANF. However, in the realm of the base of the pyramid the pricing strategy aims to reach as many people as possible who face monetary constraints. Consequently, the margins are almost non-existent in this realm (chapter 4.2). Cross-subsidies resulting from the other two market segments of ANF constitute captured value for ANF. The partnership with local NGOs transfers the positive externalities to them. The value captured for ANF from this partnership with the NGO is the large-scale network of different SHGs which promotes Spirulina Candies. Another captured value delivers the decentralised production units: a bountiful harvest of Spirulina.

The value dissemination, the fifth element of the value-based business model, ensures the diffusion of the created value and profit to the different stakeholders as well as within the enterprise in order to ensure the necessary financial capital to keep the business model running. The NGOs and their SHGs women involved in the project, and ANF itself, gain income as well as reputation<sup>13</sup>. The population as a stakeholder can be segmented into different target groups. The children increase their health. The families face a reduced

<sup>13</sup> Alas, the income generating part of the Spirulina rural farm created some misunderstanding between the NGOs and ANF expressed in repeated discussion about salary (Appendix III).



burden in terms of economical resources resulting from the lowered risk of being forced to invest their limited financial resources to pay for the doctor bill.

Last but not least, the value development ensures the future of the business model by considering dynamic aspects of the business model. The value development takes into account both qualitative and quantitative aspects. In terms of quantity in the realm of the base of the pyramid, the size of its market kicks in delivering a high growth potential. However, it is equally important to address the question of how more people can benefit from the positive externalities, such as health effects as well as income-generating opportunities. Hence, the social marketing strategy will take up this question and develop a thorough strategy to improve the Spirulina business model. To that end, the following chapter will conclude with an analysis of the Spirulina business model in order to arrive at major points relevant to the drafting of the social marketing strategy.

#### **4.4 Suggestions to Improve ANF's Business: What is Needed to Colour More Tongues Green?**

The precedent chapters presented and analysed the state of the art. This conclusive part depicts where the Spirulina Candy business model needs to be further improved or changed.

First, the tangible object – the Spirulina candy. Being exposed to the field and the customer base, one often repeated comment was the complaint about the colour and taste of the Spirulina Candy. Yet, some are also really fond of its colour and taste. Furthermore, the wrapper of the candy is not in line with the triple bottom line (figure 2, chapter 2.3) because it is made out of plastic. To this end, first trials with a Swiss candy factory have been undertaken and are planned to be adopted by the Indian candy factory if possible. The aim is to improve the shape, colour and taste as well as the texture of the candy. A substitute for the plastic wrapper is meanwhile being investigated.

Second, the value communication and transfer of the Spirulina Candies need further improvement. The channels of physical distribution to the villages need to be improved. So far the SHGs women lack a regular routine for visiting the villages which results in a considerable gap when comparing the performance of all four NGOs of the rural farm project. In addition, the candies must not only be physically distributed but need more educational messages to be delivered by the SHGs women and an increased involvement

from the children by engaging them in game activities. So far, the children only passively attended the meetings held – which can also be seen in figure nineteen. This will be further addressed within chapter six. Furthermore, to improve the value transfer, the population at the base of the pyramid needs to be open towards the communicated value. If they remain reluctant, the value is like water off a duck's back to them.

If an improvement of the value communication and transfer of the Spirulina Candies can be achieved both the value dissemination as well as the value development profit from this. Value development in terms of quality meanwhile includes the current trials undertaken by the Swiss candy factory, to improve the candy itself.

This thesis takes up these issues within the next chapter in order to trigger behavioural change and ease access to the value created within this business model. Law is not an option to initiate behavioural change, because it limits the individuals alternatives (Rothschild, 1999). This thesis contrarily wants to broaden the alternatives and opportunities at the base of the pyramid in order to encourage the population's motivation to voluntarily change something. Applying social marketing will overcome the reluctance of the base of the pyramid and creates opportunities to act. Hence, awareness needs to be created and knowledge increased concerning malnutrition and possible solutions to combat it. Furthermore, the involvement of the children as well as parents needs to be boosted as mentioned further above. Simultaneously it is equally important to strengthen their attitude in crediting themselves with the possibilities to change something to improve their nutritional status with little means. Alas, this will by no means be an easy road to walk as the interaction with Liselotte Frey from DSM<sup>14</sup>'s Nutrition Improvement Program has revealed (Appendix V). People at the base of the pyramid believe that whatever the wealthy consume is good. Hence, an Indian woman proudly presented to Mrs Frey the biscuits she had bought from her meagre savings, biscuits which hardly delivered any nutritional value. Thinking of George Orwell right now (Chapter 2, p. 3)?

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14 DSM is a Swiss company, providing solutions in three fields: health, nutrition and material. The section "Nutrition Improvement Program" is of special importance for this thesis. To learn more about this, please refer to Appendix V.

## **5 Developing a Social Marketing Plan for ANF**

This chapter aims at arriving at a social marketing plan to combat malnutrition which has been developed for the target audience located in Tamil Nadu, India. Further, the plan focuses first on children, and thus Spirulina Candies even though the social market segment of ANF also offers Spirulina tablets. Two reasons led to this decision. Firstly, the Spirulina Candies suffer from low promotion rates as illustrated in chapter four. Secondly, it is important to combat malnutrition deficiencies in the early childhood stage as explained in chapter one: in order to stop the vicious circle (figure 1, chapter 1.1), the children need to be targeted in the social marketing strategy. However, children are not the only element of the target audience – this will be further elaborated within this chapter.

The development of the plan is based on the theoretical basis discussed in chapter three where the combined processes of Andreasen and Kotler et al. were presented.

### **5.1 Where Are we?**

Initially the starting point needs to be analysed to determine the program focus and campaign purpose. Chapter 4.1 illustrated and discussed the severity of malnutrition and how it can be combatted with Spirulina. Alas having an applicable resource to combat malnutrition is only one small fraction of the equation. Further, chapter 4.3 has revealed the failings in value communication and transfer of Spirulina Candies. Availability and knowledge of and about Spirulina are therefore crucial. Furthermore, in order to sustainably combat malnutrition and trigger behavioural change, educational messages about nutrition are to be included in the campaign. The people living in remote areas of Tamil Nadu have to discover and develop their own capabilities to improve their daily diet with their own resources. Of course structural barriers and policies are weighty parts of the formula, reducing the possibilities of the people at the base of the pyramid. The provision of free and/or subsidised food items in Tamil Nadu as mentioned in chapter 4.1 constitutes such a policy. Yet this policy entitles the people at the base of the pyramid to consume more calories it does little to improve their nutritional status. Duflo and Banerjee (2011) stress this within their book. A study conducted in Udaipur, India revealed that a family living at the base of the pyramid could increase its expenses by 30 % for food items if they would cut down on the expenses for tobacco, alcohol and festivities. Consequently people

do not want to just eat more food but follow their taste. Thus providing tasty and nutritious food items is more important and effective than only offering more calories. Specially children are very sensible to taste. According to Duflo (Mingels, 2011) candies enriched with nutrients would exactly meet this fact.

Also, the people's perception of food and their possibilities changes with this policy. Such policies strengthen the perception of the people at the base of the pyramid that they are not able to meet their daily needs themselves. Of course, in some cases food needs to be provided and distributed, e.g. natural disasters destroying the crops. However, this approach constitutes not a sustainable path to stop malnutrition but only a short-term solution in the case of severe malnutrition. Thus, the campaign will target the promotion of local resources to meet the nutritional needs and bring forward the additional value of Spirulina to reduce the perceived costs. As mentioned in the introduction to this chapter, the first focus lies on the children resulting from their increased vulnerable position. The discussion of the Bangladesh Nutritional Project has however illustrated the danger of addressing the target audience too narrowly. Hence, this strategy addresses this threat by broadening the target audience to both parents as well as single persons even though the tangible objects within this plan remain focused on the Spirulina Candies.

Malnutrition can be addressed in several ways. One way has just been discussed: free or subsidised provision of food. Other ways are to distribute fortified food, to increase income based on the close link between poverty and malnutrition, to educate, or to sell Spirulina products. The whole range of measure contributes to the decline of malnutrition. DSM for example works with fortified food items, like NutriRice and MixMe<sup>15</sup>, together with educational material about nutrition to raise acceptance among the community (Appendix V). The focus of this social marketing campaign is to deliver a long-term solution in the realm of business approach. Thus, this social marketing plan is developed to:

- Maximize internal strength by the use of available resources (Spirulina, vegetables, fruits, staples).
- Minimise known internal weakness: taste of Spirulina, critical attitude towards something new and unknown.

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<sup>15</sup> Both products are part of the Nutrition Improvement Program and contain important vitamins and minerals. MixMe is a powder to be sprinkled over normal food items, whereas NutriRice is enriched with vitamins and minerals and substitutes the normal rice.

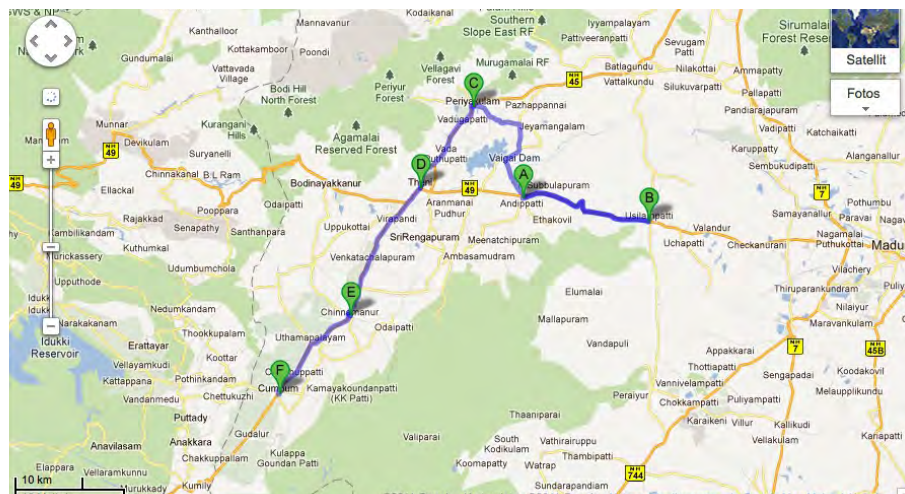
- Capture external opportunities: Spirulina business can become an income-generating activity. Partnerships with local NGOs and local political units.
- Potential external threats: strong values and cultural norms.
- Financial restrictions: people may have the widespread opinion that good and healthy nutrition is costly and not affordable for them or they are used to receive only free or subsidised food. Also, the lack of knowledge that proper food can contribute to the reduction of many maladies and illnesses.

Also, it is crucial to reach a balance between delivering an educational message yet not to finger point. Major internal and external groups are NGOs and the government. NGOs are important partners in broadcasting the message and offering vast distribution channels by their SHG networks. The provision of 20 kg free rice monthly per family by the government of Tamil Nadu constitutes a dangerous message in the authors view: Though most of you at the base of the pyramid are farmers you are not able to nourish yourself, your family and the whole village with your local resources. This effects their self esteem. Rather, the people at the base of the pyramid need to be encouraged! They need to learn and believe that they can decide independently for themselves regarding their diet by using local resources, and they have the power to improve their nutritional and thus health status!

## **5.2 Where Do we Want to Go?**

The broad, target audience are the people at the base of the pyramid suffering from malnutrition. This thesis further narrows the target audience to the specific geographic area in Tamil Nadu (figure 17), where the SHGs of the partner NGOs of ANF are located. As a result of the nature of the product – the Spirulina Candy – children are a primary target in terms of consumption. The target audience in terms of triggering behavioural change is however further broadened to parents and singles, as mentioned in the above chapter and based upon the practice-knowledge gap discovered within the Bangladesh Nutrition Project.

*Figure 17: The geographical location of the target audience*



*Source: Google Maps (n.d.). A: Andipatti, B: Usilampatti, C: Periyakulam, D: Theni, E: Chinnamanur, F: Cumbum, map scale indicated at bottom left corner: 10 km.*

The objectives are to increase the number of people consuming Spirulina Candies, to use local resources to improve the daily diet, to increase knowledge about the benefits delivered by Spirulina products and the importance of a healthy diet to meet the people's nutritional needs and improve their health. The goals, or measurable units are, for example, the sales figures of Spirulina Candies or other Spirulina products as the target audience is broadened, the weight of children and the maternity death rate. However it is difficult to assess health improvement properly.

Also, in order to define where we want to go, it is important to understand the target audience and competition. Based on the interactions the author was able to make during her four months stay in Tamil Nadu with rural people, this paragraph presents the author's understanding of the target audience. Chapter 2.2 presented furthermore also characteristics of the base of the pyramid. However, in order to gain a more thorough and complete knowledge of the base of the pyramid, it is recommended to investigate and interact further with this community. The current and widespread belief among the target audience is that healthy food is expensive and they have not enough money to purchase the necessary and proper food items. The common behaviour and habit is rather to pay for the doctor when they are ill instead of investing in preventative measures, such as Spirulina products, to improve their health. Thus, the direct relation and effects of a healthy daily diet are unknown to them. Most people in the realm of the base of the pyramid are

not likely to spend little money now in order to save a doctor's bill in a few years. Although long term-thinking in terms of investment is not widespread it is not non-existent either. Most people are saving money for the education of their children or social events such as marriages (Appendix I). Mrs. Frey of DSM mentioned further that the base of the pyramid is very sensitive to branded products and tend to copy the eating behaviour of the rich, resulting from the belief that whatever the rich eat is good (Appendix V). This agrees with also the authors experience and observations while working in the field.

The concerns and lack of trust in Spirulina products, which were mentioned several times during rural promotion meetings, form the greatest barrier to action and these issues need to be addressed accordingly. The customers at the base of the pyramid can prove to be very critical. DSM faces similar issues with their product MixMe where people are diffident towards it.

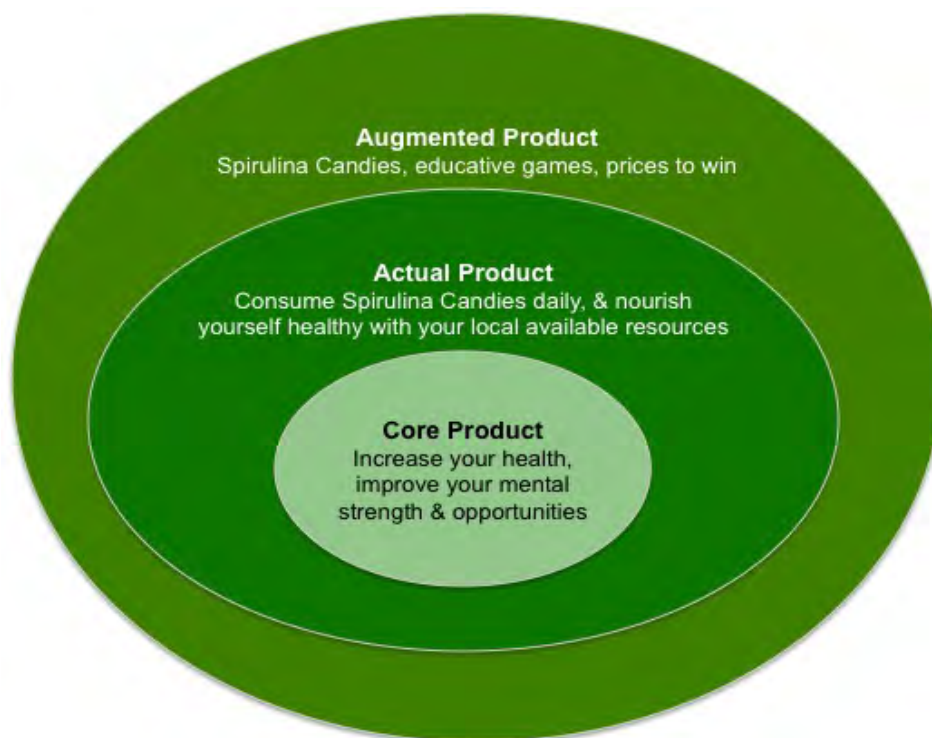
### **5.3 How Will we Get there?**

The four Ps of the marketing mix define how we will get to our defined objective: combat malnutrition by creating awareness and knowledge about nutrition and offering a tangible reward for children, the Spirulina Candy.

#### *Product*

The product contains the desired behaviour (actual product) the campaign aims at achieving and the associated benefits (core product) of that behaviour. In addition, tangible objects (augmented product) support and help trigger the behavioural change of the target audience (Kotler et al., 2002). These elements meanwhile build the three levels of the social marketing product depicted in figure 18 for this campaign.

*Figure 18: Three levels of the social marketing product in combatting malnutrition*



*Source: own illustration based on Kotler et al. (2002), p. 196*

Consuming Spirulina Candies on a daily basis together with a healthy diet is an ideal eating regime and constitutes the desired behaviour (actual product). Associated benefits resulting from this behaviour are an improvement in health by providing the body with all necessary micronutrients (core product). Providing only one micronutrient, as with some food fortification programs, does little in combatting hidden hunger. The whole package of nutrients is thus needed. Developing the desired habit further increases the concentration levels in school as well as mental status and decreases the risk of infections. Supported by tangible objects, as well as services, the behavioural change can be triggered more easily (augmented product). Ideas for such support, besides the Spirulina Candy, are educative games. Services could be prizes such as school material for one year that would otherwise need to be purchased by the family. To attract the whole target audience, cooking classes could also serve as a mean to create more attention, more appeal and heighten awareness. The recent distribution of free computers in Tamil Nadu among the rural people (Steiner, 2011) could lead to the development of an educative computer game. A similar program by an earlier government in Tamil Nadu distributed free TVs. While interviewing the SHG women, the author was able to find out about the effectiveness of



this program: Most houses in the rural areas have no or only limited access to power. Not surprisingly, one of the women interviewed pointed to the unused TV, still in its box, when asked what she has received from the government (Appendix I). Consequently, developing a computer game will not be further considered within this thesis. However, developing an educational game as part of both the augmented product and the promotion strategy will develop a preliminary scheme to carry out the social marketing strategy (chapter 6).

The actual product, i.e. the desired behaviour, has already been defined by setting the objectives of the behaviour to be triggered. So far, a name for the actual product and the campaign has yet to be found and is considered to be very important. A name has an identifying and memorable effect and is thus also directly related and associated with the desired behaviour (e.g. “five a day” is a common and well known slogan reminding people to eat five portions of fruits and vegetables daily). This social marketing campaign will from now on be named “Show malnutrition your green tongue” and thus covers the core target group (children), the tangible object (Spirulina Candy) while at the same time delivering the message of the behavioural change's aim: combatting malnutrition. Furthermore, the slogan formulation encourages the base of the pyramid to develop the attitude that they can actively combat malnutrition themselves.

### *Price*

Adopting a new behaviour commonly comes with associated cost. This is the price, monetary or non-monetary, of the social marketing product. The tangible objects relate mostly to monetary costs, e.g. the price of Spirulina Candies. Non-monetary costs however are related rather to intangible issues such as time, effort and energy associated with the behavioural change. Based on the exchange theory, the benefits of the product offered to the target audience has to be at least equal to or even greater than what they perceive as their costs of the product. Hence, the target audience should perceive the desired behaviour only in terms of the positive benefits resulting from adopting this behaviour, and assess this behaviour as more beneficial compared to the perceived costs. Perceived non-monetary costs could be the accessibility of the Spirulina Candies, the fear of changing the behaviour or attitude in the area of governmental efforts of providing free food, self recrimination and guilt from not learning quickly from the educational messages delivered.

The pricing strategy aims at minimising these perceived costs and to increase the benefits of the product. Other elements of the marketing mix support the pricing strategy. Additionally, tools such as coupons, discount or recognition among the family and village members help to balance the scales of perceived costs versus benefits. Decreasing the monetary costs is the best known method and particularly important in the realm of the base of the pyramid where people face restrictions of monetary resources. But lowering the costs of the Spirulina Candy is hardly possible as it already is cross-subsidized within ANF by profit margins of other market segments. The emphasis has therefore to be to decrease the non-monetary costs and the costs relative to the habits of the old behaviour as well as to increase the non-monetary (appreciation) and monetary benefits (buy one pack of candies, get one free). Furthermore, the pricing objective lies in maximising the number of target adopters which leads in the realm of the base of the pyramid to competitive-based pricing (Kotler et al., 2002). Hence, a child having one rupee builds its buying decision based on how many candies it can purchase for this amount. Therefore a normal candy for only 50 paise (half a rupee) wins when competing against the Spirulina Candy for one rupee despite delivering additional value in terms of nutrition to the child. Thus, this perception of the child needs to be changed and targeted in determining the pricing strategy. It is also crucial to consider within the pricing strategy the broader target group. Children get their pocket money from their parents and it is equally important therefore to design the strategy based on the parent's perception of the benefits and costs. Consequently, parents have to perceive the costs of the old behaviour, e.g. buying normal candies, as higher compared to the new behaviour, e.g. buying Spirulina Candies. Price incentives as monetary benefits, combined with non-monetary benefits, such as recognition among the village population of being a good mother if you buy Spirulina Candies instead of not nutritious candies are elements of a successfully outlined pricing strategy.

### *Place*

The third P of the marketing mix, place, determines where the target audience performs its behaviour, purchases tangible objects or receives services as part of the augmented product offered. A successfully applied place-marketing tool establishes strategies that support the target audience in applying the desired behaviour, ensure the possibility of

purchasing tangible objects and of receiving services. Accessibility is thus an important aspect specially in geographically remote areas which can be facilitated by efficiently working supply channels. Chapter four has discovered room for improvement in terms of accessibility. The low performance of the Spirulina Candy sales are also partly a result of irregular promotion activities in the remote areas. Hence, though the network of the SHGs ladies and small village kiosk ensure proximity to the target audience and ease performance of the behaviour, consistency in applying and using this network is lacking. This is also true for the famous yoghurt Shoktidoi<sup>16</sup> from the Grameen Danone Food Ltd. [GDFL].

*“The sales volume has been disappointing and the Shokti ladies distribution strategy has not worked as expected (...) and only 20 % of its sales are through Shokti ladies to the rural market”* (Garette & Karnani, 2010, p. 5).

According to Mrs. Frey of the Nutrition Improvement Program of DSM, the reason for this low performance results from paying a too low salary resulting in a decreased appreciation of the Shokti ladies efforts and a decreased motivation of the Shokti ladies to carry out this work (Appendix V). The motivation of the SHGs women is therefore an important factor to consider and take into account in order to create profitable and sustainable supply channels.

Another way to increase accessibility and improve performance of the desired behaviour are collaborations with local NGOs and institutions. ANF can thus further increase the amount of partner NGOs while remaining aware of the balance between quality and quantity of NGOs. NGOs still share a different mindset in terms of business approach in alleviating e.g. malnutrition and in most cases time and energy are needed to get the NGOs into the same boat and have them collaborate with ANF. In addition, institutional partnerships such as the current collaboration with Child Fund India increases significantly the size where the target audience can perform its behaviour.

### *Promotion*

The promotion as the last part of the marketing mix creates the message and defines the channels used to bring the message forward. In a nutshell the social marketing campaign

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<sup>16</sup> The name of this yoghurt means strengthening yoghurt and aims at alleviating child malnutrition. The collaboration between Danone and Grameen Bank started in 2006 (Garette & Karnani, 2010).

brings the message: “Show malnutrition your green tongue!” forward. Possible channels to deliver this message are games, as part of the augmented product, information booklets flyers and fact sheets for teachers and family, village exhibitions and school visits with presentations about healthy nutrition.

Chapter four has revealed the necessity of improving the promotion activities of ANF in order to trigger behavioural change and combat malnutrition sustainably. Developing an instrument to enhance the promotion activities of ANF is one of the outlined goals of this thesis (chapter 1.3). Chapter six will thus focus upon this in more depth and introduces a campaign instrument.

## **5.4 How Will we Stay on Course?**

In order to stay on course with the social marketing plan, evaluation and monitoring are important instruments to assess the achievements of the outlined goals. These develop the basis with which to measure the success of the plan. With reference to the goals set in chapter 5.2 the sales figures of Spirulina Candies, the weight of the children and the maternity death rate constitute measurable units to assess the social marketing plan. However, it is very difficult to really measure whether behavioural change took place and whether people at the base of the pyramid were able to improve their quality of life as a result of the social marketing campaign or from other factors.

Monetary sources are meanwhile important to finance promotion material, to develop and improve the product further or to support the efforts of the NGOs and their SHGs. ANF has budgetary support of Antenna Switzerland. Further, income resulting from the private market cross-subsidizes the low margins in the social market. The aim of the rural promotion project is to become sustainable. Hence, the income generated by both production and promotion of Spirulina flow back to the investors who provided the initial capital to start production. Some extra budget is however needed for non-recoverable expenditure for example promotional material that supports the social marketing campaign. The income resulting from the Spirulina sales would constitute monetary return flow. However it is difficult to depict how much the promotional material contributed to these sales. The margins in the realm of the base of the pyramid are already very low and should therefore flow into the pockets of the women promoting the products. These women represent the Spirulina product and should consequently be paid sufficiently as the

example of Shoktidoi has highlighted.

Collaboration is an important factor in order to stay on course such as the involvement of the NGOs in terms of promotion within the rural farm project. This indicator can be seen in the number of Spirulina Candies promoted alongside Spirulina tablets and reveals additional information about the degree of collaboration of an NGO. The collaboration is very important to allow the project to function successfully. However, this dependency upon the NGO also carries risks because the NGOs tap the margins of the SHG women. Hence, obtaining their collaboration ensures the sustainability of the campaign because the partnership between the NGOs and ANF enlarges the range of the SHG network whereby the campaign's message is brought forward and promoted widely.

The enhanced social marketing process also covers pretest and revision or updating of the strategy. Before implementing the outlined social marketing campaign therefore, pretests need to be made in order to assess the target audience's acceptance of the strategy and reaction to it. From this information the planner can obtain and use additional inputs to finalise the plan before upscaling it. The revision of the plan aims at improving it further after it has been applied over a period of time enabling enough data to be gathered and experiences to assess it.

## **6 Instrument for Nutrition Education – the Ladder Game**

This chapter proposes an educational ladder game as an integral part of the social marketing plan. Firstly, requirements for the game are defined based on the preceding chapter and the outlined social marketing strategy. Secondly, the concept of the game is developed by analysing two examples of educational nutrition games. Thirdly, the implementable aspects are highlighted and a first draft of the ladder game is presented. Finally, the game is critically evaluated along its defined requirements.

### **6.1 Requirements**

To enhance the social marketing strategy, this nutritional and educative instrument must address children in a manner which gains their full attention and involvement. The message delivered within the social marketing campaign needs to be broadcasted by the ladder game. The ladder game needs therefore to educate the children about the nutritional values of foodstuff they consume, teach them as to why they need essential vitamins and minerals and how they can improve their health and living conditions by adopting this new behaviour.

### **6.2 Game Concept**

In order to develop the concept of the game two examples of educational nutrition games are analysed. The concept of the ladder game is built upon the learnings resulting from these two examples.

The first example is a nutrition game, developed by HABA for five years old children and older: “Taste it all. The motion and nutrition game” [Besser-Esser. Das Ernährungs- und Bewegungsspiel] (Warich & Dirscherl, 2008). In a playful, active and educational way the children familiarize themselves with the foodstuff their body needs throughout one day as well as the importance of exercise. Consequently they learn to question their eating habits and understand the importance of physical activity to maintain a nutritional balance. The food pyramid builds the basis of the game depicting the portions of different foods for one day. Throughout the game each player collects the different foodstuffs and checks them with the stamp on their own food pyramid sheet. The first to have stamped all of the boxes of his nutrition pyramid wins. However, another award can also be won: “Today's Sports Champion”. When you “ate” (=already checked the according boxes on your sheet) too

much foodstuffs such as fish/meat, dairy products and oil/fats and sweets you can compensate by some physical exercise. The exercise cards give instructions on the exercise to be accomplished, which are worth a stamp on the exercise stamp collector. Whoever collected the most stamps earns the title “Today's Sports Champion”!

The playful approach and direct examination with different food groups is certainly a good way to gain the children's attention and also achieve some retention of the educative messages brought forward by the game. However in the context of Indian culture and combatting malnutrition some additions and changes need to be made.

Firstly and most obviously the food pyramid needs to be adapted to both local foods and local food habits. For example, a food pyramid based on the daily consumption does not meet reality at the base of the pyramid. Conversations with women living at the base of the pyramid in Tamil Nadu revealed that meat is only consumed once a week on Sundays (Appendix I). It therefore makes more sense to use a weekly food pyramid. The figure below shows an example of an Indian food pyramid. Instead of mostly wheat products, rice is a staple in Tamil Nadu eaten in form of Dosai, Idli or Byriani. Living four months within a local family with children the author also learned that noodles are a very popular food item within the base category of the food pyramid (figure 19). Pulses are a commonly used substitute for meat and deliver a similar nutritional value. Fruits and vegetables as well as sweets are also changed to suit local habits and customs.

Figure 19: Indian food pyramid



Source: Semda, 2008

Looking at the food pyramid one could argue that this social marketing strategy is inconsistent in delivering the message to consume little to no sweets yet delivering a sweet as part of the augmented product. Quite the contrary: by promoting a sweet that improves the nutritional status of the people rather than promoting the prohibitionist and finger-pointing message of “no sweets”, this social marketing strategy provides a realistic solution. Furthermore the strategy is not limited to the promotion of Spirulina candies. Its aim is to combat malnutrition by education and the use of local resources and therefore the whole package needs thus to be considered and evaluated.

The game does not explain or take up the issue of micronutrients. By playing the game children do not learn anything about the nutritional value of the different food items in terms of vitamins and minerals. Furthermore, they also do not learn why these vitamins and minerals are essential and necessary for them.

In addition, consumption and preparation of food should include important hygienic aspects. These aspects are not considered either within the “Taste it all” game due to its target group and realm.

The second example addresses some of the missing aspects within the “Taste it all” game. DSM has developed a story booklet broadcasting to children in a colourful and entertaining manner the importance of the different vitamins and minerals in order to raise acceptance



of their product “MixMe”. The MixMe boy asks for the children's help to regain his strength. By eating the right food items containing important nutrients, which are also in the MixMe product of DSM, he becomes strong and powerful again. With different quizzes and games throughout the booklet the children learn what food items contain which vitamins and minerals. Thus they gain nutritional knowledge and help the MixMe boy to make the right food decisions.

Furthermore, the story also addresses hygienic aspects in food preparation. However due to its context the story book does not address the food pyramid per se nor is it designed for one specific cultural realm. To be successful the food items presented need to be adapted accordingly to suit local conditions. The booklet familiarises children with the vitamins, minerals and their purpose convincingly and is within the children's ability to grasp the message. Figure 20 shows how vitamin A is explained to children. The picture reveals the result of lack in vitamin A: bad vision. Hence, following the line on the blackboard from the shape to the circle presents food items containing a lot of vitamin A: carrots, melons, lettuce and milk. Within the ladder game (figure 21) Spirulina Candies would be added to the food items on the blackboard.

*Figure 20: Explaining the importance of vitamin A to children*



*Source: DSM, 2009, p. 9.*

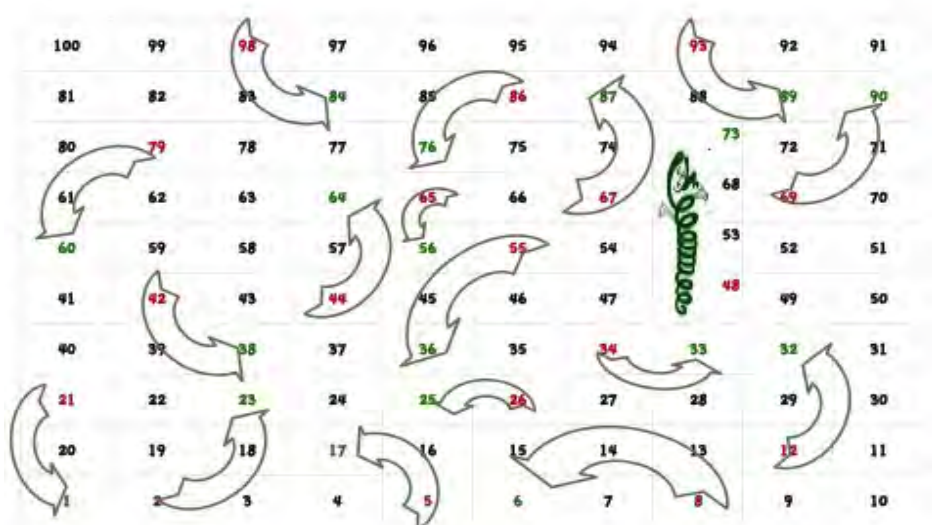
Combining the best practices of these two approaches the following ladder game has been developed as a channel for delivering the educative message of the social marketing

campaign “Show malnutrition your green tongue”. The aim is to teach children the importance of a healthy daily diet by presenting the food pyramid together with the nutritional values of the food items. The children learn why they should eat certain foods and what vitamins and minerals are good for them and why. Furthermore, the ladder game also addresses the issues of both food and personal hygiene.

The game is based upon the common ladder game where the aim is to get as quickly as possible from the starting square (number 1) to the 100 square. Each person places a wrapped Spirulina Candy on the starting square. The first person rolls a dice. Based on the age group of the children playing additional rules are applied. If they are on the red numbered square school aged children, eligible to read, need to answer questions correctly and fulfil different exercises successfully about the food pyramid or nutritional and hygienic aspects. Younger children play the game without answering questions. The action fields, enabling children to jump forward, sliding backwards or downwards some squares, are illustrated based on the aim of the social marketing campaign “Show malnutrition your green tongue”. This enables even illiterate children to familiarize themselves with the food items and to memorise them.

Figure 21 presents the first draft of the ladder game: “Show malnutrition your green tongue!”.

Figure 21: Ladder game: show malnutrition your green tongue



*Source: drawing by author*

### **6.3 Game Implementation**

In order to successfully implement the game the person engaged in promotional activities has to explain clearly the game to the audience. Furthermore, the game should be ready to be played during the promotional and educative meetings of the social marketing campaign. The women promoting the Spirulina candies so far only in villages could broaden the promotional locations to schools. The game is then introduced in an educative realm and the message of the social marketing plan broadcasted to children. The game could also be handed out to mothers when they purchase two or three packs of candies at a time as an incentive. Important however is to make sure the concept of the game and its rules are fully understood.

### **6.4 Evaluation**

As mentioned this game is only a first draft. To fully design and implement the educational ladder game and meet the requirements more aspects need to be considered.

In order to develop the questions used in the game local nutritionists and specialists in the realm of nutritional issues at the base of the pyramid, such as agents of NGOs devoted to combat malnutrition need to be integrated. Only then can the high requirements for a successful and effective game be met and attained. Before broadcasting the game on a large scale it should be tested with a sample of the target audience which would mean that final corrections can then still be made and the game fine-tuned to enhance its success.

## **7 Conclusive Remarks**

### **7.1 Contributions**

Business approaches developed for the base of the pyramid combined with innovative strategies helped to ease the suffering of the poor – or even contributed to help them stepping out of poverty. Yet the motivational reasons for an enterprise to engage in such strategies, whether it is profit maximizing or creating social welfare, have not been considered within all cases from the view of the base of the pyramid. The characteristics of the base of the pyramid and their way of thinking and needs have been inadequately addressed in too many cases in the past. Hence this thesis tried to put light into the debate and legacy of Prahalad's theory of the base of the pyramid and presented the characteristics of the base of the pyramid in order to sustainably address the issues facing the base of the pyramid such as malnutrition and poverty. Furthermore, this thesis presented two tools, value-based business models and social marketing, as a means to bring forward solutions to the base of the pyramid addressing their suffering rather than only discussing about how and why to serve this promising market.

Malnutrition is very prominently widespread and has severely detrimental effects upon the life span and quality of life of the individuals exposed to it. Children especially are very vulnerable and suffer severely from a poor diet. This thesis explained the different types of malnutrition and discussed a variety of strategies to address it. The strategy of ANF, to combat malnutrition with Spirulina Candies, has been presented in more depth and analysed by the first tool presented, business models. Access needs to be smoothed to value dissemination and transfer and the target audience, especially children, need to be addressed more directly and specifically. The second tool, a social marketing plan, was also directly applied to the case of ANF and a strategy has been developed to improve their state-of-the-art marketing by implementing a social marketing campaign. The children are increasingly addressed and the population at the base of the pyramid is educated beyond Spirulina. They will learn what malnutrition is, why they suffer from it and more importantly what they can do against it. Hence the strategy's focus lies on building competencies by education. This educational approach is furthermore supported and stressed by a ladder game, addressing mainly children and emphasising a non-finger-pointing strategy for the social marketing campaign.

## 7.2 Limitations

Alas this thesis and moreover this conclusion is not (yet) an answer to the issue of malnutrition. The global problem of malnutrition and its severity need contributions on a larger scale. Numerous stakeholders involved propose a variety of strategies to address the issues raised. This thesis brought to light only one out of many aspects of the problem. The focus of the thesis is also limited to the geographical area around Madurai, Tamil Nadu in India. Malnutrition however is not confined to this area. Moreover, the propositions and the social marketing plan need further investigations and interactions with local stakeholders such as nutritionists. Only this can guarantee the successful implementation of the outlined social marketing campaign. Furthermore, the campaign needs to be pretested before scaling up and monitored in order to draw learnings and react to them accordingly.

## 7.3 Epilogue

*“There is only one thing that makes a dream impossible to achieve: the fear of failure.”*

Coelho, 1993, p. 141

Four years are left to attain the MDGs. This thesis is only a small contribution to attain one of them. Yet it is a cost-effective and promising recommendation worth following up and developing. Fear of failure is not an option in combatting malnutrition – let us take the next step to achieve the dream of combatting malnutrition, for a first step in Tamil Nadu.

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## **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.”

## **Appendix I - Transcript of Interviews with SHG Women in Tamil Nadu, India**

The interviews were carried out on two dates, June 1<sup>st</sup> and June 13<sup>th</sup> in 2011 in five different villages with eleven different women. All of them are part of a Self Help Group. The interviews were conducted to assess the use of the microcredit they have received by Antenna Trust. Furthermore, the author of this report wanted to learn more about the life at the base of the pyramid and their available resources. The original language (Tamil) was orally translated by Mr. Rajendran of EXIST Trust, a local NGO in Madurai. The author took notes and wrote this script, reproducing the essential and translated content of the interviews.

### **Date of Interviews: June 1<sup>st</sup>, 2011**

**Name: Ms. Devi, SHG: Vaigai Roja, Village: Mullipallam, NGO: Dalit**

A 40 year old woman, living with her husband and three children (youngest boy in 9<sup>th</sup> standard, two elderly are over 18 years old working as daily labor and in teacher training) in a thatch, with one single room about 18 square meter small. The family does not own the house, but lives there on mortgage for 10'000 Rs. Last month, some maintenance work to fix a leakage costed them about 1000 Rs. The thatch does not have any sanitary facilities.

Ms. Devi is in the SHG “Vaigai Roja” and joined it three years ago. She received twice internal loan, which she used for educational purposes for her son. The amount received was 2000 Rs. the first, and 3000 Rs. the second time.

From Antenna Trust she has received three times loan (5000 Rs., 7000 Rs., 10'000 Rs.), and is now applying for the fourth loan of 13'000 Rs. All loans she has spent on educational purposes.

The total loan balance she faces amounts to 100'000 Rs., of which she has to pay 4000 Rs. monthly interest.

Ms. Devi generates income from agricultural work, monthly 3000 Rs. Her husband is also involved in agricultural labor, where he can work approximately half of the month and generates 4000 Rs. monthly. Ms. Devi purchased in 2010 four goats (1 goat = 2500 Rs.),

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with the money she has received of family functions (30'000 Rs.). Today she is the proud owner of 10 goats, including 6 goats born last year. One small goat is worth 1000 Rs. Additionally her sons contributes 1000 Rs. monthly of his income to the family. Her vision for the future is to get as many goats, to close of all of her loans.

The expenses she faces for food amount to 4200 Rs. monthly (100 Rs for weekdays daily, 300 Rs for non-veg food on Sunday). The remaining expenses amount to 2000 Rs. monthly. For education she has to cover 5000 Rs. yearly. However her sons education for the teacher training costs 60'000 Rs. for two years – for this she is applying for a subsidy. Last year the amount of 60'000 Rs. had to be covered for her sons health (problems with his leg). This she covered by an external loan.

From the government she received a free TV as well as 20kg free rice per month.

Her major current problem is that she has no room for her goats.

**Name: Ms. Mani Mekalai, SHG: Vaigai Roja, Village: Mullipallam, NGO: Dalit**

42 year old Ms Mani Mekalai was deserted by her husband fifteen years ago and lives with her mother in a cement house. They do not possess any legal papers claiming the ownership of this house, and face pressure to move out of it. LHer brothers possess the legal papers and are permitting the mother to stay in the house up to her death. Last year she had to pay 50'000 Rs for major maintenance work. The house has two rooms: a kitchen and living room, but no sanitary facilities.

The SHG “Vaigai Roja” issued her twice a loan of 10'000 Rs. and 20'000 Rs, which she used as an investment in rearing her cow.

From Antenna Trust she has received three loans (5000 Rs., 7000 Rs., 10'000 Rs.), and is now applying for a fourth loan of 13'000 Rs. She used the loans mainly for medical expenses and house maintenance.

Her total loan balance right now amounts to 20'000 Rs, of which she has to pay 400 Rs. monthly interest.

Her income is generated by her cow-rearing activity which she started seven years ago. She owns two big and one small cows. She is able to earn 5000 Rs. net income per month. Additionally she is able to make 600 Rs. annually by selling cow dung. Her mother receives 4000 Rs. monthly pension from the government. Because Ms. Mani Mekalai does

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not have any children, income from functions are lacking.

Monthly expenditures amount to 6000 Rs., plus 500 Rs. monthly for maintenance cost and travel expenditure.

From the government she received a TV and 20kg free rice monthly.

She has no interest in increasing the number of cows she owns, as she considers the risk too high and she feels it is very time consuming.

### **Ms. Nageshwari, SHG: Tadagai Nachi, Village: Rishabam**

Ms. Nageshwari, 45 years old, lives together with her 25 year old son – who is soon to be married – in a mud house with one single room. Her husband passed away in 2003 and her daughter is already married and living with her family.

For the mud house she had to pay 5000 Rs. maintenance cost last year. The size of the house is about 17.5 square meters (3.5m x 5m).

The SHG issued her two loans (10'000 Rs., 15'000 Rs.) which she invested in the cultivation of land (plantain and paddy). She joined the SHG in 2007.

From Antenna Trust she has received two loans (10'000, 15'000) and is now applying for an entrepreneurial loan of 25'000 Rs. All loans have been invested into her agriculture business.

Her family owns 2.5 acres of land<sup>17</sup>, which they farm themselves (plantain and paddy). She works 1/3 of the month for this, the other 2/3 she works as a labor on different activities (weeding, planting, loading). As a labor she can generate 100 Rs. daily. The net income (excluding investment) of the own agriculture is 13'000 Rs. yearly for paddy, and 50'000 Rs. yearly for plantain. Her son works in industry and earns 4000 Rs. monthly. She is also rearing poultry (30 chickens) of which she earns 2000 Rs. every three months.

The investment to run the plantain business amount to 40'000 Rs. yearly, for paddy 16'000 Rs. yearly.

Her expenses are 3000 Rs. monthly for food, 4000 Rs. yearly for clothing, 2000 Rs. yearly for health. She has no outstanding loan.

From the government she also received a TV, which is still in the box, as she does not

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<sup>17</sup> 1 acre = 15 lacs



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have any electricity in her mud house. Also 20 kg of free rice monthly, and subsidised oil she purchased through the support of government.

Her goals or plans for the next investments are to build her own house (for this she already purchased 3 cents<sup>18</sup> of land for 175'000 Rs.), conduct the marriage for her son and to buy more land.

### **Ms. Shinnathai, SHG: Tadagai Nachi, Village: Rishabam**

55 year old Ms. Shinnathai has four sons and two daughters. One son is not yet married and lives with her and her husband in their owned tiled house. They share three rooms (kitchen, living area and worship). The maintenance costs are 2000-3000 Rs. yearly.

In 2007 she joined the SHG “Talagai Nachi” from whom she received two loans of 2000 Rs. She invested the amount on fodder (forage) for her cows and for her shop.

From Antenna Trust she has received two loans (10'000, 15'000) and is now applying for an entrepreneurial loan of 25'000 Rs. All loans have been invested into her shop and cow rearing. The next loan she plans to use for family expenses, the expansion of her shop and a new cow.

The income she generates comes from the 37year old petty shop (selling oils, pulses, snacks, vegetables, milk). Daily she generates 400 Rs, of which 350 Rs. are used to cover her running costs, and 50 Rs. is her remaining net income. In addition she sometimes works outside and manages to earn 400 Rs. monthly. The initial investment for the shop was 20000 Rs.

She also owns two cows from which she earns 4000 Rs. monthly net income and two goats, which she bought for 2000 Rs. each and plans to sell them within a few months for 3000 Rs. each.

The shop, taking care of cows and goats is done by the whole family. The son also works as a driver and earns 6000 Rs. monthly which he gives his parents.

The family does not have any savings and no outstanding loans.

Expenses for food only amount to 50 Rs. daily, as they cover their needs by the things they sell in their shop or produce themselves (e.g. Milk, vegetable, oils). For Sunday daily

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<sup>18</sup> In [India](#), a cent is a measure of area and equals  $\frac{1}{100}$  [acre](#) (40.468 m<sup>2</sup>).

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expenses are higher, due to non-veg-food for 200 Rs. Monthly 3000 Rs. are spent on presents and 1000 Rs. for health (e.g. Hospital).

Her plans for her future are a new roof for her shop, as well as an electricity connection and expand the product variety available in her shop. She also plans to dispose of one of her cow and to invest into buying a new cow.

From the government she receives 20kg free rice monthly, plus a TV and a gas cylinder and stove for free.

### **Date of Interviews: June 13<sup>th</sup> 2011**

**Name: Rajakantham, SHG: Nila Women Group, Village: Kalavaneri**

53 year old Rajakantham lives with her mother in her own cement house (inherited property from her mothers side). Her husband, son and daughter in law with her grandson live in Erode, 300km away from her village.

She joined the SHG in 2007 and received two internal loans (3000 Rs., 5000 Rs.), and five loans from AT (2000 Rs, 4500 Rs, 5000 Rs, 10000 Rs, 15000 Rs). From the bank she obtained three loans (2000 Rs, 4500 Rs, 10000 Rs.). 60 % of the loans she has given to her family in Erode to support the family business in Plastic Material Sales.

In her village she runs a 7year old petty shop selling vegetables, oil, egg and snacks. 40 % of the loans she invested in her shop.

Her daily net income from the shop is 50-100 Rs. a day. The business in Erode brings in 10000 Rs. monthly net income.

She owns 3 acres of rain-fed land (only fertile during rain season) and 2 acres of wet land (fertile all year around). She is currently not using the land, but has it on lease for 30000 Rs. (Mortgage).

Her expenses for food are 1000-1500 Rs monthly for herself and her mother. Her family in Erode has daily expenses for food of 100 Rs.

For the whole family together (Erode and Kalavaneri) the monthly expenditures for social gifts are 1000-2000 Rs, for clothes 3000 Rs. monthly and 500 Rs monthly medical expenditures. The running costs for the house are 150-200 Rs monthly.

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The AT loan enabled her to run the petty shop and invest meanwhile in the business in Erode.

She knows Spirulina, because the children receive the candies in the tuition centers. Personally she does not take any Spirulina.

Because businesses are charged higher for current, she does not use electrical lighting for her shop, but charges a lamp with the current from her house, and then uses this lamp in the shop.

From the government she received a TV based on ration card subsidised services, and 20 kg of free rice monthly.<sup>19</sup>

**Name: Sasikala, SHG: Nila Women Group, Village: Kalavaneri**

She lives together with her two children, mother in law and her husband in a newly built house. The house, built 1.5 years ago, has three rooms, toilet facilities and costed 5 lacs Rs.

She is engaged in a tailoring business and works in a company which is processing a type of sea algae used for fertilizers. 6 days a week she works for this company earning 110 Rs. a day. With her tailoring business she earns 70 Rs. daily (equal to tailoring 2 blouses a day which she does after working at the company at night). The machine for her tailoring costed her 1500 Rs.

The family owns 3 acres of rain-fed land and 40 cents of wet land. The rain-fed land is cultivated with pulses, bringing in 3000 Rs. yearly, (but the family mainly uses them for their own consumption) and cotton. Cotton brings in 5000-6000 Rs. a year. The wet land is cultivated with paddy. The harvest is about 10 bags of paddy per year, which amounts to 60000 Rs. yearly.

Her husband works as an insurance agent, earning 10000 Rs. monthly.

The expenses for the whole family are 5000 Rs. monthly for food, 10000 Rs. yearly for clothes and 30000Rs yearly for social gifts. 460 Rs have to be spent monthly for travel costs to the school and 5000 Rs. per year on health related expenditures.

From her SHG she has received four internal loans (2000Rs., 3000 Rs., 5000 Rs, 15000

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<sup>19</sup> If not stated differently, all the women interviewed receive these gvt support.

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Rs.). From the bank she obtained three loans (2000 Rs, 4500 Rs, 15000 Rs) and from AT she has received five loans where the last one was specially for the construction for her house (2000 Rs., 4500 Rs, 10000 Rs, 15000 Rs, 25000 Rs. ).

She used to have goats but sold them in order to have money to build the house.

The loans helped her to improve her life by constructing the house. This was only possible by also using the loans her mother and mother-in-law have received.

She took Spirulina tablets from ANF over three months, but feels that it was too costly and she did not feel any benefit. When asked about her doses, it became clear why: she did not use Spirulina properly and did not cover the minimum intake. Sasikala's comment: When you give it for free, I will eat it.

Asked about her future plans, she mentioned three points: to convert the rain-fed land into wed land, investing further into agricultural business and investing in her children's education.

**Name: Kumari<sup>20</sup>, SHG: Siru Wiwasayi Bengal, Village: Kalavaneri**

Kumari's right leg is partially paralysed (problem with bending her leg). Even though she has had surgery, the status has not improved.

As a widow, she lives with her two sons in her house inherited from her father with three rooms.<sup>21</sup> Her first son is working as a driver, the second son is in 11<sup>th</sup> standard.

Previously, she was working in agriculture and at small mills but started her tailoring business in 2007 (when joining SHG). She was able to exchange her old machine for a new, electric machine thanks to the support of a NGO. Thus, even though her leg suffers from a partial paralysis, she is able to stitch 3-4 blouses a day and earns 120 Rs. a day. Additionally she receives 1000 Rs. monthly widows rent (with the previous government this amount was limited to 500 Rs.).

For two months her son also contributed his income as a driver of 2000 Rs. monthly to the family. This month however he was not able to do this due to some expenditures of his own.

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<sup>20</sup> This interview was very emotional, as Kumari started crying while talking about the health issues of her family.

<sup>21</sup> Compared to Sasikalas house, Kumari's house is very small and dark whereas Sasikalas house has more square meters, though both homes have the same number of rooms.

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From the internal SHG loan system she has received two loans: 5000 Rs and 10000 Rs.

From the bank she received three loans (2000 Rs, 4500 Rs., 10000 Rs.).

And from AT she has received five loans (2000 Rs, 4500 Rs, 10000 Rs, 10000 Rs, 30000 Rs.).

The SHG loan she only used to cover the health expenditures for her sisters, who suffer a severe mental illness.

The AT loans were used to buy clothes for stitching, a goat (but this goat died) and again to care for her sister.

The loan from the bank were used for maintenance work for the house (10000 Rs.) and to retrieve her jewels mortgaged at the bank (7000 Rs.).

The loans used to cover the health expenditures of her sister were paid back by their husband. Kumari was also able to pay back the other loans with her widow rent and earnings from her tailoring business. If there would have been no health issues to cover, she would have used the loans to buy more goats or other assets.

Her expenses are 1500 Rs. monthly for food, 2000 Rs. yearly for cloth and 1000 Rs. monthly for social gifts. <sup>22</sup>

**Name: Alagamal, SHG: Surya Gandhi SHG (Sunflower), Village: Kalavaneri**

Alagamal's family is somehow special: Her sister married her husband, because she was not able to receive any children. Thus her sister lives now with her husband and her daughter (18 yrs old, in 12<sup>th</sup> standard) in the same village, but in different houses. Alagamal is living together with her other sister in a small 2 room house, which is at the same time her tea shop.

The tea shop is run together with her husband and sister each having a division. Her sister produces the food like vadai, idli and other snacks, and both, the sister and Alagamal are selling the products. Because her shop is located in the village she is selling more compared to her sisters shop, which is close to the bus station and serving mostly travellers.

The gross income of her shop is about 600-700 Rs. daily. She can not say anything about

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<sup>22</sup> Expenditures for social gifts in Tamil Nadu are equal to an investment.

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the costs she has, as her husband is taking care of that. Estimations can only be made based on the quantity of milk bought outside (10 litres daily for 1l costs 25 Rs.). Thus approximately 350 Rs. daily profit from only her shop.

She also owns 1.5 acres of wet land, but during the past three years it has not been cultivated.

So far she only received loans from AT (3000 Rs., 10000 Rs, 13000 Rs). When asked, why she did not yet make use of the internal SHG loan system she said that she wants to wait until she can really use the loan to pay for her daughters education. The AT loan she invested into her tea shop.

She appreciates the AT loan system, because it is easy to pay back compared to the banking loans or any other systems.

For her future she plans to expand her tea shop by increasing the variety of products and to invest into the education of her daughter.

Asked whether she knows about Spirulina or not, she replies with no – even though just opposite her house is the tuition centre for children where they get the Spirulina Candies.

### **Name: Kala, SHG: Dangai, Village: Menakshipurum**

Kala lives with her mother-in-law, her two sons, 1 daughter and husband in her own house. She knows a lot about Spirulina because she attended the training. Also, she bought three packs for her father and her children consume the candies at the tuition centre. For this she has to pay 10 Rs for two children per month. She is also interested in buying for herself, but the SHG stopped promoting it.

Her family is running a milk business. With their own 2 cows they produce milk, and in addition buy milk from 50 different families from 3 different villages. Totally they have 150 litres of milk of which 100 litres are sold to a dairy, and 50 litres are sold within their village. From this, a net daily income of 250-300 Rs results.

They also have three workers supporting them in the milk business.

She is also engaged in additional work such as spinning from which she generates 1000 Rs. monthly. Also, the family uses 1.2 acres leased land. The lease for this land is paid by 50 % of the harvest. Per year they produce 15 packs of paddy, which equals 15000 Rs

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yearly. 7500 Rs are the rent for the land and the remaining 7500 Rs are gross income. The total expenditures raise to 10000 Rs – thus considered like this the business makes a loss. But the family gets hay out of this business for their cows, which they would have to purchase other wise for 2000 Rs. So, in the end the agricultural business is a non-profit but also non-loss making business and they can use the rice mainly for their own consumption.

In addition, Kala engages in other selling business. She buys rice and other goods from outside and resells it. From rice-selling she makes 500 Rs. per month, from other goods she earns 2000 Rs. per month.

The loans she got from SHGs were once 5000 Rs, and twice 10000 Rs. Theses amounts she mainly invested in buying goats (they died), cows and the house.

From Antenna she has profited from four loans (2000 Rs, 4500 Rs, 7000 Rs and 10000 Rs.). These loans were used for cow rearing business.

From the bank she has received loans of 2000 Rs. and 10000 Rs.

The only open loan she has comes from her relatives of 50000 Rs, which were invested into the education, at an interest rate of 25 %.

For her future she wants to enlarge the house, expand the milk business to 500 litres for which she estimates 4 lacs investment to expand, and to invest in the education of her children. The AT loan system in her view can contribute mainly to achieve her business goals because it is easy to increase steadily the business with the fair conditions of AT. If the SHG system would not exist she would have to depend on moneylenders.

**Name: Manoranjitham, SHG: Valar Pirai, Village: Valaypatty**

The four family members live in their own cement house. The son attends 9<sup>th</sup> standard, her daughter is entering college. Her husband is a graduate in Mathematics (Bachelor).

One year ago she has joined the SHG. Thus she has only received one internal loan so far of 1000 Rs. From Antenna Trust she received 5000 Rs. Both loans were mainly used for the shop. However, the internal loan of the SHG gave her the freedom to purchase some jewellery for herself without asking her husband for money or permission.

Her main business activity is to run the shop together with her husband where they sell

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groceries and snacks and prepare tea and coffee. This shop is 15 years old and gives them a daily net income of 150 Rs.<sup>23</sup>

Additionally, the family owns 1 acre of rain-fed land where they plant paddy and cotton. The gross income for cotton is 2000 Rs yearly and 5000 Rs for paddy.

Her expenses are constituted by monthly food expenses of 2500 Rs., and the remaining expenses of 3000 Rs yearly. For education, they spend 4000 Rs yearly and 10000 Rs yearly for social functions.

Her expectations for her future are to expand the shop and to invest in her children's education.

**Name: Packiyam SHG: Thalampoo, Village: Valaypatty**

Together with her husband, son (23 years old) and daughter (19 years old), she lives in their own mud walled tiled house of one room.

The family runs a goat business with 4 goats. Three months ago they have purchased three goats for 13500 Rs. Within 6 months of the purchasing date they plan to sell them, at an increased value of 6000 Rs. per goat.

Additionally she earns 70 Rs daily as an agricultural labor, whereas her husband earns from the same 150 Rs. daily. Both work 20 days monthly.

Her son works as an electioneer and contributes 2000 Rs. monthly to the family's income. Her daughter works in a mill and contributes 1500 Rs monthly.

From the SHG she received four loans (2000Rs, 500 Rs, 1000 Rs, 3000 Rs). From AT she has received five loans (2000 Rs, 4000 Rs, 10000 Rs, 10000 Rs, 13000 Rs).

Outstanding loans she faces are from outside (not AT and SHG) and amount to 5000 Rs.

The family has an interesting savings system: every time they have earned money from their goat business, they have invested this money together with their earnings from agricultural labor directly into buying jewellery for their daughter. Thus, they accumulated so far 5 sovereigns of gold.<sup>24</sup>

The family expenses for food amount to 2000 Rs. monthly, and 3000 Rs monthly for

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<sup>23</sup> There were many people gathering around us. Thus this figure is most likely revealing a lower income compared to the actual earning of this family.

<sup>24</sup> 1 sovereign = 8gm of gold = 17'000 Rs



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remaining expenditures. 10000 Rs. they spend yearly for social gifts and functions.

Her goal is to organise wedding for her children, increase the number of goats so that either she or her husband can engage full-time in the goat business.

Her health status is not very good. She suffers from an eye problem and piles. She plans to go to a government run hospital to check her eyes and improve her health status.

The AT loan helped the family to access assets to save money for their children.

## **Appendix II - Interview with Vera Schädler, SVV**

This script will reproduce the essential and translated content of the interview. The telephone interview was conducted on October, 3<sup>th</sup> 2011.

The aim of the campaign was to raise awareness of the people, because the behaviour is hardly measurable. An external agency asked a random example of people, why they are driving over the speed limit. The speed merchants were thus not really in the centre of attention – also because they are somehow a hopeless case. More importantly were the latently speeding drivers, resulting from the daily stress, the fast way of life, or the common route they are driving on. The drivers are not really aware of their velocity, and the effects only a little over the speed limit can cause. In order to find out about these issues, conversations with traffic psychologists and the target group of young drivers (18-30 year old) were held. Important was to avoid a finger pointing campaign, because this hardly has any success when targeting a common society phenomenon.

Hence, the campaign evaluation did not focus to assess the behaviour per se (asking questions like “do you drive slower, because of the slow-down-campaign” would have hardly revealed qualitative results), but the broad effect. Facebook was a strong instrument and found general approval. Further, big firms, or driving instructors ordered the “SlowDown-Sticker” to equip their vehicles with it. The awareness raising, and to broach the issue of driving too fast can be said to have been successful. One threat was to achieve a balance between delivering enough educational aspects, but not to appear to instructive and cautionary. This would have led to a finger pointing campaign. Thus, we did not want to lose the reference to the driving style and velocity within the message delivered, yet meanwhile the message should also appeal the people. This led to lengthy discussions within the team.

The aim was NOT to deliver a prohibitionist or a roll call message. This would be perceived as “stupid”, and constitutes not much additional knowledge delivered to the consumers. The aim was to deliver a feeling. Even though the campaign was broaching the issue of too much speed on the road in a sense, the whole life is affected by going too fast. Hence the feeling affected the whole life, Slow Down!

The people were addressed by a cross-media approach: not too much posters, but more social medias like Facebook, adds on webpages, spots before movies in theatres (the

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movies were chosen based on the target audience of both, the campaign and the movie. Hence for example action movies, attracting a young audience, were common examples), even within racing games like “PS 2”, adds were placed. It was unbelievable to see the effect of viral marketing in such a short time!

The song was produced by Camenzind. It was on purpose to choose a “hang-loose” looking band, delivering the overall message to slow down. Also the angel was chosen based on these criteria. This led to an authentic campaign and through all the channels. In the end however, also a little piece of luck kicks in whether the campaign is successful or not. You can communicate everything through all the channels – but if the people do not believe in the message you are delivering, what's the use of everything anyhow? The main thing was to catch the target group within their life!

The sticker was also a goodie. We never sent it actively to somebody. However, half a million stickers were ordered actively. We have created a hype about this sticker. But the question arises also in my mind, why this campaign was such a success, yet the character Magrit Maggi such a flop!

## Appendix III - Report on Rural Promotion

### Rural Promotion of Spirulina



Report on Rural Promotion with four partner NGOs  
of Antenna Nutritech Foundation in Madurai

*by Selina Haeny*

June 25th, 2011

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## Appendix

### Introduction

The social market, constituted by poor people in need of micronutrients, is the most important market for Antenna Nutritech Foundation (ANF). Especially children and women are suffering from malnutrition and are thus highly in need of Spirulina. Meanwhile, this market segment is also very difficult to target resulting from several factors. The Rural Promotion with four partner NGOs<sup>25</sup> of ANF was launched in January 2011 in order to serve part of the social market. This report addresses the challenges of Rural Promotion, and proposes a strategy to curtail them in order to achieve sustainable sales levels – and reach out to most beneficiaries as possible!

### Products in Social Market

ANF has two products (Figure 1) to serve this market: the Green Tongue Candy and the 60s tablets. The pricing of these products is targeted to the customers at the bottom of the pyramid<sup>26</sup>. Thus they are able to purchase an affordable solution to combat malnutrition they are facing. A pack of Green Tongue Candies costs 50 Rs, containing 50 candies. The 60s flasks are purchasable for 99 Rs and contain 60 tablets of Spirulina.

*Figure 1 – Green Tongue Candy and 60s tablets*



### Sustainable sale level

Sustainable sale level within this report is understood in terms of the value chain of a Spirulina producing NGO. The sales level should correspond to the quantity of Spirulina produced, in terms of 60 tablets and packs of candies. Figure 2 shows the sustainable sale level of Dalit Trust, based on their production of Spirulina within the months of April and May.

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<sup>25</sup> The selection of these partner NGOs was based on the requirements to start a Spirulina Rural Farm.

<sup>26</sup> The details of the theory of doing business at the bottom of the pyramid are not considered in depth within this report but build the base of the approach and beliefs used in designing this promotion concept.

*Figure 2 – Value Chain of Dalit Trust*



Thus, with a production of 42.7 kg of Spirulina in April and May, 763 packs of Candies and 445 60s tablets can be produced. This quantity of products benefices over 380 children and 220 women. The calculation is based on the following theoretical assumptions: Fifty percent of the Spirulina produced is used for the production of the Green Tongue Candies, the other fifty percent is used to produce 60s tablets. Two packs of candies reach one child, and two containers of 60s tablets are consumed by one woman. However, the quantity of products within figure 2 are only used to explain the understanding of sustainable sales levels and understood to guide the definition of sales levels.

#### **Issues and difficulties in Rural Promotion**

This section addresses major difficulties in social market promotion, with special emphasize upon the Rural Promotion with the four partner NGOs in order to arrive at the improvement of the promotion in social market. It is divided into issues at customer level and at NGO level.

##### **Issues at the customer level**

Spirulina cannot be considered as an usual food product mainly because of two challenges: it is not well-known and its benefits do not reveal immediately. Conducting Awareness Meeting in order to promote Spirulina, addresses these challenges: First, it is explained where Spirulina comes from to be able to show that it is a natural food source. Second, the benefits of Spirulina and how it is a tool to improve health is explained. For that end, the banner depicted in figure 3 is used.

*Figure 3 – Promotion Banner Spirulina in Tamil*



The left side of the banner explains the different steps of the Spirulina production, from its cradle where the microscopic view of Spirulina is shown, to the final products Spirulina Green Tongue Candies and 60s flasks ready for consumption. The second part of the banner addresses the beneficiaries, children and women, by summarizing the main benefits for them taking Spirulina daily.

Another challenge experienced in Spirulina promotion is its price. Due to the low popularity explained above and the benefits only revealing after intaking it on a regular basis, one could conclude, rural women are not willing to pay 99 Rs. per 60s flask<sup>27</sup> and it should be given on a subsidized rate or even for free. This promotion concept argues against this hypothetical conclusion. First, the price is also a very important indicator of the products quality and value. Second, having to make a buying-decision, increases the involvement of the women within the buying-process, leading to an increased identification with the product. These points are crucial in taking Spirulina on a regular basis and being confident about the product and its intake. If it would be given for free, the women would not think about the product as thoughtfully, and most likely would not take Spirulina tablets on a regular basis – which is crucial in benefitting from its nutritional values. Experiences made in the field support this: women are proud to make their own buying-decisions and are happy to buy Spirulina. More importantly, interacting with women that have been taking Spirulina, they share their personal benefits and proudly re purchase Spirulina tablets.

The price for the Green Tongue Candies when directly compared with candies not containing Spirulina bears a comparative disadvantage. One Green Tongue Candy costs 1 Rs. whereas a non-spiru candy only costs 50 paisa. Further, some children and parents have criticised the smell of the Green Tongue Candies. Thus, promoting the Green Tongue Candy, giving awareness of Spirulina is crucial in order to clearly position the Green

<sup>27</sup> The 60s flask contains 60 tablets of 750mg Spirulina. Based on a recommended, daily Spirulina consumption for adults of 3 to 5 grams, the flask lasts for two weeks.



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Tongue Candy as a better share for their money: the nutritional values and improvement of the children's health status has to be highlighted in promoting the Green Tongue Candy. However, stressing the health benefits of the candy, it is somewhat contradictory to promote a sugar containing candy, attacking the oral hygiene and increasing the risk of cavities. This risk should be addressed in developing further products, which ANF has already started and is aware of it.

The awareness meeting addresses both, women and children, in explaining the benefits to them when taking the respective Spirulina products. Even though children were involved within the awareness meeting by making them read out loud these benefits, the explanation of the production process of Spirulina is probably not understandable by the very young children. Thus, there is need to increasingly include and address the children to overcome the comparative disadvantage of the Green Tongue Candy.

### Issues at NGO level

Starting in February 2011, the awareness meetings have been conducted by trained SHG members of four different partner NGOs of ANF. The trainings for the SHG members addressed both, production and promotion of Spirulina. But only two out of the four NGOs started their own Spirulina Farm of each 10 tanks, as only they were able to contribute appropriate facilities (land, water supply). Concerning the Rural Promotion, a monthly sales plan has been agreed between the NGOs and ANF. For the producing NGOs this plan has been set lower, due to their engagement in production, whereas the non-producing NGOs would have more resources (personal and time) to spend in the field promoting. Table 1 depicts the agreed monthly promotion plan.

*Table 1 – Monthly Promotion plan for Social Market*

NGO	Packs of Candies	60s	Spirulina Production
WED Trust and Dalit Trust	300	320	Yes
MS and MMS	300	480	No

In return of the NGOs engagement in promotion, for the months of March and April, each NGO has received 5000 Rs<sup>28</sup> from ANF for the trained Promotion (and Production) Ladies.

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<sup>28</sup> This Salary was meant only for the workforces engaged in Spirulina production. However, the first few months, this salary was paid to all the trained Spirulina-Ladies from the Partner-NGOs.

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Thus, for each Lady 2500 Rs monthly were additional to the margin based salary. Starting in May, the NGOs and their Promotion-Ladies generate only income based on the margins of the Spirulina products. Table 2 shows the constitution of the margins for each Spirulina product at the Bottom of the Pyramid.

*Table 2 – Margins of the Spirulina Products for Social Market*

Product	Price to NGO (incl tax)	Price to Customer	Margin to NGO
Candy (1 Pack)	36.4 Rs	50 Rs	13.6 Rs
60s (Flask)	74.25 Rs	99 Rs	24.75 Rs

Thus, based on table 1 and table 2, the total monthly income of promotion for a non-producing NGO amounts to 15993 Rs and for a producing NGO to 12022 Rs. Because the costs of promotion material are covered by ANF<sup>29</sup>, the only costs the NGOs need to cover, are travel expenditures to the villages and communication costs to organize the meetings.<sup>30</sup>

One issue at the level of the NGOs is that they did not achieve their planned sales and thus were not able to generate the planned income. Thus, the salary paid in the first months can be considered as a supportive salary. However, the NGOs expected ANF to keep paying directly the salaries to the Promotion-Ladies from funds. Thus, they were not able to understand the concept of sustainability within the margin-based salary system. After a special meeting on June 10<sup>th</sup>, and the support of the chief functionaries of WED Trust in explaining again to the partner NGOs, it appears that most of them have now understood this concept. However, the following months to come are crucial in order to clearly understand how far they have understood this concept. In order to assess this, the days spent in the field to promote, their sales as well as their repayment of the candies and tablets stocks issued to them can serve as indicators.

The days spent in the field are another important point to consider at the NGO-Level. As mentioned above within the salary discussion, the NGOs did not reach their sales plan. Figure 4 reveals the achieved monthly sales for candy packs and figure 5 the monthly sales for 60s tablets. The lower sales result mainly from the lack of days spent in the field.

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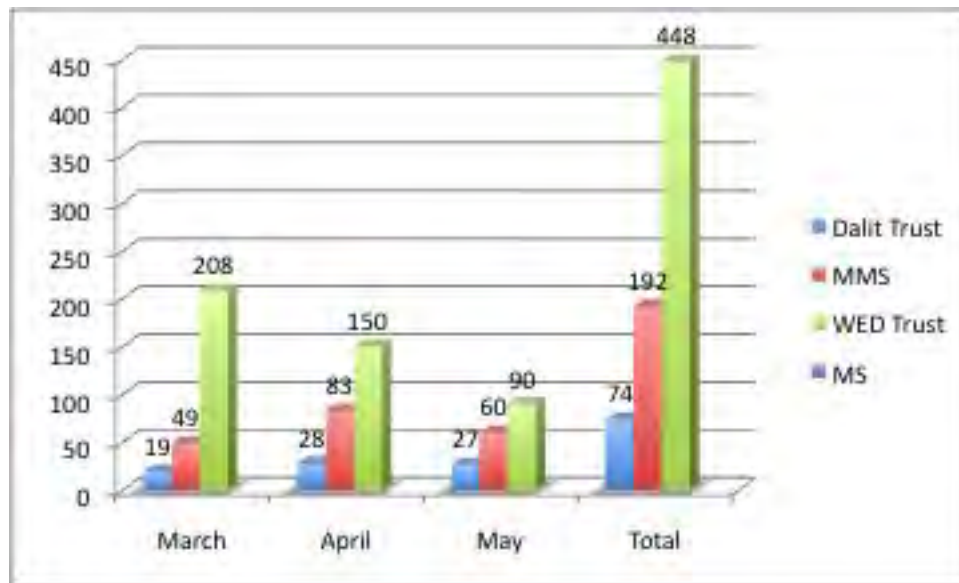
<sup>29</sup> Please refer to chapter 4 for the costs of promotion material.

<sup>30</sup> This report will not elaborate further on the income-generating aspect for the NGOs and the Promotion-Ladies resulting from the promotion activities.

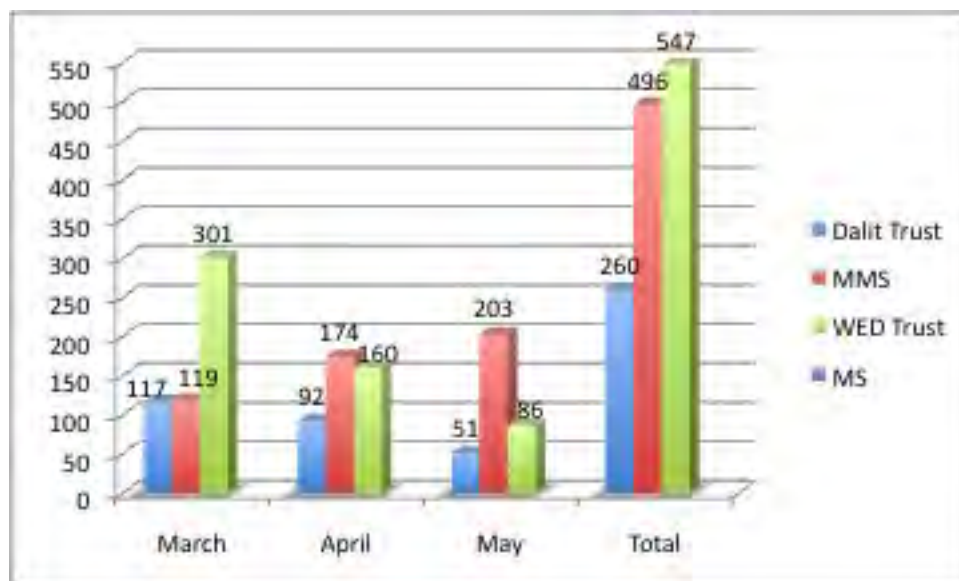
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Hence, in order to really engage them, and make them realize to spend as many days as possible in the field to promote, the salary should be based on their efforts. Otherwise, depending also on the NGO, the risk is high that they just earn money for not going to the field if paid a flat salary per month. Using the margin-based salary targets this point and encourages the Promotion Ladies to spend more days in the field, in order to earn more.

*Figure 4 – Monthly sales per NGO for Candy Packs*



*Figure 5 – Monthly sales per NGO for 60s Tablets*



Further, the engagement differs among the NGOs. Figures 4 and 5 reveal no data for the

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NGO of MS. Comparing with the involvement of the other partner NGOs over the past four months, it should be considered to stop the cooperation with this NGO, as all the efforts to engage them in Spirulina Promotion did not show any positive outcome. Thus, the resources of ANF should rather be invested into the remaining three partner NGOs and in establishing a reliable and sustainable network of Spirulina promotion.

At the NGO-level, another important aspect are the Promotion Ladies. They interact directly with the customers and represent the Spirulina products. In order to confidently promote Spirulina, they have been taught by ANF how to produce and promote Spirulina. Promoting Spirulina as mentioned before, is not the easiest task to do as it demands a lot of time and explanation to build a customer basis. Because of that, the Promotion Ladies also need further support and encouragement. One important point is that they also consume Spirulina, in order to be able to answer the questions raised by the people they interact with. Further, in the beginning phase, they should have the possibility to interact with other Promotion Ladies of the partner NGOs and learn from their successes and difficulties in the field. From this, they can improve their promotion task and gain further confidence in their work. Another way to support and encourage them is by providing them material they need, like the example of the bag shows (Figure 6).

*Figure 6 – Promotion Bag (left-side) in action with two Promotion-Ladies of WED Trust*



However, while supporting them is good and important, it is meanwhile important to reach a balance of this. Thus support should only be given if it is used appropriately and does not go overboard. The example of the bag shows this: Whereas the bag is used and appreciated by the Promotion Ladies of WED Trust, the Ladies of MMS keep asking for a fancy bag, aimed more for their personal use than for carrying the Spirulina products. This

cannot be considered as a support for Spirulina Promotion.

### **How to reach more beneficiaries?**

The chapter of issues and difficulties has depicted some important challenges in promoting Spirulina within Rural Promotion on two different levels, the customer level and the NGO level. Some of the issues were already successfully addressed. However, in order to reach more beneficiaries, it is crucial to be able to raise the monthly sales at least to the planned level. Thus this section presents ideas how to improve and develop Rural Promotion further in order to reach sustainable sales levels.

First, the diversity of promotion activities needs to be increased. So far, promotion activities within Rural Promotion meant mainly to conduct awareness meetings. While these are very important especially in the first stage of promotion, long-term strategies to strengthen the sales market and availability of the products should also be implemented. Examples to improve the diversity are still in discussion together with the Promotion-Ladies. Some are being tested during the month of May, such as advertising during festivals that take place in the villages. Thus, at the time of writing this report, the experiences could not yet been shared and discussed thorough-fully.

Further, so far the candies sales are very low. As mentioned within section *2.1 Issues at customer level*, children should be addressed more directly and appropriately. Approaching schools can be one way, as well as ensuring after the awareness meetings, that at least one shop within the village sells the Green Tongue Candies and children are aware of this. Also, children usually come home from school around the same time by bus. Thus, the Promotion Ladies could also try to “catch” them when coming from the bus and holding a meeting only addressing children. One way could be to develop a game, explaining the production process of Spirulina from its cradle to the end product of the candy. By this game, the children are involved and attentive in order to understand and appreciate the difference between the Green Tongue Candy and a normal candy. This game could also be introduced together with local schools.

Second, the network of the engaged NGOs and SHGs needs to be enlarged in order to reach more beneficiaries. However, as the experiences of the past four months have shown, choosing cooperative NGOs, engaging in Spirulina Promotion is not a very easy task. The assumptive reason for this lies within the different approaches used. While the

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NGOs mainly depend on funds, ANF is running a social business. Thus, for some NGOs the concept of sustainable and income generating activities is not clearly understandable and communication can be very difficult.

To build a strong partnership with one NGO, able to understand the concept of ANF profoundly, could be a way to build a bridge between the different approaches in mind and overcome communication issues. This solution is clearly not a one size fits all solution, and needs to be carried out very carefully. However, within the case of this Rural Promotion with the four partner NGOs of ANF, it appears that WED Trust could become such a bridge builder.

The example of the salary discussion mentioned earlier has brought to light, that WED Trust, though also involved in raising funds, has not only understood thoroughly ANFs approach, but also agrees with it in the realm of Rural Promotion. Further they have taken the initiative by themselves and taken the opportunity to interact with two out of the three remaining NGOs, and explained them again the whole concept of Rural Promotion. Hearing from a NGO, maybe the other NGOs were more willing to listen and able to understand. Hence, who is communicating to the NGOs appears to matter and thus, a bridge builder could serve in overcoming the misunderstandings between NGOs and ANF. Clearly, the bridge builders role and its tasks need to be defined accordingly.

Apart from the improved communication, this bridge builder serves also as a door opener to increase the partnerships with more NGOs and SHGs. WED Trust has a well woven net of NGOs, and enjoys good relations with them. This can lower the barrier to enlarge the participating number of NGOs and SHGs in promoting Spirulina, when they are approached by a NGO highly involved in Spirulina business. To them, seeing a NGO engaged in Spirulina business is trustworthier than seeing a Social Enterprise, also tackling open market and assuming they only work for profit.

Additionally, there lies great potential in enlarging the Spirulina promotion network through the sister organization of ANF – Antenna Microcredit Network (AMCN). All of the already participating NGOs in Rural Promotion are also part of their microcredit network. Further, most of their NGOs know about Spirulina, as they have been engaged in Cultural Campaigns and other promotion activities about two years ago. Unfortunately, not everybody at AMCN shares ANFs way to promote Spirulina to the social market. Mainly

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what they criticize is the price and working with margins. To them it seems not fair to have the customer at the Bottom of the Pyramid pay for the margins the NGOs get and thus the price should be subsidized.<sup>31</sup>

### Promotion Material and Funds

After having discussed the issues and challenges, possible initiatives in improving the Rural Promotion have been presented. This chapter looks at material and funds needed.

#### Material already in use

Within Rural Promotion the ladies of the NGOs use fliers to inform children and women about the benefits of Spirulina. Further in raising awareness of Spirulina and its nutritional benefits they picture the production process by a banner. This banner is shown in *chapter 2, figure 3*. All the promotion material used at present are in vernacular language. The costs for these promotion materials are summarized in table 3 below.

*Table 3 – Costs of promotion material in use*

Material	Quantity	Cost
Flyer	10000	4500 Rs
Big Banner (Figure 2)	5	960 Rs
Small Banner	20 (5 x 4)	2440 Rs
Bag	8	1200 Rs
<b>Total Costs</b>		<b>9100 Rs</b>

There are five different small banners in use: explaining the production process, addressing the children, addressing the women, explaining the content of Spirulina and mentioning disorders Spirulina helps to limit or overcome as depicted in figure 7.

*Figure 7 – The Power of Spiru Power - small banners in tamil and english*

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<sup>31</sup> Please refer to the report on the Meeting at Antenna Microcredit Office on May 30<sup>th</sup> in annex A to learn more about the price discussion.

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The bags (Figure 6) costs were 150 Rs per bag. Each partner NGO received two bags from ANF to provide to their trained Promotion Ladies.

### Additional Material

To emphasize on children, A3 posters could be printed and hang up in schools with the permit of the teacher or school board. An example of such a poster is depicted in figure 8.

*Figure 8 – A3 Poster addressing children in tamil*



To print such posters in colour and on shiny paper, the costs for 14 pieces are 300 Rs.

As mentioned in chapter 3, small village stores selling the Green Tongue Candy should be supported by posters, or banners to hang up that are double-side printed and coloured. The design of such banner could look the same as seen in figure 8 – only the size and style of material will be different. The size would have to be smaller to fit into a small village store, but the material needs to be sturdier. The price of such a promotion material are estimated to be approximately the same like for the A3 posters, but the quantity should



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be increased to serve more stores.

Additional material to support the increased diversity of ways to promote Spirulina might also be needed, but at the time of writing this report, exchange with the Spirulina promoting women did not yet take place. However, the possible costs of such material are estimated to be in the same range like the material provided so far.

### **Total costs for promotion material**

This chapter shortly summarizes in table 4 the total estimated costs for promotion material needed for Rural Promotion with the four partner NGOs.

*Table 4 – Total costs for promotion material*

<b>Material</b>	<b>Quantity</b>	<b>Cost</b>
Already in use Material (table 3)		9100 Rs
School banner	14	300 Rs
Banner for village store	28	600 Rs
<b>Total</b>		<b>10000 Rs</b>

The quantity for banners at schools and village stores is limited, because the material should be tried out first, before providing them on a bigger scale. If the first schools and stores putting up the banners share positive feedbacks, more schools and stores can be addressed.

Further, to support the partner NGOs in establishing the customer base, consultancy visits are necessary. Each NGO has been visited by ANF twice in March, once in April and June. For the following months such consultancy visits are planned to take place once a month per NGO. The costs for such visits are 1500 Rs. Monthly, 6000 Rs are needed to support Rural Promotion. Also, once a month a Rural Farm Meeting takes place, where the four partner NGOs exchange their experiences in promotion and production. The costs for the meeting are 2000 Rs per meeting. Further, a “Spirulina Promotion Intensification Meeting (SPI-Meet)” is planned to take place every alternate month. SPI-Meet is addressed only at chief functionaries of the NGOs, and aims to give them more responsibility by brainstorming and contributing their ideas in more depth. The costs for such a meeting are estimated to be 2000 Rs.

These supportive visits and meetings are planned until December 2011 and started in

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February 2011. The SPI-Meet is new and will start from now on. Thus, the total costs for the supportive visits and meetings are 88000 Rs<sup>32</sup>.

Together with the promotion material, 98000 Rs are needed to cover the costs for Rural Promotion until December 2011.

### Conclusion

To promote Spirulina products within the social market important aspects need to be considered. The Rural Promotion is one way of promotion within the social market. However, as presented in chapter 2, some issues and difficulties in Rural Promotion burden the aim to reach as many beneficiaries of Spirulina as possible. To overcome them, chapter 3 focused on strategies and ideas to reach more beneficiaries. Funds and material needed to put the strategies into practice have been presented in chapter 4.

The success of Rural Promotion can be supported by such initiatives, but depends mainly on the NGOs involvement, and especially on the Spirulina Sales Ladies efforts! Further, the four partner NGOs engaged in the realm of Rural Promotion act as a role model for further collaborations with other NGOs. If they feel confident and well supported in carrying out their efforts in promoting Spirulina, the probability to reach more beneficiaries increases.

Or to put the conclusion in the words of a famous german poet:

*“Ausdauer wird früher oder später belohnt – meistens aber später.” (Wilhelm Busch)*

[Endurance is being rewarded earlier or later – most of the times though later.  
(Translation by author)]

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32 Rural Farm Meetings:	10 x 2000Rs = 20000 Rs
Monthly Field visits:	10 x 6000Rs = 60000 Rs
SPI-Meet:	4 x 2000Rs = 8000 Rs

### **Annex – A – Meeting with Antenna Trust**

#### **Meeting with Antenna Trust on May 30<sup>th</sup>, 2011 in Madurai**

present: Mr. Devamanoharan, Mr. Alagar Samy, Mr. Prabakaran, Selina (author of Protocol)

**Aim:** to discuss possibilities of Microcredit SHGs to take up Spirulina Promotion

Started with presentation of the attached three pages to show the progress in promoting Spirulina to social market since 2009, as well as share some experiences of the past months of Antenna Nutritech Foundation's Rural Promotion of Spirulina with four partner NGOs (only of three NGOs figures were presented, because the fourth NGO did not send the figures). It was also mentioned why it is important to include the network of Antenna Trust's Microcredit SHGs – to increase consumption of Spirulina on a more constant basis in order to combat malnutrition.

#### **Points mentioned during discussion**

##### **Supply Chain:**

- Mr. Alagar Samy raised the issue he faced back when he was involved with Spirulina Promotion. Customers were purchasing Spirulina products on credit basis, and the NGO is unable to collect the money until today from them. He therefor proposes, if he would get involved again in Spirulina Promotion, to give the stocks of Spirulina to the NGOs and from the NGOs to their SHGs, and let them give out Spirulina only if customers pay directly.
- In response to his issue the experience of the past month were shared and explained that the Rural Promotion with the NGOs works in that manner: the NGOs have the stocks ready, and the Promotion Ladies are responsible for collecting the money for the issued products.

##### **Price:**

- Mr. Prabakaran shared his opinion concerning the price of Spirulina products sold to Rural People. To attain the daily recommendation of Spirulina intake, 3 bottles of 60s per month and person are needed which adds up to 300 Rs. He mentioned his family, which is consuming Spirulina on a daily basis as an example: his children, his wife and himself use per month approximately 12 bottles of the 60s for 100 Rs, which adds up to 1200 Rs. How can a Rural Family have this much of money to purchase Spirulina? His suggestion is to focus on the open market, increase the price of Spirulina and try to increase sales within this market in order to subsidize the price of Spirulina to Rural People.
- It was mentioned that Antenna Nutritech Foundation is already running this strategy to use profits within the open market to subsidize the losses within social market. Further the question was raised whether he, as a consumer of Spirulina, would be willing to pay more for Spirulina and if so, by how much, because right now Mr. Prabakaran is not purchasing the products of the Open Market but the ones targeted for the Social Market.
- Examples of other Spirulina Producers within Open Market, such as Parry, Dabur and Thapar were mentioned with reference to their prices and that Antenna Nutritech Foundation's prices within Open Market are too low compared with its competitors.
- Explaining further the idea of subsidizing, Mr. Prabakaran stressed the point that he thinks it

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is not right that the customers of Social Market pay the NGOs, and thus the price should be reduced and the margin for the NGO is not be covered by them anymore. (ex. Of the 100Rs paid by customer, 25Rs is the margin for the NGOs)

- To the question how he will be able to pay the NGOs for their promotion efforts, Mr. Prabaharan mentioned to use grants for that end.
- Clearly the target in reducing the price of Spirulina for the Social Market is not to make loss, but to “make some loss on profit”. Antenna should be here to serve the Rural people.

### **Production:**

- Mr. Prabaharan shortly mentioned the two NGOs producing Spirulina and he thinks it would be good if they would produce the products themselves, and have the necessary equipment for that end to lower costs and be able to produce directly what is needed for their customers.
- To discuss further on Production reference was made to Ms. Arthi, who is an expert and has the knowledge about the risks and challenges of cultivating Spirulina. However it was mentioned that purchasing all the instruments for every NGO would probably be too costly, and maintaining the high quality of Spirulina an important but hard task to achieve by the NGOs lacking in experience.

### **Promotion:**

- it was mentioned by Mr. Alagar Samy and Mr. Prabaharan that awareness and cultural campaign should be held together with promoting Spirulina. On a later stage when people are convinced, and based on Mr. Prabaharan's suggestion of lowered prices of Spirulina products, promotion does not have to include awareness anymore, because people will be just buying Spirulina because they experienced the benefits.
- It was shared with them that Promotion of Spirulina in Rural Areas always includes awareness campaigns and informing the people in the villages how Spirulina is cultivated, how it ends up being a capsule and what nutritional benefits it has. The Promotion Ladies are specially trained for that end.

### **Past Experiences:**

Within the discussion it was also mentioned, that Antenna Trust was involved in promoting Spirulina through their networks a few years ago. Hence, their networks are already aware of Spirulina. However, they had a different strategy: first, they distributed Spirulina for free, or at a subsidized rate but stopped when Mr. Urs and Mr. Selvendran introduced their approach of selling Spirulina. Antenna Trust was asked to stop their supply of subsidized Spirulina because it interfered the market of unsubsidised Spirulina of Antenna Nutritech Foundation.

### **Conclusion**

In Conclusion it was agreed to share the discussed points with Mr. Selvendran and Ms. Arthi. Further, dates for field visits (June 1<sup>st</sup>, June 6<sup>th</sup>-7<sup>th</sup>) were agreed to go to SHGs and investigate them with a prepared Questionnaire, together with Selina. The questionnaires target is to find out more about the purchasing power, the type of income generating activities and the income of Rural Families.

## **Appendix IV - Report on Nilgiri Research Project Conducted by Child Fund India**

**RASS BALAJI BALA VIKAS**

### **A brief note on Spirulina Action Research**

#### **INTRODUCTION:**

Under nutrition includes both protein-energy malnutrition and micronutrient deficiencies. Under nourishment not only affects physical appearance and energy levels, but also directly affects many aspects of the children's mental functions, growth and development which have adverse effects on children's ability to learn and process information and grow into adults that are able to be productive and contributing members of society. Under nourishment also impairs immune function leaving them more susceptible to infection. Children with infections are more susceptible to malnutrition and the cycle of poverty and malnutrition continues. Child malnutrition is responsible for 22 percent of India's burden of disease.

Most growth retardation occurs by the age of two, and most damage is irreversible. The prevalence of underweight in rural areas is 50% versus 38% in urban areas and higher among girls (48.9%) than among boys (45.5%).

According to the world food program and the M.S. Swami Nathan Research Foundation (MSSRF), over the past decade there has been a decrease in stunting among children in rural India, but inadequate calorie intake and chronic energy deficiency levels remain steady.

Malnutrition in early childhood has serious, long-term consequences because it impedes motor, sensory, cognitive, social and emotional development. Malnourished children are less likely to perform well in school and more likely to grow into malnourished adults, at greater risk of disease and early death. Around one-third of all adult women are underweight. Inadequate care of women and girls, especially during pregnancy, results in low- birth weight babies. Nearly 30 per cent of all newborns have a low birth weight, making them vulnerable to further malnutrition and disease.

#### **SELECTION OF THE SAMPLE**

The sample comprising of 250 preschool children from RASS adopted Anganwadi centres and a sample of 250 children from the adjacent government Anganwadi centres under ICDS scheme were selected for the study. The sample adopted is a purposive sampling as the children under the grades of malnourishment are selected to observe the marked improvement.

## Appendix

The Action Research process consists of two phases one is Intervention phase and the other is a counselling phase.

**Intervention phase:** In this phase 1gm of spirulina fortified candies were distributed to 250 children and candies without spirulina are distributed to the other 250 children. Distribution of candies was administered with the help of Anganwadi Teacher in each village.

**Counselling Phase:** Two phases of counselling sessions have implemented to educate the mothers of 500 preschool children (from RASS adopted Anganwadi centres and the adjacent government Anganwadi centres under ICDS scheme.) and the Anganwadi workers to create awareness on the product, basic food groups, child nutrition, deficiency diseases, sanitation and hygiene.

**Size of sample:** 500 children in the age group of 2-5 years were selected for the study. The children are purposively assigned to two groups. One group (n = 250) received Spirulina candies along with nutrition education and the other group (n=250) were given non spirulina candies with nutrition education for both boys and girls.

### Size of sample

#### Experimental group (n=250)

(Children (mothers) receiving supplementation  
With nutrition education)

#### Placebo group (n= 250)

(Children (mothers) receiving  
non-spirulina candies with  
Nutrition Education)

### SELECTION OF VARIABLES:

A well planned interview schedule was executed in order to collect data from the mothers of the preschool children which includes

1. Socio-economic status
2. Dietary consumption patterns
3. Anthropometric measurements

### Socio-economic status:

The demographic profile of the each child is collected using the pre prepared interview schedule with the help of the mothers which include family income, education status of mother Family expenditure, and other details including Dietary patterns.

## Appendix

### **Anthropometric Method:**

Anthropometric approaches are most universally applicable, inexpensive and relatively non-invasive methods that assess the size or body composition of an individual. For adults, body weight and height are used to evaluate overall nutritional status and to classify individuals as at healthy or non-healthy weights. In children, growth charts have been developed to allow researchers and clinicians to assess weight-and height-for-age, as well as weight-for-height. For children, low height-for-age is considered stunting, while low weight-for-height indicates wasting. In addition to weight and height, measures of mid-arm circumference and skin fold measured over the triceps muscle at the mid-arm are used to estimate fat and muscle mass.

### **Weight:**

Weight is a measure of overall nutritional status with age, sex, and height/length required for optimal interpretation. Weight is determined using a digital balance scale. The scale is zeroed prior to each measurement and is calibrated using known weights of the scale. Weights are recorded to the nearest 0.1 kg for each child.

### **Height:**

Height is another important, reliable and easily obtainable anthropometric measure to indicate the long term nutritional status of the population. It is used as a parameter to indicate the nutritional status of the population (NNMB, 1998).The height of the children is recorded with the help of measuring vertical rod to the nearest of 0.1cm for each child.

### **Mid Upper Arm Circumference:**

MUAC is used as a measurement of growth, an index of energy and protein stores and can provide information on fat patterning. The measurement is taken at the midpoint of the upper arm, located halfway between the lateral tip of the acromion and the olecranon when the arm is flexed at a 90° angle (measured and marked), and recorded to the nearest 0.1 cm. This measurement is taken for thrice and used as an average.

### **Comparison against standards**

#### **1. Standards - Anthropometry**

The reference standards used to interpret these measures for grading the children according to the extent of malnutrition are:

## Appendix

- Indian Association of Paediatrics
- Standard Deviation Classification for Weight-for-age.



## **Appendix V - Interview with Liselotte Frey, DSM**

The script will reproduce the essential and translated content of the interview. The interview was conducted on October, 17<sup>th</sup> 2011, at the quarter of DMS in Kaiseraugst, Switzerland.

Acceptance is a decisive and important factor. Also, we face some issues concerning the wrapping of our product “Mix Me” - it is packaged with aluminium, not very environment friendly. This is one major problem and challenge, doing business with the base of the pyramid, the solutions need to be perfect. If the product would be sold here, this would not be such a big issue. However, being in the realm of the base of the pyramid, the global society expects us to deliver THE perfect solution.

We have difficulties in really knowing about our end consumers. What we were able to observe, the customers at the base of the pyramid, located in Uttar Pradesh, do not really know, or are not aware of it, what food items are available to them. This leads to wrong buying decisions. For example, one mother proudly bought some biscuits, because she thought the rich people buy this product. This made her believe, this must be good for her children, because the rich buy it. However, there is hardly any nutritional value in these cookies. In terms of the nutritional content, this was a wrong buying decision.

We are thus also involved in providing information and education concerning nutrition. We are right now preparing a nutritional manual together with our nutritionists and consumer association, who have access to the community (100'000 at the base of the pyramid). This is for trainers, who will teach the contents to nutrition managers. The manual is specially targeted at this region (Uttar Pradesh). For example, there is no seafood. The buying power of the base of the pyramid is irrelevant to us. We focus on the knowledge transfer. Yet we do not have a clear picture, how we want to deliver the message to the base of the pyramid. However, we know that we want to deliver the message based on their cultural realm. Another aim of the project is also, to get the government on board, and somehow also “to rap on their knuckles”.

It is very difficult to convince the people to eat healthy. But we made the experience to deliver the message through children is easier.

Our “MixMe” product can be adapted to the region and the target consumer, based on their

## Appendix

health issue. For example, a malaria affected region is need of different nutrients. Hence we take this into account when producing our “MixMe”. However, this leads also to some challenges. We are closely related to the pharmacy sector with our product “MixMe”. This leads to very high standards, and challenges. Commercialising our product is thus not assured. Another important aspect of “MixMe” is its content in terms of several vitamins and minerals. We do not believe, that malnutrition can be fought sustainably with only delivering one mineral or vitamin. The whole package is needed of vitamins and minerals.

We collaborate very tightly with local units. For example in Cameron, where we supported a local noodle manufacture. He is now able to produce an accredited product, with increased nutritional values. We focus on knowledge transfer. Mainly from business to business, not business to costumers.

It is important to strategically work with opinion leaders of the community. The challenge is however, to know who this leader is. We also delivered our message through a local radio programme. It was some kind of university, educational radio channel. TV programme however, was far too expensive. As a foreign organization, you often pay too much. It is important to be aware of this and balance the cost versus the benefit of such channels.

## **Appendix VI - The Ladder Game: “Show Malnutrition your Green Tongue!”**

Aim of the game: to raise awareness and knowledge about malnutrition and food items. The game is a way to follow in a playful way the message delivered within the social marketing campaign.

Winner of the game: Player who gets as the first to the square 100 with his candy to play.

Rules:

1. Roll a dice
2. Follow the number on the dice with your candy on the playsheet
3. If you are on an ACTION FIELD (red number):

For 5-7 year old (illiterate):

For 7 year old and older (literate):

Follow the arrow accordingly (move from the red number to the green number)

Draw a QUESTION CARD. Answer the question or fulfil the exercise.

ARROW IS MOVING FORWARD: If the answer was correct, move to green number. If the answer was wrong, stay on the red number.

ARROW IS MOVING BACKWARDS: If the answer was correct, stay on the red number. If the answer was wrong, move to the green number.