

University of St. Gallen: Master Thesis
(Urs Heierli, PhD / Prof. Simon J. Evenett, PhD)

Marketing to the Bottom of the Pyramid

The Case of Sanitation in Peru



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List of Abbreviations

<i>ADRA</i>	Adventist Development and Relief Agency
<i>ATM</i>	Automated Teller Machine
<i>Apeim</i>	Asociación Peruana de Empresas de Investigación de Mercados
<i>BBC</i>	British Broadcasting Corporation
<i>BoP</i>	Bottom of the Pyramid
<i>b2c</i>	Business to Consumer
<i>C</i>	Celsius
<i>CARE</i>	Cooperative for American Remittances to Europe
<i>CEMEX</i>	Cementos Mexicanos (Building materials supplier)
<i>CIA</i>	Central Intelligence Agency
<i>cit.</i>	cited
<i>cp.</i>	compare
<i>e.g.</i>	for example
<i>etc.</i>	et cetera
<i>FONCODES</i>	Fondo de Compensación para el Desarrollo
<i>GDP</i>	Gross Domestic Product
<i>HIV</i>	Human Immunodeficiency Virus
<i>INWENT</i>	Internationale Weiterbildung und Entwicklung
<i>LAC</i>	Latin American Countries
<i>MNC</i>	Multinational Corporation
<i>MTV</i>	Music Television
<i>n/a</i>	No Data available
<i>NGO</i>	Non-Governmental Organisation
<i>p.</i>	Page
<i>PRONASAR</i>	Programa Nacional de Agua y Saneamiento Rural
<i>R&D</i>	Research and Development
<i>S/.</i>	Peruvian Soles (US\$1 \cong S/.3)
<i>SEDAPAL</i>	Servicio Agua Potable y Alcantarillado de Lima
<i>TV</i>	Television
<i>UN</i>	United Nations
<i>UNICEF</i>	United Nations Children's Fund
<i>U.S.</i>	United States of America
<i>US\$</i>	US -Dollar
<i>WHO</i>	World Health Organization
<i>WSP</i>	Water and Sanitation Program

Acknowledgment

On a warm spring day in April 2008 I sat in a restaurant in Berne with my course instructor from the University of St. Gallen, Dr. Urs Heierli, discussing possible topics for a master thesis. He told me about the Water and Sanitation Program in Lima, where a project team tries to establish markets to improve the diffusion of sanitation all over the country. With my experience as an exchange student in Lima and my interest for “bottom of the pyramid” studies I felt highly attracted to conduct a “sanitation as a business” study in Peru. 75 days later, thanks to my instructor's strong commitment, I found myself sitting in an office of the Water and Sanitation Program in Lima, conducting my first analysis for this research paper. In this office I experienced tremendous support from the regional team leader François Brikké who – in spite of his busy agenda – found always some time to give me an advice, on how to push my study forward. I further sampled any possible assistance from the project team members Malva Baskovich and Mercedes Zevallos. They provided me with a lot of useful knowledge, helped me to organise my field visits and to establish contacts with possible interview partners. The path to finish this survey has been both a professionally and personally inspiring experience I would not want to miss in my life.

Dear supporters: Thank You! ;Gracias! Merci! Danke!

May 18, 2009

Abstract (English)

Can you imagine leaving your house to search for a tree every time you feel the need to relieve yourself? This nightmare is a daily reality for about 45% of all Peruvians. 12 out of 27 million residents still lack access to basic sanitation services in the country located at the foot of the Andes. How has it become possible that televisions and cell phones have proliferated in this country faster than basic sanitation products? It has a lot to do with social status. Televisions and cell phones represent to low-income customers objects of desirability and modernity whereas poor-quality latrines stand in Peru for contamination and second class citizenship. This paper proposes a paradigm change and develops an extensive business concept to successfully promote sanitation solutions among "Bottom of the Pyramid"-customers in Peru. The author traveled for this purpose to Peru and analyzed the existing demand and supply for sanitation products in an urban slum settlement in the north of Lima and in a rural village close to the city of Cajamarca.

Abstract (German)

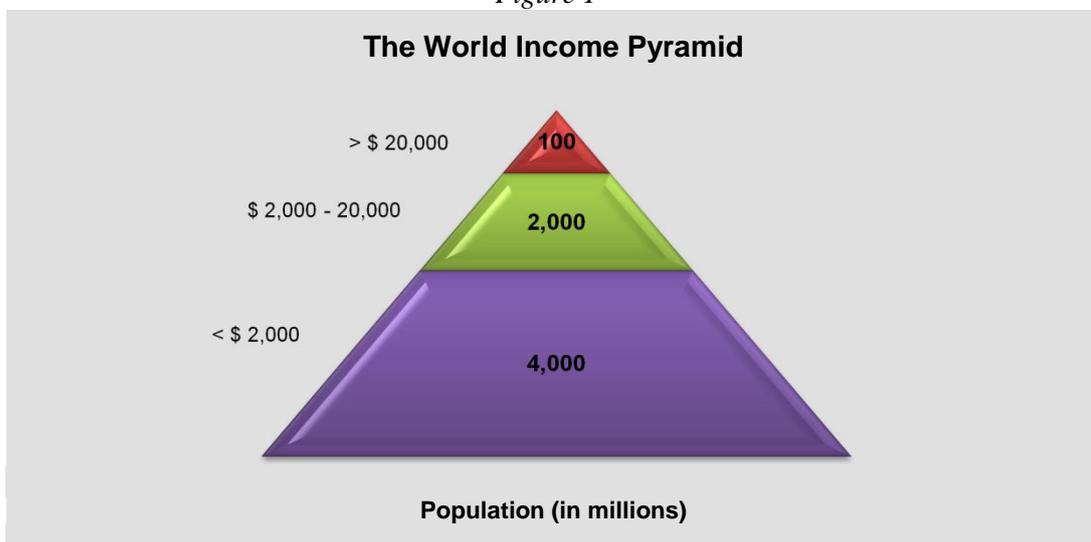
Stellen Sie sich einmal vor, Sie müssten bei jedem Blasendrücken das Haus verlassen und sich hinter einem Baum verkriechen, um Ihr "kleines Geschäft" zu verrichten. Dieser Alptraum entspricht der Realität von 45% der Peruanischen Bevölkerung. 12 der 27 Millionen Einheimischen verfügen über keinen gesicherten Zugang zu hygienischen Sanitäreinrichtungen. Wie kommt es, dass Fernseher und Mobiltelefone sich in diesem Land schneller verbreitet haben als Toiletten? Vieles geht zurück auf die Statusfrage. Fernseher und Mobiltelefone fungieren gerade bei tieferen Einkommensgruppen in Peru als Statusobjekte und Ausdruck von Modernität. Sanitäreinrichtungen hingegen standen unter Perus Armenbevölkerung über Jahre hinweg für Schmutz und Zweitklassigkeit. Die hier vorliegende Studie initiiert einen Paradigmenwechsel und entwickelt ein Business-Konzept zur Vermarktung sanitärer Anlagen unter Perus Armen, der sogenannten "Bottom of the Pyramid". Der Autor reiste zu diesem Zweck nach Peru und analysierte Angebot und Nachfrage für Sanitärprodukte in einem Vorstadtslum von Lima und einem ländlichen Dorf in der Nähe der Anden-Stadt Cajamarca.

Introduction

The fortune at the "Bottom of the Pyramid"

What do you have in mind when you hear the city names of Jakarta, Mumbai, Accra, Lima or La Paz? Maybe you just imagined a congested road, an urban slum settlement or a corrupt civil servant. Correct! But have you also thought that the mentioned metropolises might be the flourishing business capitals of tomorrow? C. K. Prahalad and Stuart L. Hambrick answer with "yes" in their groundbreaking paper "The Fortune at the Bottom of the Pyramid". They argue that past mainstream business activities have blindly focused on the two billion customers in the high-income markets of North America, Europe or Japan at the top of the pyramid. In doing so they ignored a tremendous business opportunity at the bottom of the pyramid: Four billion low-income customers, mainly residing in the developing world, are full of ambitious wishes and wait to be served by the private market (cp. Figure 1). They might be poor compared to "top of the pyramid"- standards but it is a general misconception to believe that low-income individuals do not have any money to spend. In fact televisions, mobile phones and Coca Cola sell very well among these income segments. Hammond et al. (2007, p. 13) have calculated that customers with an income lower than US\$3000/year constitute a worldwide five trillion dollar market. The business opportunities of tomorrow will therefore not be found in the saturated markets of New York, London or Tokyo but among the emerging customer segments in Lima, Mumbai or Jakarta.

Figure 1



Annotation. Based on Prahalad and Hammond (2002, p. 51)

In fact there are substantial necessities in the developing world which have not been met yet. Whereas firms like Apple or Microsoft flood high-end markets with an endless number of applications for iPods and smartphones, four billion customers at the bottom of the pyramid still wait to find the solutions that correspond to their daily problems and needs. About 2.5 billion individuals around the globe for instance have no access to basic toilet services (cp. So, 2008, p. 11). Why should not business tackle

these potential 2.5 billion customers and provide them with the sanitation solutions they need? It would be a misleading error to assume that business exists to exclusively solve the problems of the rich. Over thousands of years business initiatives have solved the problems of people in general, regardless of cultural, ethnic or socioeconomic affiliations. Certainly, development markets are different and challenging due to a series of problems (lack of infrastructure, corruption, delinquency, etc.). But every problem leads to a solution and these opportunities refer to the very heart of business-making.

Sanitation in Peru - A promising business opportunity

A country full of opportunities is Peru. After having experienced in the 1980s and 1990s two decades characterized by macroeconomic instability, a bloody, internal conflict and a shocking corruption scandal, Peru looks in 2009 back on a decade marked by an economic upswing and relative political stability. Thanks to a rise in exports and the increase of world prices for minerals and metals, the national economy rose from 2006 to 2008 by 7.5%-9%/year (CIA-Factbook, 2009). However not everyone has benefited from the new wealth and 21 out of 27 million inhabitants still live with less than US\$2000/year (Hammond et. al., 2007, p. 139).

A particular problem for the Peruvian "Bottom of the Pyramid" is the lack of sanitation services. Could you imagine leaving the house to search for a hidden tree every time you feel the need to relieve yourself? If not, than figure that this situation corresponds to a widespread reality in the developing world. 43% of all Peruvians and 70% of the rural population do not have a toilet of minimal hygienic standard! As a consequence 10% of all children's deaths in the country are associated to diarrheal diseases (Perusan, 2009). How would you feel now if you were offered to buy as one of these non-users economical sanitation equipment that all of sudden brings you a fantastic toilet experience to your own house? I guess very relieved and ambitious to seek this equipment.

The key idea at this point is to sell customized sanitation products directed to an enormous customer segment of 11.5 million Peruvians who currently lack sanitation. Success stories from Bangladesh, Ethiopia and Senegal prove that this idea can be more than a quixotic chimera (cp. So, 2008, p. 11). Millions of low-income customers in these countries have showed that they are willing to value sanitation products with a price. A similar approach might now be adapted now to Peru.

Research design

This paper is meant to design a business concept for firms with an intention to engage in a sanitation market for Peruvian "BoP"-customers. I travelled for this purpose in June 2008 to Peru and accompanied during three months a market initiative for sanitation of the Water and Sanitation Program of the World Bank. I conducted numerous field visits to slum settlements in Lima, in Iquitos and to an impoverished rural zone nearby the city of Cajamarca. Over the course of my stay I was able to get in contact with managers from sanitation firms and micro credit banks, with NGO leaders, with

sanitation experts and above all with the BoP-population itself. The goal of this study was less to deliver a paper of statistic accuracy but to compose based on the experience of my field visits piece by piece a business model that copes foremost with the local needs and particularities. The heavy consideration of the field practice in this research however does not mean that it was indispensable to initially acquire the theoretical principles of current BoP literature.

The paper therefore splits into two parts. The first part addresses the theoretical question, of why the private sector has failed to approach the Bottom of the Pyramid earlier; and if there is in fact a fortune at the bottom of the pyramid, as predicted by Prahalad, according to which principles should the private sector reorganize its business activities in order to successfully perform among this new customer segment?

In the second, more practically oriented part of this study, a possible market concept for sanitation products aimed at BoP-customers in the zones of Pachacutec (Lima) and Namora (Cajamarca) will be developed. The chapter begins with a profound analysis of the existing supply and demand for sanitation items in the mentioned two localities. Which are the main drivers and barriers for investments in sanitation in this zones and how has existing supply served the residents so far? The results of this embedded analysis will then lead to series of concrete proposals to organize the business in accordance with the necessities and characteristics of the potential customers in Pachacutec and Namora. The evolved model will finally be applied to a brief performance measurement of the established sanitation firms, Rotoplas, Eternit and Trebol-Celima.

1 Paradigms in Corporate Strategy for Developing Markets

In this section we will elaborate why corporations have not turned yet to the bottom segments of the demographic pyramid. In fact there is a self-evident reason why the dwellers of a Favela in Rio, the mothers of a bidonville of Port-au-Prince or the car cleaners from a Pueblo Joven in Lima have not been the preferred partners for business up to now: They are poor! Nonetheless we will see that it helps to simply change the perspective to conceive the challenges of business making with the poor as opportunities and not as insuperable barriers.

For the purpose of this chapter I spent an afternoon watching commercial clips of popular Peruvian “b2c”-products, among them popular beer brands such as, “Pilsen Callao” or “Brahma”, the milk producer “Leche Gloria”, the fast food chain “Bembos”, the Peruvian soft drink “Inca Cola”, “Nestlé D’Onofrio” ice cream or the telecommunication company “Claro”. Their commercials have in common that they are funny, they usually feature agitating Latin music and they are performed by white-skinned, urban actors. Walking through the streets of Lima and the rest of Peru, one quickly recognizes that most Peruvians typically have a darker, more indigenous skin type than the models in the commercials. The ideal of a white-skinned, urban consumer seems to prevail in the Peruvian advertising industry, ignoring the vast majority of ethnicities in the country.

Lima offers the phenomenon of different micro-economies within one city: In the high-end districts of Metropolitan Lima (San Isidro, Miraflores, La Molina, etc.) one can buy a Starbucks white mocha frappuccino accompanied by a French croissant (filled with scrambled egg and bacon) for approximately 13-20 Soles (\approx US\$4-6),¹ depending on the size of the coffee drink. After a car ride of one hour to the marginalized suburbs of Lima (e.g. Villa El Salvador, Pachacutec, etc.), one discovers an economy of a different type: Small scale entrepreneurs (grocery stores, ironmongeries, dentists, veterinarians, etc.) are actively seeking to sell products and services. The point here is that for a certain reason large professional corporations have barely dared to enter the markets in the peripherals of Lima and the impoverished slums elsewhere in the world. One can find branded televisions, cell phones and beer in a “Pueblo Joven” of Lima, but for the most part business concentrates on small-scale market transactions. Several authors have dealt with the question, of why the private sector has mostly disregarded the population segments at the bottom of the wealth pyramid. They identified that the dominance of the following four paradigms prevents the private business from a stronger engagement at the Bottom of the Pyramid [BoP]:

¹ US\$1=3.024 Peruvian Nuevos Soles (May 17, 2009)

- *The population at the BoP is usually too poor to buy the products of the private sector!*
- *The business environment at the BoP is too hostile and does not allow for the realization of a sustainable business chain (a lack of law and order, no property protection, corruption, illiteracy etc.)!*
- *It is too expensive to access the clients at the BoP!*
- *Markets work for the rich; the poor require government aid and NGO assistance!*

The population at the BoP is usually too poor to buy the products of the private sector:

Asked why he had robbed a bank, U.S. bank robber Willie Sutton was once cited: “Because that’s where the money is.” For similar reasons private sector business has focused over the past mainly on the top of the pyramid. The production process of any good or service usually involves costs (they might be fixed or variable): The creation of an antiretroviral drug for the treatment of HIV patients requires for example heavy investments in the research and development section of a pharmaceutical firm. In order to cover the immanent costs, antiretroviral drugs circulate primarily in the developed nations as customers (or more precisely their insurance companies) there can afford the purchase of expensive medicine. In Germany, therapy costs with antiretroviral drugs add up to more than US\$15'000 per year and patient (WHO, 2003). The treatment of HIV infected persons with antiretroviral drugs on the African continent is in contrast still not the rule. In Zambia for instance, HIV prevalence among adults exceeds 15%. The average GDP per capita however is just about US\$1500/year (CIA-Factbook, 2008), not sufficient to finance a complicated antiretroviral therapy. It is not difficult to understand why the pharmaceutical industry turns away from the Zambian drug market. With a given upmarket cost structure the BoP segments cannot be served by the private sector (Prahalad, 2005, p. 8).

The business environment at the BoP is too hostile and does not allow for the realization of a sustainable business chain (a lack of law and order, no property protection, corruption, illiteracy, etc.):

In 1979 Harvard Business School Professor Michael Porter introduced the credo that companies should be aware of the business environment before they engage in a specific industry. The lack of asserted property rights might be a risk for a firm as free-riders can easily harvest the fruits of the preliminary work done by the already established companies. It would not payoff for a pharmaceutical firm to develop over years a new antiretroviral drug for dwellers of South African townships if the drug was copied and sold the next month by another company.

A similar threat emanates from corruption. Operating under ambiguous legal conditions implies the permanent eventuality of being exposed to corrupt civil servants or mafia-like organizations (De Soto, 2002, p. 176). The realization of a fast-food chain in the Favelas of Rio de Janeiro probably requires the on-going approval of the local gang lords. Only businesses that financially support the local gang

lords are tolerated (personal conversation with Francisco Panizza at the University of St. Gallen, October 29, 2008).

The conditions of corruption and of an insufficient enforcement of law represent the normal course of business life in developing countries (Späth, 2002, p. 11-15). Therefore formal large-scale business has not developed in markets at the BoP.

It is too expensive to access the clients at the BoP:

Currently 80% of the poor in Africa and Asia and 50% of the poor in Latin America (in Peru 41%) live in rural areas (World Bank, 2004 cit. in Todaro & Smith, 2006, p. 227). This statistic shows that poverty today is to a large extent a rural problem even if the congestion in the “mega”-cities of the developing world will increase as well over the next decades (cp. United Nations Population Division, 2000 cit. in Todaro & Smith, 2006, p. 316-317). From a cost perspective it makes more sense for business to serve a densely populated, urban area than a highly dispersed settlement in the countryside. Access to the rural areas is difficult due to the poor infrastructure. In Peru for example just 10-15% of the roads are paved (Österreichischer Automobil-, Motorrad und Touringclub, 2008). As a consequence corporations avoid rural customers: Various retailers in Peru geographically focus on the largest cities of the country: For example, the supermarket chain “Wong” exclusively operates in Lima, as do the “Ripley” department stores. The “Maestro” home centers also have stores in the cities of Arequipa and Piura.

Markets work for the rich; the poor require government aid and NGO assistance:

The idea of expanding private markets to the poor is often seen as something unethical. I relate that from my personal experience. When I raised the subject of this paper, “Corporate Strategy for BoP-Markets”, among friends, a common reaction was: “Do you support the exploitation of the poor?”. “Selling to the poor” is seen as a new form of western imperialism. One of the most prominent critics of the BoP-approach Aneel Karnani (2009) adds: “The poor lack the education, information, and other economic, cultural, and social capital that would allow them to take advantage of the vagaries of the free market” (p. 40). Corporations capitalize on the debilities of the poor by selling questionable products. He gives as an example the widespread alcohol and tobacco abuse among the poor.

As a consequence the poor have been subsumed under the responsibility of the state. Markets work for the rich; the problem of the poor has to be solved with subsidies and support of governments or non-governmental organizations (Prahalad, 2005, p. xi). Or as Javier Dancuart, sales manager at Eternit Peru, told me in a personal communication in August 2008: “I like the idea of markets for the poor, but somewhere I miss the role of the state in your model”.

2 Breaking the Paradigms in Corporate Strategy for Developing Markets

As Nicolas Copernicus' observations led in the 16th century to a shift from the geocentric to the heliocentric system, it is again the practice of inductive observation that leads to a shift of paradigm, this time in the field of corporate strategy for developing markets. The Copernici of the 21st century are Hernando De Soto and C.K. Prahalad, who claim that the poor already possess billions of dollars of unperceived resources, or Stuart L. Hart, who pleads for a shift in perspective from a problem- to an opportunity-oriented view on the poor. This section gives reasons why a shift in corporate strategy for developing markets is justified and needed:

The population at the BoP is usually **not** too poor to participate in private markets:

Martin Dahinden (2008, p. 21), director of the Swiss Agency for Development and Cooperation wrote about the general misconception in the developed world of life in the developing world: Life in the developing world is not only about child labor, poverty, violence and alcohol problems. Beyond the negative headlines that reach the developed world, life in the marginalized slums can be astonishingly "normal". When I stepped inside these poorly constructed shacks in the suburbs of Lima, I was surprised to observe that most of them were homely and orderly furnished.

It is not unusual to find a colourful economic life on the streets of a so-called shantytown: Groceries, snack bars and market places are easily found. Sometimes dentists or even retailers specializing in pet food exist. The difference between the top and the bottom of the pyramid is therefore not the existence or non-existence of an economic life. It is rather the distinction between a formal and an informal economy (De Soto, 2002). De Soto (2002, p. 45) estimates that in Peru properties worth US\$74 billion are assigned to the informal sector.

It is a myth that the poor in general have no money to spend. Most of them have a moderate buying capacity. Televisions, mobile phones, beers and Coca Cola have found the way to even the most isolated corners of the developing world. Hammond et al. (2007, p. 13) estimate, based on an analysis of the national household surveys of 110 countries, the total annual household income at the BoP at US\$5 trillion (e.g. Peru: US\$45.4 million).² The poor might have individually less money than top consumer segments but as they represent 72% of the population in developing countries, they accumulate an enormous and fairly untapped fortune. As a consequence a penetration strategy for the BoP should focus on high scales rather than high margins.

One of the most striking arguments for the buying capacity of the poor is that they already pay much more for the same products as the rich (Prahalad & Hammond, 2002). Inhabitants of a shantytown in Mumbai (Dharavi) pay for example 37 times more for water than residents of the upper districts. Or in Africa lighting is often one of the most expensive items for the poorest of the poor,

² The BOP population segment is defined as those with annual incomes up to and including US\$3000 per capita per year.

accounting for 30% of their disposable income (World Bank & International Finance Corporation, 2008). The top of the pyramid is usually served by highly efficient electricity networks whereas the poor still use inefficient and expensive paraffin lamps. It is the task of and an opportunity for the private sector to increase efficiencies. The buying power among the poor obviously exists.

The business environment at the BoP is hostile. But the market abnormalities are also **business opportunities**:

During the Mexican financial crisis in 1994/95 CEMEX, one of the world's largest providers of cement, noted that its sales among the formal housing segment (-50%) were declining to a higher degree than within the informal housing market (-20%). As a consequence CEMEX introduced with success a new product line that combines the selling of construction materials with micro credit services (Sharma, Mohan & Singh, 2005, p. 149).

Fifteen years later a global financial crisis hangs over the world; and while economies in Europe such as Switzerland are already experiencing a real economic recession (State Secretariat for Economic Affairs, 2009), analysts expect for Peru a reduced but still considerable economic growth of 3.5% (El Comercio, 2009). It seems obvious that the bigger opportunities for business in 2009 can be expected in Peru rather than in Switzerland.

Firms that try to penetrate the markets of the developing world with traditional western-style practices risk failure. London and Hart (2004) examined the cases of 24 multinational corporations that tried to enter a BoP-market. The lessons they learnt show that corporations which focused on property protection and the proliferation of existing products tended to fail. Success stories can in contrast be reported from business models that adapted to the abnormalities of the business environment at the BoP.

A prominent example is the track record of micro credits: The traditional credit business operates with individual responsibilities and formal guarantees. The micro credit business focuses on social rather than legal security. The responsibility of a credit is borne by a group instead of individuals and social assessments replace the requirement for formal documents. I had the opportunity to accompany for a day Isela Sánchez, a young assessor of the micro credit provider Mibanco, during her work in Pachacutec (field visit, 12.8.2008). Isela was familiar to almost everyone in the locality. When I returned for a second time on my own to the market of Pachacutec, several people who I had never seen before greeted and asked me: "You're the guy that came the other day with Isela, right?". I admit that part of the given attention might be attributed to my blond hair, something unusual in Pachacutec, but it also shows that social networks are working smoothly in the locality.

A further example of companies that adapted successfully to the obstacles in BoP-markets is provided by PRODEM, a micro finance institute in Bolivia. PRODEM serves its clients with smart cards and ATMs. The ATMs are run with touch screens and an easy graphical user interface. This innovative technology allows the expansion of the business even to illiterates (Denton, 2004). The two

examples show that the abnormalities in the business environment at the BoP are not only obstacles but also opportunities for the development of future core competencies.

It is **not** too expensive to access the clients at the BoP:

Before discussing about access to the poor one must distinguish between the rural and the urban poor. The rural poor usually live in dispersed areas often without any access to electricity, water and sewage networks. They usually engage in agricultural activities. The urban poor typically dwell in informal slum settlements under precarious hygienic conditions, also lacking access to electricity, water and sewage networks. In order to earn their living they perform all kinds of jobs - street vendor, factory worker, house maid, etc. (Todaro & Smith, 2002, p. 225-226; 312-362).

The population density is high in the urban slum settlements. In a Favela of Rio de Janeiro up to 30'000 people can live in one square kilometer (Prahalad & Hammond, 2004, p. 7). For the purposes of comparison, in Aussersihl, the district of Zurich with the highest population density, 9'430 people live in each square kilometer. The highly concentrated mass of people gives business incentives for the realization of scale economies. In the proximity of the hills of the marginalized peripherals of Lima for example a number of shopping malls have open in recent years (Ruiz Lazo, 2008, p. 20).

The access to clients in a rural environment in contrast is more demanding as distances are larger and roads to the settlements often unpaved. However innovative distribution/promotion channels can contribute to the reduction of costs. Mobile phones are today a popular and wide-spread gadget even among the poor in rural areas. In order to save the costs and the time of transportation to the micro-credit bank in the next city it would be technically possible that the refund of a micro-credit is processed by means of a mobile prepaid card. This example shows that it can pay off to attract a rural clientele if one rethinks and replaces the traditional business chain with innovative methods of distribution.

Markets work both for the rich and the poor:

"Business exists to solve problems" (Hart, 2007, p. 145). It is not reasonable and realistic to assume that business just exists to solve the problems of the two billion at the top of the pyramid. It is true that the poor often lack the information and education required for a rational choice. But this critique ignores the fact that the poor already engage in markets and that rational choice does not work in these markets because of a lack of business and not because of the unreasonableness of the poor. When farmers in Africa buy expensive paraffin to power an oil lamp it is because they have not been offered a more efficient alternative. When slum dwellers in the pueblo juvenes of Lima purchase water from a water delivery truck it is because they have not been connected to an efficient water network.

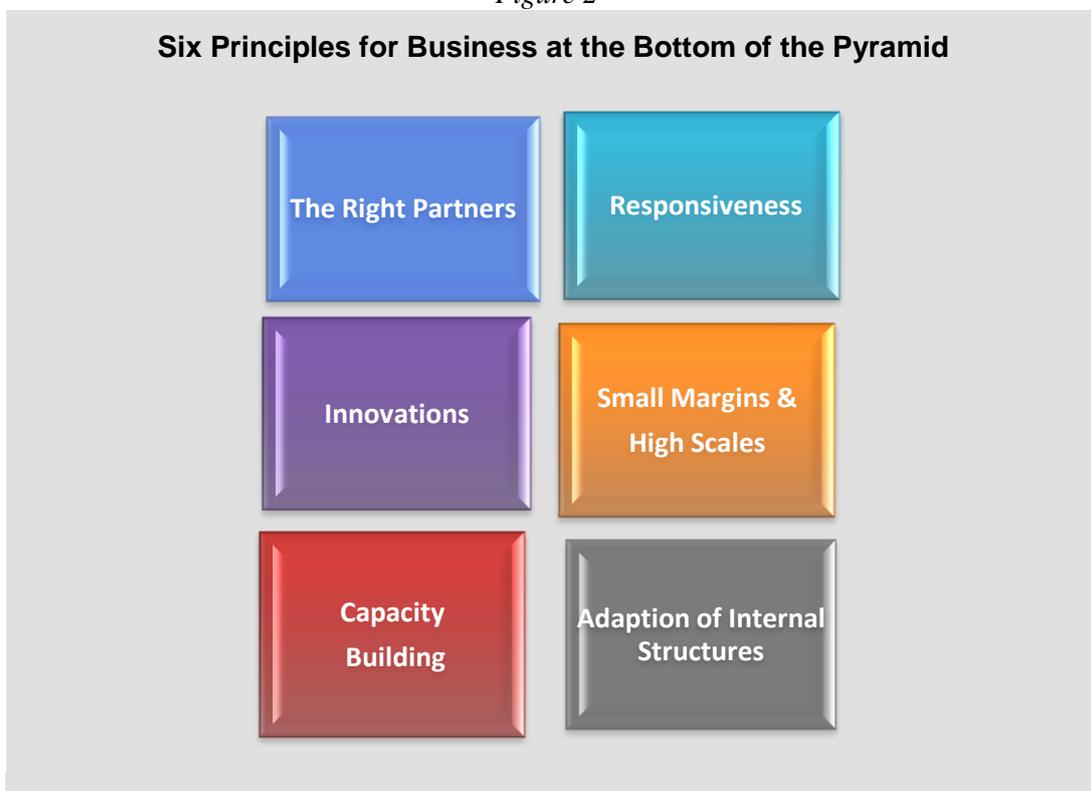
Life in marginalized settlements is not only about poverty, violence and drug abuse. Its inhabitants engage in all kinds of activities. It is not the lack of an entrepreneurial spirit but the informality that prevents the local facilities and shops from reaching a critical, cost-efficient size (cp. De Soto, 1992, p.

171). The basic premises for business making thus exist among the poor. But they still must be connected to the formal business sector.

3 The Art of Business-Making with the Bottom of the Pyramid

The different branches of social science unites the common problem of epistemological ambiguity. This problematic also affects the business administration. A reliable prescription for business-making does not exist. At best, managers can resort to experienced data. The same goes for business practices at the BoP. Different best practices are possible depending on the promoted product, the geographical area, the institutional environment, etc. Nevertheless various authors have collected data on successful business models for the poor, crystallizing out the multipliers of success. The six most prevalent of these factors will be introduced in this section (cp. Figure 2).

Figure 2



Annotation. Personal remarks

3.1 Finding the Right Partners

Objectives	Methods
<ul style="list-style-type: none"> - <i>Receiving local knowledge and trust</i> - <i>Reducing costs and risks</i> - <i>Building distribution channels</i> 	<ul style="list-style-type: none"> - Finding embedded, local partners - Sharing distribution channels with other firms

A study by the Boston Consulting Group in Brazil revealed that customers at the BoP actively seek advice in about 20% of all buying decisions; the higher the price of a product, the more involved also the social environment is (Aguiar, Cunha & Pikman, 2008, p. 3). If social bonds are such an important factor in the buying decision, firms are well advised to search for already accepted, local partners. A partner can be a market-woman, as in the case of Mibanco, a moto-taxi driver, an NGO, the local government or another private corporation. A partnership with each of them can bring both opportunities and risks: The market-woman and the moto-taxi driver might be the right persons to diffuse a personal, product message among the population, but they both need preceding, professional training. NGOs enjoy public confidence and have local knowledge, but often lack the entrepreneurial spirit of the private sector. The local government can establish the necessary political framework, but it might also draw the corporation into political disputes. Another private corporation could provide access to an already existing distribution network but as a competitor it might also expect in return some valuable assets from its partners. In brief only an analysis of opportunities and risks can lead the way to a promising, strategic partnership portfolio.

3.2 Developing Responsiveness for the Necessities of the BoP

Objectives	Methods
<ul style="list-style-type: none"> - <i>Obaining knowledge</i> - <i>Gaining trust (shared identity)</i> 	<ul style="list-style-type: none"> - Finding local partners - Living in the field - Coinventing - Building social contracts

In one scene of David Boyle's Academy Award winning movie "Slumdog Millionaire" a police officer interrogates the potential winner of the Indian version of the show "Who wants to be a Millionaire?". The police officer accuses Jamal Malik, the young man from a slum in Mumbai, of fraud as he gave correct answers to the most sophisticated questions but could not recognize the famous national motto of India, " Truth alone triumphs!". Jamal wisely responds to the officer: "How much is bhelpuri at

Jeevan's stall on Chowpatty Beach?"³ The Officer has no idea but replies: "Ten rupees!" Jamal shouts: "Wrong. Fifteen since Divali."⁴ Who stole Constable Varma's bicycle outside Dadar Station last Thursday?" For a second time the officer does not have an answer: "You know who that was?" Jamal triumphs: "Everyone in Juhu knows that. Even five year-olds!"⁵ This sequence and the movie in general demonstrate that the poor, personalized by Jamal, do not know less, they just know different things.

This lesson should be kept in mind by corporations with the intention to market to the poor. The poor may have local practices and demand diametrically different products than customers at the top of the pyramid. The challenge for private business is to catch these particular practices and to convert them into smart business models. Top-segment customers around the world for instance are used to cleaning their clothes with standard detergent in hot-water washing machines. In order to compete at the BoP in India, Unilever formulated a new detergent that corresponds to the local practice at the BoP to wash clothes in the river. This example shows that it does not suffice to simply pass down existing products with a top-down strategy to the poor. Successful business ideas for the BoP evolve best from the realities and problems of the poor directly.

In order to internalize such a bottom-up approach, firms have to create direct interfaces to the poor. A multitude of methods has been suggested to increase the responsiveness to the needs and problems of the poor. Simanis and Hart (2008) recommend home stays for firm representatives, the search for local partners and the co-invention of products and processes with natives. Muhammad Yunus, the father of micro-credits, for instance personally spent a considerable amount of his time in 1975/76 in Jobra, a village near Chittagong, before he stumbled upon a lady who complained about her difficulties in receiving cheap capital. As 42 other villagers shared the same problem, Yunus and his students created the model of micro-financing (Jolis, 1996). Unilever, a further example, obligates as a consequence of its focus on the BoP all its employees to live for at least six weeks among the rural poor. In addition the corporation has established R&D-centers in the rural outback specifically aimed at the needs of the rural poor (Hart, 2007, p. 22).

This corporate embedding responds to another particularity of marginalized environments: The importance of social trust as a substitute for a lack of legality. Informality drives people into compensating forms of organization. Informal local groups gain the population's trust and guarantee at least a certain amount of protection (De Soto, 1992, p. 179-185). A firm that tries to establish a business in such an informal environment must therefore first meet the social approval of local groups and people. A lack of trust in contrast might prevent the relinquishment of local pieces of wisdom. This dilemma face Brazilian security forces when they operate against drug cartels in the favelas. Everyone knows something about local drug cartels but scarcely anybody would reveal any detailed

³ Behlpuri is a popular Indian snack containing potatoes, chutney, coriander, coconut and mustard oil.

⁴ Divali refers to a significant festival in Hinduism, Sikhism and Buddhism.

⁵ Juhu is a major suburb in a beach area of Mumbai.

information to the police, as the drug cartels are more trusted than the corrupt police forces (Rodriguez & Roa, 2002).

3.3 Innovating

Objectives	Methods
- <i>Creating products and services that correspond to the wishes and needs of the BoP</i>	<ul style="list-style-type: none"> - Innovating products - Innovating processes

The basic needs and dreams of persons with a lower buying power generally resemble the ones of persons with a higher buying capacity. The poor like to eat, they feel the need to socially interact, they dream of a life in convenient houses, they use technological gadgets such as televisions and mobile phones; in other words the poor share the aspirations of almost anyone in the world. However it is also true that the poor live under different conditions than the rich and have therefore developed in many aspects differing demands on products and services. It is the idea of starting with the business design from scratch to comprehend these distinctive needs and wishes of the economically neglected.

Many areas in the marginalized suburbs of Lima for example have not been paved yet. As the city was practically built upon a desert, many households in these areas struggle with the permanent exposure to sand. Any electronic devices or construction materials that are sold to people from such an area have to cope with the small grains of sand. It is no secret that standard electronic devices normally caution in the manual against any exposure to sand and sea water. A BoP product targeted at populations living on desert grounds would ideally not sustain any damage when operated in a sandy environment. Products for the BoP have to be adapted to the hostile environments (Prahalad, 2005, p. 26-27).

But it is not only the product, it is the whole business model including all its processes and services that has to be put into question. In the previous section the case was discussed that social trust and agreements are a basic premise for business-making at the BoP. If social bonds are such a decisive factor on a person's buying decision, then firms will have to reorganize their existing distribution channels. The common trend that customers take over more and more tasks of a supply chain (e-banking services, web check-in, etc.) does not apply to BoP markets. Private business has to show up in these areas personally (or at least through direct representatives). I mentioned in a previous section the example of Isela Sánchez, a young credit assessor, working for the micro financing institution Mibanco in a suburb of Lima called Pachacutec. Everyone in the area was acquainted with Isela and as a consequence also to the product she sells, micro-credits from Mibanco. This business model seems to work. In June 2008 Mibanco presented a Return-on-Investment of 4% (Mibanco, 2008).

Hart (2007) advocates in the spirit of the Austrian economist Josef Schumpeter that the rethinking of the business model is not understood as an additional barrier but instead as an opportunity to press

forward with new "disruptive technologies". As distinguished from traditional markets, very often innovations in BoP markets do not have to compete with existing products and practices, because there are simply no products available yet. He concludes: "[...] the biggest challenge for MNCs [multinational corporations] may have less to do with technology, intellectual property, or rule of law, [...] instead, the fundamental challenge may be one of business model innovation - breaking free of the established mindsets, systems, and metrics that constrain the imagination of incumbent firms" (p. 144).

3.4 Focusing on Small Margins and High Scales

Objectives	Methods
- <i>Achieving high sales and profits</i>	- Reducing costs - Standardizing processes - Focusing on the functionality of products - Using state-of-the-art technology

The starting point of any business activity at the BoP are the financial restrictions faced by customers. A BoP-buyer generally has a lower buying power and purchases the products needed in smaller quantities. Slum dwellers for instance construct their houses in a long lasting step-by-step process. They begin to fix the walls of a house with simple sheets and switch then in a later stage to more expensive construction materials such as cement. Parts of the city of Lima have changed completely over the last decades due to this self-construction approach. At points where settlements of poorly constructed barracks shaped the landscape twenty years ago, one can observe today walls and housetops of solid construction materials.

The limited buying power makes it almost impossible for firms to calculate with high margins. The road to profits therefore leads across large scales rather than high margins (Hart, 2007, p. 142). This might work as long as the selling market is one of the mega-cities in the developing world. But costs of access increase dramatically at the point a corporation tries to market to the 80% of customers in rural areas. Then methods to **decrease the costs** have to be identified:

1. Given the need to develop cost-efficient solutions, firms can concentrate on the **functionality** of a product; that is elaborate the absolute basic functionalities and omit the dispensable features of a good or a service. A typical example nowadays are mobile phones. In addition to its communication function, a modern cell phone can be used as a portable music player, as a camera, as a calculator, as an agenda, as a television or as an internet browser, leading to an increase in functionality and total production costs. However in most cases mobile phones are just used to communicate. Thus a basic hand set from 1999 with a black-and-white display would suffice perfectly.

2. Another way to reduce costs is **standardization** (Akula, 2008, p. 46). Aravind for instance operates in India a hospital specialized exclusively on eye surgeries. Each doctor conducts an average of 50 surgeries daily. Thereby Aravind has been able to dramatically reduce the costs of eye care. A cataract surgery costs 60 times less than in the United States - 50\$ compared to 3'000\$ (Prahalad, 2005, p.56).

3. A common paradigm is that **state-of-the-art technology** primarily appeals the rich: A coloured iPod, a fancy flat screen television or a brand-new blu-ray recorder. But the introduction of modern technology for the poor can be just as reasonable (Akula, 2008, p. 46-48): The installation of wireless communication technology in isolated living areas for example dramatically reduces the variable costs of access to clients and makes it all of a sudden worthwhile to attract rural customers. Similarly solar technology can be too expensive to implement in areas with access to a public grid, however in areas without such a network, solar technology might be the most cost-efficient choice to generate electricity supply. State-of-the-art technology hence can be an important component of a cost-reducing business model.

3.5 Building Capacity

Objectives	Methods
- <i>Strengthening buying power</i>	- Offering micro-credit payment schemes
- <i>Creating income</i>	- Producing with local staff
- <i>Sparking interest</i>	- Engaging in educational activities

"Selling to the poor" covers just one narrow aspect of the economic cycle and becomes only sustainable when capacity among the poor to participate in markets is generated. In the long run the expenditures of any individual have to equal the income; for this reason it is in the very interest of any private business operating at the BoP to **create** either directly or indirectly **income** (Hart, 2007, p. 148-152). Facing the importance of mouth-to-mouth propaganda at the BoP, firms can engage on the basis of economic incentives with local product ambassadors, strengthening popular acceptance for a brand. The Peruvian micro-credit institution Mibanco for example counts on local market-women who sell in addition to sandwiches and music-CDs, micro-credits for Mibanco. It is a win-win-situation for Mibanco and the market-women: Mibanco receives additional customers and the market women earn both a secondary income and the pride for working for one of the biggest national micro-credit providers.

Due to the lack of a regular income BoP customers can often not afford to make an investment. It is indeed not uncommon that a slum dweller earns as a collector of bottles or as a cleaner of windshields a small, fluctuating income. But some fraction of the income would have to be constantly saved in

order to make after years a larger investment. A pay-on-**credit system** in contrast detaches the buy from the immediate availability of money and heavily facilitates the purchase. At the BoP, the decision to buy a product or not can depend therefore on the conditions of the credit agreement (Aguiar, Cunha & Pikman, 2008, p. 3). In Peru the largest department store chains, such as Ripley or Saga Falabella, have acknowledged this need and institutionalized over the last years their own credit banks, called Banco Ripley or Banco Falabella.

BoP-customers are furthermore often first-time users of certain products (Aguiar et al., 2007, p. 2). In fact some products compete at the very beginning with conflicting practices rather than with products of competitors. A provider of toilet paper for instance with the intention of penetrating India's BoP would have to compete not only with potential rivals but above all with the dominating practice of maintaining the personal hygiene with the left hand and water after defecation or urination. First-time users do not necessarily know how (and why) to apply a product, such as toilet paper. But the sense and the quality of a product depend on the way it is used and taken care of. The installation of a new sanitary facility for example requires technical know-how. The mis-installation of such equipment can produce malodour and the congestion of tubes. In both cases, conflicting practices and misuse, it can be worthwhile conducting, in addition to emotional promotions, **educational promotion** activities. The Maestro home centre for example organizes in Peru on a regular basis workshops for do-it-yourself home workers: It offers events ranging from simple tasks such as "how to fix a lock" to more challenging activities such as "how to install sanitation facilities".

3.6 Adapting the Internal Organization

Objectives	Methods
<ul style="list-style-type: none"> - <i>Aligning the organizational structures to the strategic shift to the BoP market</i> - <i>Gaining internal acceptance for the new business approach</i> 	<ul style="list-style-type: none"> - Establishing new organizational bounds and units - Adapting the incentive structure - Adapting the corporate culture

BoP customers have often been disregarded due to their limited financial resources. CEMEX discovered during the Mexican economic crisis in the mid 1990s that 40% of their revenues resulted from business with a steady informal market. The single consumer did contribute less to the company's profit than the powerful high-income customer, but the informal BoP segment proved better resistant to economic fluctuations than the formal high-end segments (Sharma, Mohan & Sing, 2005, p. 149-151). Weiser et al (2006, p. 10-11) partly attribute the neglect of BoP customers to the existence of adverse incentives in many companies. So far traditional business incentives have led to a favouritism of high-margin customers (Weiser et al., 2006, p. 10-11). Thereby it has been ignored that BoP-

products may provide small margins but generate up to five times higher returns-on-capital than traditional products targeted at high-end markets. (Aguiar, Cunha & Pikman, 2008, p. 4-5).

But the adaption of the business does not just end with an adjustment of the incentive structure. It can also imply the establishment of new organizational bounds and units in order to conform to the strategic shift to a new (BoP-)market. Conceivably a separate, accountable unit within the organisation could be established that pushes forward new ideas linked to the BoP business (Aguiar, Cunha & Pikman, 2008, p. 6-7). It would also be thinkable to organize regularly the existing functional departments (research, production, documentation, sales, etc.) within process-oriented committees, bringing together the members of the various divisions for the task "market to the poor".

Whichever organizational measure a firm may take, it should always be planned and implemented with respect to the existing corporate culture. An organizational alignment can be wise but sometimes clashes with a conflicting cultural attitude within the corporation. To all of a sudden serve BoP customers in an informal environment is a potential, culture shock for employees of a global multi-national, used to dressing smartly and working in collaboration with high-end customer segments.

4 Presenting the Case of Sanitation in Peru

4.1 The Relevance of Sanitation

For the population in richer countries and upper segments in the developing world it is today a matter of course to use clean toilets for sanitation. In Switzerland each person spends approximately one year of his lifetime in a bathroom (Furrer, 2004, p. 8). The contemporary, wealthy customer of sanitation products can choose from a broad range of curious articles: In Japan clients buy high-technology bidets which automatically wash and dry the anus or the vulva of the user; In the Netherlands a firm with the name "P-Mate" distributes at music festivals female urination devices which enable women to urinate while standing upright;⁶ and in Switzerland a network of sanitation stations for dogs exists where owners find utensils to dispose of the animal's excrements.⁷

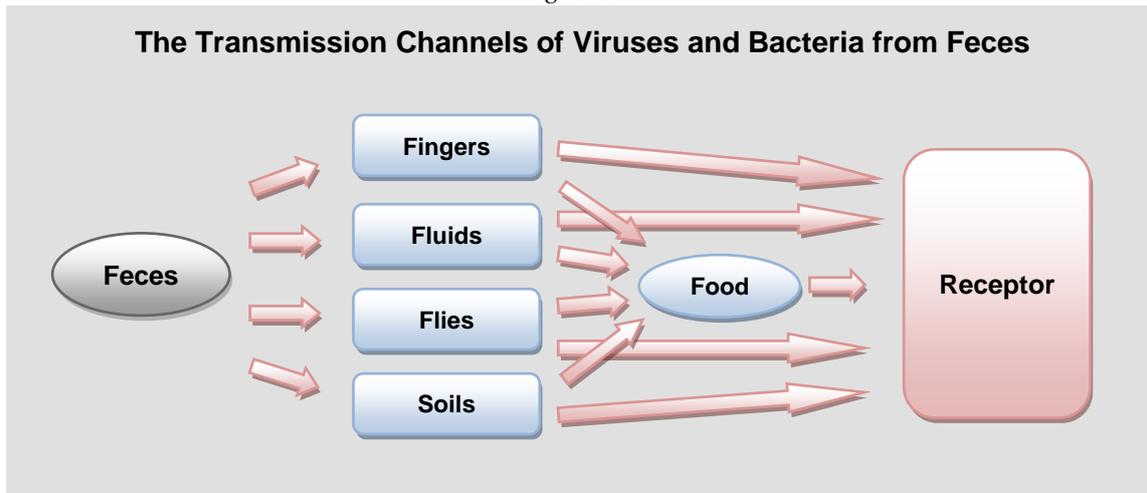
As a result it has been forgotten that two centuries ago the use of water-driven toilets was not common. People instead used sanitary pots or oriels which hung directly over a municipal moat. In rural areas farmers used to relieve themselves on a dungheap. The sanitary revolution only set in with the industrialization and the exponential increase of an urban population over the course of the 19th century. London rose from 1 million inhabitants in 1801 to 6.5 million a century later. This rapid population growth favoured the formation of urban slums with catastrophic hygienic conditions. As a consequence London was hit in 1848 by a devastating cholera epidemic, carrying 53'000 human lives. Doctors and researchers revealed at the same time that the spread of diseases is attributed to the contamination of water and a lack of hygiene. London subsequently enacted its first public health act and began to construct a massive sewage system. A sanitary revolution had started in Europe, leading to a tremendous increase in life expectancy and quality (Furrer, 2004, p. 35, 42, 81-83, 113-118, 144).

One gram of solid feces can carry up to 100 million bacteria and 1 million viruses (Furrer, 2004, p. 147). The hazard of feces emanates from unhygienic sanitation behavior resulting in the spread of bacteria, viruses and worms over the following four transmission channels (cp. Figure 3): The contamination of fingers, the contamination of fluids, the contamination of soils and the spread of bacteria and viruses through flies. All four sources either affect directly the state of human health or indirectly via the intake of nourishment. The most common resulting illnesses include diarrhea, cholera, worms, typhus, etc. (Furrer, 2004, p. 147-162).

⁶ For more information see <http://www.p-mate.com/>

⁷ For more information see <http://www.robidog.ch/>

Figure 3



Annotation. Based on Wagner & Lanoix cit. in UN-Water (2008)

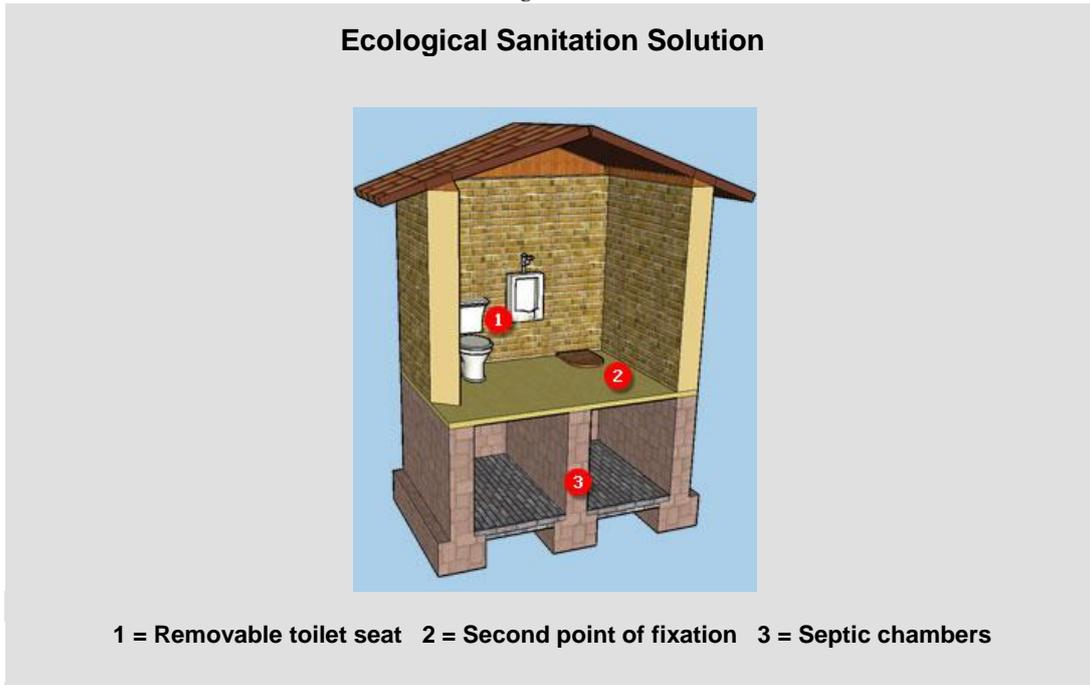
Whereas the use of clean bathrooms may be normal for upper societal segments it is not for 38% of the global population (So, 2008, p. 11). Every 20 seconds, a child dies as a result of poor sanitation (United Nations, 2007). Access to toilets could reduce the number of child diarrhoeal deaths by 30% (UN-Water, 2008). But the lack of sanitation has also an enormous economic impact. Indonesia for example bore costs related to the lack of sanitation amounting to US\$6.3 billion in 2006 which equals 2.3% of the national GDP. It is further estimated that each public Dollar invested in the improvement of sanitation generates an economic benefit of US\$9 (So, 2008, p. 11).

4.2 Technological Solutions

If we speak nowadays about sanitation we may think about toilets with a water flush, sourcing water from a public network, and a sanitary bowl connected to a wastewater system. In many parts of the world however, water is an acute scarcity and a sewage system does not exist. Therefore we should distance ourselves from the narrow perception of sanitation as an exclusively water-based issue. In fact numerous technological solutions have been developed to facilitate hygienic sanitation to users without access to a water and/or a sewage network. Two of them will briefly be presented below:

- *Ecological Sanitation for people without access to water and sewerage:* The ecological latrine displayed below connects a movable toilet seat to two separate septic chambers. One septic chamber fills approximately every six months with faeces so that the toilet bowl has to be replaced and linked at that point to the second septic chamber. The deposited faeces in the first chamber can then be reused as a fertilizer for agricultural purposes. This process recurs every six months (cp. Figure 4).

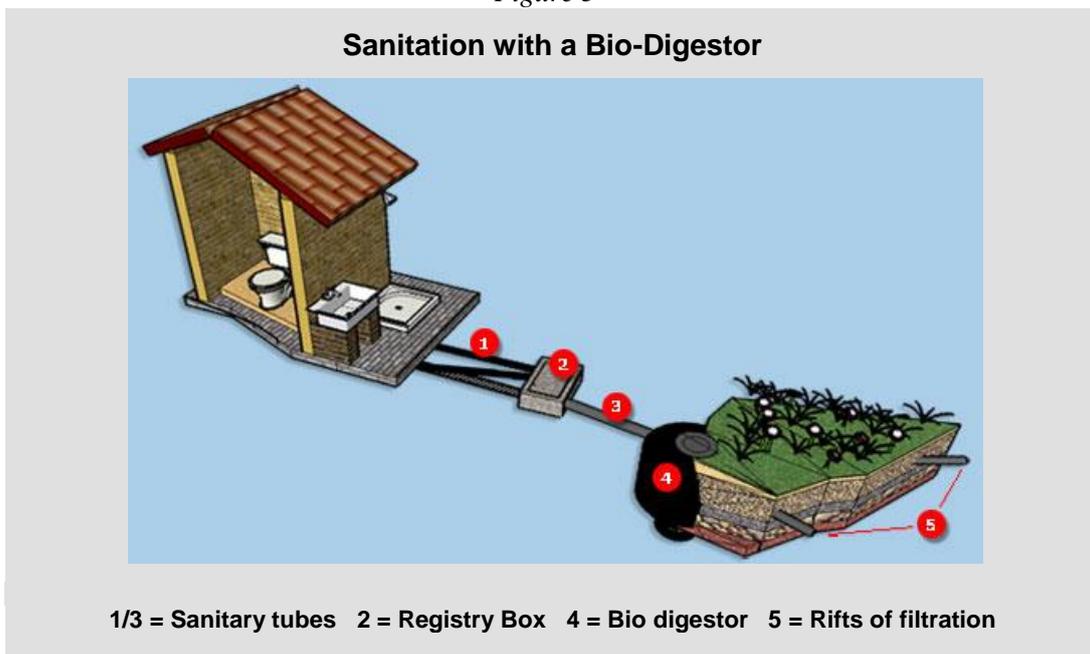
Figure 4



Annotation. Perusan (2009)

- *Sanitation with a bio-digester for people with access to water but not to the sewerage:* The heart of the sanitation solution in Figure 5 is a bio-digester. The digester absorbs excreta for treatment and automatically opens after two years a valve to divest the processed sludge. A second valve constantly pumps treated urine through rifts of filtration into the soil. The grounds surrounding the bio-digester are extremely fertile and can be used for agricultural purposes.

Figure 5



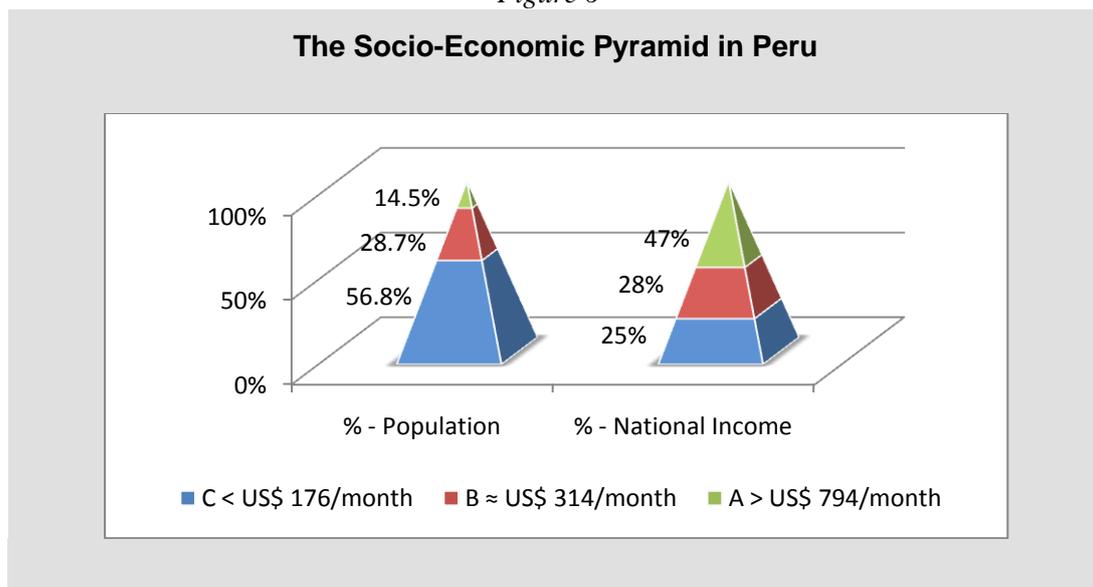
Annotation. Perusan (2009)

4.3 Sanitation in Peru

Peru is a country characterized by its high ethnic, cultural and sociodemographic diversity. Tourists arriving in Lima may get along very well as the Peruvian capital offers the typical variety of an upcoming city in the developing world: Modern shopping and leisure facilities in the high-end districts of San Isidro or Miraflores and impoverished slum settlements at the city limits. The standard tourist may then take a trip to the Andean heartland. There he will find the indigenous descendants of the lost Inca empire, living in part still to the myths and traditions of their forefathers. Finally the tourist may descend to the Amazon basin and discover the incredible nature of the rainforest and the bedraggled remainders of the height of the exploitation of natural rubber in the 19th century.

A similar variety can also be described in socioeconomic terms (cp. Figure 6): The wealthiest 14.4% of the population earn 48% of the national income and the 56% at the other end of the economic pyramid receive only 26% of the national income (Ipsos Apoyo, 2004). The percentage of individuals belonging to the group C is thereby significantly higher in rural parts of the country. The ratio of people belonging to group A is vice-versa higher in urban zones (Apeim, 2008, p. 16).

Figure 6

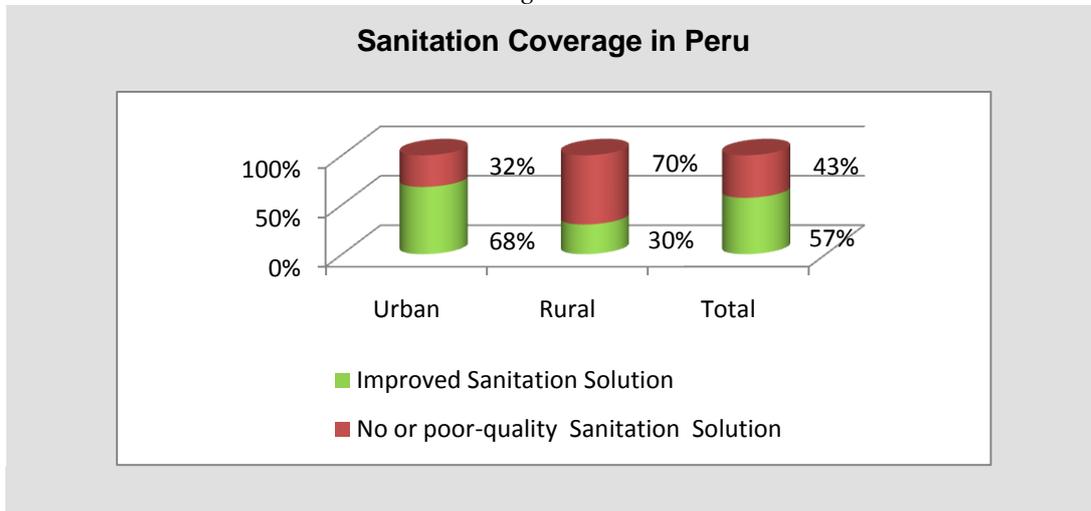


Annotation. Based on Ipsos Apoyo (2004)

Today more than two-thirds (72%) of the Peruvian population live in cities and the remaining 28% resides in the rural parts of the country. Between urban and rural areas exists a further gap in terms of access to sanitation: 68% of the urban population has access to an improved sanitation installation (includes systems with access to the sewage network or latrines connected to a septic tank). In rural areas just 30% have access to improved sanitation systems. In total at the national level 49% of citizens have domestic access to the sewage system and 8% have access to an improved latrine. The total sanitation coverage of 57% places Peru far below the Latin American average of 74%. Figures related to public access to water look a bit better: 81% of the urban population and 62% of the rural population can source water either through a domestic connection or have steady access to a public

tap. This leads to a total water coverage of 76% (Marmanillo, 2007, p. 326-349; I. Marmanillo, personal conversation, 13.8.2008; cp. Figure 7).

Figure 7



Annotation. Based on Marmanillo (2007, p. 326-349)

Despite significant investments through the government fund “Fondo de Compensación para el Desarrollo” [FONCODES] in water and sanitation in the 1990s (about US\$250 Million/year \approx 0.5% of GDP), progress has been limited. The total sanitation coverage in 1990 was even slightly higher than in 2004 (Marmanillo, 2007, p. 333). A considerable part of the population still does not possess proper sanitation installations and the latrines that had been distributed by FONCODES a decade ago are largely not in use anymore due to technical problems, bad smell, attraction of insects, preference for open defecation or other reasons (Water and Sanitation Program [WSP], 2008c, p. 7-8).

About 11.7 million Peruvians still lack access to basic sanitation services and the existing sanitation equipment is usually of very poor quality: Three out of four latrines are used without a sanitary tile or bowl. One out of three sanitation cabins is operated without a door and one out of four cabins does not have a roof (cp. Figure 8). Every Peruvian child below the age of five suffers approximately 5-10 times per year from a diarrheal disease and between 9 and 13% of all child deaths are traced back to the lack of sanitation. It is estimated that each case of diarrhea causes a cost of US\$12 to the Peruvian health care system (Perusan, 2009; WSP, 2008c, p. 5-6).

Figure 8

Poor-Quality Latrine hanging over a Riverbed in Belén (Iquitos)

Annotation. PERUSAN (2009)

Fortunately signals over the last three years have revealed a political interest in the improvement of the national sanitation coverage. "More water and sanitation for everyone" was one of President Alan García's key messages during the 2006 election campaign. He is planning to channel massive infrastructure investments in water and sanitation through the policy program "Agua para todos" (I. Marmanillo, personal conversation, 13.8.2008). US\$80 million over six years have been budgeted for the investment package PRONASAR directed to rural areas and SEDAPAL, the semi-public water and sanitation network provider in the capital, plans to contribute US\$300 million to the implementation of the "Agua para todos" program in Lima (PRONASAR, 2009; SEDAPAL, 2009, p. 1). In spite of the current financial crisis and the decrease in economic growth from 3.14% in January 2009 to 0.19% in February 2009 (Subirana & Limache, 2009, p. 2), it is hoped that an economic recession will not negatively affect the political commitment for forward-looking sanitation policies.

4.4 The Introduction of a Sanitation Market

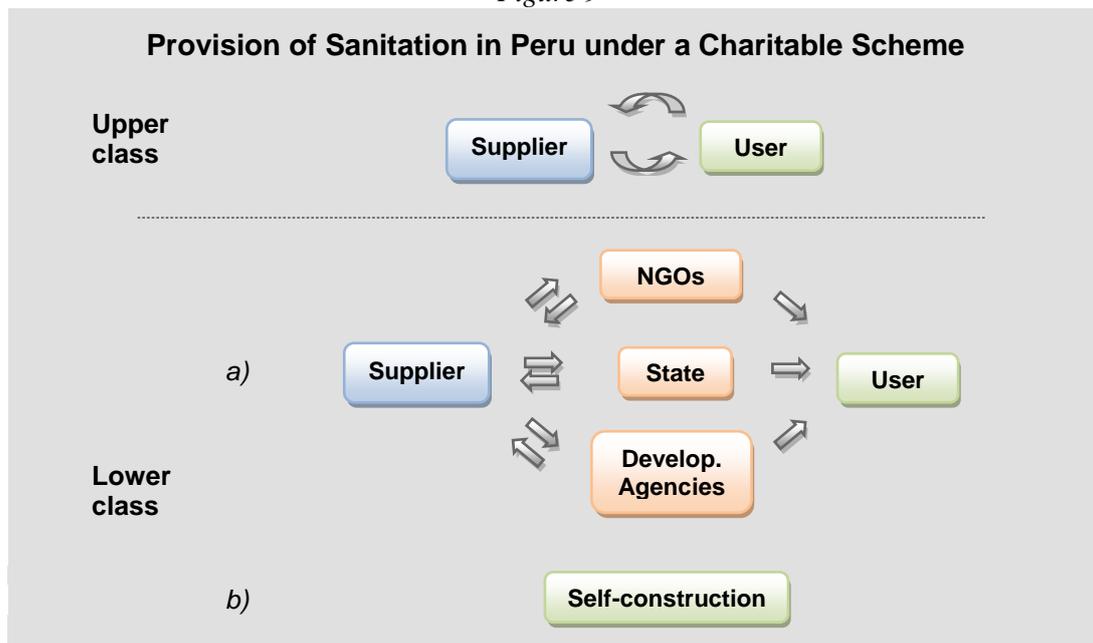
As the efforts of the public hand to improve the quality and coverage of sanitation around Peru have mainly failed in the past, an innovative scheme has been promoted by the Water and Sanitation Program of the World Bank. This initiative introduces markets as a new distribution system for sanitation among the poor and will briefly be presented in this section.

The quality of sanitation influences, as highlighted in the previous sections, the state of health and human productivity. But selling sanitation devices seems problematic because its advantages are to some degree not obvious to users: A practice of unhygienic sanitation might not have a direct impact on the person's life. But in the long-run diarrheal diseases occur and hinder the human being in its daily routine and most notably in its development - which has a particularly devastating effect on children. Deficiencies experienced in the childhood potentially cause lifelong damage. The provision

of the poor with sanitation has therefore traditionally been considered as a charitable challenge (and not as a business opportunity!) assumed by the state or NGOs.

The Peruvian upper class in contrast has already participated in functioning sanitation markets for a long time. An affluent Peruvian family for example that wants to install a new sanitary installation in its summer house at one of the beautiful beaches in the south of Lima can easily consult one of the established high-end distributors of sanitary products and services. BoP segments on the other hand have been waiting for state support and in the meantime solved their necessities by open defecation or through the construction of simple, poor-quality latrines (cp. Figure 9).

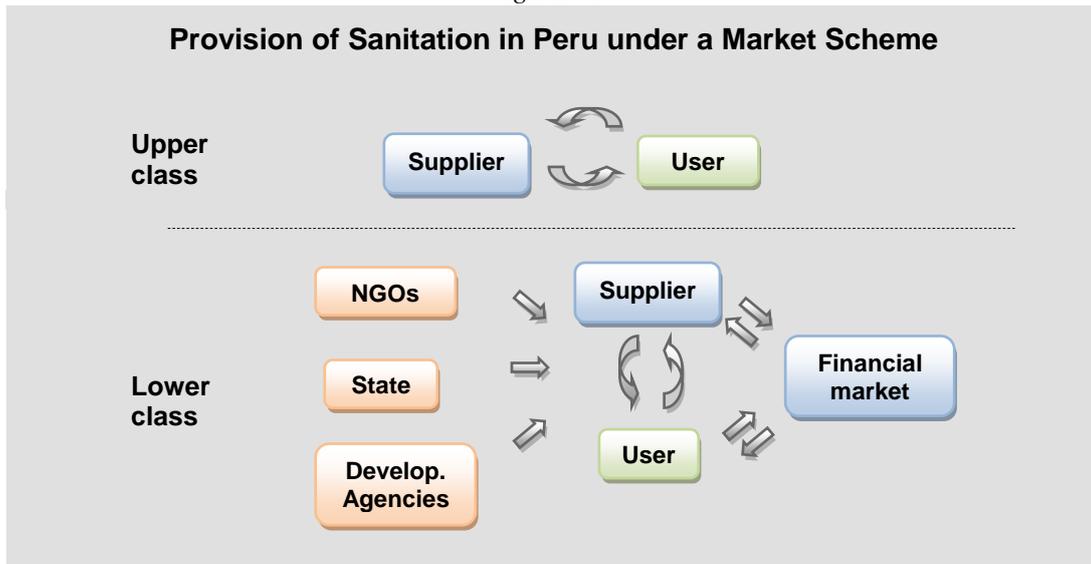
Figure 9



Annotation. Personal remarks

The market initiative of the Water and Sanitation Program now introduces a revolution in the provision of sanitation (cp. Figure 10). The poor are encouraged to engage independently as customers in sanitation markets. They are no longer subject to the discretion of civil servants and choose instead a sanitation solution that conforms best in performance and price to their personal ambitions. The new market will be additionally linked to a market for micro-finance in order to expand the buying options for the BoP. The state and aid organizations on the other hand are going to lose their role as service providers of individual sanitation solutions. The state institutions are then planned to adopt the role of regulators and facilitators of a sanitation market within a network of other relevant players (international development agencies, NGOs, etc.), joined to support in a harmonized manner a market for sanitation.

Figure 10



Annotation. Personal remarks

The new model is meant to improve both the quantity and quality of sanitation in Peru based on a straightforward explanation. It has been found that an important driver for the purchase of sanitation products is the perception of a sophisticated toilet as a symbol of status in Peru (Johnson, 2008, p. 12). Simple latrines that were distributed by FONCODES in the 1990s did not meet the expectations of the poor (WSP, 2008c, p. 7-8). The recipients of latrines felt like second-class citizens and did not apply clean sanitation behaviour (cp. IMASEN, 2007a, p. 8-11; WSP, 2008e, p.6). The focus of the market initiative is in contrast on the BoP individual as a potential customer. If the BoP buyer can be motivated by the private sector to buy with his own hard-earned money sanitation products that correspond to his vision of a presentable, decent toilet, then he is going use this toilet with a lot of pride and diligence.

4.5 The Five Project Zones

Based on the principle of the cultural and natural variety that Peru offers, five project zones have been chosen by the Water and Sanitation Program in order to test a market for sanitation in different environments. The selected localities represent the three characteristic ecozones, "coast", "mountains" and "rainforest". Moreover areas of urban influence and others with a rural character can be found among the five pilots (cp. Figure 11).⁸

⁸ For more information on the project zones see <http://www.perusan.org/>

Figure 11



Annotation. Based on WSP (2008c, p. 20)

1. **Pachacutec – Callao (Lima)**: Pachacutec is a huge settlement ($\approx 250'000$ inhabitants) that emerged as a shelter for internal refugees and immigrants who have streamed over the past 25 years to the Peruvian capital. The city lives under the urban influence of Lima and Callao (the harbor) as many people work or shop in downtown. The closeness to the city center guarantees at least some inflow of resources to Pachacutec.
2. **La Encañada and Namora – Cajamarca**: Both La Encañada and Namora are rural zones situated about one hour in the south of the city of Cajamarca in the Northern highlands of Peru. Neither La Encañada nor Namora are areas of highly dispersed settlement but clearly have a rural character. Accordingly most of its inhabitants are engaged in the agriculture sector, in particular as milk providers for Nestle and Leche Gloria.
3. **Independencia – Huaraz**: The area of Independencia is practically affiliated to the city of Huaraz, a destination well known for adventure tourism in a northern mountain area of Peru about 8 hours away on the highway from the capital Lima. Independencia features both an upper, urban and a poorer, rural zone, where 27.8% of the population lives.
4. **Chincheró – Cusco**: Chincheró is a picturesque, rural village in the surroundings of the city of Cusco located in the southern Andes of Peru. As Cusco is the main touristic destination in Peru (due to the Inca city of Machu Pichu), a lot of visitors take the opportunity for a trip to the sacred valley (incl. Chincheró). This status means tourism is a major source of income for the citizens of Chincheró.

5. **Belen – Iquitos:** Belen acts as the harbor of the jungle city Iquitos. It is the main gate for any commercial product coming along the Amazon river to the city. The market is therefore the biggest employer in the area. Belen is divided into an upper and a lower part. The lower part is inundated during 6 months of the year (November-May). Houses have therefore been designed to float during this particular season. Especially the lower part of Belen faces multiple problems. The area is highly contaminated as people have barely adapted to any kind of hygienic behavior.

For this study I have been geographically focusing on Pachacutec and Namora as these are the two zones where the project has progressed most so far.

4.6 The Involved Private Sector

Various firms from the private sector have declared their intention to offer products and services for the provision of sanitation to the Peruvian poor. Table 2 distinguishes between input producers/providers, micro-finance institutions and other related companies that support the creation of a BoP-market for sanitation products. The involved firms come from an interestingly diverse background: Multinationals such as Nestlé, Scotiabank or Eternit rank among the participators as along with national companies like Maestro Home Centers and the Gloria Group or local small-scale providers of sanitation products. Accordingly large differences can be expected between the firms with reference to experience, professionalism, embedding, commitment, etc. The table below does not list all involved private businesses but the ones that attracted the most attention during my field study in Peru.

THE INVOLVED PRIVATE SECTOR	
INSTITUTION	PROFILE
Input Producers/Providers	
<i>Rotoplas</i>	Mexican firm, specialized in products for the processing of water
<i>Eternit</i>	Belgian firm specialized in fibrocement products
<i>Maestro ACE Home Center</i>	Lima-based construction and home center chain
<i>Trebol Celima</i>	National producer of ceramic tiles and closets
<i>Local distributors of sanitation products</i>	Availability and professionalism depends on the region

Micro-Finance Institutions	
<i>Scotiabank</i>	International Bank
<i>Mi banco</i>	Peruvian microfinance institution
<i>Edyficar</i>	Peruvian microfinance institution
<i>ADRA Bancos Comunes</i>	Microfinance institution, offering group credits
Related Businesses	
<i>Nestlé Peru</i>	Multinational food company
<i>Gloria Group</i>	Peruvian provider with a focus on dairy products

5 Analysis of the BoP-Markets in Pachacutec (Lima) and Namora (Cajamarca)

5.1 Observation Form

Peruvian sanitation policy in the 1990s was based on the belief that the national sanitation coverage could be increased with the charitable distribution of latrines all over the country. This policy failed as it disregarded the importance of the user as the origin of a behavioral change. The individual would have to be convinced into adapting better sanitation practices in order to attain higher sanitation coverage. An integrating market for sanitation, as aspired to in this paper, is meant to finally produce the sanitation products that respond to the necessities and wishes of the users themselves. In order to define these necessities an analysis of the BoP markets in Pachacutec and Namora has been produced, focusing on three areas (cp. Figure 12):

1. The characteristics of the BoP users and the living space:

- What are the attributes of the BoP-customers and the environment they are living in (geographically, demographically, psychographically, behaviorally)?

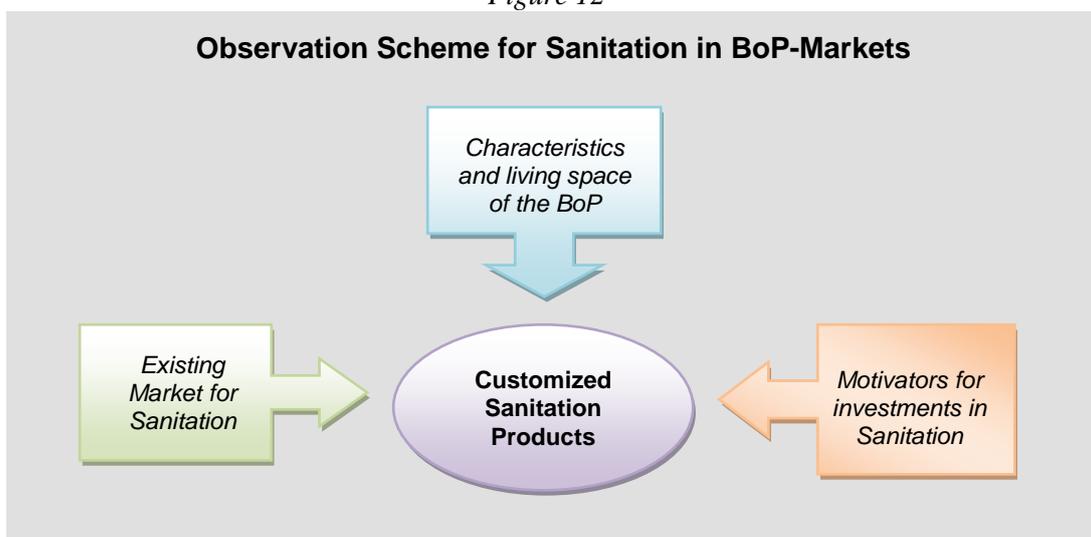
2. The existing markets for sanitation products:

- Who are the relevant actors on the supply side?
- How strong is the demand side?
- Which sanitation technologies are available?
- Is there an established micro-finance market?

3. The motivators for investments in sanitation:

- What are the main drivers and barriers for investments in sanitation?
- What technological requirements do BoP-customers ask for?

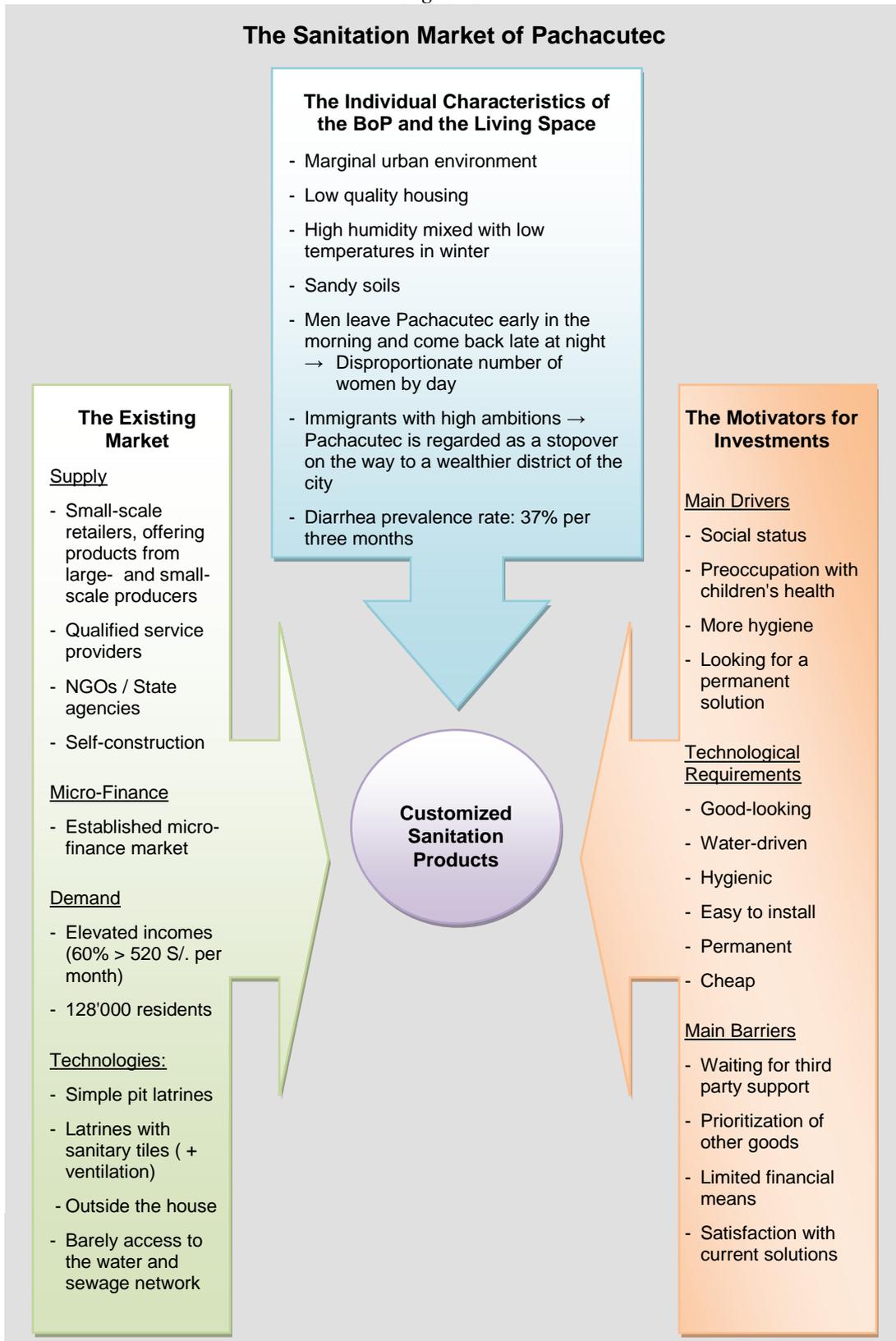
Figure 12



Annotation. Personal remarks

5.2 Pachacutec (Lima)

Figure 13



Annotation. Personal remarks

1. The Individual Characteristics of the BoP and the Living Space Pachacutec

Pachacutec is located on the outskirts of the city of Lima, belonging officially to the harbor district of Ventanilla (Callao). Its size is estimated at about 128'000 people (personal communication with Abraham Horma from ADRA during a field visit in Pachacutec, 10/07/2008). Most of the inhabitants came between six and ten years ago as immigrants to the city in the hope of improving their personal living conditions (cp. IMASEN, 2007a, p. 3). They first settled down in the district of Villa el Salvador at the southern end of Lima and were then relocated by state officials to the north of the city in Pachacutec (Romero Foundation, 2008). Many inhabitants dream of a life in one of the well off zones of the city. Pachacutec is therefore often regarded as a first stepping stone to a better life in one of the wealthier districts of Lima (personal communication with François Brikké [former head of the WSP LAC], 04/08/2008).

Living conditions in Pachacutec are hard: The settlement has been erected upon sandy soil and most of the streets are not paved yet. Due to the proximity to the sea humidity is particularly high. Most houses have been poorly constructed and isolated with lumber and soil. The climate strains the people's health, especially in winter when the humidity mixes with lower temperatures (10-15° C). 64% inhabitants have experienced respiratory diseases in their families over the past three months. Diarrhea (37%) ranks in second place among the most common symptoms of illness (IMASEN, 2007a, p. 7)

In spite of the challenging living conditions people do not lose their pride and their aspirations. Small businesses and food corners line the vivid streets of Pachacutec. Men usually leave their houses early in the morning for work in the city and return late at night. There is therefore an overbalance of women and children at daytime in the district.

2. The Existing Sanitation Market in Pachacutec

Sanitation equipment is widely known and applied. Only 6% of the population does have access to any kind of sanitation system. However the quality of the sanitation devices is very poor: 11% have a simple pit latrine, 34% have installed a latrine with sanitary tile and 47% have additionally linked their system to a ventilation pipe. Only 2% of the inhabitants enjoy toilets with a water flush and/or a connection to the public sewage system. Moreover 88% of the sanitation equipment is located outside the house, 53% do not have a door and 41% do not have a roof (WSP, 2008b, p. 27-28; cp. Figure 14).

Sanitary components from national large-scale producers (Amanco, Eternit, Trebol) and local artisans are offered by small-scale retailers directly in Pachacutec (Perusan, 2007a, p. 35-41). Several qualified service providers are also available (WSP, 2008d, p. 28-30). In the marginalized outskirts of Lima dominates a do-it-yourself practice of digging a hole and erecting on this with locally-fabricated components a provisional, simple sanitary installation (personal communication with Iris Marmanillo, WSP country coordinator for Peru, 2/9/2008). Another important provider of sanitation devices are state agencies and NGOs. One in five latrines in Peru have partly been constructed with technical or

financial help from the state or NGOs (Perusan, 2009). During a trip to Pachacutec on August 18, 2008, I visited for example prefabricated houses that already included a toilet. These houses were constructed by a local NGO with the aid of public funds and sold heavily under value at the price of 1000 Soles.

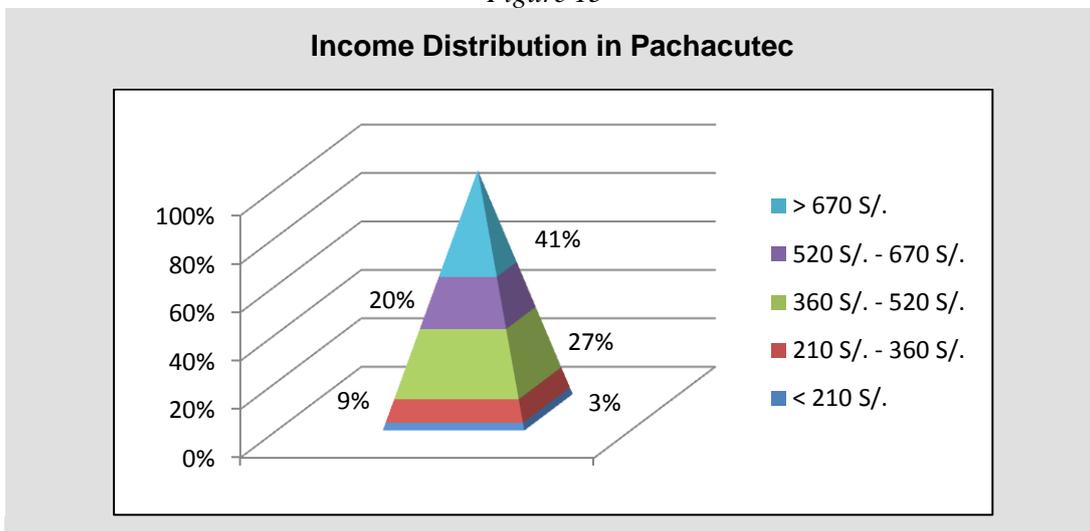
Figure 14



Annotation. Perusan (2007a, p. 31)

The inhabitants of Pachacutec are financially better off than Peruvians from impoverished rural areas of the country - even though living costs in the city may also be higher. 60% of the people claimed to earn more than 520 Soles a month and almost the same amount of people declared themselves able to put 45 Soles per month aside for the pay back of a credit for sanitation (WSP, 2008b, p. 27-28; cp. Figure 15). However these 45 Soles for sanitation compete with other investment objects such as construction materials for the improvement of the house (typically favored by women) or a television (as often preferred by men) (cp. Johnson, 2008, p. 11).

Figure 15



Annotation. Based on WSP (2008b, p. 27-28)

Large micro credit providers such as Mibanco, Edyficar or ADRA Bancos Comunales are already active in the location. Mibanco for instance operates an agency in Ventanilla and coordinates from there the loan provision to recipients in Pachacutec. Credit assessors regularly visit for this purpose their customers in Pachacutec. In 2007 21.5% of the residents in Pachacutec had accessed the credit system (WSP, 2008d, p. 30-31). These credits were first of all used for investments in micro-businesses and secondly for improvements in the household (Macro Consult IEP, 2007, p. 45).

3. The Motivators for Investments in Sanitation (Pachacutec)

A public opinion poll in Pachacutec revealed that the absence of an efficient water supply and the lack of a sewage system are felt to be the most critical issues in the zone. 65% of the respondents viewed the issue of water as problematic and 55.2% included the lack of a sewage system to a list of the most urgent problems. However this awareness of the issue of sanitation does not transform into financial investments. Only 4-5% of the total investments into the maintenance or the improvement of the household are attributed to sanitation (IMASEN, 2007a, p. 4-5). With respect to the issue of sanitation there is a huge gap in Peru of what is said and what is done (WSP, 2008a, p. 8). Various reasons could explain this breach: The provision of the population with sanitation is seen primarily as a public task (IMASEN, 2007a, p. 5). A common response to the question of why people have not yet invested in higher quality sanitation, is: "We are still waiting for the municipality to connect our house to the public sewage system". It has not been perceived that high quality sanitation solutions exist for people living in zones where the sewage system has not arrived (yet).

The people of Pachacutec seem to aspire to sanitation solutions that resemble the ones in wealthier zones of Lima. Improved drop-whole latrines attract considerably fewer people than latrines with run-off water: 55% declared their potential willingness to invest in the latter option and just 15-25% of the interviewees showed interested for the first alternative (IMASEN, 2007 cit. in Baskovich, Zevallos & Fuertes, 2008, p. 6). This preference underlines the important link of sanitation to water. The selling of sanitation devices will be easier in zones where an efficient water supply already exists. A public water network for individual households hardly exists in Pachacutec (yet). 61% of the population receives water from community taps and 37% draws water from inefficient tank vehicles (IMASEN, 2007a, p. 5).

The perception of the current latrines can be best described as ambiguous. On the one hand people feel that the current latrines are affordable, easy-to-install and meet the basic needs for hygiene and privacy. On the other hand old-fashioned latrines are believed to smell bad, to contaminate the environment, to attract flies, to quickly fill up and to present a serious danger to children and elderly generations. In addition its users emotionally perceive latrines as degrading. Above all they give its owners an "I am poor!" label (IMASEN, 2007a, p. 8-11; WSP, 2008e, p. 6).

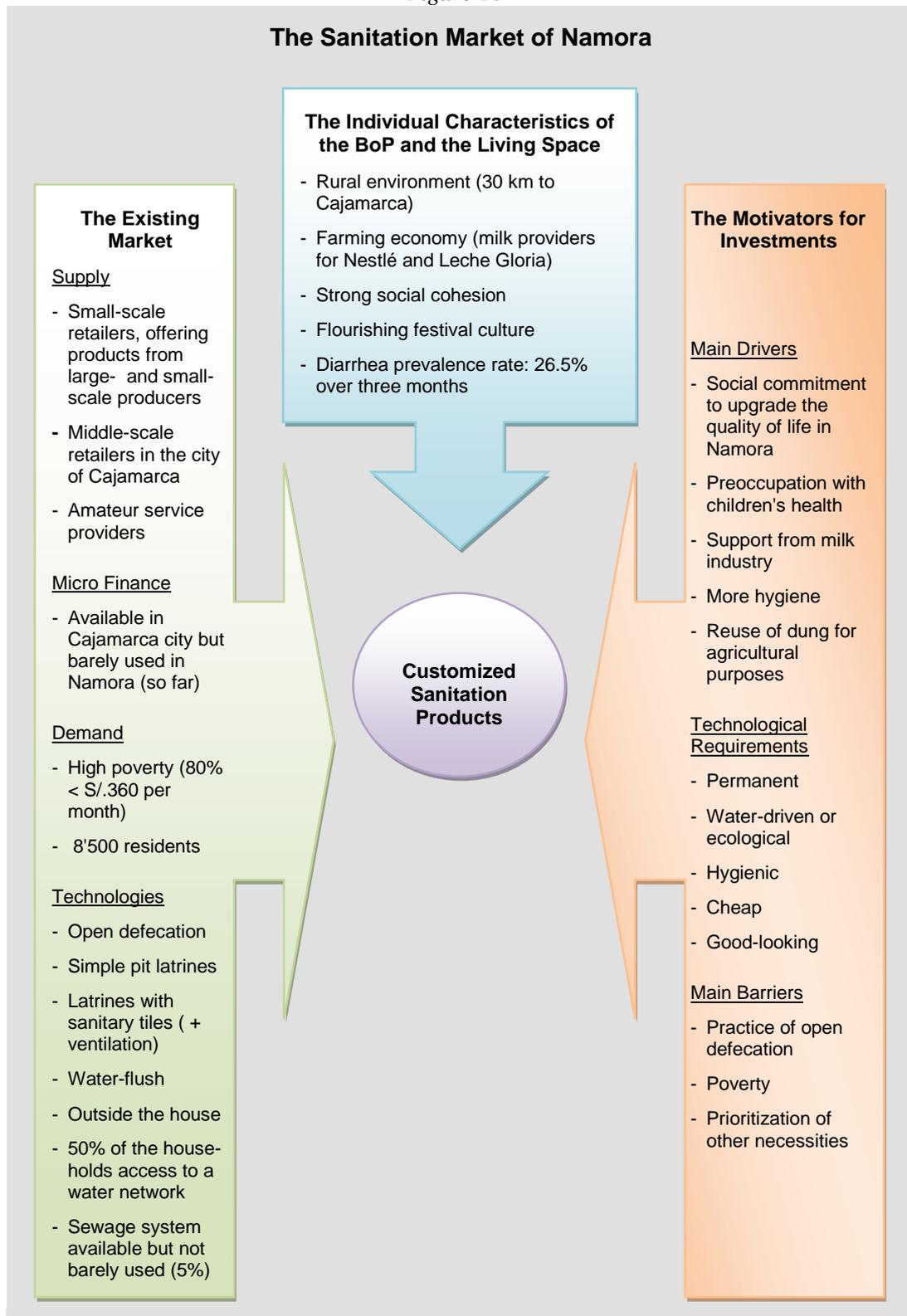
Modern sanitation systems in contrast are believed to guarantee from a technical point of view greater protection from contamination and to provide superior security and hygiene but also to be

economically out of reach (IMASEN, 2007a, p. 8-11). From an emotional point of view they fill its users with pride and a positive image: The Mexican producer of Rotoplas bio-digestors for instance has allocated within the framework of a sanitation project along with "El Fondo de las Americas" sanitation modules (incl. water tank, water closet, washbasin, shower and bio-digestor) to the population of the residential area "Pedro A. Labarthe" in Pachacutec. On a visit to a range of users on July 10, 2008, one happy lady told me that many of her neighbors had begun to come by for a visit to use her toilet and to admire the small, pretty garden that thrives over the bio digestor. The new sanitation module had obviously increased the woman's social status.

To sum up the inhabitants of Pachacutec are looking for a permanent, flexible, modern and affordable sanitation solution. They are mostly not satisfied with the provisional latrines they have had so far and are searching for a permanent solution. Image is equally important. Users seek solutions that look and work akin to the modern toilets in the city centre. However potential buyers of sanitation devices in Pachacutec are price-sensitive. The sanitation system has to compete with other goods for the 45 Soles per month available for investment among 60% of the residents in Pachacutec. Important drivers to invest in sanitation are thereby the wish to improve the comfort and the hygiene, the concern for the children's health and the potential boost for the social status.

5.3 Namora (Cajamarca)

Figure 16



Annotation. Personal remarks

1. The Individual Characteristics of the BoP and the Living Space Namora

Namora is an idyllic village situated on a Andean plateau in the north of Peru; a 35-minute car ride away from the city of Cajamarca. The village is home to approximately 8'500 people (Perusan, 2007b, p. 3-5). A potential sanitation market would therefore be very small. Most of the families are engaged as farmers in agricultural activities, particularly in the provision of milk for the two key market players Nestlé and Leche Gloria. One liter of milk is valued by the factories at 0.8-1.2 Soles. This price generates for a typical farmer whose cows give between 6-8 liters of milk a steady daily income flow of 5-10 Soles (personal communication with farmers in Namora, 15/07/2008). This figure excludes revenues resulting from other agricultural activities.

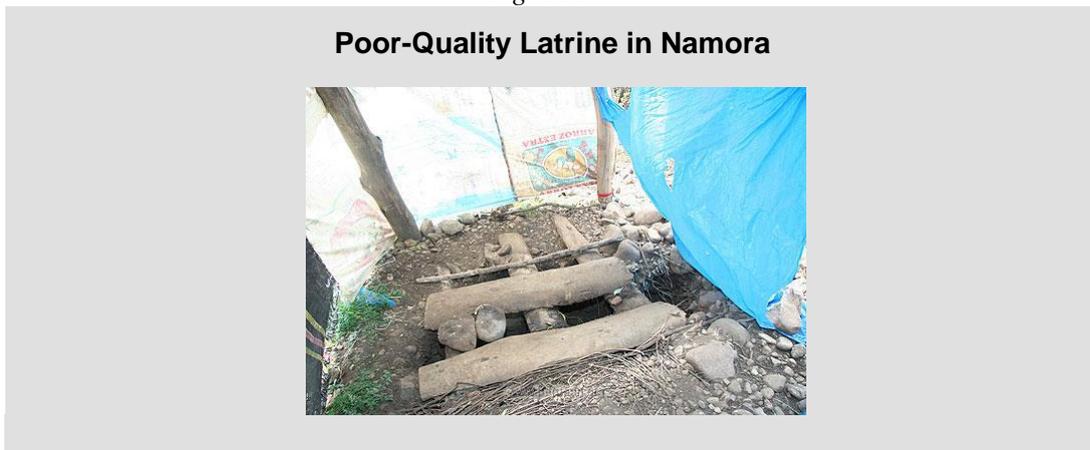
The social bonds among rural communities in Northern Peru are particularly strong. It is not uncommon to observe the residents of a village fixing together cracks and holes in local streets. This community spirit yields fruits. Namora leaves to visitors the impression of a picturesque and clean village. A further product of the strong social cohesion are the numerous community festivities and events. Cajamarca is famous all over the country for its hilarious carnival and carries therefore the name, "Capital del Carnaval Peruano" - Capital of the Peruvian Carnival.

2. The Existing Sanitation Market in Namora

Sanitation equipment in Namora is no matter of course. 38% of the population do not have any private access to sanitation and show a behavior of open defecation. 17% have a simple pit latrine, 13% have installed a latrine with sanitary tile and 27% have additionally linked their system to a ventilation pipe. 5% of the inhabitants have connected a toilet to the public sewage system. Moreover 94% of the available sanitation equipment is located outside the house, 21% do not have a door and 10% do not have a roof (WSP, 2008b, p. 27-28; cp. Figure 17). A first review of these figures shows that Namora faces in addition to the poor quality of the existing sanitation devices the problematic practice of open defecation. As a consequence 26.5% of the residents report having experienced some diarrheal disease in the family over the preceding three months (IMASEN, 2007b, p. 47). A positive message is that more than 50% of the households have access to the local water network. A sewage system was constructed in 1997 (Perusan, 2007b, p. 10-13).

The distribution chain for sanitation products begins with the production in the factories (Eternit, Amanco, Trebol-Celima, etc.) of the large-scale producers in the coastal cities of Lima, Chiclayo, Chimbote, Pacasmayo, etc. Wholesalers directly acquire the sanitation products from the factories and offer them in their agencies in Cajamarca city to customers and smaller retailers (Perusan, 2007b, p. 36). Thereby it has been initially difficult to identify and to motivate local retailers to build up a quality sanitation business for Namora (conversation with Olinda Posadas Zumarán from CARE Cajamarca, 15/07/2008). Furthermore, various local craftsmen and service providers operate in the region of Namora. Though experienced, most of them lack the sufficient, formal qualifications (WSP, 2008d, p. 28-29).

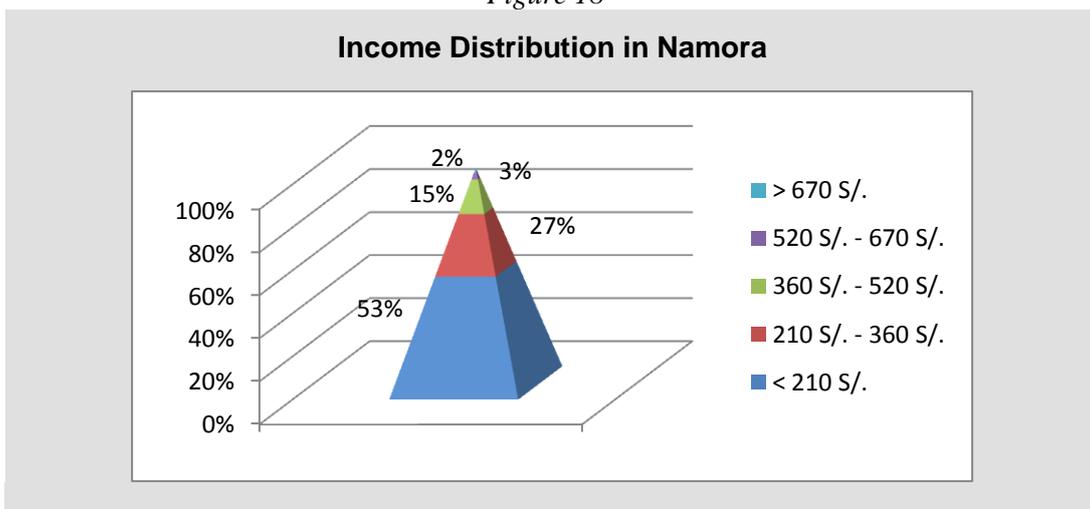
Figure 17



Annotation. Perusan (2009)

The community of Namora is despite the steady income from agricultural activities in general very poor. 80% of its residents earn less than 360 Soles per month (WSP 2008b, p. 27-28; cp. Figure 18). Only 6% have declared to be willing to pay over 2 years the amount of 45 Soles for the refund of a sanitation credit. 37% could imagine paying back over the 2 years a monthly amount of 15 Peruvian Soles (WSP, 2008b, p. 27-28). The two large micro-credit providers in Cajamarca, Mibanco and Edyficar, however assume that an installment of 40 Soles per month would be necessary to cover the costs of a credit (conversation with Lizandro Ramos [Head of the Edyficar branch in Cajamarca], 14/07/2008).

Figure 18



Annotation. Based on WSP (2008b, p. 27-28)

The two key players on the micro-finance market, Edyficar and Mibanco, both have their branches in the city of Cajamarca. Edyficar increased its business in 2007 by 35% (conversation with Lizandro Ramos [Head of the Edyficar branch in Cajamarca], 14/07/2008). In order to reach the population in

the rural parts of the regions both institutions try to establish new innovative communication channels. All credit assessors of Edyficar have motor cycles that permit to access customers on gravel paths even in remote areas. Both micro-credit providers furthermore organize exhibitions and events on village squares. Nevertheless the inhabitants of Namora have so far hardly gained any experience with the credit system. In 2007 only 1.5% had applied over the preceding 12 months for a credit (IMASEN, 2007b, p. 128).

3. The Motivators for Investments in Sanitation (Namora)

The results of the polls among the population of Namora reveal just a limited awareness of sanitation issues. Even though 67% of the interviewees do not approve of the practice of open defecation, 55% admit that open defecation is very common in the community. The issue of sanitation does in addition not rank among the top three priorities on a list of principal problems in a household. The absence of light, problems with the roof and the lack of water seem to currently cause more concerns. The respondents confirmed that their major investments into the household over the preceding 12 months had in fact mainly been directed to the construction or renovation of roofs and walls (IMASEN, 2007b, p. 26, 29, 67, 72).

Part of this unconsciousness can be traced back to the tabooization of sanitation in the daily discourse (conversation with community leaders of Namora, 15/07/2008). Nonetheless the population knows the advantages of quality sanitation. They associate with good sanitation more privacy, hygiene as well as fewer diseases and reduced contamination, and in connection with water-flush operated closets the permanence of the solution. The permanence is thereby considered as the most important requisite towards a possible investment in sanitation. A clear preference prevails for water-driven over dry sanitation solutions. Between 25-37% compared to 7-8% declared their preference for the first over the latter. The first barrier in contrast refers in almost all cases to the price (IMASEN, 2007b, p. 74, 76, 172, 183-184; IMASEN, 2007 cit. in Baskovich, Zevallos, Fuertes, 2008, p. 6).

Certain factors exist that could stimulate the demand for sanitation under the given circumstances. Nestlé, a main producer of Namora's milk, promotes hygiene among its suppliers and supports therefore with a credit discount the sale of sanitation to its farmers. The agricultural activities could also favor the sale of ecological sanitation solutions that allow the recycling of human excreta and urine as fertilizers. Effectively 62.5% of the respondents could imagine investing in a sanitation solution that offers this feature (IMASEN, 2007b, p. 179).

Local community leaders (personal conversation, 15/07/2008) in addition point out that a sewage system has already been installed in major parts of the community. The problem is that a lot of families have not yet connected their household to the sewage line. Only 5% of the households have a toilet linked to the local waste-water system (WSP, 2008b, p. 27-28). But even so the advanced local infrastructure should be seen as an incentive and not as an obstacle for investments in sanitation.

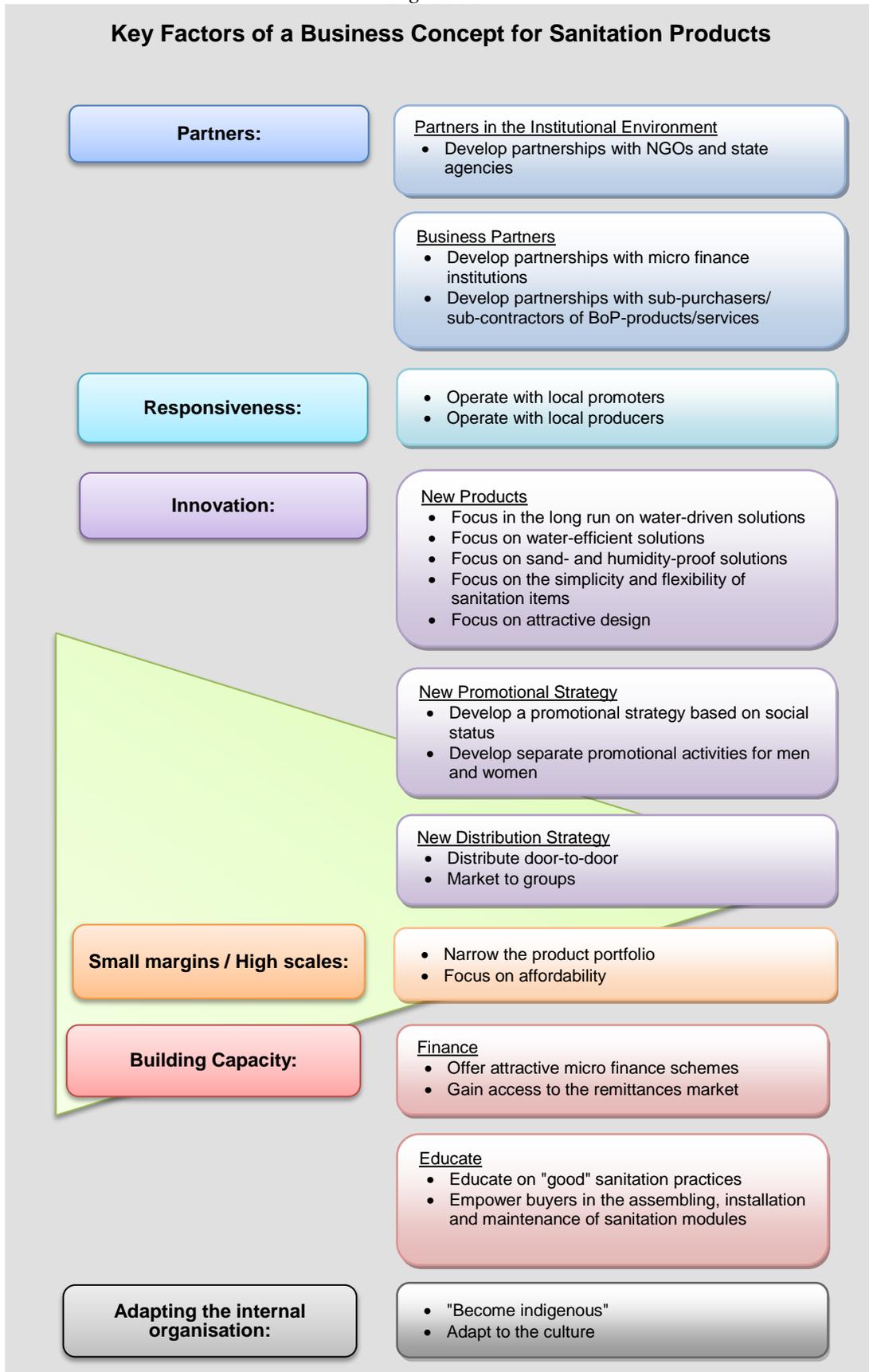
Another important insight of the field visits was that the strong social cohesion among the communities around Cajamarca can activate group dynamics in favor of better sanitation practices. I

was able to attend a community assembly in a remote village called Santa Margarita (field visit, 15/07/2008). The villagers decided to invest jointly in the acquisition of bio-digestors. On my skeptical question if everyone in the village would agree on that purchase, the residents responded determinedly: "We want to have these improved toilets either for everyone in the village or no one!". It is particularly the care for the children's health that unifies the voices of the villagers. In fact the second most important reason to invest in improved sanitation systems in the eyes of the inhabitants of Namora is for the wellbeing of the children (IMASEN, 2007b, p. 178).

With regard to the design of the sanitation solutions for villagers in the Cajamarca region two factors seem to be of outstanding importance. First, the financing scheme plays a key role for the attractiveness of sanitation equipment. The rural areas around Cajamarca are characterized by a high degree of poverty. Inhabitants may afford at best one major investment over the course of two years. The pricing of sanitation devices must therefore convince. Secondly, looks and features matter (Johnson, 2008, p. 12-13). Only about 8% of the residents in Namora show a current interest for improved drop-whole latrines. In contrast 37% of the non poor and 25% of the poor among the population of Namora consider investing in a sanitation solution with run-off water (IMASEN, 2007 cit. in Baskovich, Zevallos & Fuertes, 2008, p. 6). Julio Arteaga Cerquín, owner of a local retail shop in Namora (personal communication, 15/07/2008), adds furthermore that his clients look for colored tiles and looks even if they cost a bit more than the white counterparts.

6 Key Factors of a Business Concept for Sanitation Products

Figure 19



Annotation. Personal remarks

6.1 First Recommendation: Form Partnerships

Partners in the Institutional Environment:

With NGOs and state agencies/institutions

President Alan García won the 2006 election with a policy agenda based on three pillars: More exports, more education and more water (including sanitation). The heavy political weight on water and sanitation is channeled through the "Agua para todos" (Water for everyone) initiative. The plan implicitly emphasizes further investments in infrastructure to regions and areas of political interest (I. Marmanillo, personal conversation, 13.8.2008). US\$80 million over six years have been reserved for investments under the PRONASAR program specifically directed at the rural population (PRONASAR, 2009); and SEDAPAL, the semi-private provider of water and sanitation in metropolitan Lima, has announced it will invest a further US\$300 million for the implementation of the "Agua para todos" initiative (SEDAPAL, 2009, p. 1).

These enormous investments in water and sanitation are a formidable opportunity to market sanitation equipment. Residents in areas where infrastructure extensions are planned or have recently been conducted can be given a major reason to invest in better sanitation devices. It is a win-win situation for the state and the enterprises: The state undertakes the important investments in the public infrastructure and the corporate sector provides the necessary tools for the private proliferation of sanitation.

So far subsidies have played an important role in the provision of sanitation to the Peruvian poor. Approximately one in five latrines in the country were built with the financial support of state agencies or NGOs (Perrusan, 2009). It is therefore important to introduce a change in thinking among all the actors around the sanitation sector. Heavy subsidies compete with a free sanitation market. As a result it only makes sense for corporations to penetrate a market in cooperation with NGOs and state institutions. NGOs could thereby assume new tasks, such as the education of families and schoolchildren, or the promotion of sanitation equipment in schools and other public facilities.

Business Partners

With micro finance institutions

The more expensive a product, the more likely a purchase decision depends on the conditions of a credit agreement (Aguiar, Cunha & Pikman, 2008, p. 2-3). The price of a sanitation system - approximately between US\$200-1000 (ADRA Peru, 2008) - swallows in a country with an estimated GDP per capita of US\$8'400 an incisive 2-12% of the annual income (cp. CIA World Factbook, 2009). This ratio might be even higher for persons living at the bottom of the pyramid (cp. WSP, 2008b, p. 28). Firms are therefore well advised to either create their own micro finance scheme, as in

case of the department store chains Ripley and Saga, or to cooperate with an established actor on the finance market. Both approaches have their advantages - *Outsourcing*: Fast market access, *Integration*: More accountability for the client - and their drawbacks - *Outsourcing*: Costs of coordination, dependencies, *Integration*: costs of build-up of a micro-finance division, etc. - (cp. Powell, 1990). General recommendations for the first or the latter can hence not be given.

Micro finance institutions could conversely benefit from the introduction of a credit for sanitation with an extension of their one-dimensional product portfolio. Edyficar for instance, a key player on the Peruvian market for micro credits, depends mainly on the business with micro-entrepreneurs. 91% of its total credits are directed to this customer segment (Edyficar, 2007, p. 18). Cooperation with a firm in the sanitation sector could now lead the way for Edyficar to new customers.

With sub-purchasers/sub-contractors of BoP-products/services

Subpurchaser or subcontractor companies either source or provide products and services to the Peruvian BoP. They form part of the same business chain as individuals from the BoP. The quality of the end product depends on the delivered result of the weakest link of a chain (Goldratt, 1984). It is therefore in the very interest of a company to assure and to raise the quality across the whole business chain. Nestlé Peru for example receives milk from farmers in the Cajamarca region. In order guarantee hygienic production conditions, Nestle approved financial support for its suppliers with a discount on sanitation products.

Peruvian firms show in general a strong social commitment. Maestro Home Centers, Alicorp and Backus & Johnston are all famous Peruvian brands, they are all linked in their business chains to people from the BoP and they all pursue national corporate responsibility programs.⁹ The point is that firms like Alicorp and Backus care about the raw materials they are sourcing and the employee performance. Sanitation has the potential to raise both hygiene of production and the productivity of the workers (WSP, 2008d, p. 6-7). Firms such as Maestro, Alicorp and Backus should therefore be considered by sanitation firms as potential partners in the commercialization of sanitation products. Nestlé Peru has proved to be a first illustrative example.

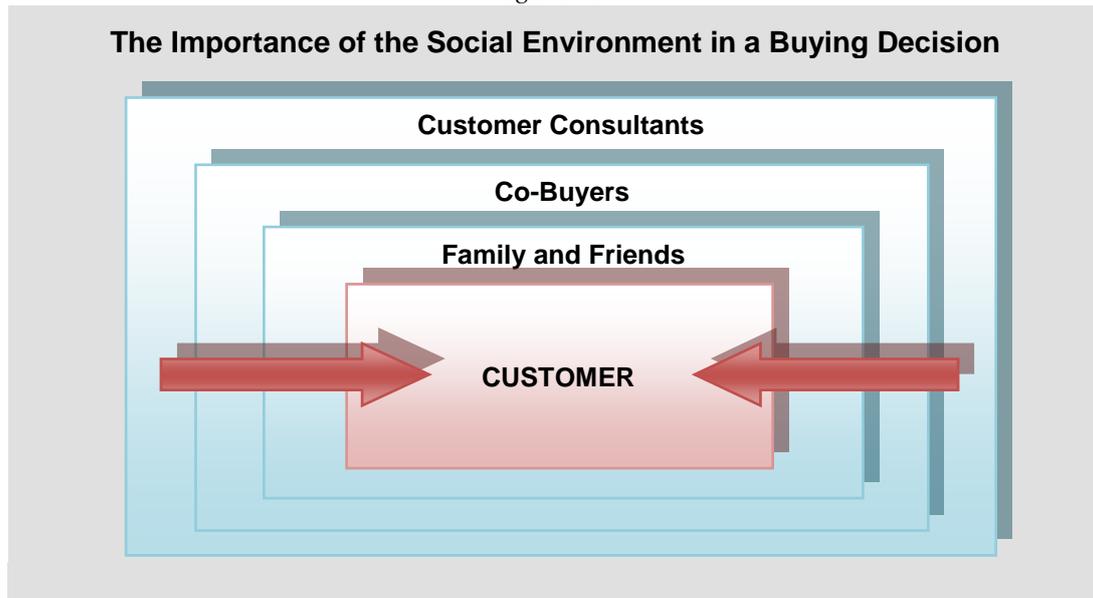
6.2 Second Recommendation: Develop Responsiveness

Operate with local promoters

Social bonds and trust replace the lack of formality and law in underdeveloped areas (cp. De Soto, 1992, p. 179-185). Thus it has been found that BoP customers actively seek the advice of friends, relatives, co-buyers or customer consultants in about 20% of all buying decisions (Aguiar, Cunha & Pikman, 2008, p. 3; cp. Figure 20). This percentage rate even increases with the price of a product.

⁹ Maestro Home Center is a furniture store chain and affiliates the North American Ace Group. Alicorp is the largest Peruvian consumer goods company. Backus & Johnston is the largest national brewery.

Figure 20



Annotation. Based on Bieger (2002, p. 718-719)

Trust and familiarity seem to be particularly important in the discussion of a delicate issue such as sanitation. The toilet is regarded by most cultures nowadays as a place of privacy, withdrawn from the public eye (cp. Furrer, 2004, p. 63). Therefore it is mainly treated as a no-no in daily discourse.

These conditions highlight the significance of a locally trusted promoter for sanitation products. He typically lives in the area and knows the problems and needs of his potential clients. On duty he assumes for his employer the tasks of an advertiser, of an educator and of a technical advisor for sanitation products. He actively approaches his neighbourhood and breaks for the firm the taboo of sanitation.

It is obvious that not everyone fits into the role of a promoter. Studies on opinion formation have revealed that so-called "opinion leaders" and persons at the border of a social network play a crucial role in the diffusion of new ideas: Opinion leaders are characterized by high social activity and intellectual curiosity. They can be found across all demographic borders and significantly influence the opinion **within** a social group. Persons at the border of social network in contrast stand out due to their high degree of independence. They are among the first who adopt an emerging idea and favor the flow of ideas **between** social networks (Kunczik & Zipfel, 2005, p. 322-343). For that reason promoters should be selected carefully and educated according to the upcoming tasks.

The promoter on the other hand receives in addition to an income (and a "sample toilet") the social status of being a representative for a national sanitation firm and typifying a social example for "good" sanitation practices. I remember being presented during a field visit to a local promoter of the micro finance institution "Mibanco" in Pachacutec (Field visit, 12/8/2008). Miss Marleny Quispe proudly handed me over her business card. As I had not expected to present my personal card in Pachacutec I had left them at home and I almost felt ashamed of not being able to hand her back my own business card.

Operate with local producers

Both a centralized and a decentralized production can bring either advantages or disadvantages: A centralized production ideally raises the economies of scale but implies also longer and costlier routes of transport. A decentralized production in contrast raises the costs of production (due to the lack of economies of scale) but decreases the costs of transportation. A definite recommendation on the first or second method cannot therefore be given.

However various local characteristics speak for a decentralized fabrication of sanitation equipment in Peru. First, the distribution of sanitation devices to rural areas is particularly complex and challenging in a country where only 10-15% of the roads are paved (Österreichischer Automobil-, Motorrad und Touringclub, 2008). In fact many companies in Peru - Nextel, the supermarkets of Metro and Wong, etc. - have been offering products and services exclusively to the inhabitants of the capital and at most to customers in some of the other big cities.

Secondly, Peru has a long tradition in artisanry and handcraft. A tourist can find almost everywhere across the country the aesthetically decorated, Peruvian handcrafts. Existing local producers of sanitation equipment have accordingly been identified in all five project zones (WSP, 2008d, p. 28-30). The effort to empower these producers would therefore not be great since a basic level of skill and infrastructure already exists.

Thirdly, the Bottom of the Pyramid approach has been criticized for its focus on the spending of the poor. Karnani in contrast proposes to concentrate on the question of, how to raise the incomes of the poor (Karnani, 2007, p. 107-108). But this concept does not compete with the BoP theory. Conversely, in the long run the private sector must raise the incomes of the poor to become truly sustainable (cp. Hart, 2007, p. 148-152). The transfer of a part of the production to the rural areas would increase local incomes and therefore contribute to the sustainability of the business approach.

Fourth and finally, local consumers prefer products from local producers. In Switzerland the largest supermarket chain Migros has a program entitled, "Aus der Region. Für die Region" (From the region. For the region).¹⁰ Migros guarantees the local origin of a product with the detailed traceability of each product in a supermarket to its original producer. This concept appeals also to Peruvian customers. Peruvians have for decades been drinking Inca Cola instead of Coca Cola and Peruvians have eaten their hamburgers preferably in Bambos instead of McDonalds. Various people declared during my field visit in Namora near Cajamarca in July 2008 that they would preferably choose products and services from a locally known person.

¹⁰ For more information see <http://www.ausderregion.ch/>

6.3 Third Recommendation: Innovate

New Products

Focus in the long run on water-driven solutions

Regarding the question of which technological sanitation solution should be produced, Peruvian BoP customers seem to give an unambiguous answer. In 5 out of 6 project zones respondents have expressed a higher investment willingness for water solutions than for latrines (IMASEN, 2007 cit. in Baskovich, Zevallos, Fuertes, 2008, p. 6). The customers expect solutions that work and look like the bathrooms in the developed urban centers (Johnson, 2008, p. 11-12). The trend towards water-operated solutions is favored by the future investments of the government in the expansion of the water and the sewage system: In 2004 49% of the population had a private connection to the sewage system (Ministerio de Vivienda, Construcción y Saneamiento, 2004 cit. in Marmanillo, 2007, p. 332). Now PRONASAR plans to invest over six years US\$80 million for water and sanitation services in a rural environment and SEDAPAL operates in the province of Lima with an investment budget of US\$300 million (PRONASAR, 2009; SEDAPAL, 2009, p. 1).

However a major barrier to water-operated sanitation solutions exists: The price. Current packages, technically prepared in cooperation with ADRA Peru, start at approximately US\$750 (ADRA Peru, 2008). This is a heavy burden for people earning less than US\$150 a month (cp. WSP, 2008b, p. 27-28). But for all that it would be a mistake to overlook the strong consumer preference for water flush sanitation and the opportunities that arise from the heavy government investments in water and sanitation infrastructure. The question is how to bridge the demand for water-driven sanitation to the limited financial resources. It is for example conceivable to design cost-saving, dry sanitation solutions that might be easily upgraded at a later stage by its users with a water flush and a connection to a sewage system. This should avoid potential customers waiting for government constructions for the connection of their homes to the water and sewage network in place of making an investment into improved sanitation now.

Nevertheless certain niche markets may always prevail and efficiently be covered by specialized producers. In the rural environment of Namora for instance 62.5% of the respondents would consider to purchase an ecological sanitation solution that features the possibility of reusing the dung as a fertilizer in agricultural activities (IMASEN, 2007b, p. 179).

Focus on water-efficient solutions

In Peru 71.5% of total household expenditure on water traces back to persons with an income lower than US\$250 a month (Hammond et al., 2007, p. 139). In 2002 the average daily consumption of a person living in a household with a connection to the public water network in Lima/Callao reached 140 liters. The water consumption of persons living in lower income households (with or without

private connection to the public water network) in contrast lay well below at 30 liters per person per day (Yepes & Ringskog, 2002, p. 2). Just 67% of the Peruvians were connected to a water network in 2004 and the water networks that have already been installed do not always work (cp. Ministerio de Vivienda, Construcción y Saneamiento, 2004 cit. in Marmanillo, 2006, p. 332). In Namora I visited in July 2008 several households that had been connected to a water network, but at the moment of testing just a few drops trickled down the water tap. As an alternative people collect surface water or source the water from community taps and tank vehicles. 15% of the Peruvians with an income below US\$125 a month rely on surface water (Hammond et al., 2007, p. 56). In Pachacutec 61% of the population receives water from community taps and 37% draws the water from tank vehicles (IMASEN, 2007a, p. 5). Unfortunately BoP customers pay for water from tank vehicles a poverty penalty. Kariuki and Schwartz (2005, p. 25-27) claim in a World Bank research paper that water from tank vehicles costs up to 10 times more than water delivered by a water network.

These figures reveal the urgent need to develop water-efficient sanitation solutions for BoP customers. Solutions already exist on the market: The Swiss sanitation firm Geberit for instance promotes on its website novel, highly efficient flushing valves.¹¹ Geberit provides its know-how in water-efficient sanitation technology for a sanitation project in Pomasqui, a marginalized suburb of Quito. Another example is Trebol, a key player on the Peruvian sanitation market, which offers a sanitation solution with the option of releasing a flush either in a full-water or a water-saving mode (after urination). Trebol promises to save with each saving mode flush 3 liters of water.¹² These 3 liters correspond to a significant 10% of the daily water consumption of a low-income individual.

Focus on sand- and humidity-proof solutions

A major BoP-market in Peru is metropolitan Lima. 8.4 million from the 27.4 million inhabitants in Peru are citizens of the country capital (Instituto Nacional de Estadística e Informática, 2008, p. 15-23). Living conditions in Lima are particularly challenging due to its extreme climate. Humidity and sand shape the daily life of the city residents, particularly in the marginalized suburbs where many roads still have not been paved yet.

The climate of Lima is mainly determined by the cold Humboldt current. The cold water clashes with warm air and condenses over the city of Lima (Bruschke, 2009). The condensation wraps Lima in a foggy grey for seven months of the year. As a consequence humidity is extremely high in Lima reaching up to 95% in the morning hours. For comparison, in New York humidity can rise up to 80% and in Mumbai humidity maximally hits 85% (BBC Weather Centre, 2009).

The humidity "lost" in the process of condensation prevents the creation of rain clouds and causes the formation of a desert environment along the Peruvian coast (Bruschke, 2009). Accordingly Lima is considered the second-largest desert city in the world, after Cairo (Ruiz, 2009).

¹¹ For more information see <http://www.geberit.com/> and <http://www.respectingwater.com/>

¹² For more information see <http://www.celima.com.pe/>

The negative effects of humidity and sand on electronics, mechanics and construction materials are well known. Common electronic accessories are built for instance to resist between 5% and 95% humidity. A higher percentage reduces the isolation and endangers the electronics. To imitate the humid climate of Lima, one just has to imagine a bathroom. A common problem in bathrooms is the flaking and the molding of the wall-paper. To protect the bathroom from the humidity, painters use a specific sealing coat. Thus in order to satisfy the needs of BoP customers in Lima, sanitation equipment should be reliably sealed.

Focus on the simplicity and flexibility of sanitation items

Iris Marmanillo, country coordinator of the WSP in Peru told me the following anecdote (personal communication, 2/9/2008): She once asked her car driver, who lives in one of the marginalized suburbs in the south of Lima, if he himself or a professional had installed the toilet on his parcel of land. The car driver answered that as a matter of course he had done this work himself. "Installing a toilet" was very easy; his father had taught him once how to do it. This do-it-yourself practice was further explained to me by Carmen Ruiz, a young woman living in Pachacutec (field visit, 18/08/2008): "Most of the houses here are under steady construction; so you permanently save some money and if you have enough, you go and get some construction materials and try to improve the walls of your house, the rooftop or whatever. Then you begin to save again". This quotation is consistent with the findings of CEMEX, one of the world's largest cement producers, of its business division with the Mexican BoP. CEMEX attributes 40% of its sales to a steady demand from an informal do-it-yourself market. Most of the cement, flowing to this informal low-income market, is employed by a semi-skilled or unskilled work force (Sharma, Mohan & Singh, 2005, p. 147-153).

In order to meet the do-it-yourself practice of an according demand for sanitation, products would have to fulfill certain requirements:

- *Simplicity in installation*: An article sold to the end consumer can be set up even by an unskilled user (e.g. reduce the number of components use fewer screws and nuts; use colors that signal the way different elements have to be connected; offer simple assembly kits; etc.)
- *Flexibility*: The customer does not have to purchase a whole package at once. He can choose from certain modules that feature the interfaces to be extended step-by-step (e.g. produce multi-functional sanitary tubes that can be connected to both a collecting pond and a sewage network; offer flexible sanitary cabins that can easily be upgraded at a later stage with a shower or a water bowl; etc.)
- *Upgradability*: The section "Focus in the long run on water-driven solutions" pointed out that on the one hand low-end Peruvian customers feel attracted to water-flush sanitation systems but face on the other hand a financial barrier that prevents them from an investment. To close this gap, economic dry sanitation solutions might be designed whose components also serve after a further upgrade to a water-driven sanitation system.

A wonderful example is provided by the Swedish firm IKEA, the world's largest home furnishings retailer. When IKEA penetrated the Swiss furniture market in 1973, the national retailing business was highly fragmented, with 67% of all firms employing less than three people. The existing market responded with traditional, sturdy design and service-intensive retail norms to the more affluent customers. IKEA revolutionized the furniture market by offering to its young, price-conscious customer base simple furniture self-assembly kits in flat-pack boxes. Thus customers could quickly visit one of the warehouses, get one of the practical furniture boxes and carry the box home in the small family car, where the self-assembly kit would be arranged without any professional assistance. The first IKEA store in Switzerland was a resounding success. It attracted 650,000 visitors within the first year (Bartlett & Nanda, 1990, p. 69-87).

Focus on attractive design

A new sanitation solution certainly has to fulfill basic hygienic and safety requirements. However what drives BoP customers in Peru to an investment is more the wish to enhance the quality and looks of the house rather than the desire to improve sanitation (Johnson, 2008, p. 12-13). In Pachacutec people aspire to a city-like sanitation equipment and in Namora clients have even signaled a willingness to pay a surcharge for colored sanitation items (personal communication with Julio Arteaga Cerquín, owner of a retail shop in Namora, 15/07/2008).

Yet good design is often associated with a high price: One may think of an elegant iPod, of a fancy beach house or of a racy car. But good design does not have to be expensive! Once again IKEA provides an excellent example: In 1974 IKEA opened its first stores in West Germany with the advertising slogan: "Young people have more taste than money". Traditionally European furniture business relied on massive dark wood design. IKEA has replaced the expensive teak wood with simple, refreshing furniture based on inexpensive pinewood and oak materials (Bartlett & Nanda, 1990, p. 69-87). In addition IKEA came up with the idea to assign to each of its pieces of furniture a funny Scandinavian name: In IKEA one can buy a couch called Tylösand, a sideboard known as Bjursta or a bed named Ibestad.¹³ The IKEA brand today stands for low prices and good design.

The example shows that it is possible to close the trade-off between good design and affordability. It makes sense to look for alternative, affordable materials and to award good design and creativity within the organization; especially when customers tend to highly appreciate the value of attractive design, as in case of sanitation for the Peruvian BoP.

¹³ For more information see <http://www.ikea.com/>

New Promotional Strategy

Develop a promotional strategy based on social status

Over the course of my last year I asked myself many times why televisions and mobile phones enjoy great popularity among low-income segments in Peru whereas good sanitation products have barely become accepted? I found a possible explanation in my own country: In Switzerland it can be observed the phenomenon that a proportionally elevated number of young, professionally unsuccessful men from a low-income background drive eye-catching cars while living in small, low-cost flats. The vehicle serves as kind of a compensation for the lack of professional and private achievements. In contemporary music clips on MTV for instance, cars can be admired as symbols of status and success. Similarly, cars give young, unsuccessful buyers at least for a moment the feeling of pride and social status.

The same line of argument applies for televisions and cell phones in developing countries: On the one side televisions fulfill their functions as an entertainment system. On the other side they lift the owners' social esteem as televisions represent modernity and urbanity. So far sanitation solutions have often been delivered by NGOs or state agencies as a charitable contribution to the poor of the country. Under this distribution strategy, a possible recipient of latrines was automatically marked as poor and sanitation products lost any appeal (cp. WSP, 2008e, p. 6). In order to convince low-income customers to invest in sanitation, one has to become clear that educational marketing activities do not suffice to successfully sell sanitation equipment. A promotional strategy should rather transmit the value and the social pride that a potential buyer of sanitation solution can gain with a purchase (cp. Johnson, 2008, p. 18-19; cp. Figure 21). Akin to televisions, sanitation equipment should stand for modernity and desirability.

Figure 21



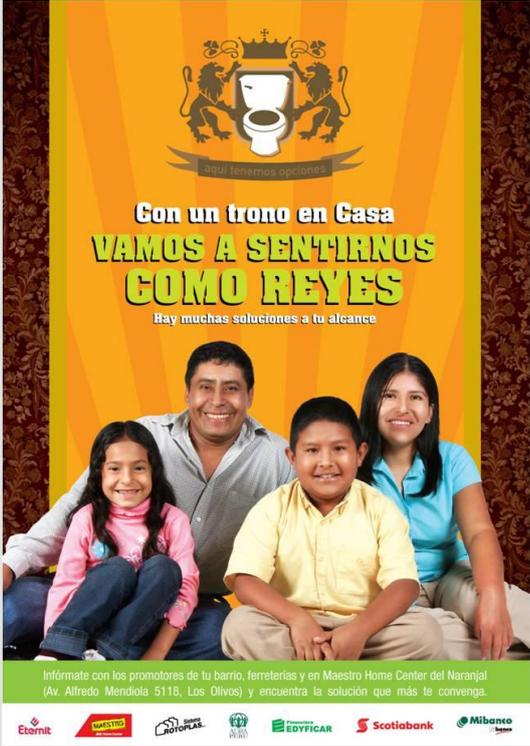
Annotation. Personal remarks

I discussed with Pilar Dufour, head of the Peruvian branch of the global brand management company TBWA, a possible advertising strategy for the Peruvian BoP (personal communication, 16/07/2008). TBWA Peru has made tremendous research efforts to analyze the characteristics of the Peruvian BoP. As a key element it was found that the BoP customers are highly sensitive to the issue of pride. Too

often they have felt treated second-class citizens. TBWA thus prepared an advertisement for sanitation products based on pride and self-respect (cp. Figure 22):

Figure 22

Promotional Campaign based on Social Status



"With a throne at home - We will feel like kings"

Annotation. TBWA Peru (2008)

Develop separate promotional activities for men and women

Another important component of a sales strategy are women. Throughout the developing world women have found to be the better entrepreneurs and the persons who care most for the welfare of the family. CEMEX for instance identified women as the central driver for the administration of the family savings and investments in the house and the children's education (Sharma, Mohan & Singh, 2005, p. 151-152). The micro finance division of ADRA Peru exclusively allocates group credits to women. However that does not mean that men should be excluded from an advertising campaign. Men often have the important decision-making authority within the family so that an investment in sanitation must be approved by the family father.

This division of roles indicates only that men and women should be appealed to in different ways (Johnson, 2008, p. 11, 17). Women may value the welfare of the family and men the technical features of a sanitation solution. But it is not only the message which must be adjusted but also the place and the point of time a message is delivered. Men usually leave their houses early in the morning and

return late at night. A promotion for men would therefore be best positioned in public transports in the mornings and nights or directly at the workplace. Women in contrast look after the household during the day. A corresponding marketing activity should therefore confront the women straight in their homes or at a common market place.

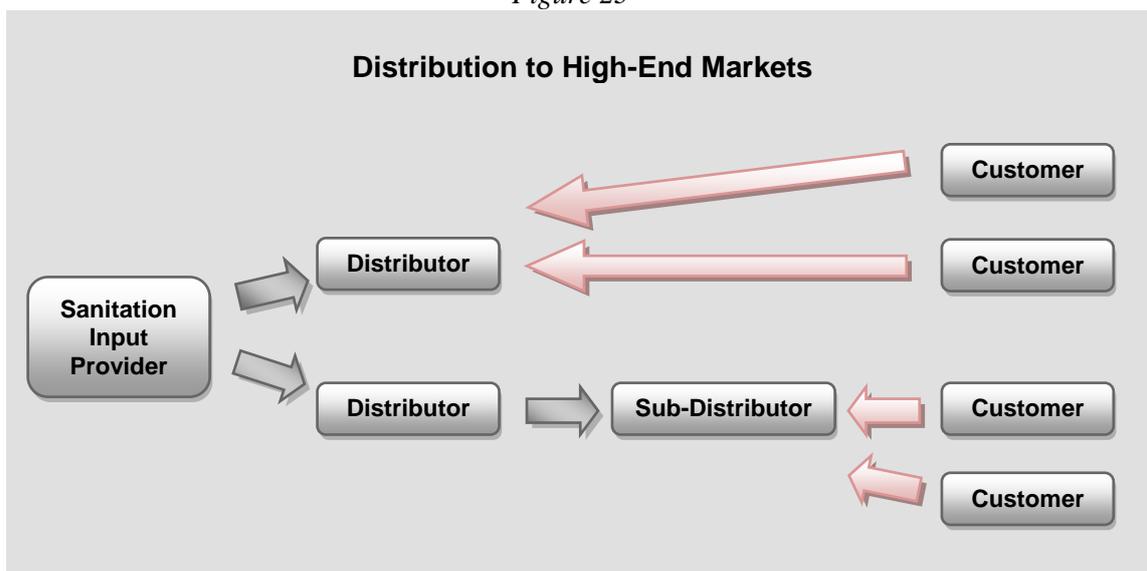
New Distribution Strategy

Distribute door-to-door

In the "Operate with local promoters" section above, the social environment was highlighted as a key factor in the buying decision of BoP-individuals. Hence "Bottom of the Pyramid" customers heavily rely on the advice of familiar persons and prefer to purchase in an intimate environment.

So far traditional distribution schemes in Peruvian sanitation have been adjusted to the customs of high-end markets (cp. Figure 23). Upper-income customers have intrinsically-motivated approached one of the local retailers or sub-retailers who offer sanitation products from national and local input providers.

Figure 23

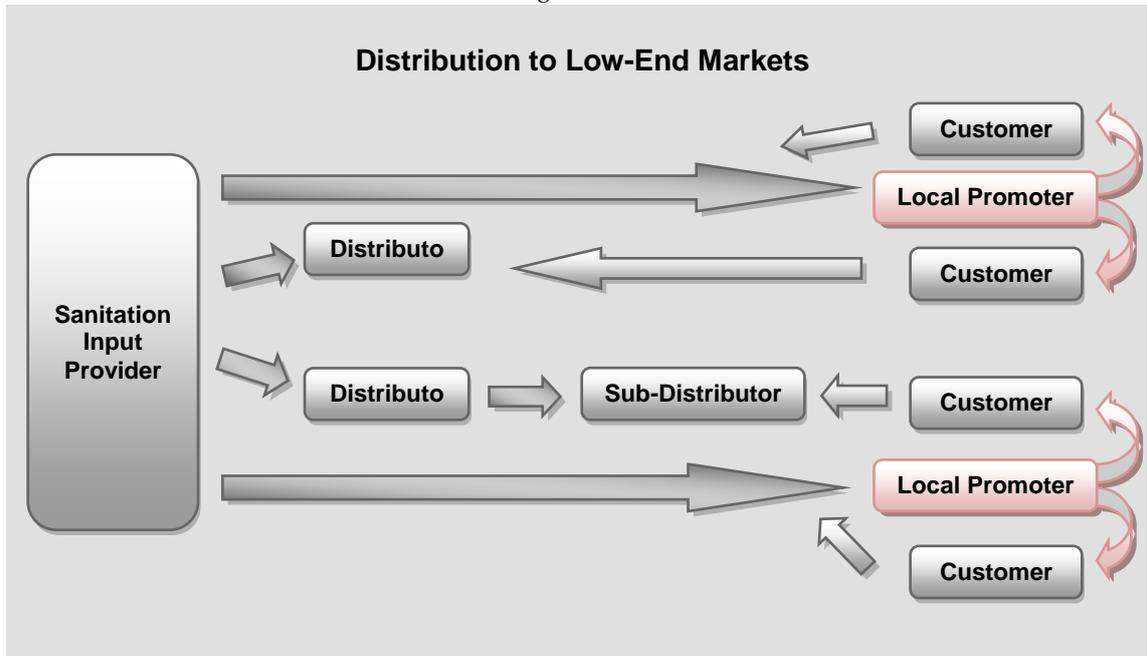


Annotation. Personal remarks

This model works for customers with an existing motivation for sanitation products. However for more than 40% of the population quality sanitation has been an unfamiliar concept so far (cp. Marmanillo, 2007, p. 326-349). They have mainly solved their necessities through the construction of poor-quality latrines or the practice of open defecation (cp. Figure 9 above). High-quality toilets were so far believed to be a privilege of the rich, inappropriate for the lives of the Peruvian poor. These arguments show that BoP individuals will hardly begin to suddenly approach retailers of sanitation products on their own.

BoP customers need to be confronted personally with the advantages of quality sanitation products. Firms should therefore actively search the direct contact to BoP customers and not wait until BoP customers (maybe never) independently approach them (cp. Figure 24). One way to do so was already described above with the erection of a network of local promoters who support the sales and marketing process in their own communities.

Figure 24



Annotation. Personal remarks

Market to groups

The idea to market to groups instead of individuals comes from the micro finance business: A micro credit institution allocates a credit to small community groups (usually between 15-30 persons) who manage in conjunction the redemption of the credit. As the persons within the groups have been acquainted with one other for years, social pressure drives them to conform with the rules of the group. ADRA Bancos Comunales for example had assigned by May 2008 credits to 624 groups in Peru. Only 0.23% of the assigned funds had defaulted by that time (Sánchez, 2008).

It is an idea to utilize the power of social cohesion for the promotion of sanitation products to small community groups rather than individuals. The group thereby makes an investment in sanitation devices and determines independently who contributes which amount of money and how the purchase is distributed among its buyers. The Andean community of Santa Margarita for example unanimously decided to invest with contiguous resources in the purchase of bio-digestors. In this way every villager regardless of his economic level obtains access to one of the bio-digestors (field visit, 15/07/2008). The input provider on the other hand can, thanks to the higher volume of sales, decrease its average costs per unit and offer its products at a discount.

6.4 Fourth Recommendation: Operate with Small Margins and High Scales

Narrow the product portfolio

As pressure on prices on behalf of BoP customers is heavy, profits will be attained over scale rather than high margins (Hart, 2007, p. 142): The lower the costs of production (and consequently the price), the bigger will be the potential BoP market. Two sorts of costs can be distinguished: On the one hand costs that emerge externally at suppliers in the production of inputs and on the other hand costs that result from the internal production. Both cost categories can be optimized when business focuses on one or just a very limited number of products. With the specialization on a particular product, internal processes are standardized and costs decrease with scale (economies of scale and learning-by-doing effects). A higher volume improves at the same time the terms of trade with suppliers. McDonald's provides an excellent case (cp. Akula, 2008, p. 46): McDonald's franchises restaurants in 119 countries around the globe (McDonald's, 2007). The fast food chain has specialized its core business on the preparation of hamburgers and French fries. Wherever a McDonalds franchise has been opened, - whether Lima, Moscow or Tokyo - the hamburgers taste similar (with slight adjustments to the local culture). Processes have been optimized so that a customer waits at maximum five minutes for the preparation of his dish.

Focus on affordability

The primary BoP-customer's concern is related to the price of sanitation equipment (Johnson, 2008, p. 10-11). People are usually shocked when they hear about the actual prices. Most of them are not able or not willing to allocate a large share of their income to sanitation. Particularly in rural areas of the country only a minority expressed the intention to sacrifice US\$10 or more per month for an investment in sanitation (cp. WSP, 2008b, p. 27-28). In Namora 83% of the residents who are not considering purchasing additional sanitation items cited lack of money as the reason (IMASEN, 2007b, p. 172).

Efforts to reduce the costs must therefore be given first priority. Ingvar Kamprad, founder of IKEA and according to Forbes magazine the fifth richest person in the world in 2009, once commented on business ideas (Bartlett & Nanda, 1990): "Expensive solutions are often signs of mediocrity. An idea without a price tag is never acceptable" (p.78). Every process and every component of a business must be related to its price. Ingvar Kamprad himself used to have a special eye for detail (Bartlett & Nanda, 1990): "In a group of 600 items, he will ask about a particular product, know its price, its cost and its source, and he will expect you to know it, too" (p. 77). Thus firms, especially in the BoP market, must find answers to the following type of questions: Are there any alternative, cheaper materials available? Is there a way to do business in a more efficient manner?

6.5 Fifth Recommendation: Build Capacity

Finance

Offer attractive micro finance schemes

Most people are stunned and deterred when they hear about the total costs for sanitation. The gap of what customers expect to pay and how much they are effectively supposed to spend is big (Johnson, 2008, p. 10-11). But CEMEX revealed in an analysis of the Mexican informal construction market that the price sensitivity of BoP customers can be remarkably lowered when convenient purchase conditions are provided along with the sale (Sharma, Mohan & Singh, 2005, p. 151). This means that an attractive credit offer can decisively favor a buying decision (cp. Aguiar, Cunha & Pikman, 2008, p. 2-3). This argument is self-evident: "**Get your new bathroom for just \$899!**", sounds psychologically inaccessible compared to a promotion "**Get your new bathroom for only \$25 per month!** (over a period of 36 months)". The point made here is not about fooling the poor, but about bringing people closer to the vision of improved sanitation solutions.

Gain access to the remittances market

Another considerable funding source are remittances. In 2008 remittances amounting to US\$3.5 billion were sent to Peru. This value equals about 1.5% of the national GDP.¹⁴ 17% of the remittances were directed to the department of Junín and 16% to the province of Lima. The average Peruvian remittee receives US\$170 ten times a year (Diaz, 2008, p. 22). The financial potential for sanitation firms would add up to US\$35 million, if only 1% of the incoming remittances were invested in sanitation products. In fact Christian Boesch, director of the Swiss money transfer agency On Time AG, believes that a major share of the transmitted funds to Latin America is used for the treatment of sick family members and upgrades of households in the home country (personal communication, 6/5/2009).

There are two links to access to the market of remittances: The first key contact refers to the sender of the money abroad. He might be persuaded to invest his money in the purchase of sanitation products for family members in his home country. It is for example conceivable that a Peruvian fabricator of sanitation items proposes a cooperation with a money transfer group abroad (e.g. On Time AG in Switzerland) in order to market its products directly at the source of the remittances (e.g. with flyers in the agencies of the partner). The second key contact relates to the remittee. He might be lured with favorable purchase conditions at the time of remittance in one of the local money transfer agencies.

¹⁴ The CIA Factbook (2009) estimates the Peruvian GDP for 2008 at US\$239 billion.

Educate

Educate on good sanitation practices

Difficulties among the population exist in acknowledging the link between sanitation and health (WSP, 2008a, p.8). Unhygienic conditions are primarily associated with bad smell and filthiness but less with the occurrence of diseases. The unawareness of the consequences of insufficient sanitation practices seems to be particularly high among children. Eight out of ten children below the age of five and who have access to a latrine do not use them (IMASEN, 2007 cit. in WSP, 2008e, p. 3). An educational marketing campaign is intended to stimulate and maintain the demand for sanitation products through the promotion of good sanitation practices (cp. Figure 25).

Figure 25



Annotation. Personal remarks

A complete educational design includes at least three steps (cp. Metzger, 2005):

Learning Steps	Learning Steps - Applied for Sanitation	Methodology	Communication Channels
<i>Raise Awareness</i>	- Become aware of the importance of sanitation to human health	- Deliver facts and figures about the consequences of insufficient sanitation	- Local promoters - Television - Radio
<i>Develop Skills</i>	- Understand and bear in mind the basic rules of hygienic sanitation	- Spread a simple set of basic rules for good sanitation	- Flyers and posters - Workshops - Schools
<i>Practice</i>	- Apply good sanitation practices in daily routine	- Provide sample toilets in schools and public facilities	- Public facilities - etc.

To reach the desired impact it is important that the targeted population runs through all three learning steps: First, people become interested and accept the notion of the importance of sanitation. Secondly,

they acquire the basic skills of good sanitation. Thirdly, good sanitation is applied by the targeted population to practice and does not confine only to theory.

The attached message can be distributed by different communication channels: It would be conceivable to integrate the issue of sanitation into school curricula and/or to install sample toilets in school buildings. Promoters could be contracted to spread the message or workshops may be organized. Also traditional communication channels such as the radio or the television might be of use in an integrated educational campaign.

Empower buyers in the assembling, installation and maintenance of sanitation modules

The installation of some sanitation solutions cannot really be managed by unpracticed amateurs. To connect for example a bio-digester to a sanitation module, professional assistance is usually required (personal communication with Ricardo Soto, consultant engineer of the project in Pachacutec, 22/07/2008). However BoP consumers tend to assemble and install sanitation items in a "do-it-yourself" manner (see "Focus on the simplicity and flexibility of sanitation items" section above). A firm faces therefore the challenge of bridging this discrepancy. A common tool are free workshops for customers. The Peruvian home center Maestro offers for instance daily courses on, how to install sanitation items, how to brick a wall, etc.¹⁵ Another educating element refers to the design of instruction manuals. They are expected to elucidate plainly the processes of installation and handling. In reality manuals are too often found to be complicated and unclear.

The need for empowerment continues after sales with the use of the new sanitation equipment: In rural Andean Bolivia, a cultural environment comparable to southern Andean Peru, a study by UNICEF (2008, p. 16) revealed that humid feces can be found in 88% of the familial sanitation cabins in use. It seems obvious that a filthy sanitation cabin detracts from further usage. People thus must learn how to use, clean and maintain a toilet.

6.6 Sixth Recommendation: Adapt the Internal Organization

Become indigenous

The living standard in the impoverished suburbs of Lima is fundamentally lower than in the wealthy business and leisure districts of the Peruvian capital. In cosmopolitan San Isidro roads have been paved and local residents receive water or electricity from an urban network. In the marginalized suburb of Pachacutec, a few roads have recently been built but the large majority of the population still lacks access to the urban water and sewage system. The upper-middle class of the country is usually aware of the unequal distribution of wealth within the city. However only a minority has really visited on their own one of the impoverished settlements. That is how a general misconception of the affected districts has emerged. The according areas are believed to be dangerous and unsuitable for wealthy Limenians.

¹⁵ For more information see http://www.maestro.com.pe/taller_calen.php

To fully understand the corporate operations and to prevent the cultivation of half-truths about the BoP, firms should learn to become familiar with their customers. To reach the goal of an internal responsiveness for the customer's needs, some approaches have already been tested: Hindustan Lever has required its managers and engineers to spend at least six weeks conducting research in a rural BoP environment and IKEA organizes "anti-bureaucrat weeks" when executives are obliged to personally work in store showrooms (Rodríguez, Sánchez & Ricart, 2005, p. 176; Bartlett & Nanda, 1990, p. 77-78). Further proposals are the shift of corporate facilities into a BoP environment and an increased contracting of local employees even for the executive level of a corporation.

Adapt to the culture

A corporate culture constitutes the base of an iceberg (cp. Figure 26). This base consists of employees' attitudes, common histories or unexpressed norms and values and provides the business and its employees with sense. It is the unconscious fundament of the visible top of an iceberg: The organizational and strategic stipulations of a firm. It is possible to formally adjust the top of the iceberg, - that is the organizational and strategic structures of a firm -, but the outcome will be rather limited if the base of the iceberg, - the corporate culture -, has not adapted yet (Rüegg-Stürm, 2002, p. 65-70). This is why profound strategic shifts, such as the reorientation of the business model on BoP customers, should be prepared smoothly in coordination with the total workforce of an organization.

Figure 26



Annotation. Based on French & Bell, 1994, p. 33 & Rüegg-Stürm, 2002, p. 65-70

I remember being invited to a meeting at the headquarters of Scotiabank Peru in the banking district of Lima, San Isidro. I discussed on the 17th floor of a skyscraper with the head of the private banking business, Miguel Arce (personal communication, 8/7/2008), the corporate plans to focus on an

upcoming but still financially unprivileged segment of people. During the meeting I developed a weird feeling of sitting in a modern tower in one of the most affluent districts of the country, talking with extremely well-dressed people about the necessities and aspirations of the poor. I concluded that Scotiabank would have to take a great cultural leap if they were seriously introducing a business plan for the BoP. Developing responsiveness for the necessities of the poor can mean "leaving the suit at home" and "getting the hands dirty".

7 Assessment of Local Sanitation Firms

			
Partners	<ul style="list-style-type: none"> • NGOs • Local water providers 	<ul style="list-style-type: none"> • NGOs 	<ul style="list-style-type: none"> • No external partners
Responsiveness	<ul style="list-style-type: none"> • Business focus on market knowledge • Field stays • Participation of executives in community assemblies • Colaboration with sociologists 	<ul style="list-style-type: none"> • Sporadic field visits • Data from NGOs • Data from local retailers • Knowledge transfer with partner firms belonging to the Etex Group (particularly with Colombit in Colombia) 	<ul style="list-style-type: none"> • Frequent field visits
Products	<ul style="list-style-type: none"> • Design of specific products that align with local necessities • Abandonment of latrines → Water-flush solutions • Quality over price 	<ul style="list-style-type: none"> • Development of specific product lines for low-income customers • Latrines 	<ul style="list-style-type: none"> • No specific product portfolio in development for BoP customers but solutions are available in the basic product line that may attract BoP-customers, e.g.: <ul style="list-style-type: none"> – Water-saving sanitation solutions
Promotion	<ul style="list-style-type: none"> • Branding: Hygiene and health • "More and better water" 	<ul style="list-style-type: none"> • Branding: Hygiene and health • Positioned as a charity service 	<ul style="list-style-type: none"> • Peruvian top quality/service • Fair prices • Upscale living • Health and Hygiene

Distribution	<ul style="list-style-type: none"> • Direct distribution is preferred over intermediaries • Participation in large scale projects • Low accessibility 	<ul style="list-style-type: none"> • Products available at local distributors, sub-distributors and home centers all over the country • Participation in large scale projects 	<ul style="list-style-type: none"> • Products available at local distributors, sub-distributors and home centers all over the country
Production and price/cost structures	<ul style="list-style-type: none"> • Elevated price level • Water-flush sanitation modules (incl. bio digester): <ul style="list-style-type: none"> - Coast \cong US\$800 - Amazon \cong US\$1'200 	<ul style="list-style-type: none"> • Low-cost dry sanitation solutions targeted at rural customers (compoundable to a septic tank) <ul style="list-style-type: none"> - List price \cong US\$100 • Margin Eternit: \cong 10-15% <ul style="list-style-type: none"> $\rightarrow \cong$ US\$10/latrine sold • Margin distributors: \cong 5% <ul style="list-style-type: none"> $\rightarrow \cong$ US\$5/latrine sold 	<ul style="list-style-type: none"> • Use of low-cost materials for the basic product line • Increase sales volume to reduce costs
Educative and financial options	<ul style="list-style-type: none"> • Focus on financing options 	<ul style="list-style-type: none"> • Workshops for customers • Workshops for retailers • Purchases on credit are offered by some distributors 	<ul style="list-style-type: none"> • Workshops for customers • Workshops for retailers • Purchases on credit are offered by some distributors
Internal organization	n/a	<ul style="list-style-type: none"> • Production centralized in Lima 	<ul style="list-style-type: none"> • Decentralized production • Production facilities within marginalized areas

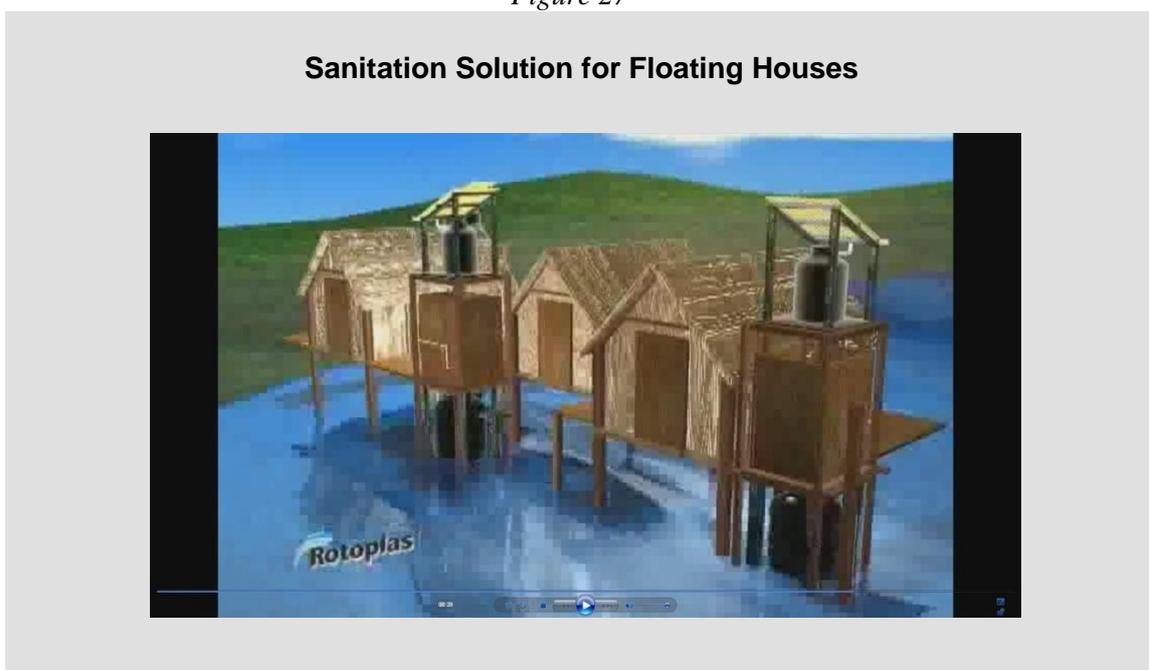
7.1 Rotoplas

The Rotoplas Group has specialized in the production of systems for the conservation and distribution of water, such as water tanks, tubes, filters, valves and bio-digestors. The company was founded in the early 1980s in Mexico and entered the Peruvian market in 1998. Rotoplas has since then found a broad demand for its products among all kinds of market segments. Until 2004 it increased its market share for water tanks in Peru by up to 45%. Rotoplas reinvests 2% of its revenues into research and development (Rotoplas, 2009; Embajada de México en Perú, 2009). My key contact to Rotoplas was Alfonso Vasquez S., General Manager for the company in Peru (personal communication, 16/07/2008 & 14/08/2008; Vasquez, 2006 cit.. in WSP, 2006, p. 33-34).

Strengths

- + **Development of BoP-specific products:** The starting point of Rotoplas' business approach are the needs of its customers. In balance with the geographic diversity in Peru, Rotoplas developed specific sanitation systems for both coastal and Amazonian residents. The district of Belen for example serves as the main port to Iquitos, the most populous city in the Peruvian Amazonas basin. One, very impoverished part of Belen is flooded over several months every year in the rainy season. Its inhabitants therefore live in floating houses and contaminate the nearby Rio Italia river with excrements and urine. Rotoplas has developed a sustainable sanitation system that includes the collection and filtration of surface water and the treatment of sewage in floating bio-digestors (cp. Figure 27).

Figure 27



Annotation. Rotoplas, Fondo de las Americas & Caritas (2008)

- + **Responsiveness in obtaining local market knowledge:** Rotoplas understands the importance of market knowledge and intimacy for the development of further sanitation products. Several innovative tools have been internally adopted to acquire the necessary information: The corporation organizes field stays for its engineers and additionally brings in sociologists who capture the social reality and necessities from a distinct point of view. Even General Manager Alfonso Vasquez sometimes attends at times local community assemblies.

- + **Linking the sales of products to possible financing options:** Rotoplas products are positioned at an elevated price level (see below). In order to sell its products to the BoP Rotoplas must consider the critical issue of financing. Alfonso Vasquez believes that it is not the price but rather the lack of available financing options that causes the most concerns to low-income customers. He therefore seeks cooperation with possible (pre-)financers. In a suburb of Chimbote Rotoplas sold in a pilot project with the German NGO Inwent water tanks to approximately 100 households. The sales were prefinanced by the local water provider of Chimbote (Inwent, 2008).

However a further example shows that the prefinancing mechanisms implemented by Rotoplas and its partners do not always work as anticipated: Rotoplas sanitation systems were installed with support from the NGOs "Fondo de las Americas" and "Caritas Iquitos" in a project zone in Belen. Germán Zevallos from Caritas Iquitos admitted that serious difficulties existed on the side of the beneficiaries with regards to the repayment of the installment (personal communication during a field visit in Belen, 18/07/2008).

- + **Direct distribution forms:** Rotoplas favors, in contrast to some competitors (Eternit, Celima-Trebol, etc.), direct distribution schemes over intermediary trade in order to reach its customers. This distribution strategy is based on the assumption that intimacy matters to low-income customers. Local sales are processed by Rotoplas employees directly door-to-door within the villages of the country. The company has thereby found a mechanism to establish a direct communication channel for feedback and customer wishes.

Weaknesses

- **Expensive products:** A complete Rotoplas sanitation system is priced at US\$800-1200 according to Alfonso Vasquez. 37% of the population, which corresponds to 10 million Peruvians, earn less than US\$1000 per year. Approximately 50% of the total earnings are spent only on food every year (Hammond et al., 2007, p. 139). This means that in a household where two persons contribute with US\$1000/year in income, one of the persons would have to sacrifice his or her total annual income in order to purchase a basic Rotoplas sanitation module. The other half of the household income barely covers the total expenditures for

nourishment. These figures show that the Rotoplas sanitation modules hit the barrier of what is affordable for low-income individuals. Only favorable credit agreements may help to lift the heavy burden from the customers' shoulders. Moreover in a household where only one person contributes to the family income, Rotoplas sanitation systems are even less acquirable.

- **Low accessibility:** Rotoplas favors direct distribution channels over intermediaries. As a consequence potential customers cannot access Rotoplas products if the firm has not decided to directly enter that area. In the two analyzed main areas in this paper, Namora (Cajamarca) and Pachacutec, Rotoplas products were practically not purchasable at local retailers. Three large-scale and three middle-scale retailers were considered in the city of Cajamarca (Perusan, 2007b, p. 30-34). None of them carried Rotoplas in the line of products. In Pachacutec Rotoplas conducts in cooperation with NGOs a project in a settlement called "Pedro Labarthe". But local retailers in Pachacutec do not offer any Rotoplas equipment.

7.2 Eternit

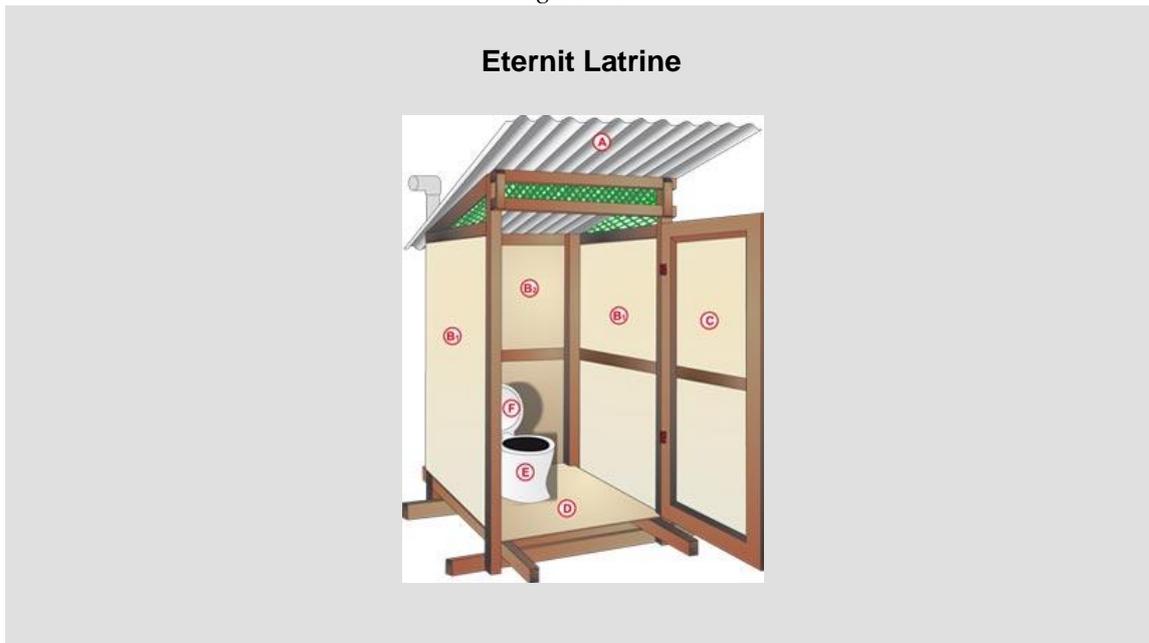
Eternit can look back on a history in Peru spanning nearly seventy years (Eternit, 2009). Legally it affiliates to the Belgian Etex Group. The company fabricates water tanks and all kinds of construction materials out of fiber cement. Its production facilities are concentrated in Lima but an additional branch in Chiclayo serves the northern areas of the country. My key contact for this paper at Eternit was Javier Dancuart, sales manager at Eternit Peru (personal communication, 23/07/2008, 12/08/2008 & 21/04/2009; Dancuart, 2009 cit. in Empresa Privada, 2009, p. 22-24).

Strengths

- + **Development of BoP-specific products:** Eternit has recognized the need to develop specific product lines for BoP-users. The company therefore offers low-cost sanitary latrines directed at rural customers lacking access to a sewage system.¹⁶ These products are robust, extremely economical and easy to install. The Eternit latrines additionally feature - in contrast to traditional latrines - a sanitary seat (cp. Figure 28). Javier Dancuart believes this seat is a real advancement to rural customers. However considering the skepticism of Peruvian customers towards latrines in the past (see section "Focus in the long run on water-driven solutions" above), it can be questioned whether the new Eternit latrines will become a real blockbuster.

¹⁶ For more information see <http://www.eternit.com.pe>

Figure 28



Annotation <http://www.eternit.com.pe>

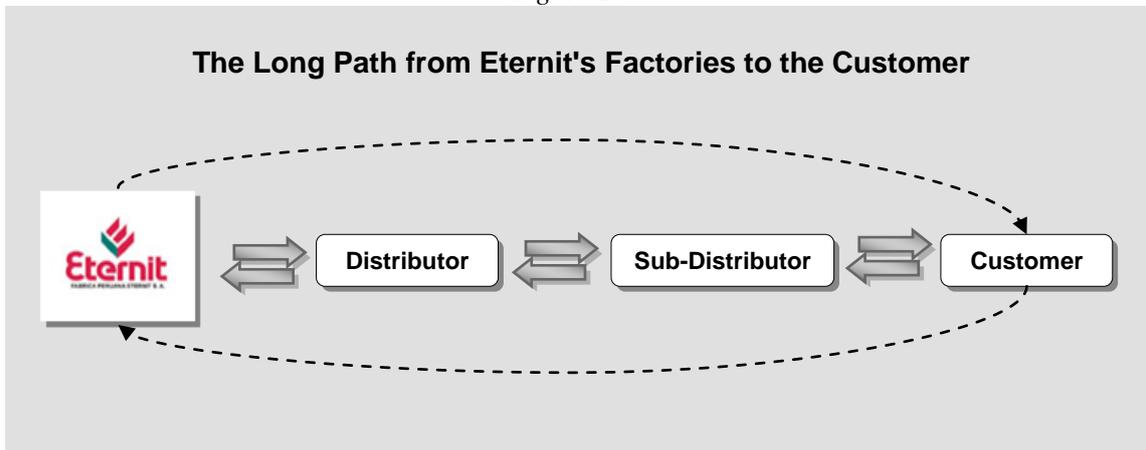
Weaknesses

- **Branding as a charity item:** Eternit obviously promotes its sanitation solutions as a charitable contribution of the firm to the solution of a health and hygiene problem in Peru. "Tenemos letrinas [...] que constituyen un gran aporte para la disminución de los problemas de sanidad que [...] aún tenemos en muchas zonas del país" - "We offer latrines that contribute to the reduction of the existing sanitary problems in many parts our country". Eternit thereby overlooks an important result of the analysis of BoP-customers: What drives low income individuals to new sanitation solutions is not exclusively the idea of improving the state of health, but more importantly the wish to acquire with a new sanitation module social prestige and status (cp. section "Develop a promotional strategy based on social status" above). The positioning of Eternit latrines as a charity product debases its users as second-class citizens. The demand by BoP-customers for attractive, presentable sanitation solutions is thereby missed out. Eternit should reposition its latrines as an object of social prestige and desirability.

- **Missing embedment of Eternit into local structures:** Eternit maintains a wide-ranging network with contractual distributors in almost every province of the country. Those distributors, mainly based in larger cities, in turn have business connections with smaller sub-distributors that usually serve minor communities (cp. Figure 29). But the path to the customer becomes longer with each additional intermediary and the capacity of Eternit to directly exert influence on sales thereby decreases. In the same manner the quality of feedback, flowing back from the customer to Eternit drops off. At various points in this paper it has been discussed that intimacy and social bonds are of utmost importance in BoP-markets (cp. section

"Operate with local promoters" above). The current, circuitous distribution chain of Eternit anonymizes its products. The firm may arrange sporadic field visits for its employees and organize community fairs, but a network of local promoters or local producers who promote Eternit products door-to-door in BoP areas does not exist.

Figure 29



Annotation. Personal remarks

7.3 Celima-Trebol

The Peruvian firm Celima-Trebol manufactures all kinds of ceramics and sanitation items. Its roots trace back to the 1950s when the firm Trebol launched its first sanitary devices. In 1982 Celima, the producer of ceramics, saw the light of day and later joined the new alliance Celima-Trebol. The firm is headquartered in Lima but maintains production facilities and partners within a decentralized production system in different parts of the country. My key contact to Celima-Trebol was the commercial director of the corporation for Peru, Carlos Nicolini (personal communication, 22/04/2009).

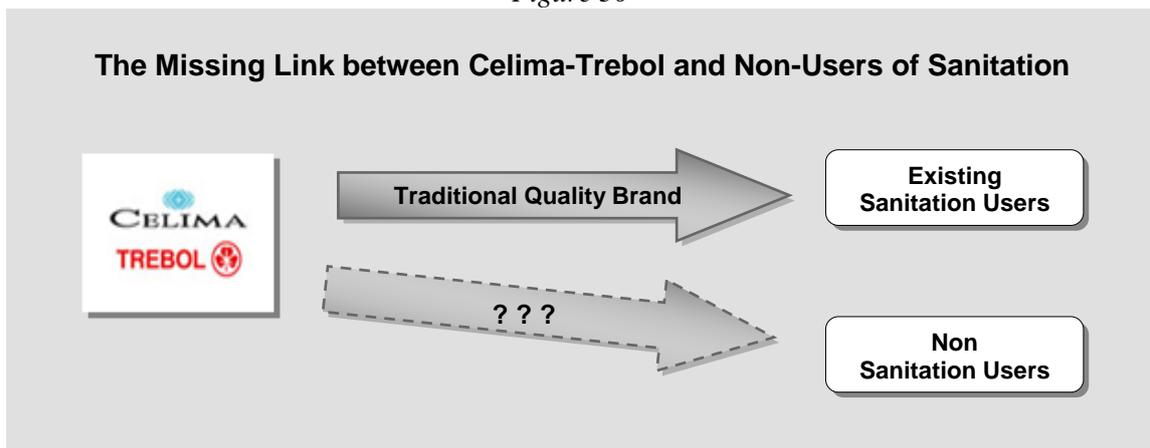
Strengths

- + **Deeply rooted in the Peruvian economy:** 92% of the processed primary products originate from Peru (Roman, 2008 cit. in TV Perú, 2008). In so doing Celima-Trebol creates employment all around the country and has production facilities and suppliers even in marginalized areas. Today Trebol dominates 70% of the Peruvian sanitation market. The brand is therefore widely known among the population. Almost every Peruvian has once in his life used a Trebol sanitation item. Such a social recognition may be an advantage for Celima-Trebol in tackling low-income customers.

Weaknesses

- **No specific business model for non users:** Celima-Trebol carries certain low-cost products in its portfolio that theoretically may be of interest to low-income customers but a separate business strategy for BoP-customers, who are often non-users of quality sanitation (cp. WSP, 2008b, p. 27-28), has not been developed. A main goal of this paper has been to highlight that the BoP segments need to be integrated with specific, needs-oriented innovations, with the establishment of more intimate distribution channels or with the introduction of a promotional strategy based on pride and social status into sanitation markets. The company makes a good case for the 60% of existing users of sanitation by offering traditionally recognized quality products at a fair price. But in the first instance Celima-Trebol does not point out why the 40% of non-users in Peru should begin to invest in sanitation. It thereby misses the opportunity to link a large part of the population to the sanitation market and unconsciously favors the sales to existing users (cp. Figure 30).

Figure 30



Annotation. Personal remarks

7.4 Concluding Evaluation of the Performance of the Private Sector in Sanitation Markets

Achievements

- + **Needs-oriented innovations for BoP customers:** It appears the general will of the private sector is to design needs-oriented sanitation solutions for BoP-customers. Rotoplas creates tailor-made systems for residents of floating houses; Eternit promotes a sanitary latrine specifically directed at rural customers, and Celima-Trebol has joined the trend of water-saving technologies. The private sector has thus already taken an important step and recognizes the deficit of sanitation among large parts of the population not primarily as a problem but instead as a promising opportunity for business.

- + **Enhancement of the facilities for credit:** The supply of credits is certainly increasing in Peru. The head of the local branch of the micro-finance bank Edyficar in Cajamarca, Lizandro Ramos reported an annual increase of credit amounts in his agency by 35% (personal Communication, 14/07/2008). Many distributors of sanitation products now also offer sales on credit. I was surprised to discover that in Cajamarca even small-scale retailers accept a payment on installment (Perusan, 2007b, p. 30-35). However what has been missing so far is a synergetic link between the producers - Rotoplas, Eternit, Celima-Trebol - and the big suppliers of micro-credits in the country - Mibanco, Edyficar, etc. Mibanco offers for example the Micasa (Myhouse) credit package to grant funds directed at an upgrading of the domicile. But where is a Mibaño (Mybathroom) credit package, aimed at the enhancement of sanitation?

- + **Educative customer support:** BoP customers often prefer do-it-yourself construction in place of professional installation service (cp. section "Focus on the simplicity and flexibility of sanitation items" above). Various firms in the sanitation sector already feel that this tendency may threaten the quality and reliability of the products. The Maestro and Sodimac home centers as well as the sanitation producers Eternit and Celima-Trebol already offer regular workshops to its customers. Both producers in addition claim that their products can usually be installed by the users themselves without any professional assistance (personal communication with Javier Dancuart & Carlos Nicolin, 21-22/04/2009). These activities and measures facilitate the integration of low-income customers and first-time users into a quality sanitation market.

Deficits

- **Reliance on traditional distribution channels:** Two out of the three evaluated firms (Eternit and Celima-Trebol) rely principally on their traditional distributions channels through a network of distributors and sub-distributors around the country. Only Alfonso Vásquez from Rotoplas believes that personal door-to-door marketing is better suited for initiating a demand for sanitation among the low-income segments (personal Communication, 14/08/2008). The fact is that 40% of the population - about 11 million Peruvians - still has no quality sanitation solution and that the existing distributions network has never dealt with this people. Thus it would be time to courageously initiate new distribution mechanisms. Successful examples have been highlighted in the literature: Unilever India observed in 1999 that its existing distribution mechanisms did not reach more than 500 million people in the country. The company started a new distribution mechanism, deriving advantages from the strong social structures among the communities. Unilever empowered small, female community groups to become micro-entrepreneurs for the distribution of its consumer goods. By 2006 Unilever had already trained 30'000 women. A first performance measurement shows that sales rose in the respective areas by 10% (Hart, 2007, p. 142-145; Rajendra & Shah, 2005, p. 193-204).

- **Reliance on traditional product positioning:** I asked both Javier Dancuart from Eternit and Carlos Nicolini from Trebol-Celima which values or attributes a sanitation product should transmit in their eyes (personal communication, 21-22/04/2009). I proposed, health, joy, pride, modernity, hygiene and social status. Both representatives clearly responded, with health and hygiene, probably the most straight-forward answer. Peruvian BoP customers may effectively care about health and hygiene, but when they buy a sanitation product they look for design, features and image (Johnson, 2008, p. 12-13,18-19). None of the three involved companies has so far positioned its sanitation products to low income customers as objects of ambition and pride.

- **Reliance on the government as a partner and customer:** During a trip to the factory of Eternit in Lima Javier Dancuart proudly reported to me that after the dramatic earthquake in Pisco in August 2007 his firm had sold thousands of prefabricated emergency houses to state agencies and NGOs (personal communication, 12/08/2008). Similarly Alfonso Vasquez mentioned during a panel discussion in 2006 that Rotoplas had sold in Chimbote in a project with the German NGO Inwent water tanks to more than 100 households (WSP, 2006, p. 33-34). From an opposite point of view it could be argued that in fact Rotoplas' key customers in this case were the NGO and the urban water provider who approved and pre-financed the project. Rotoplas and Eternit both had to ensure that their products conformed to the ideas of the state agencies or the NGO (and not to the demand of the end user!) in order to win the

deal. These assignments are lucrative in the short run, but in the long run the corporations face the possibility of exposure to the deficiencies of governments in developing countries: The number of incoming orders may fluctuate due to personal transitions within the government or due to bribable public officers (Hart, 2007, p. 205-208). Firms are therefore well advised to refocus their strategy on the future opportunities in the market: Salaries in the informal sector increased by 18% between 2003 and 2008 and about 11 million Peruvians are still "waiting" to be served with sanitation products (cp. Webb, 2008, p. a4; Marmanillo, 2007, p. 326-349). These upcoming segments are the target groups of tomorrow, not the rigid state departments!

8 Summary

In this section we will take the introductory questions up again and complement them in an aggregated manner with the deduced answers. The first two questions relate to the existing BoP literature and the latter four address the here presented sanitation case in Peru:

Why has the private sector failed up to now to approach the Bottom of the Pyramid?

A paradigm has dominated management theory for a long time, reducing low-income markets to the characteristics of poverty, illiteracy, corruption and delinquency. Summarized, the environment of BoP markets has for a long time been considered as too hostile for private market initiatives. This paradigm proves true only to a certain degree because life can also be astonishingly normal in an urban slum settlement of Lima or in a dispersed rural village in the Cajamarca region. As everywhere else in the world, people live a daily routine, carrying out their jobs as farmers or micro-entrepreneurs and building up with a modest income piece by piece a decent family life. The population at the bottom of the pyramid is willing to spend money and in fact already participates in lively economic markets for food, construction materials, electronic devices, etc. But the existing markets have been marked by informality and inefficiencies, leading only to suboptimal results. Those companies will possibly find the way to the promised fortune that regard the market abnormalities at the bottom of the pyramid as opportunities to present innovating, value-creating solutions to the current deficits. The firms in contrast that perceive the particularities of BoP-markets primarily as threats for their existing business model will hardly generate wealth among the new customer segment.

How can firms successfully perform at the Bottom of the Pyramid?

In order to succeed at the Bottom of the Pyramid, corporations must reorganize their entire business model. Successful examples in the past have revealed that the following six principles seem to be of particular importance:

1. Intimacy and trust are of utmost significance in informal markets. Well-performing enterprises **find the right partners** among the BoP to access low-income customers
2. The market environment at the BoP differs from the business environment in high-end markets (informality, inefficiencies, illiteracy, etc.). Visionary firms develop **responsiveness** for the deficits in BoP-markets and transform them into promising business solutions.
3. Successful corporations add value to their business model with **innovating products and processes** that correspond specifically to the needs and wishes of BoP-customers.
4. Many BoP-users have been excluded up to now from participation in formal markets. An inclusive marketing concept integrates newcomers with **pre-financing and educative options**.

5. The main barrier for an involvement of the bottom of the pyramid into formal markets refers usually to the price. The smart entrepreneur **reduces** therefore **costs and margins and increases** instead **scales** to become profitable.
6. BoP customer segments are new to most enterprises. Committed firms expand their organizational boundaries to BoP-employees and **adapt their internal structures** to become receptive to the new target group.

What are the main drivers and barriers for investments in sanitation in Namora and Pachacutec?

BoP users in Pachacutec and Namora are not satisfied with the current sanitation solutions they have. Many mothers for example express the wish to possess a permanent and hygiene sanitation equipment as they are concerned about their children's exposure to contamination. Nevertheless the disposition to invest in sanitation remains rather low. Some of the users still wait that the government or an NGO will assist them with the acquisition of a sanitation solution. A majority of BoP-users believes at the same time that the available sanitation solutions on the market are too expensive. It seems reasonable that a large investment in sanitation heavily stresses the financial budget of low-income individuals. However the elevated price level covers just one narrow aspect of a possible explanation, of why sanitation equipment has barely appealed BoP segments in Peru up to now. The lack of a culture of hygiene and the resulting prioritization of other products must be adduced as additional factors which prevent the BoP from further investments in sanitation. Unlike televisions and cell phones, sanitation products do not have an image as objects of modernity or social desirability. But pride and social esteem are indeed two main drivers, favoring the buying decision of low-income customers. A link should therefore be generated in the buyers' minds, connecting sanitation products to modernity and an invigorated social status.

How has existing supply served the two markets until now?

The large-scale sanitation producers have mainly concentrated their production facilities in the capital Lima. From there, their products find the way through retailers and sub-retailers to customers in almost every city of the country. A network of small-scale producers and service providers is also available in most provinces, even if the quality of the offered products and services does not always meet with professional quality standards. NGOs and state agencies have been another important provider of sanitation products for BoP-user over the past decades. One in five sanitation systems has been constructed under their eyes (Perusan, 2009). In other areas, where public aid has not arrived yet, people build with poor-quality materials their own latrines and in rural zones even worse, open defecation is a widespread habit.

What are the key points of a promising business concept for sanitation products aimed at BoP-customers in Pachacutec and Namora?

It is evident, the one and only successful business concept does not exist. An endless number of striking ideas might work in reality in order to provide a business venture with a comparative advantage. However the here presented business concept delivers a framework based carefully on the current BoP literature and above all on the particular necessities of the residents of Namora and Pachacutec. It is a set of ideas to successfully market sanitation products among these customers:

First, there is nothing like innovations: Create customized products that correspond to the wishes and needs of your potential clientele. Customers in Namora and Pachacutec mainly seek **flexible, good-looking, water-driven sanitation solutions**. Rethink furthermore your promotional strategy: Try to market your sanitation items as **symbols of status or modernity** and organize a **separate set of promotional campaigns for men and women**. Establish moreover a **distribution scheme directly integrated into local structures**. Operate for instance with **local promoters** who work in communities as ambassadors of the brand.

Secondly, offer educational activities in combination with the purchase. Many Peruvians have constructed so far their own low-quality latrines by simply digging a hole in the soil. Facilitate the entry of first-time buyers and offer them cost-free **do-it-yourself workshops** to support their workings.

Thirdly, **cut costs** and **accept purchases on credit**. The main barrier expressed by users almost always refers to the price of sanitation equipment. Search for cost-saving construction materials, **narrow your product portfolio** and optimize the internal processes to reduce the costs of production and distribution. Favorable credit conditions may in addition decisively stimulate the sales of your products.

Fourth, cooperate with a wide range of partners. **Integrate state agencies and NGOs into your market strategy** in order to prevent that these distort your sales with charitable subsidies and the donation of cost-free latrines to the BoP.

Fifth, become indigenous to the culture of your new clientele. Send employees regularly on **field trips** to the impoverished zones of the country and **hire local staff** even for managerial positions in your organization.

How have existing sanitation firms performed so far?

A brief check of the performance of the firms Rotoplas, Eternit and Trebol-Celima reveals that the efforts to penetrate the Peruvian bottom of the pyramid markets got stuck halfway. Rotoplas and Eternit have proven the capacity to design customized products for BoP users. Rotoplas for example has developed a specific sanitation systems for Peruvians living at a riverside in floating houses and Eternit promotes low-cost latrines to customers in dispersed rural areas. It is furthermore pleasing that the credit supply for low income customers has tremendously risen in Peru over the last years.

Unfortunately only the product design has been adapted by the dominating sanitation firms to the new customers whereas the business model as a whole remained for the most part identically. Eternit and Celima-Trebol for instance market both BoP and upper-scale brands of their products through the same distribution channels. Top and bottom of the pyramid customer are meant to address the identical retailer for advice. All three sanitation providers rely furthermore on their traditional promotional message: Sanitation for BoP users is primarily positioned as a product of charity, health and hygiene (and not as a an object of social desirability). A possible explanation for this hesitating behaviour traces back to the existing business models which focus on sales to NGOs and state agencies. Both Rotoplas and Eternit have consistently received massive orders from public and private funds to provide products to the Peruvian poor. Eternit for example produced a large number of emergency accommodations for homeless people after a devastating earthquake in August 2007 in the south of Lima. As long as these firms do not shift their selling market from the state to the end-user, bottom of the pyramid customers will hardly begin to buy their products. Selling to the BoP is not only about developing the right products, but also about gaining access to the customers through adapted distributional and promotional channels.

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Interview Partners

- Abraham Horma, *ADRA Peru team member*; July 10, 2008
- Alfonso Vasquez S., *General Manager at Rotoplas Peru*; July 16 and August 14, 2008
- Carlos Nicolini, *Commercial Director at Trebol-Celima*; April 22, 2009
- Carmen Ruiz, *Resident in Pachacútec*; August 18, 2008
- Christian Boesch, *Head of On Time AG, a Swiss Money Transfer Chain*; May 6, 2009
- Francisco Panizza, *Professor at the London School of Economics*; October 29, 2008
- François Brikké, *Former Head of the Water and Sanitation Program in Latin America*; August 4, 2008
- Germán Zevallos, *Caritas Iquitos team member*; July 18, 2008
- Iris Marmanillo, *Head of Operations in Peru of the Water and Sanitation Program*; August 13 September 2, 2008
- Isela Sánchez, *Credit Assessor of Mibanco*; August 12, 2008
- Javier Dancuart, *Sales Manager at Eternit Peru*; July 23 and August 12, 2008, April 21, 2009
- Julio Arteaga Cerquín, *Owner of a local Retail Shop in Namora*; July 15, 2008
- Lizandro Ramos, *Head of the Edyficar agency Cajamarca*; July 14, 2008
- Marleny Quispe, *Resident, Market-woman and Mibanco Promoter in Pachacútec*; August 12, 2008
- Miguel Arce, *Head of the Private Banking Business of Scotiabank Peru*; July 8, 2008
- Olinda Posadas Zumarán, *CARE Cajamarca team member*; July 15, 2008
- Pilar Dufour, *Head of TBWA Peru*; July 16, 2008
- Ricardo Soto, *ADRA Peru team member*; July 22, 2008

Field visits

- Water and Sanitation Program of the World Bank in Lima; June-September, 2008
- Pachacútec; July 10, August 12 and August 18, 2008
- Cajamarca, Namora, and Santa Margarita; July 14 and 15, 2008
- Iquitos and Belén; July 18, 2008