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Introduction. Farewell to pyramids: how can business and technology help to eradicate poverty?

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# Introduction

## Farewell to pyramids: how can business and technology help to eradicate poverty?

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Poverty affects the majority of the world's people and nations. It seriously undermines their capacity to meet their basic needs—including food, clothing, shelter and safe drinking water—and completely governs their quality of life. Poverty also has a detrimental effect on other aspects, such as education and healthcare. Despite decades-long efforts of development agencies to alleviate poverty, around the turn of the millennium it had become strikingly evident that development aid, charity or 'global business-as-usual' would not deliver the solutions to poverty that had been expected (Hammond *et al.* 2007): the gap between wealthy and poor continued to widen (Calder 2008; Cheema 2005). Today, there is little dispute that poverty is one of the most pressing global problems, calling for innovative solutions.

When Prahalad and Hart (2002) introduced the base-of-the-pyramid (BoP) concept at the turn of this century, it was an idea whose time had come. The BoP approach refers to market-based and entrepreneurial activity aiming at poverty alleviation and development—tapping into the previously ignored markets of the economically most disadvantaged: the billions at the base of the economic pyramid. By sheer weight of numbers the economic value of this market is potentially vast; and, it is argued, having the needs of the poor served in ways responsive to their needs, through the market (the private sector), can be an effective mechanism for alleviating poverty—an endeavour in which

aid and development efforts have clearly failed thus far. So it has been touted as the ultimate win–win: a strategy promising wealth for entrepreneurs and, at the same time, offering opportunities for the poor world majority to escape from poverty.

It has unleashed an extensive response from academics, businesses, NGOs and others, attracting passionate reactions both for and against. For the proponents it seems to function also as a ‘vision’ concept—many imagine what the BoP business approach could deliver in the future and what it should be. At present there are competing interpretations about the BoP business approach rather than one single definition. Two main interpretations stand out. One of them predominantly views individuals at the base of the economic pyramid as consumers whom multinationals and other large companies could turn into a lucrative market and at the same time solve problems stemming from poverty or, more precisely, from lack of appropriate and affordable products and services at the BoP (Prahalad 2004). This interpretation has attracted criticism (Karnani 2007; Landrum 2007). Alternative interpretations have emerged as an elaboration of the first (Hart 2005; Wilson and Wilson 2006); these entail seeing the poor also as producers, not just consumers (Wilson and Wilson 2006), and emphasise the role of the poor as partners in business co-creation (Hart 2005).

Disappointments with the results of traditional development aid are not the only factors to have paved the way for market-based approaches and involvement of the private sector in poverty reduction. Over the past two decades, the forces of political transformation, economic globalisation and technical innovation have resulted in an unprecedented transfer of assets to the private sector, bringing private enterprise to the heart of the international development agenda. While small, medium and micro enterprises account for the bulk of economic activity and job creation in most countries, the global reach and influence of multinational corporations has also grown substantially. The UN estimates that their number has almost doubled from 37,000 in 1990 to over 60,000 today, with some 800,000 foreign affiliates and millions of suppliers and distributors operating along their global value chains. Moreover, private capital flows to developing countries—albeit mainly targeted at a small number of key emerging markets—have risen over five-fold since 1990 and now outstrip official development assistance (Nelson 2006; Nelson 2001).

BoP is a new area and its knowledge base needs to be expanded. This book aims to do that by addressing the issues of both poverty and global sustainability, while applying the BoP strategy with a human-centred approach to develop products and services needed by the BoP community. This book therefore takes the needs of users as a central theme; although we acknowledge that poverty alleviation goes beyond the consumption/production cycle of appropriate products and services for the poor (see below).

A human-centred approach views the poor as individuals who should be allowed to voice their concerns as well as participate in decision-making that affects them (Narayan 2000). It means seeing the poor as individuals like any others but whose freedom and human rights are limited due to poverty (Sen 1999). Being poor, therefore, is much more than a lack of money or an inability to satisfy one’s needs through consumption, a view that perhaps implicitly dominates the pioneering work on the BoP approach (Prahalad 2004; Hart 2005; Hammond *et al.* 2007). While terminologies that define the BoP as markets or the poor as consumers are understandable in the pioneering BoP writings where the private sector is involved, the challenge lies in alleviating poverty in a socially,

economically and environmentally sustainable manner, without losing sight of poor people as individuals.

Human-centredness has a variety of implications when addressing the BoP and poverty eradication. For instance, human-centred design of products and services has been practised at Delft University of Technology for several years, applying modern science and technology in societal contexts. Human-centred design is a process of assuring that the concerns, values and perceptions of all stakeholders in a design effort are considered and balanced. Trials in the application of this approach to BoP started in 2003, since which time several projects in association with multiple stakeholders—such as business enterprises, NGOs, etc.—have been carried out by the students at Delft (Kandachar and Halme 2007). Exploring this approach together with international BoP practitioners in 2006 resulted in a special theme issue of the journal *Greener Management International* on BoP.<sup>1</sup> This book is the much-expanded result of the continuing exploration, and includes multiple voices from several continents, and from different fields and backgrounds.

## Poverty

We all have an idea what poverty means. Yet there are many ways to approach the concept, which will influence how one looks at poverty eradication. In this section we look first at some statistics about poverty (Reddy and Minoiu 2007), and then highlight poverty from a different perspective: what it means to be a poor individual.

### Poverty in numbers

A global examination of the performance of developing countries during the past 60 years provides a reasonably optimistic picture, with many of them bravely trying to extricate themselves from the grips of poverty, with improvement in health conditions and food production, as well as becoming world players in manufacturing production and exports (Table 1).

But there are also reasons for concern—see Table 2, which compares the rich part of the world with the poor. At a global level there is an increasing inequality of per capita incomes.

In general, poverty statistics are best considered indicative rather than exact (Reddy and Minoiu 2007; Pogge and Reddy 2006). Widely used poverty benchmarks are \$1/day (extreme poverty) and \$2/day (moderately poor) (Reddy and Minoiu 2007). Prahalad's (2004) BoP writings on the other hand consider those living with less than \$5/day as 'the BoP', which according to some includes the emerging middle class in countries such as China and India rather than the poor (Warnholz 2007).

Regardless of the debate about which precise dollar limit determines the status of 'the poor', a closer look at all developing countries shows a great disparity among the regions and countries. A study by the World Resources Institute and the International Finance

1 Issue 51 (2007); see [www.greenleaf-publishing.com/gmi51](http://www.greenleaf-publishing.com/gmi51).

**TABLE 1** Changes in the developing world, 1950–2005

Source: Szirmai 2008

Metrics	1950–60	1981	2000–05
GDP per capita (1990 PPP\$), 1950, 2003	854.9		3,645.6
Food production per capita (1980 = 100)	88.0		147.0
Manufactured exports as a percentage of commodity exports	6.0		53.0
Life expectancy at birth (years)	40.8		65.4
Child mortality by age 1 (per 1,000 births)	180.0		65.0
Child mortality by age 5 (per 1,000 births)	281.0		95.0
Gross enrolment rate, primary education*	75.8		103.9
Gross enrolment rate, secondary education*	15.7		58.3
Gross enrolment rate, tertiary education*	2.1		13.0
Net enrolment rate, primary education <sup>†</sup>	48.1		82.0
Net enrolment rate, secondary education <sup>†</sup>	35.0		45.0
Percentage of population on less than \$1 a day		40.4	21.1
Number of people on less than \$1 a day (millions)		1,481.8	1,092.7
Percentage of population on less than \$2 a day		66.8	52.9
Number of people on less than \$2 a day (millions)		2,449.8	2,735.5

\* The number of students enrolled per educational level regardless of their age, as percentage of the number of people in the relevant age bracket. The age brackets for educational levels differ per country. Percentages over 100 per cent indicate that people outside the relevant age bracket can also be enrolled.

<sup>†</sup> Percentage of people enrolled

PPP = purchasing power parity

Corporation shows that the 4 billion people with income less than \$3,000 per year in local purchasing power (which corresponds to less than \$2.11 per day in China and \$1.56 in India) are mostly found in Asia (2.86 billion people; 83% of population). Africa has 486 million people at the BoP (95% of the region's population), South America 360 million (70% of population), and Eastern Europe 254 million BoP individuals (64% of population) (Hammond *et al.* 2007).

Halfway through the time-frame of the Millennium Development Goals (MDGs) set in 2000, the progress in some of the goals in certain regions has been poor (Millennium Development Goals 2007 Progress Chart). The MDGs set out time-bound and measurable targets for reducing poverty, increasing school attendance, promoting gender equality, averting maternal and child deaths, improving healthcare, combating major diseases and achieving environmental sustainability. Sub-Saharan Africa, Eastern Asia and Oceania have been low performers. Healthcare (goals 4, 5 and 6) and environmental sustainability show poor results in practically all regions.

**TABLE 2 A rough comparison of rich and poor nations**

Source: World Development Indicators (World Bank 2005). After Dasgupta

Indicator	Rich nations	Poor nations
Population (billions)	1.0	2.3
GDP per capita	\$30,000	\$2,100
Human Development Index	High	Low
Annual population growth rate (%), 1966–2004	0.8	2.4
Annual growth rate of GDP per capita (%), 1966–2004	2.4	1.8
Total fertility rate	1.8	3.7
Adult literacy (%)	>95	58
Female literacy (%)	>95	48
Index of government corruption	Low	High
Life expectancy at birth (years)	78	58
Under-5 mortality (per 1,000)	7	120
Rural population (percentage of total population)	20	70
Agriculture's share in GDP (%)	5	25

GDP = gross domestic product

Behind these macro-level figures is the fact that most people at the base of the economic pyramid have significant unmet needs, they are dependent on informal or subsistence livelihoods and they are impacted by the so-called poverty penalty, which means that the poor often have to pay more for their goods and services than their wealthier counterparts (Hammond *et al.* 2007). Poverty penalty is often a result of 'informality', which is actually one of the key issues in understanding poverty. Informality means that most individuals at the BoP have no access to *formal* water and sanitation services, electricity, basic healthcare or financial services. Due to the informality traps, the poor also end up paying higher prices for their products and services than do affluent consumers. For example, the lack of access to piped water means that the poor often have to buy water from mobile vendors. According to a report covering 47 studies, mobile water distributors charge prices up to ten times the price of piped water (Hammond *et al.* 2007). Inability to access a bank account or other formal financial services means exorbitant rates of loans (by informal-sector money lenders) or of remittances from relatives abroad. Many live in informal settlements, with no formal title to their dwelling. Informality also means that many BoP individuals have no choice but to sell their labour or produce (e.g. crops or handicraft) to local employers or middlemen who often exploit them because informality leaves them without protection.

## What it means to be poor

An extensive study as part of a global research effort in the late 1990s entitled *Consultations with the Poor*, led by Deepa Narayan of the World Bank's Poverty Group, involving more than 60,000 poor men and women from over 50 countries, has analysed poor people's experiences with poverty. It noted the commonality of the human experience of poverty across countries. From Georgia to Brazil, from Nigeria to the Philippines, similar underlying themes have emerged: hunger, deprivation, powerlessness, violation of dignity, social isolation, resilience, resourcefulness, solidarity, state corruption, rudeness of service providers, and gender inequality, although with varying degrees of prevalence. Three major conclusions of this study, called *Voices of the Poor*, emerged (Narayan 2000; see also Boguslaw and Boyle, Chapter 15 in this volume). For the poor, quality of life or well-being has a number of aspects which include both material and psychological dimensions. Well-being is peace of mind; it is good health; it is belonging to a community; it is safety; it is freedom of choice and action; it is a dependable livelihood and a steady source of income; it is food. Poverty is therefore much more than income alone.

By and large poor people feel they have not been able to take advantage of new economic opportunities because of lack of connections and lack of information, skills and credit. The poor need opportunities and institutional structures that increase social, economic and personal security.

The poor survive by means of informal networks and have mixed assessments of the governments as well as the NGOs who purport to help them. The report suggests that poor people seek institutions that are 'effective'.

Building on such evidence and translating it into BoP strategy, Boguslaw and Boyle (Chapter 15) note that, although income is important, as are material goods and opportunities for work, they are the proverbial 'band-aids' that do not cure the deeper problem at its source. An agenda to reduce poverty requires an understanding that the poor are more than simply income-poor; they are asset-poor and therefore require investments beyond the consumption/production cycle if they are to escape poverty.

Vandana Shiva, a physicist and environmental activist and a prolific author, questions the underlying thinking behind the concept of 'development'. She makes a distinction between culturally perceived poverty and real material poverty. For instance, sustenance economies, which satisfy basic needs through self-provisioning, are not poor in the sense of being deprived. The ideology of development declares them so because they do not participate overwhelmingly in the market economy and do not consume commodities produced for, and distributed through, the market even though they might be satisfying those needs through self-provisioning mechanisms (Shiva 2005).

Sustenance, as culturally perceived poverty, does not necessarily imply a low physical quality of life, according to Shiva. As sustenance economies preserve the health and sustainability of the natural environment as well as the social economy, they ensure a high quality of life measured in terms of right to food and water, sustainability of livelihoods and robust social and cultural identity and meaning, she notes.

Her statements resemble those of *Voices of the Poor* (Narayan 2000): 'People do not die for lack of incomes. They die for lack of access to resources.' The indigenous people in the Amazon, the mountain communities in the Himalaya, peasants whose land has not been appropriated and whose water and biodiversity has not been destroyed by debt-creating industrial agriculture are ecologically rich, even though they do not earn a dol-

lar a day (Shiva 2005). Shiva adds further that, on the other hand, even at five dollars a day, people are poor if they have to satisfy their basic needs at high prices.

## The BoP approach as a strategy to address poverty

Although the BoP discussion started with an MNC and large-company focus, the perspective has since diverged in a variety of directions. The discussion now includes the market-based, entrepreneurial approaches that other organisations such as SMEs, NGOs or development agencies are adopting. For instance, NGOs such as Kiva, or social enterprises such as KickStart and MyC4, illustrate that creative and effective entrepreneurial solutions can come from sources other than large companies (O'Brien 2008; Fisher 2006; [www.myc4.com](http://www.myc4.com)). This book includes a number of chapters that reflect the activities of MNCs in BoP markets (Chapters 16–22), but also many others that address local enterprises, both large and small, as well entrepreneurial approaches of NGOs.

### Local BoP enterprises: BoP as producers

The chapters on local enterprises and NGOs as facilitators of entrepreneurial activity (3–12) offer insights about the 'BoP as producers' (e.g. Karnani 2007; Wilson and Wilson 2006).

Yap (Chapter 7) introduces the readers to the problems of one type of BoP producer, through an example of a metals reprocessing craft village in Vietnam. Craft villages are one type of industrial cluster where the micro-enterprises specialise in a certain occupation. The craft villages at the BoP are often home-based enterprises with old and inefficient processing technologies. Interconnected health and environmental problems abound. Machinery and equipment are difficult to update because entrepreneurs' profit margins are very small, making them highly risk-averse in terms of investment in equipment even where there is a short return-on-investment period. Furthermore, these entrepreneurs often lack access to credit. While primarily painting a picture of an industrial craft village, between the lines Yap also exemplifies the handicap of international cleaner production and other experts in BoP contexts. The experts appear to lack sufficient socio-cultural understanding and perhaps also respect of the realities of the local micro-enterprises and individuals. Instead of transferring expert knowledge in complex forms, solutions ought to be developed together with the local people, offered in small steps, and in plain language. As there is an enormous number of industrial or semi-industrial craft villages—sometimes the size of a town rather than a village—around the world, we should ask what roles large companies could assume here, if the micro-enterprises and villages are to enter into the global supply chain in a sustainable way.

Ham and Thomas (Chapter 6) present a different type of 'BoP as producers': namely, natural plant product enterprises from South Africa that market to ethical consumers at the top of the economic pyramid (ToP). They exemplify how fair-trade, organic certification or environmental labelling schemes can be the way for small-scale BoP producers to overcome market entry barriers. This chapter focuses on successful case examples, which can be inspiring for others to follow. Yet it is evident that certification and

labelling are expensive and that the niche markets at the ToP and the internet-based marketing channels for such products are, up to now, if not only a drop in ocean, a marginal activity. Creating sustainable livelihoods in local communities, instead of extracting resources or forcing people to work in factories, calls for a multiplication of these examples and the entry of local small producers into corporations' supply chains.

Reema Nanavaty of SEWA (Chapter 9), an Indian NGO, and Adriana Villela *et al.* (Chapter 10) from a cooperative in Brazil, exemplify how small-scale efforts by NGOs can provide livelihoods for poor communities. In Chapter 11 John Stutz of the Tellus Institute takes waste management as an example in which it would be possible to integrate small local enterprises into the urban solid waste management network in ways that would provide both organised waste management for the city and sustainable livelihoods for poor communities. At present, cities in developing countries are increasingly outsourcing waste management to MNCs. Yet, at the same time, most developing countries have recycling facilities that rely on the so-called scavengers, who work under very poor conditions. They are not part of the formal economy and their income is low and infrequent. In the model outlined by Stutz, local governments would contract waste management from a specialised company, often an MNC, but in return require an arrangement in which local waste management providers (scavengers, street-sweepers, informal recyclers) are included and get just compensation for their work.

Throughout the chapters dealing with the 'BoP as producers', it is evident that involving the BoP individuals and micro-enterprises in the formal economy, in ways that provide sustainable livelihoods, calls for the cooperation of a number of parties. Connecting individuals, smallholders and micro-enterprises from the BoP to international supply chains often requires facilitation by NGOs, either local or international. Occasionally, development aid organisations or local governments may act in this role but, in the examples in this book, NGOs appear more prominent.

## Consumers at the BoP

The private sector is now gearing itself as a solution provider recognising the needs of the world's poor as opportunities. The participation of BoP consumers is emphasised within concepts such as 'deep listening' (Hart *et al.* 2007), but it is not evident how well these ideals get transferred into practice. Are BoP consumers and citizens included in the decision-making and activities that are supposed to benefit them? Are we aware what exactly the needs of the world's poor are?

Most BoP work up to now appears to be written from the perspective of business firms or organisations. The same is true for the contributions in this book. The ratio of consumer- or citizen-focused contributions in relation to company-focused ones is small. Krämer and Belz (Chapter 13) have studied the ten most promising—from the consumer inclusion standpoint—BoP case studies from among the United Nations Development Programme (UNDP)'s Growing Inclusive Markets (GIM) initiative and have come to the conclusion that in general BoP individuals tend not be involved in the innovation processes of products and services aimed at them. Rather, the conventional way of doing market research has been transferred to the BoP business, with the shortcoming that the methods are unidirectional rather than interactive. The conclusion is that the present methods fail to reveal the implicit needs and tacit knowledge of BoP consumers, neither do they aim to leverage their capabilities or empowerment. In addition to some good

practices described by Krämer and Belz, Chapter 16 by Rocchi and Kusume presents ideas about the integration of BoP users in product development.

Affordability is the most-cited criterion influencing consumption at BoP. Sometimes convenience is also said to be important. In spite of health implications, rural households in the arsenic-affected areas of Bangladesh place a low value on arsenic-free drinking water, as the arsenic reduction technologies are costly. Equipment based on activated alumina technology, for example, would cost a family more than Tk 100 per month, which is much higher than the value attributed to arsenic-free drinking water. By contrast, households may show a good deal of interest in piped water supply, an alternative option for mitigating the arsenic problem. The willingness to pay for piped water arises mainly from the convenience it offers. The fact that it takes care of the arsenic problem at the same time would be seen as an added advantage (Ahmada *et al.* 2005).

While the observation that one aim of consumption is to demonstrate one's economic position is an old one (Smith 1759; Veblen 1899), and has been accepted as true for wealthy consumers, the view still prevails that the poor are exclusively preoccupied with basic needs satisfaction. Contrary evidence is provided by van Kempen (2005), who has studied the purchasing behaviour of poor individuals and families in developing countries (Mali, Sri Lanka, Brazil, Congo, etc.). The study shows that the poor are sometimes led by status motives in their purchasing behaviour. This supports the observation that, to an extent, poverty is a relative concept: people compare themselves to those nearby and judge their economic position in that light (Layard 2005; Townsend 1993; Sen 1981: 17).

These observations also indicate further that the design of appropriate products, whether of status or non-status goods, is no easy task for the private sector. In-depth knowledge of the culture, aspirations, desires and lifestyle of low-income people is indispensable in searching for creative solutions. The private sector at the top of the pyramid may well be extremely familiar with the habits of high-income consumers, but investment is required in gaining an understanding of the aspirations of the poor.

## **Sustainable development and corporate responsibility in BoP contexts**

The BoP approach is a recent one and the majority of the debate has focused on the economic implications. We do not know much about the interconnected social, ecological and economical sustainability implications of the BoP business approach. On a general level, poverty and environmental degradation are in many ways intertwined. On one hand, the poor are the ones to suffer first and hardest from the degradation of ecosystems (arable land, forests, fish stocks) as they directly depend on them. For instance, human migration from parts of Africa to Europe is often propelled by the destruction of ecosystems that have provided livelihoods to poor people (Bennett 2008). The poor also have little means to protect themselves from the negative effects of climate change, such as storms and floods.

The BoP approach, however, provides no automatic solution to the above problem. On the contrary, some argue that the BoP approach simply encourages more consumption with possible negative consequences for ecological sustainability. The crucial question is: are there ways to meet the product and service needs of the poor while simultaneously striving to achieve global sustainability? So far there has been very little systematic evaluation of the environmental impacts of BoP business initiatives. While

this is understandable, given the novelty of the phenomenon, it is nonetheless essential. The imperative of sustainable development demands that we reduce poverty, yet also protect the natural environment. This is not to say that the BoP business approach is inherently paradoxical; rather, it depends on what kind of BoP solutions eventually come about. Both Prahalad (2004) and Hart (2005) argue for the environmental benefits, such as resource-efficient innovations, that BoP business might bring about. The arguments, however, rely more on anecdotal evidence rather than comprehensive analysis.

Two chapters in this book, by Wijen (Chapter 24) and Hahn (Chapter 25), discuss the implications of BoP strategies for environmental sustainability. Focusing on two major environmental dimensions, natural resource use and pollution, Wijen analyses the extent to which market mechanisms (market clearing, corporate innovation and CSR) and a variety of other governance options (government regulation, industry self-regulation and civic action) can be expected to function as effective safeguards for environmental sustainability. Wijen finds that, since we are largely ignorant about the possible technical and cognitive BoP-related repertoires, it is dangerous to indulge in unbridled optimism. While the proposed natural-resource-poor direction is the right one, in the face of immense uncertainty as to the feasibility of environmentally benign innovations, promising yet unrealised innovations should not be oversold.

Currently, the academic contribution to the environmental sustainability of the BoP approach relies either on theoretical reasoning or single examples with thin empirical evidence. The same is true for social sustainability, albeit that in the BoP debate social arguments are more abundant than environmental ones. Systematic analysis of the social sustainability implications of the BoP approach is also hard to find. In the future we hope to see more analysis that draws together data from multiple documented BoP cases. Although the task is a complex one, we look forward to attempts to evaluate the social and ecological sustainability effects of BoP product and service concepts, and to compare them in order to better understand what differentiates a sustainable BoP concept from an unsustainable one, and why.

The corporate responsibility trend is a proposed route in helping companies contribute to sustainable development. In his bestseller *The Fortune at the Bottom of the Pyramid*, Prahalad (2004: 6) argues that the BoP business approach is not about corporate social responsibility, but that BoP markets 'must become an integral part of firms' core businesses'. This statement has created quite a lot of confusion. What does it mean? By definition, corporate responsibility (CR) addresses the duties of business enterprises towards societal stakeholders and the natural environment. It also describes how managers should handle these duties and assumes that companies have voluntary responsibilities that sometimes go beyond mandatory obligations such as economic responsibility and legal compliance (McWilliams *et al.* 2006; Windsor 2006; Halme and Laurila 2008). In Prahalad's terminology 'corporate responsibility' appears synonymous with philanthropy, which is a very narrow interpretation of CR. Hence, rather than thinking that the BoP approach does not involve CR questions, Prahalad's statement should be interpreted to mean that BoP strategies and activities are not merely philanthropy.

Doing business in the BoP markets raises a number of concerns for business enterprises regarding responsibility issues. A general minimal requirement for responsible business practice should be that wherever a company operates it should minimise negative impacts on the natural environment as well as on human stakeholders. In Chapter

26 Kirk Davidson discusses the responsibilities of corporations in the BoP market, taking a cautious stand on the opportunities for corporations of BoP strategies. According to Davidson, a number of ethical concerns become more pronounced in a BoP context, because of the economic vulnerability of individuals who live in poorer conditions and who are less educated. One might also add that in a number of BoP countries governments and other entities dictating the structure for business operations are weaker in their protection of human rights and the natural environment. Using mainly examples from MNCs' branded consumer goods (soap, washing detergents, infant formula, etc.), Davidson discusses questions such as fair pricing, advertising and sales promotion tactics. His point is that only by embracing, rather than rejecting or marginalising, responsibility concerns can business enterprises simultaneously make profits and significantly contribute to poverty alleviation at the BoP.

But the imperative of responsibility for BoP business is not only about minimising environmental harm and restraining from potential violation of social value. Nelson (2006) maintains that the greatest and most sustainable contribution that any company can make to development is by carrying out its core business activities—including its activities along the supply chain—in a responsible manner. Some authors (Porter and Kramer 2006; Halme and Laurila 2008) argue that there is a potentially more beneficial approach to corporate responsibility: namely, that of developing new inclusive business models for the BoP. Following this approach, a company can consider a poverty-related problem (such as lack of food, shelter, electricity or information) as a driver for innovating new products, services or business models. These may yield even greater societal benefits (such as poverty eradication and development) than merely integrating CR into the current business of a corporation.

## **BoP strategies and the rapidly changing world**

In recent decades the relative economic and political powers of the world's nations have changed dramatically. Two populous countries, China and India, are home to more than one-third of humanity. Both these countries are going through rapid changes. While BoP strategy specifies an important role for the private sector, entrepreneurship in both China and India is rising dramatically and thriving under quite different conditions (Khanna 2007).

Another noticeable change is the rise in 'South–South cooperation'. While international cooperation, as in the UN Charter, pledges to 'employ international machinery for the promotion of the economic and social development of all people', for a long time this was assumed to concern the industrialised world aiding the developing world, because of the economic success of industrialised world and its access to advanced technologies and practices. Over the years it was realised that within the developing countries themselves there were marked differences, hence leading to South–South cooperation. The countries in the South generally share certain commonalities, such as similar developmental experience, and also face common challenges such as high population pressure, poverty, hunger, disease, environmental deterioration, etc. In fact, the Group of 77 at the United Nations (G77) Conference on South–South Cooperation held in 2003 officially recognised that South–South cooperation is not an option but an imperative to complement North–South cooperation in order to contribute to the achievement of internationally agreed development goals, including the Millennium Development Goals (Marrakech Declaration 2003).

This trend has propelled the diffusion of both the Base of the Pyramid and the ‘Emerging Markets’ concepts, the latter attracting more private-sector investment than the former, owing to the very low economic status of those implicated within the BoP. Warnholz (2007) argues that the bulk of Prahalad’s new purchasing power rests with the emerging middle class in India, China and Brazil, while the 2 billion people below \$2 a day, especially those in sub-Saharan Africa, are marginalised in this debate. The major challenge is to serve this latter group—particularly those that are the ‘real material poor’ in Vandana Shiva’s terms, not living in sustenance economies with basic needs satisfied through self-provisioning.

## Technology for the poor

Technology development and radical innovations are a prominent part of the BoP approach. Hart and Christensen (2002) and Hart (2005) have discussed the possibility of BoP markets as a ‘hatchery’ for radical innovations. Some of these may become ‘disruptive innovations’ and ‘blow back’ to the wealthy markets owing to their superior price–performance combination. As these arguments are well presented in works of Hart and Christensen, they will not be scrutinised here. Instead, we shall discuss technology and development from a somewhat different angle.

### Technology and innovation for development

The current world scene is paradoxical, with unprecedented advances in technology on the one hand, while on the other hand millions of people lack access to food and basic essentials to survive. Many believe in technology and are convinced that technological advances automatically lead to economic development and welfare for all.

Based on the perception of progress made by the industrialised countries, belief in the role of science, technology and innovation for development has grown enormously. About 25 countries, largely the Organisation for Economic Cooperation and Development (OECD) members, are strong in all areas of science and technology and have the capacity to transfer scientific and technological knowledge into products and services that boost their economies. About 90 other countries, including China, India, Brazil, Argentina, Chile, Malaysia, Mexico, South Africa and Turkey, have a mixed range of capabilities. The majority have a degree of competence in a selected number of fields, with pockets of weakness remaining in the scientific infrastructure. Rapid strides can be noted in some members of this group. In February 2007, for example, the World Intellectual Property Organisation (WIPO) reported that, although the United States still leads the world in patent applications, Asia is rapidly narrowing the gap. China filed nearly 4,000 patent applications in 2006, more than double the 2005 total. There is also a third category of countries, about 79 of them, the majority of which are in sub-Saharan Africa and the Islamic region, that have very limited capacity in every field of science and technology, including even an absence of any scientific culture at all. They have poor teaching facilities, substandard laboratories and scant ability to transfer their knowledge and know-how into products and services, especially products and services

that can compete in the international marketplace. This uneven distribution of expertise, coupled with a faith in science and technology's role in development, has led to a plea for support from the international scientific community (Hassan 2008).

### Concerns about technology: agriculture case study

Is technology alone a means to address all world issues, including poverty and sustainability? Agriculture is one of the most common activities linked to concerns such as biodiversity loss, global warming and water availability. It serves as a useful example wherein the limits to current approaches are becoming visible—as noted by the findings of the three-year International Assessment of Agricultural Science and Technology for Development.<sup>2</sup> IAASTD is a three-year collaborative effort (2005–2007) assessing 'Agricultural Knowledge, Science and Technology for Development' in relation to meeting development and sustainability goals of:

- 1 Reducing hunger and poverty
- 2 Improving nutrition, health and rural livelihoods
- 3 Facilitating social and environmental sustainability

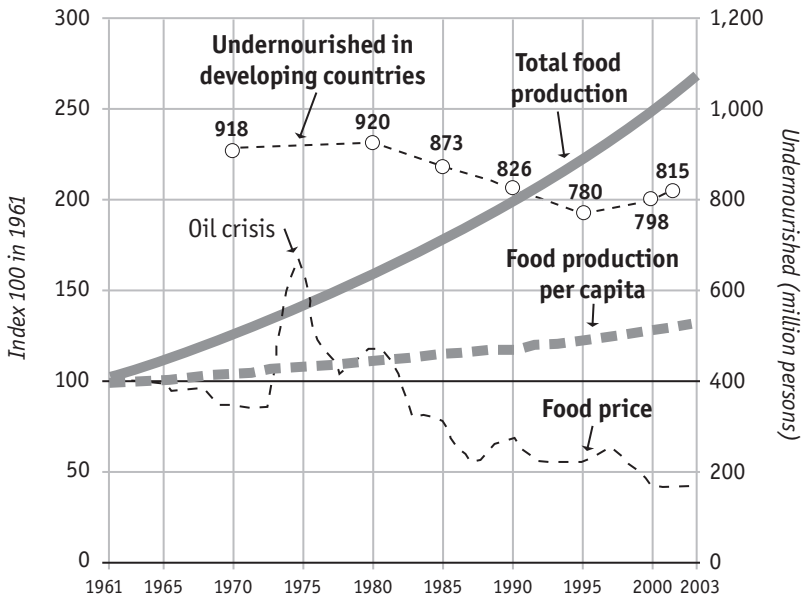
Published in April 2008, it represents an effort by about 400 experts around the world working under the auspices of 30 governments and 30 representatives of civil society.<sup>3</sup>

Large productivity increases have been achieved (see Fig. 1); however, the study notes that this increase has been at the cost of environmental sustainability. Agriculture is constrained in terms of arable land and water availability, reduction in soil fertility and increasing environmental impacts. In addition, the study found that people have benefited unevenly from yield increases across regions. These were often unforeseen as they occurred over time or occurred outside of traditional farm boundaries. For instance, 1.9 billion ha (and 2.6 billion people) are currently affected by significant levels of land degradation, such as desertification. Fifty years ago water withdrawal from rivers was one-third of what it is today: currently 70% of freshwater withdrawal globally (2,700 km<sup>3</sup>; 2.45% of rainfall) is attributable to irrigated agriculture, which has caused salinisation in some cases (Global Summary 2008).

At present we can observe the problems of the current dominant agricultural paradigm. 'Maximising production at the lowest cost' in agriculture seems to have come to the end of its time. While the food price trend has been in decline for several decades up to the year 2000, since then food prices have been rising steadily. Between 2000 and 2007 the rise was minor, but in 2007 food prices rose almost 50% (FAO Food Price Indices 2008). This disproportionately affects poor households, who spend anywhere between 60% and 80% of their income on food, compared to only 10–20% in most industrialised

2 [www.agassessment.org](http://www.agassessment.org) (accessed 5 May 2008).

3 The latter includes NGOs, producer and consumer groups and international organisations. The assessment was sponsored by the United Nations, the World Bank and the Global Environment Facility (GEF). Five UN agencies were involved: the Food and Agricultural Organisation (FAO), the UN Development Programme (UNDP), the UN Environment Programme (UNEP), the UN Educational, Scientific and Cultural Organisation (UNESCO) and the World Health Organisation (WHO). Additional individuals, organisations and governments participated in a peer review process.

**FIGURE 1** Productivity increase in world agricultureSource: Watson *et al.* 2008, based on FAOSTATS, SOFI, Millennium Ecosystem Assessment

countries. Low-income countries that import more food than they export have been hit the hardest. According to the United Nations Food and Agriculture Organisation (FAO) 37 countries—21 of which are in Africa—are in a food security crisis. Skyrocketing food prices have triggered riots across the developing world. The long-term forecast for global food security, poverty and hunger gives further cause for concern. The World Bank recently announced that the current food situation could push 100 million people into deeper poverty, undoing years of progress in the fight against global poverty and hunger (World Bank 2008).

The commonly acknowledged drivers behind the current food price spikes include:

- Increased demand for meat and dairy products in the developing world (which requires more grain be fed to livestock)
- Diversion of crops for biofuel production
- Adverse weather conditions
- Commodity speculation by investors
- Lack of access to improved inputs and markets among smallholder farmers in the developing world—particularly in sub-Saharan Africa—which limits their ability to react to the incentives created by increased demand

Domestic policy responses to higher food prices in developing countries, such as export taxes, bans or other restrictions exacerbate the problem (Sugg 2008; *New York Times* 2008).

## Trust in technology: mobile phones case study

In contrast, mobile phone use in the developing world has been more rapid and far-reaching than any previous technology-based product—including traditional landline phones—as investing in a mobile phone network is much cheaper (Hammond *et al.* 2007).<sup>4</sup> In Morocco, after decades of investing in the telephone infrastructure, there were only four landlines per 100 inhabitants in 1995. In 2003, there were still four landline subscribers per 100 Moroccans, but there were also 24 mobile phone subscribers per 100—up from zero in 1995 (Schellong 2007). A London Business School study, which looked at 92 countries, rich and poor, between 1980 and 2003, indicates that as little as 10% market penetration of mobile phones can increase a developing country's GDP growth rate by 0.6%. A later study upgraded that figure to as much as 1.2% extra GDP growth. To put these figures into perspective, Tanzania's entire GDP growth rate in 2006 was 5.8% (Waverman *et al.* 2005).

The mobile phone is being used as an economic tool in developing countries. Over 80% of Egyptian and South African businesses now rely on mobile phones, for example. Phones can increase the sale price of produce by providing farmers with better access to information and markets; they can give tradesmen the ability to serve customers beyond their immediate area. In parts of Africa, phones are being used to alert unemployed people to job opportunities, health information and more.

Developing countries are also adopting this technology in new ways. One of the most famous examples of mobile phone entrepreneurship is the Village Phone Programme of Grameenphone in Bangladesh, which is considered one of the world's poorest countries, enabling local women to earn income from renting mobile phones to fellow villagers. Established in 1996, Grameenphone has launched the careers of more than 250,000 'phone ladies' in Bangladesh. Women, by borrowing micro-credit, buy specially designed cellphone kits, costing about \$150, each equipped with a long-lasting battery. They then earn money by setting up shop as village phone operator, charging a small commission for people to make and receive calls. Grameenphone is now Bangladesh's largest telecom provider, with annual revenues of about \$1 billion. Similar village phone programmes have sprung up in Rwanda, Uganda, Cameroon and Indonesia. A further development of Grameenphone is the Community Information Centres (CICs) initiative, which provides employment opportunities, access to information and the ability to communicate via the internet (described more fully in Chapter 4).

Mobile phones are radically changing access to financial services, as in developing countries most people do not have bank accounts. One of the most successful examples is WIZZIT in South Africa, which is discussed by the founders, Brian Richardson and Nicolas Callegari, in Chapter 3.

Mobile telephone technology is even transforming humanitarian relief, resulting in a shift in the balance of power between donors and recipients. Aid providers are setting up quick communication links at places needing relief, to keep track of supplies, com-

4 According to statistics from the market database Wireless Intelligence, it took about 20 years for the first billion mobile phones to sell worldwide. The second billion sold in four years; the third billion sold in two. Eighty per cent of the world's population now lives within range of a cellular network, which is double the level in 2000. And figures from the International Telecommunications Union show that, by the end of 2006, 68% of the world's mobile subscriptions were in developing countries (Corbett 2008; see also Chapter 17 in this volume).

municate with helicopters by email and send each other SMS messages, warning of road blocks or floods (*Economist* 2007; see also [www.reliefweb.int](http://www.reliefweb.int)).

The use of mobile phones to develop and deliver new products, services and benefits can serve as a model and a catalyst for entrepreneurs across a range of markets and applications that may have little to do with mobile telephony. In a similar way to internet technology, and its stimulation of new thinking and new approaches to developing and delivering products and services in virtually every corner of the economy, mobile phone technology can open new doors and inspire creative action for the widest possible variety of entrepreneurs at the BoP (Lehr 2007).

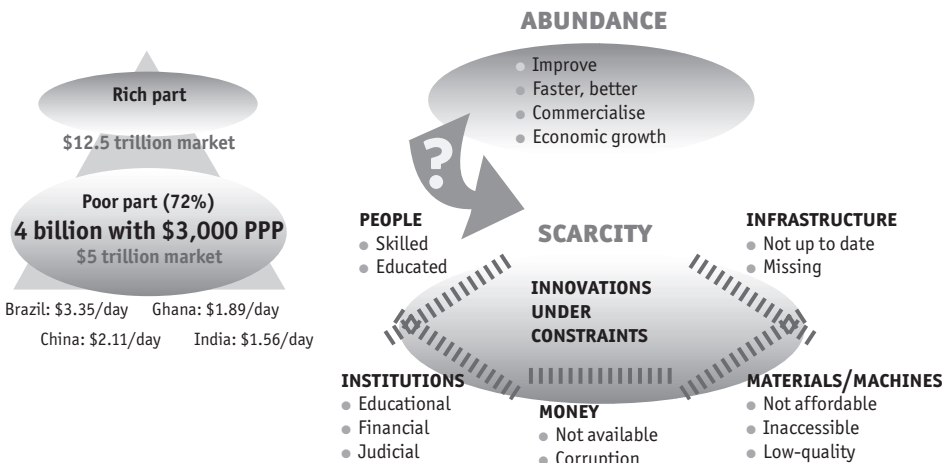
### Innovating in the context of scarcity

While mobile telephony has been successfully applied at the BoP, technologies developed for the rich cannot be automatically assumed to be fit for the poor. So, if the private sector wants to do business at the BoP, what technology should be developed for the poor? To meet the needs of the poor, technological innovation should be undertaken as a contextual process, the relevance of which should be assessed depending on the socioeconomic condition in which it is embedded (Srinivasa and Sutz 2008). Srinivasa and Sutz claim that, without this, technology-led economic policies are unlikely to meet the needs of most people, especially in countries where innovation and poverty reside side by side.

The basic premise of Srinivasa and Sutz’s work is that the contexts in which developmental processes take place are embedded in scarcities not widely present in industrialised societies which lead to different technology incorporation and production. They distinguish between the richer part of the world as having ‘Abundance’ and the poorer (BoP) part as a condition of ‘Scarcity’ (Fig. 2). Scarcity conditions include problems at

**FIGURE 2 Innovations and socioeconomic context**

Source: based on Srinivasa and Sutz 2008



the level of infrastructure, such as: information missing or not up to date; limited access to materials and equipment of the required quality or accuracy; gaining institutional support for the building of endogenous capacities; lack of people with appropriate skills to run projects, or discuss ideas, and of money to rely on well-known solutions.

Innovation within conditions of scarcity can be one of the ways technology is incorporated in developmental processes; it is not competitive with, but is complementary to, the more classical means of technology transfer. If properly understood and valued, it can, in the long run, have an impact on meeting local needs and perhaps wider industrial dynamics, we believe. Ability to innovate under conditions of scarcity would then be an important requirement in entering BoP markets.

## Everyone is needed

### Multi-stakeholder collaboration

One of the central observations of the BoP literature is the need for collaboration. It is argued that business enterprises need to work with NGOs and public-sector organisations in order to launch products, services or business models that function in the poor markets (Hart 2005; Prahalad 2004). Why is there more need of collaboration in poor markets than in their wealthier counterparts? Part of the explanation is that in such markets many institutions facilitating business are either missing (Vachani and Smith 2008) or are so different from those of affluent markets that business managers do not know how to operate within them (see Gradl *et al.* from UNDP in Chapter 1). The authors in Chapter 1 highlight this from a systems perspective. The particular conditions in the market systems in which the poor live constrain the development of business models that include the poor, either as consumers or as producers, and that have a positive impact on human development. The constraints relate to the lack of market information (such as demographic or consumption behaviour data), or access to it; knowledge base and skills (conventional marketing communication tends to rely on literacy skills); the regulatory environment (which can punish legitimate business with burdensome regulation and/or be corrupt); or limited access to financial products such as credit, transactional banking and insurance. The low quality of any form of physical infrastructure, such as a lack of transportation networks, roads or electricity, is a severe hindrance for business. Companies can only partially overcome these constraints by their own means and often need to collaborate with NGOs, associations and government organisations. It is argued that the development of embedded ties and alliances with traditional and non-traditional partners is critical in order to better understand customer needs and market characteristics (Hart 2005; London and Hart 2004).

BoP business often involves hybrid approaches which, in essence, are business models or partnerships that combine the company's competence and know-how with philanthropy or public finance. Hybrid business approaches can incorporate consumer education, micro loans or cross-subsidies among different income groups, or partnerships with the public sector or with NGOs (Hammond *et al.* 2007).

Cooperation is easy to speak about, but more difficult to put into practice. The more distant the partners are with regard to their world-views, or physical context, the more challenging cooperation becomes. What does cooperation require? It certainly requires an elementary knowledge of the living conditions of the partners with whom one collaborates. It also requires trust, which takes time to build. Using a multiple-case analysis of business ventures, Sánchez *et al.* (2007) have proposed a framework that explains the influential factors for developing such networks. Their findings suggest that a firm has a bigger incentive to build embedded ties and partnerships under three conditions:

- Under-developed market-oriented system
- High psychic distance of a firm in regard to low-income markets
- The degree of personalised co-creation experiences offered by the firm

Sánchez *et al.* observed that becoming socially embedded not only contributes to the creation of a contextual competitive advantage for the firm, but might have a greater positive impact in the social context than those companies that did not develop this ability.

In the BoP discussion collaboration is usually framed as if it was a challenge for business people only: ‘business to broaden its mind-sets and work together with untypical partners such as NGOs and governmental development organizations’ (Hart 2005). Refreshingly, in Chapter 2 Wilson *et al.*, from the International Institute for Environment and Development (IIED), look at the other side of the coin. While recognising that the success of the BoP business approach’s contribution to sustainable development calls for the transfer of much of the dominant logic business and practices, Wilson *et al.* propose that paradigms guiding development should change. They maintain that, particularly in the poorest conditions, the combination of business and development logics and the collaboration of actors from both sides are required.

Further, it is increasingly expected that large companies, with their resources and global reach, offer some of the best solutions for development. While responsible and innovative business practices may deliver some excellent solutions to the poverty problem, in the absence of good government and political will it is still unlikely that global poverty will be eradicated. The quality of government, in this case, refers to the rule of law, the effectiveness of government services, the absence of corruption and the efficiency of the system of regulation.

Overall, poverty eradication has much to do with governance—the mechanisms, processes and institutions through which citizens and groups articulate their interests and exercise their rights and obligations. Good governance is characterised by principles such as participation, transparency, accountability, rule of law, effectiveness and equity. In the absence of these conditions it is less likely that the private sector and civil-society organisations are free and able to participate (Cheema 2005). However, even in situations of weak governance, BoP business in partnership with other constituencies may assist in establishing appropriate conditions, institutions and an enabling environment for good governance.

## Co-creation

Implementing the BoP strategy requires investing in understanding and involving the poor (Pralhad 2004). But how can this be put into practice? Concepts attracting attention are: co-creation, user-generated content or open source, which place the client in the driver's seat during product development and/or marketing. Can these concepts help? The idea is appealing as, although strongly IT-oriented, the resulting product is something that the creators would not have achieved alone. Here again it is Prahalad who has helped to popularise the term 'co-creation' by arguing that value is increasingly being co-created by the firm and the customer, rather than being created entirely inside the firm (Pralhad and Ramaswamy 2004). This concept is gaining ground as customer experience is one of today's great frontiers for innovation (Pine and Gilmore 1998; Rae 2006; Prahalad and Krishnan 2008).

Designers are used to continuously involving their customers by applying a 'user-centred design' (UCD) approach, which again is strongly IT-oriented, focusing on the target users from the beginning of the design process and continually having users evaluate the design.

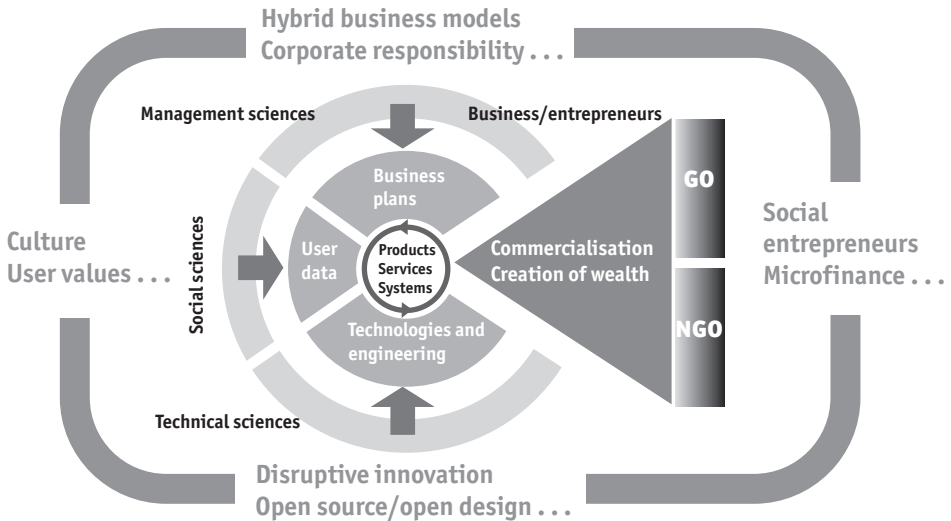
In recent years, researchers in the developing world have attempted to employ this approach, but with mixed results. Analysing the results from two developing-world UCD projects (South Africa), recent research (Maunder *et al.* 2007) has shown that the analysis tools and techniques provided by UCD are useful, but difficulties arise when interpreting the findings in order to produce a final specification. In particular, traditional UCD methodologies fail to consider the broader and complex effects of the user's physical and social environment. These authors in this field are addressing these issues by presenting several tools and techniques that they feel are more suited to the developing world. These include the importance of developing a motivated user group and the need for a progressive participatory design approach. Rocchi and Kusume (Chapter 16) exemplify the co-creation experience of Philips Design, an NGO, and poor users in the Chulha stove development process.

## Integrated approach

The number of factors influencing the BoP knowledge base is obviously very large. Yet they all need to be taken into consideration while searching for appropriate solutions, as they are interdependent. Integrating all factors means researching and implementing innovations, at several fronts in a particular socioeconomic context, to address the unmet needs of the BoP community, where several stakeholders—scientists, engineers, development economists, government and NGOs, entrepreneurs, local organisations, etc.—are involved (Fig. 3). A capacity to absorb and translate technologies into economies has also been critical, because of the paucity of domestic skills and competences at the BoP, which makes for a slow diffusion of technologies. With 4 billion people, the BoP cannot be considered a homogeneous market. The relevance of an innovation is very much dependent on the local socioeconomic conditions; one cannot expect a universal solution for the entire BoP community. This is a multifaceted issue, requiring a multidisciplinary approach, and with several features still unknown. This being a demanding challenge, current approaches often display a character of 'learning by doing'.

**FIGURE 3** BoP innovation as a multifaceted issue, requiring a multidisciplinary approach

Source: Prabhu Kandachar, January 2008



## Directions for future exploration

Even when BoP initiatives work on reducing poverty, and promote investments beyond the consumption/production cycle to move BoP constituents out of poverty, there is no guarantee that this will lead to the well-being or happiness of the poor. While it is undeniable that many products and technologies have made our lives easier, it is naïve to assume that increased opportunities to consume will automatically promote well-being or increase happiness. Let us briefly explore, from several angles, the links between access to products and technologies, income, and well-being and happiness.

While having the potential to contribute to human development, product innovations carried out in the context of BoP strategy also present some pitfalls. First, it cannot be assumed that the win–win outcome of profit plus poverty reduction arises whenever a company successfully introduces an innovative product or technology to a developing country. Issues may arise about who wins and who doesn't, the distribution of benefits or the larger socioeconomic consequences. Moreover, arguments have been mooted that the proper focus for development efforts is not the reduction of income poverty, but rather the enhancement of human capabilities. As Oosterlaken (2008), in addition, has pointed out, 'technology is—so philosophers of technology have made clear—not a neutral instrument to be used at will for either good or bad, but rather value-laden. This means that the details of the design are morally significant. Not just any design will do.'

As a response to these concerns, Oosterlaken (2008) proposes that research is needed on a ‘capability approach’ to designing products and technologies for the BoP. According to this approach—and this is a view put forth by the economist and philosopher Amartya Sen (2005) and the philosopher Martha Nussbaum (2000, 2006)—the proper philosophical foundation of and evaluative space in questions of justice or development is not income, access to resources or well-being, but human capabilities.

Different authors have proposed different sets of capabilities as relevant and important. Nussbaum gives a quite detailed and extensive list of capabilities that enable people ‘to do and be’, organised into ten categories. Some examples are:

- ‘Being able to have good health’ (under the category ‘bodily health’)
- ‘Being able to move freely from place to place’ (under ‘bodily integrity’)
- ‘Being able to participate effectively in political choices that govern one’s life’ (under ‘control over one’s environment’)
- ‘Being able to use the senses, to imagine, think, and reason’ (under ‘senses, imagination and thought’)

Says Oosterlaken (2008):

On an intuitive level, adopting the capability approach immediately seems to be strongly compatible with recognising and improving the multidimensional contribution of technology and products to development. After all, from a common sense point of view technology is supposed to increase the capabilities that we as human beings have. Just as the wheel enhanced our capability to transport heavy loads, more recently the computer enhanced our capabilities to make complex calculations. Technologies have grown more complex over time and are in an increasingly complex way intertwined with society. However, ideally we still intend them to add to our capabilities to survive (such as in the case of medical equipment), to participate in public deliberation (such as in the case of ICT/internet applications that facilitate political discussion), etc.

A specific piece of technical equipment—namely, the bicycle—has been used by some authors to explain the approach (Sen 1983; Alkire 2005):

Take a bicycle. [. . .] Having a bike gives a person the ability to move about in a certain way that he may not be able to do without the bike. So the transportation characteristic of the bike gives the person the capability of moving in a certain way. That capability may give the person utility or happiness if he seeks such movement or finds it pleasurable. So there is, as it were, a sequence from a commodity (in this case a bike), to characteristics (in this case, transportation), to capability to function (in this case, the ability to move), to utility (in this case, pleasure from moving) (Sen 1983).

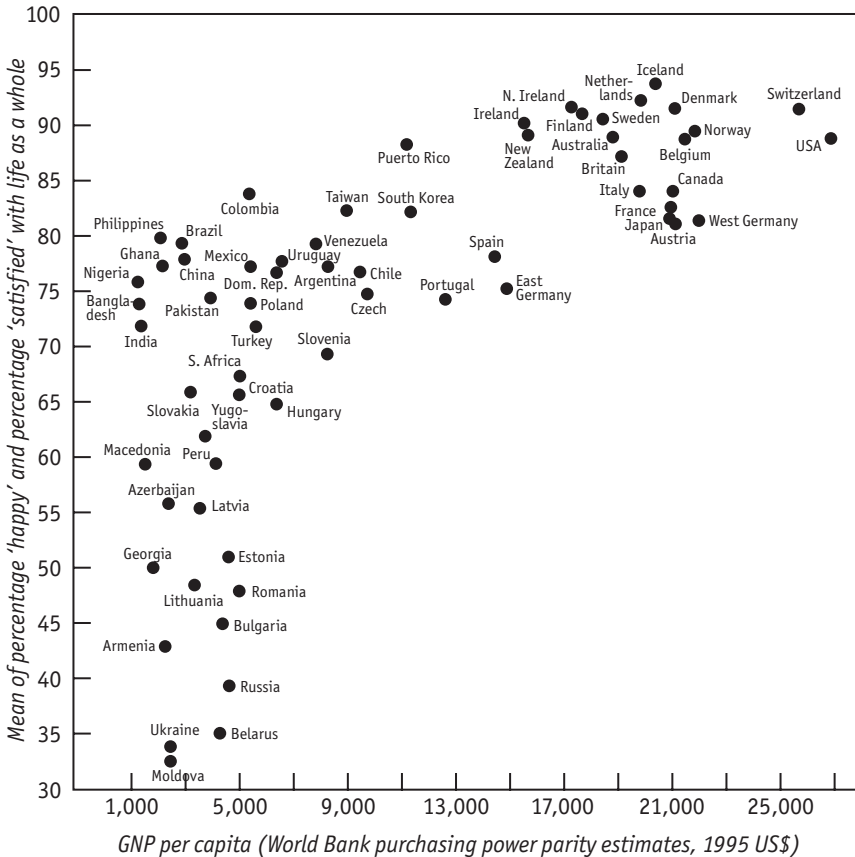
This quotation mentions happiness. It is illuminating to examine a few studies that have compared happiness across the countries of the world (Layard 2005; Veenhoven 2008). These comparisons indicate that we should not assume a direct correlation between ability to consume and happiness.

The first observation from the happiness comparison (Fig. 4) is that people in richer countries are generally somewhat happier than poorer ones. We also have evidence that, when poor countries such as India, Mexico, the Philippines and Brazil experience economic growth, their average level of happiness has risen. The reason is obvious: extra income is really valuable when it lifts people from economic poverty (Layard 2005). But, more surprisingly, in less wealthy countries such as Indonesia, Colombia or Mexico people report a similar level of happiness to their counterparts in much wealthier countries. Second, comparing countries within the cluster of rich countries, we can see that income does not correlate with the level of happiness. People in the richer USA are, on average, less happy than in the less wealthy Netherlands, Ireland or the Nordic countries.

One of the important messages of the happiness comparison is that income is not the only influence on happiness. Some other influences on happiness are related to individual psychological features and social relations, such as family and friends, and public, such as the societal system and governance (Layard 2005). While we are not offering

**FIGURE 4** Income and happiness

Source: Layard 2005; World Bank 1999



grand solutions here, we wish to emphasise that there is still much to understand in the BoP knowledge area. While products and innovative technologies may be an important part of that, it would be wise to bear in mind the ultimate aims of capability, well-being and happiness.

## The structure of this book

The book opens with two chapters that examine the conditions for developing inclusive markets and BoP strategies by authors from UNDP and IIED. These chapters outline conditions for creating market-based models for sustainable development at the BoP.

The second part explores the entrepreneurial activities of both large and small local firms and organisations at the BoP. The examples come from several continents: Asia, Africa and South America. Many of these contributions are written by practitioners who work in or with the enterprises they write about. Among these are WIZZIT mobile banking, which has made it possible for low-income individuals in South Africa to access banking services, and Grameenphone's Community Information Centres, a service for rural villages. Particularly in the smaller enterprises, deep collaborative efforts are a striking feature. In addition, several chapters in this part focus on the role of facilitating organisations, especially NGOs that aim to encourage the participation of local enterprises in the formal economy and international supply chains.

Part III consists of three chapters that address BoP consumers and citizens. Krämer and Belz examine the extent to which BoP consumers are involved in the innovation processes of new products and services. Viswanathan, Gau and Chaturvedi (Chapter 14) focus on research methods suitable for subsistence marketplaces. Boguslaw and Boyle bring in an important aspect from the perspective of the poor: they question whether the BoP business approaches contribute to developing assets for the poor. An inference that can be drawn from the contributions in this part is that, despite the good intentions of deep dialogue and inclusion of the poor in parts of the BoP discussion, many of the top-down, 'one models fits all' mistakes of the early years of development aid are likely to be repeated *unless* the poor are more actively involved in product and service development and a more sophisticated needs assessment is undertaken to hear the voices of this heterogeneous group.

The book then proceeds to large multinational corporations' operations at the BoP. These include both lessons from strategic philanthropy such as the Philips Chulha stove development and core business development at BoP markets, where growth opportunities are perceived, such as the Nokia–Siemens network solution for rural markets. The examples also include Tetra Pak's school feeding programme in Nigeria; business models of two South American utility companies that serve the needs of previously neglected poor users and communities; and a comparison of six projects by international companies with regards to addressing the needs of the poor, a collaborative approach and local partnerships, as well as patient capital and the need to offset business risk. The examples are followed by two contributions that investigate the capabilities of MNCs in developing BoP business and the opportunities and challenges faced by enterprises at the BoP.

The final part of the book addresses the fundamental issue of social and ecological sustainability at the BoP. While all chapters recognise the sustainability problems of the BoP approach, they also make serious efforts to develop the field based on their critique. In his contribution, James Murphy succeeds in overcoming the common ‘black or white’ syndrome which characterises much of the current BoP debate. Murphy recognises the myth-like character of some of the assumptions the BoP paradigm is based on but, at the same time, he builds on them, seeking to extract more realistic BoP assumptions. Wijen and Hahn scrutinise the ecological sustainability of the BoP approach. The most crucial implication is perhaps that we need to develop a conscious inclusion of ecological constraints within the BoP approach, both at the level of academic inquiry and business models in practice. Davidson discusses corporate responsibility within BoP business; and, finally, Tunçer *et al.*, from the United Nations Environment Programme (UNEP), propose a comprehensive approach, Human Development through the Market (HdTM), in an attempt to outline not only a concept but a management heuristic for integrating social and ecological sustainability goals into market-based activities at the BoP.

We believe these diverse contributions represent a major step forward in expanding the knowledge base of this nascent concept; it is certainly the most comprehensive collection of writing on the subject to date. We are pleased to note that this initiative has received a large international response and we hope it will continue to stimulate further debate.

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