Raising the Bottom of the Pyramid: Strategies for Sustainable Growth

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It is tragic that as a society we have implicitly assumed that the rich will be served by the corporate sector (MNCs) and governments or NGOs will protect the poor and the environment. This implicit divide is stronger than most realize. Managers in MNCs, public policy makers, and NGO activists all suffer from this historical division of roles. A huge opportunity lies in breaking this code–linking the poor and the rich across the world in a seamless market organized around the concept of sustainable growth and development.

Raising the 4 billion poor at the “bottom of the pyramid,” however, will require radical innovations in technologies and business models. It will require a reexamination of the “price–performance” relationships for products and services. It will demand a new level of capital efficiency. It will create a new logic for measuring financial success. It will quicken the penetration of disruptive new, environmentally sustainable technologies. Companies will be forced to transform their understanding of scale, from “bigger is better” to the capability to marry highly distributed small-scale operations and world scale capabilities. In short, the bottom of the pyramid presents a new managerial challenge – one potentially as powerful as the challenge posed by the Internet and
e-business.

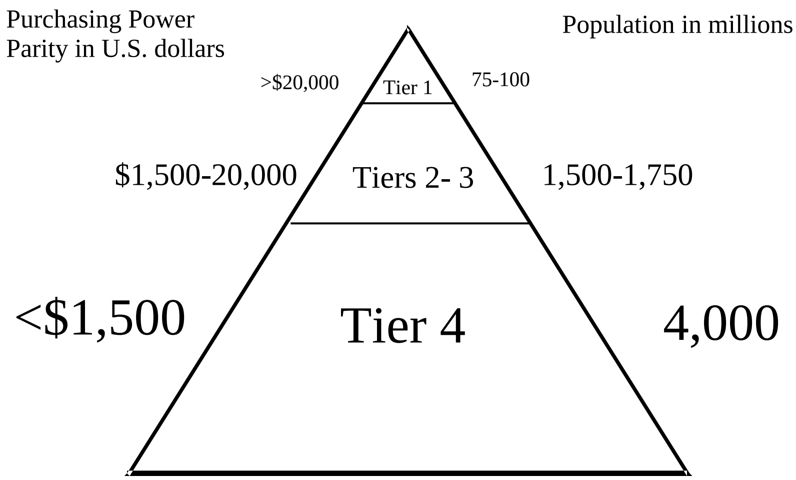
The Unrealized Opportunity at the Bottom of the Pyramid

Perhaps the most significant economic and social transformation of the twentieth century has occurred over the past decade. With the end of the Cold War, the previously closed markets of China, India, the former Soviet Union and its allies, and Latin America opened to foreign investment.[1] On the surface, this would appear to translate into vast new growth horizons for multinational corporations (MNCs) with the resources and persistence to enter and compete. Experience has shown, however, that the lure of millions of additional “middle class” consumers who can afford and are clamoring for the products of multinationals was vastly oversold. To make matters worse, the Asian and Latin American financial crises has taken much of the attraction out of emerging markets: Many MNCs are now slowing down investments and rethinking risk-reward structures in these markets.

Yet despite these presumed setbacks, the magnitude of the new opportunity in emerging markets is real—*and much larger than previously thought.* The real market opportunity here is not just the wealthy few in the developing world, but the vast number of *aspiring poor* who are joining the market economy for the first time. Think of the global market as a pyramid (*Figure 1*). At the very top of the pyramid there exists a small fraction (as a percentage of global population) of customers corresponding to the affluent in developed countries such as the United States. Most MNCs originated in this affluent world.[2] Not surprisingly then, most MNC managers’ views of business are conditioned by their knowledge and familiarity with Tier 1 consumers.

[1] For a penetrating analysis of this tranistion, see T. Friedman, *The Lexus and the Olive Tree*, New York: Anchor Books, 2000.
[2] In the top 200 MNCs in the world, more than 195 have their origins in the affluent, developed countries.

The World Pyramid



Now consider the vast emerging consumer base at the bottom of the pyramid, where 4 billion people reside. The per capita income in this tier is less than $1,500 (PPP) per year.[3] For well over a billion people, per capita income is less than a dollar per day. The vast majority of those in Tier 4 live in rural villages and urban slums and shantytowns. Educational levels are low to non-existent. These markets are hard to reach—from the point of view of distribution, credit, or communications. This market is often unorganized, local, and limited in quantity and quality of products and services available. Over the next 40 years, the numbers in Tier 4 could swell to 6 billion or more, since the bulk of the world's population growth is expected to come from this segment. Yet, much like the proverbial iceberg, where only the tip is in plain view, this massive tier of the World Pyramid has been largely invisible to the corporate sector.

Why does this market opportunity remain invisible?

The perception of market opportunity is a function of the way many managers are socialized to think and the analytical tools they use. If we looked at per capita incomes, the bottom of the pyramid will be automatically excluded from consideration in most MNCs. The same conclusions would be reached if the analysis was done with the current portfolio of products and services, geared to the developed world. Converting the poor into active consumers requires managers in MNCs to come to terms with the core set of assumptions and practices that are embedded in most firms. We have identified the following as widely shared orthodoxies that must be reexamined:

· **Assumption #1.** *MNC cost structures are a given.*
The poor are not our target consumers because MNCs, with their current cost structures, cannot compete for that market **profitably.**

· **Assumption #2.** *Product is our focus, not functionality. We worry about detergents not cleanliness.*
The poor cannot afford and have no use for the products and services that are sold in the developed markets.

· **Assumption #3.** *We focus on product and process innovations and not business innovations. Innovations come from Tier 1.*
Only the developed markets appreciate and will pay for new technology. The poor can use the last generation of technology.

[3] PPP=Purchasing Power Parity in US dollars.

· **Assumption #4.** *We do not see the bottom of the pyramid forcing us to innovate around sustainable development.*[4]
The bottom of the pyramid is not important to the long-term viability of our business. We can focus on Tiers 1-2 and leave Tier 3 and 4 to governments and non-profits.

· **Assumption #5.** *Managers do not get excited with business challenges that have a humanitarian element to them.*
Intellectual excitement is in the developed markets. It would be hard to recruit, train, and motivate managers who would want to spend time in creating a commercial infrastructure at the bottom of the pyramid

Because of the prevalence of these key assumptions by MNCs, the market opportunity at the bottom of the pyramid has remained invisible. It is like the well-known story of the person who finds a $20 bill on the sidewalk. Conventional economic wisdom would suggest that if the bill really existed, someone would have already picked it up! Like the proverbial $20 bill, the bottom of the pyramid defies conventional economic logic—it represents a large and unexplored territory for profitable growth.

Much of the difficulty in understanding the Tier 4 opportunity lies in understanding the structure of income distribution in most developing countries. The chart below, which reports the percentage of consumption for each quintile of the population illustrates two fundamental characterstics: *inequality in income distribition and access to resources.*

% consumption per % pop.	**India 1997**	**China 1998**	**Mexico 1995**	**Brazil 1996**
Lowest 20%	8.1	5.9	3.6	2.5
Second 20%	11.6	10.2	7.2	5.5
Third 20%	15	15.1	11.8	10
Fourth 20%	19.3	22.2	19.2	18.3
Highest 20%	46.1	46.6	58.2	63.8

The data from these surveys underscore the following points:

·**The income gap is widening.**
In 1960, for example, the richest 20% of the world possessed about 70% of the financial resources; by 1990, that figure risen to over 85%. This extreme inequality of wealth distribution may reinforce the view that the poor cannot participate in the global market economy even if they constitute 80% of the population.

· **Tier #1 consumers now use a disproportionate level of global resources.** Today's MNCs evolved during an era when natural resources were abundant and tended to make products and services that are resource and pollution-intensive. As a result, the USA, for example, with 250 million people (approximately 4% of the world population), consumes more than 25% of the world's energy resources. With its vast population and rapid

[4] For elaboration on the connection between sustainable development and corporate strategy see: S. Hart, "Beyond greening: Strategies for a sustainable world," *Harvard Business Review*, January-February, 1997.

growth, Tiers 3 and 4 offer a test-bed for incubating the technologies and products of the future—those that enable more sustainable ways of living.

· **The rich cannot easily ignore the poor.**
Given their vast numbers, the disenfranchised in Tier 4 can easily disrupt the lifestyle and the safety of the rich. Enabling the world's poor to improve the quality of their lives through commercial development will hold the key to Tier 1 and MNCs' continued success.[5] While global income *equality* may be an ideological pipe dream, *improving* Tier 4 is prerequisite to preserving the market economy.

The challenge is clear: *There are expectant consumers and potential innovations that can no longer be systematically ignored*. Yet this opportunity cannot be seized without fundamental innovations on the part of MNCs. We will argue here that it is possible to serve the bottom of the pyramid, developing the products and services required, in a culturally sensitive, environmentally sustainable, and economically profitable way.

Innovation Drivers
There are several forces that, taken together, point to the emergence of a market for goods and services at the bottom of the pyramid. Consider the following:

Innovation Driver	Implication for MNCs
Increasing aspirations due to improved access to TV and information	**Tier 4 aware of many products and services and eager to become consumers**
Deregulation and diminishing role of governments and international aid	More hospitable investment climate for MNCs entering developing countries and more cooperation from NGOs
Global overcapacity combined with intense rivalry in Tier 1 and middle markets	Tier 3 and 4 represent a huge untapped opportunity for profitable growth
Threat of migration to urban centers	MNCs must create products and services for rural populations

These drivers combine to suggest that a significant portion of important business opportunities in the decades ahead may emanate from Tiers 3 and 4. *MNCs must recognize that this market poses a new challenge: How can low cost, good quality, sustainability, and profitability be combined?* The table below suggests the areas that require radical rethinking in order to create profitable markets in Tiers 3and 4.

[5] For a provocative discussion of the presumed pathology of global capitalism, see D. Korten, *The Post- Corporate World*, San Francisco: Berrett-Koehler, 1999.

Improvements in Price-Performance **Product development** **Manufacturing** **Distribution**	**New View of Quality** **New delivery formats** **Creation of robust prodcucts for harsh conditions (heat, dust, etc)**
Sustainability **Reduction in resource intensity** **Recyclability**	**Profitability** **Investment intensity** **Margins** **Volume**

An illustration of the successful execution of this strategy comes from Hindustan Lever Limited (HLL), a subsidiary of Unilever, plc widely considered the best managed company in India. Like most MNCs, for over 50 years it catered to the needs of the elite of India– the top of the pyramid[6]. A local firm, Nirma, challenged HLL in its detergent business, by creating a new business system - a new product formulation, new manufacturing process, distribution, packaging, and pricing. HLL like most MNCs, initially dismissed Nirma as a low end producer. It was not a competitor in HLL's "served market." As Nirma grew rapidly, HLL realized both its new opportunity as well as its vulnerability. Nirma was attacking, in its detergent business, from the bottom of the pyramid. HLL, responded, somewhat belatedly, with its own offering for this market – drastically altering the traditional HLL business model.

HLL created a new product formulation which dramatically reduced the ratio of oil to water in the detergent, thereby reducing significantly the pollution associated with washing cloths in rivers and other public water systems. They decentralized the production, marketing, and distribution of the product to take advantage of the abundant labor pool in rural India and quickly penetrate the thousands of small outlets where people at the bottom of the pyramid shop. They reinvented the cost structure of the business, enabling the introduction of the product at a price point affordable to those at the bottom.

The results for the detergent businesses of Nirma and HLL are very telling (*see Table 1*). Contrary to popular assumptions, the poor can be a very profitable market- especially, if MNCs are willing and able to change their business models. The bottom of the pyramid is not a market that allows for traditional (high) margins. Like the Internet space, the game is about volume and capital efficiency. Margins are likely to be very low (by current norms) but unit sales extremely high. Managers who focus on gross margins will miss the opportunity. Managers who innovate and focus on economic profit will be rewarded.

[6] C.K. Prahalad and K. Lieberthal, The end of corporate imperialism, Harvard Business Review, July-Auguist, 1998.

Table 1

	Profitable Growth and Tier # 2 and # 3 markets[7]		
	Nirma	**HLL (Wheel)**	**HLL (High end)**
Total sales ($ Million)	**150**	**100**	**180**
GrossMargin %	**18**	**18**	**25**
ROCE %	**121**	**93**	**22**

Today, Nirma is the largest branded detergent maker in the world. Experience at the bottom of the income pyramid has allowed HLL to radically change its business models across the board. During the past five years HLL has registered a 20% growth in revenues per year, and a 25% growth in profits per year. The market capitalization has grown to $12 billion US--a 40% per year growth rate[8]. Unilever plc has also benefited from HLL's experience in India. It transported the business principles (not the product or the brand) to create a new detergent market among the poor in Brazil. The detergent brand Ala has been a runaway success in Brazil. Even more importantly, Unilever has adopted the bottom of the pyramid as a strategic priority at the corporate level.

As the above example makes clear, innovation is an imperative to capturing the opportunity at the bottom of the pyramid. The starting assumption must be that serving Tier 4 is not about cheap and low quality products. It is about bringing together the best of technology and a global resource base to address local opportunities. It is about innovation within a clearly defined opportunity space—cost, quality, sustainable development, local knowledge and needs, and volume.

Strategies for the Bottom of the Pyramid

The potential of Tiers 3 and 4 cannot be realized without an entrepreneurial orientation among managers that aims to *create entirely new markets.* The real strategic challenge for managers is *to visualize an active market* when what exists is abject poverty. With all due respect to the importance of wetlands, it is like visualizing a theme park where today you see only a swamp. Just like it takes imagination, good engineering and a sound financial plan to create a theme park out of a swamp, it takes imagination and creativity to engineer a market infrastructure out of the unorganized sector.

At a minimum, managers have to focus on the following challenges:

· create mechanisms that shift the poor from unorganized to an organized sector

· transition from barter to transactions primarily mediated by money.

· educate latent consumers to make choices among more sustainable products and services.

· create access to credit on a commercial basis.

· create a low cost, high quality distribution system.

Firms attempting to develop these markets must be assured that they will be able to create loyalty to their products and services through education and reliable service, without excessive government intervention.

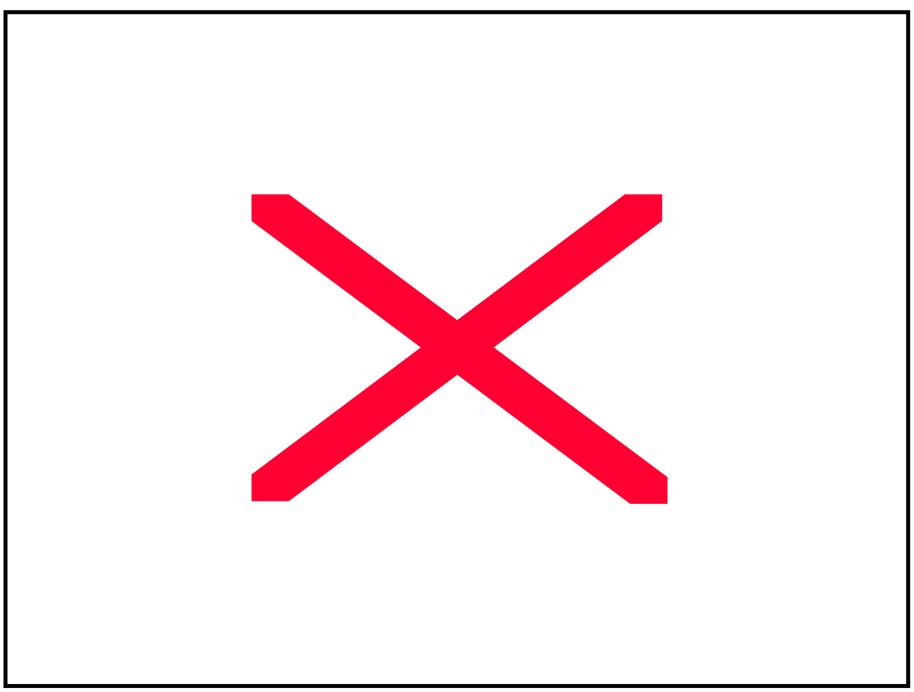
[7] Data taken from a presentation by Mr. John Ripley, Sr. Vice President, Unilever to the Academy of Management meeting, August 10, 1999

[8] A significant part of the growth was from targeted acquisitions. The organic growth of HLL, however, remains very robust

This is not an exercise in serving existing markets better or more efficiently. In order to serve this segment, managers must first develop a commercial infrastructure tailored to the needs and challenges of Tier 4. Creating such an infrastructure must be seen as an investment, much like the more familiar investments in plants, processes, products and R&D. Further, unlike more conventional investment strategies, no firm can do this alone: Multiple players have to be involved – local governmental authorities, non-governmental organizations (NGOs), local communities, financial institutions, infrastructure builders and other firms. The elements of this infrastructure-- creating buying power, shaping aspirations, improving access, and growing healthy markets-- are the keys to opening the Tier 4 market (*Figure 2*). It is important to recognize that all four elements of the model demand innovation– in technology, business models, and management processes. Creating a market out of the world's poor demands new managerial leadership; one that is willing to experiment, collaborate, empower locals, and create new sources of competitive advantage and wealth.

Creating Buying Power

According to the International Labor Organization in Geneva, nearly a billion people (roughly 30% of the world's labor force) are either underemployed or have such menial jobs that they cannot support themselves or their families. Roughly one-fifth of humanity earns less than $1 dollar per day, and fully half of humanity earns less than what is considered the minimum to sustain life ($1,500 PPP per year). *Creating buying power is thus the first priority among the strategies for the bottom of the pyramid.* For corporations, aiding those in Tier 4 to elevate themselves above this "desperation line" is a business opportunity. To break the vicious cycle of poverty, population growth, and environmental degradation, two interventions are crucial—providing access to credit, and increasing the income earning potential of the poor. A few farsighted companies have already begun to blaze this trail—with startlingly positive results.



Commercial credit has historically been unavailable to the very poor. Even where it is possible to access a bank, without collateral it is hard to get credit from the traditional banking system. The experience of the wealthiest nations in the world provides an illustration of the centrality of commercial credit in building a consumer market. It is the access to credit in the USA that allows people to systematically build their equity and to afford products and services at an earlier age (e.g. credit card purchases, mortgages for a house, loans for a car, loans for education).

Developing countries have tried governmental subsidies with little success in freeing the poor to from the cycle of poverty. Local moneylenders often charge such usurious rates that it dramatically increases the chances that the poor will stay poor and in bondage. Even if the poor attempt to be entrepreneurial and start a small business, access to credit from local moneylenders makes it impossible for them to get out the cycle of poverty. For example, it is well known that local moneylenders in Mumbai, India will charge interest rates of up to 20% per day. This means that a vegetable vendor, if he borrows, Rs. 100 in the morning must return Rs. 120 in the evening.

Access to credit as a way of creating consumers out of the poor is not a new concept. Consider the story of how the Singer Sewing Machine Company, during the later part of the 19th century, used access to credit as a way for millions of women to purchase a sewing machine. Very few could have afforded the steep $125 price tag, but most could afford a $5 per month payment. The same logic applies on a much larger scale in Tier 4. It seems clear that access to credit on a commercial basis (as opposed to governmental subsidies) is a critical ingredient in breaking the cycle of poverty. However, commercial credit must deal with the problems of lack of collateral, assessment of credit risk, and the ability to collect interest and principal, and enforce the commercial contract implicit in a credit transaction. How does one do that amongst the world's poorest?

Consider the experience of Grameen Bank in Bangladesh. Lack of collateral has been cited as the reason for financial institutions not lending to the poor. Grameen Bank has substituted local knowledge, peer group evaluation, focus on women, and specific, viable projects as the basis for extending credit and mitigating risks in lending.[9] Grameen lends almost exclusively to women. Five peers certify each project. The sales and service people visit these villages frequently and are very familiar with the village, the women who have taken loans and the projects that they are supposed to invest in. The functions of due diligence of the bank in a Western setting is done but without the mountain of paper work and arcane english.

Started just twenty years ago by a college professor, Mohammed Yunas, Grameen Bank today provides micro credit to more than 3 million poor customers in over 35,000 thousand villages in Bangladesh. In 1996, the bank lent over $1 billion in Bangladesh with an average loan size of $15.[10] Even more impressively, Grameen has achieved a 99% repayment rate, higher than any other bank in the Indian subcontinent and certainly the envy of all credit card issuers around the world. Achieving these results while lending only to the poorest of the poor turns all of the conventional wisdom about banking on its head.

The availability of micro-credit is transforming those villages that have access to it. Availability of credit has jump-started widespread entrepreneurial efforts, created new employment, and raised the overall standard of living at the village level. Indeed, Professor Yunas and the Grameen Bank have set off a global explosion of micro-credit. (Goods from Grameen-sponsored businesses are available on some in-flight shopping catalogs in U.S. airlines). The UN, in conjunction with several major corporations have set a goal of making basic credit available to the 100 million poorest families in the world by the year 2005. The success of this project has spurred innovation in other countries as well.

To help accelerate this process, French Banker Jacques Attali has created PlaNet Finance (www.planetfinance.org). The internet site links thousands of microcredit groups around the world together into a network to help microbanks share solutions and lower costs. Ultimately, it

[9] See the following book for a detailed description of the micro-credit revolution initiated by Grameen Bank: A. Counts, *Give Us Credit*, New York: Times Books, 1996.

[10] To put this in perspective, banks typically spend about $100 for acquiring a single credit card customer with little hope of retention.

should be possible to develop an automated solution for tracking and processing the millions of small loans associated with micro-lending. If processing and transcation costs can be reduced enough, they can then be bundled together and sold on a commercial basis to large financial institutions such as Citibank. This would greatly expand the capital available for micro-lending beyond the current pool from donors and governments.[11]

Indeed, the logical extension of micro lending is micro banking. Standard Bank in South Africa has developed a very successful, low-cost business model for banking the poor. Through the use of ATMs and electronic transfer of funds, Standard Bank now serves nearly 3 million low-income customers through its AutoBank E service, and is adding roughly 50,000 customers per month. The unbanked can open an account with a deposit as little as $8. Customers are issued a cashpoint card and shown how to use it by staff who speak a variety of African dialects. A flat fee is charged for each ATM transaction. An interest-bearing "savings purse" is attached to every account, which encourages poor customers to save. Interest rates on deposits are low, but superior to keeping cash in a jar. Computerization makes it possible to lend money to people with no collateral and no formal address. Since there is no back office and little paperwork, AutoBank's costs are 30-40% lower than at traditional branches.

Citibank is also experimenting with 7 day 24 hour services to customers with as little as a $25 deposit in Bangalore, India. The initial results are very positive. Citibank will make a profit at that level of deposit. The micro-credit revolution has also spread to the developed world, and even the US. For example, Shore Bank, on Chicago's troubled south side, is modeled after the Grameen Bank. Hillary Clinton and the Clinton administration are also promoting the idea of micro-credit as a means of solving the problems of the inner cities.

These initiatives provide pointers to the viability of building an infrastructure of banking and access to credit among the poorest of the world. Credit offers the possibility of breaking the cycle of poverty by opening the prospect of income generation through productive employment or new micro-enterprise development. Access to commercial credit must, like freedom, become a birthright, and there is money to be made in the process.

Shaping Aspirations

Because the poor of the world have access to TV, they may get a distorted view of the developed world. Watching reruns of "lifestyles of the rich and famous" or "I Love Lucy" does not give a realistic view of the developed world; much less what is feasible at the bottom of the pyramid if price-performance and sustainable development are key considerations. Given the immense size of the Tier 4 market, it will not be physically possible to duplicate North American life styles at the bottom of the pyramid: 6 billion people consuming at the level of the typical American would require roughly three planet Earths to support the material use, energy expenditure, and waste production.[12] It is imperative, therefore, that consumer aspirations in Tier 4 be shaped toward products and services consistent with sustainable development. These innovations may ultimately reshape the way Americans and others in Tier 1 live.

Sustainable development will force changes in every conceivable dimension–efficient use of materials, recycling and reduction in the use of natural resources such as water and energy. For example, water in the developing world is a critical resource. Whether it is for laundry, personal cleanliness or cooking, water use is assumed. Just to illustrate the point, an average US citizen uses 4000 liters of water/day. The national goal, in India is 40 liters per day per person. This gives a new dimensionality to the problem of sustainable development. It is not about marginal

[11] T. Friedman, *The Lexus and the Olive Tree*, op cit, p. 210.
[12] See M. Wackernagel and W. Rees, *Our Ecological Footprint*, Philadelphia: New Society Publishers, 1996.

changes to a Western way of life. It is inventing a fundamentally new way of delivering functionalities–cleanliness, sanitation and cooking--with a quantum reduction in water use.

As there is hardly any modern technical infrastructure to serve Tier 4, the opportunity exists to "leapfrog" directly to more sustainable products rather than repeating the environmental mistakes made in the developed world. In this sense, the bottom of the pyramid offers the early experimental markets needed to develop and perfect new, sustainable technologies.

One of the major impediments to the development of a fresh food system, for example, in countries such as India is the lack of practical refrigeration. Refrigeration systems are expensive and even when they are deployed; the energy consumption requirements are very high. In India, HLL developed in their laboratories, a radically different approach to refrigeration that allows them to transport perishable goods across the country in standard trucks (not refrigerated). The system is built on a simple but revolutionary idea–that if one can create a "heat shield" rather than a "heat sink" (the common technology solution in the rest of the world) there could be quantum reductions in electricity use as well as eliminating exposure to dangerous or polluting refrigerants. As an added bonus, the new system is cheaper to build and use. This technology, initiated originally for use with ice cream, could be used for other food items that need refrigeration.

Consider also the example of the Solar Electric Light Fund (SELF). Two billion people on the planet remain without access to electricity. They continue to burn kerosene, candles, wood, and dung which are dangerous, polluting, and unhealthy. Since most of these people are located in remote rural areas of the developing world, it is unlikely that grids will be extended any time soon to bring them electrical service. Even if this were possible, the giant increases in green house gas emissions and other pollutants associated with fossil fuel-based power make such extensions potentially devastating to the environment. To achieve a sustainable form of rural electrification, SELF created a fundamentally different model premised upon small-scale, on-site power generation using renewable energy sources. Acting as a catalyst, SELF brokers the purchase, installation, and operation of household-scale solar photovoltaic units among the rural poor. Through a revolving loan fund, rural villagers are provided with the financial means to own and operate their own electrical systems, which both creates employment, and reduces villager's dependence on costly kerosene, candles, and other polluting sources of light and energy. Since its founding in 1990, SELF has launched projects in China, India, Sri Lanka, Nepal, Vietnam, Indonesia, Brazil, Uganda, Tanzania, South Africa, and the Solomon Islands.

The success of SELF and other NGOs focused on small-scale, distributed solutions has opened the door to vast new business opportunities. Companies like Ballard (fuel cells) and Honeywell (microturbines), now recognize the business potential in Tier 4. Rather than trying to force their technology prematurely into developed world applications where incumbents and institutions stand in their way, they have begun to exploit the opportunity presented at the bottom. Early experience makes it is clear that a different business model is required—one that includes a microcredit financing component, and adaptation of the technology to enable use of biofuels produced locally from crop residue, dung, wood, and other forms of organic waste. However, with 2-3 billion potential customers, investments in such innovations should be well worth it.

A similar business logic applies to the provision of potable water at the bottom of the pyramid.. In Tier 4, more than 1 million children die each month from disease spread by contaminated water. Unfortunately, centralized water treatment facilities are prohibitively expensive in most poor, rural areas. Dr. Ashok Gadgil's Ultra-Violet Waterworks (UVW) technology, however, purifies disease-contaminated water on an affordable, small-scale basis. One solar-powered UVW can serve over 2,000 villagers, ensuring clean water year-round at a cost of about 10 cents per villager per year. UVW uses 6,000 times less energy than boiling. As a result, under the Kyoto Climate Change Convention, the entire cost of the system might be paid by selling carbon-offset credits (the difference between the carbon dioxide emitted using conventional boiling versus UVW). A company, Waterhealth International, has now been formed to finance and distribute this technology throughout the developing world.

Tier 4 can act as the incubator for the sustainable technologies of the future. In 20 years, we may look back to see that Tier 4 provided the early market pull for the disruptive, new technologies which only later penetrated and replaced the unsustainable technologies in the developed markets of the world.

Improving Access

Isolation is one of the biggest barriers to Tier 4 development. Often located far from major metropolitan areas (or in the worst sections of mega cities), Tier 4 remains largely disconnected from and ignorant to the challenges and opportunities at the bottom.

Improving both distribution systems and communication links is key to the strategy for the bottom of the pyramid.

One of the major impediments to creating a market at the bottom of the pyramid is access. Existing distribution systems mostly cater to urban areas and Tier 1 and 2 consumers and seldom reach the rural poor. Few large emerging countries can boast of a developed distribution system that can access more than half of the population (Hence the continued dependence of the bottom of the pyramid consumers on local products and services and local money lenders). For example, in India, the distribution systems for consumer products are considered well developed. Even there, organized distribution systems reach only small towns of 5,000 or more people. It is estimated that at least 20% of the population is not effectively linked to the national and regional distribution systems of the firms in the organized sector.[13] This figure is considerably higher in other developing countries.

Few businesses design their distribution to cater to the needs of poor, rural customers. However, there are opportunities for creative companies to orient their distribution toward this unserved market. In India, for example, Arvind Mills has created an entirely new value-delivery system for blue jeans.[14] As the world's fifth largest denim manufacturer, Arvind found Indian domestic denim sales limited because at $40-60 a pair, jeans were neither affordable to the masses, nor widely available, since the existing distribution system reached only a few rural towns and villages. In direct response to this problem, Arvind introduced "Ruf and Tuf" jeans--a ready-to-make kit of jeans components (denim, zipper, rivets, patch) priced at about $6. It was distributed through a network of 4,000 tailors, many in small rural towns and villages, whose self-interest motivated them to market the kits extensively. Ruf and Tuf jeans are now the largest selling jeans in India, by far, easily surpassing Levi's and other brand names from the U.S. and Europe.

Effective distribution systems must not only facilitate the flow of products into Tier 4, but also build the competitiveness of Tier 4-based enterprises in developed markets. Harnessing local capabilities at the bottom of the pyramid can help link the poor to the rest of the world and generate the income necessary to become active participants in the market economy. Indeed, it is possible to leverage traditional knowledge bases to produce more sustainable, and in some cases, superior products for consumption by Tier 1 customer. Anita Roddick demonstrated the potential power of this strategy in the early 1990s through the Body Shop's "trade-not-aid" program of sourcing local raw material and products from indigenous people for use in company

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[13] The estimate of distribution coverage for India is based upon data from NCAER studies.
[14] M. Baghai, S. Coley, D. White, C. Conn, and R. McLean, "Staircases to growth," *McKinsey Quarterly*, 1996, 4: 39-61.

products. More recently, World2Market.com, the internet start-up company based in Seattle, has seized upon this opportunity as the basis for its business strategy.

Establishing distribution and access both to and from Tier 4 is a key aspect of the strategy for the bottom of the pyramid. An important part of this access has to do with communication: Information poverty may be the single biggest roadblock to sustainable development. Yet, as hard as it may be to believe, more than half of humanity has yet to make its first phone call. By establishing communication links, however, it is possible to leverage learning and generate extensive new economic activity in Tier 4.

Ten years ago, motivated by this vision, Dr. Sam Pitroda started the idea of "rural telephones" in India. He realized that India might not, in the very near future, be able to provide a telephone to every person, but it could provide a telephone to every village. The concept was to have a community telephone, operated by an entrepreneur who charged a fee for the use of the telephone. She kept a percentage of the fee as wages for her services in maintaining the telephone and making it available (Most of the entrepreneurs were women). The concept caught on. Today, from most parts of India, it is possible to call anyone in the world. Entrepreneurs have added a fax to the telephone service and some are experimenting with e-mail and cheap Internet access. These communications links have dramatically altered the way the village works and how it is connected to the rest of the country.[15] And with the likely emergence of global broadband interconnection in the coming decade, the opportunities for information-based business in Tier 4 will explode.

Accordingly, Hewlett Packard has articulated a vision of "Global e-inclusion" with a focus on providing technology, products and services appropriate to the needs of people at the bottom of the pyramid. As part of this strategy, HP recently announced a strategic cooperation agreement with the Foundation for Sustainable Development of Costa Rica—led by former President Jose Maria Figueres Olsen—to develop and implement telecenters for villages in remote areas of the world. These digital town centers provide modern information technology equipment with a high-speed Internet connection at a price that is affordable, through credit vehicles, at the village scale. Bringing such technology to rural villages in Tier 4 makes possible a number of applications, all of which help to spur microenterprise and economic development, including teleeducation, telemedicine, micro-banking, agricultural extension, environmental monitoring, communications, and access to world markets. This project, named LINCOS, is expected to spread from today's pilot sites in Central America and the Carribean to Asia, Africa, and Central Europe.

By building distribution and communication capability at the bottom of the pyramid, it is possible, for the first time in history, to image a single, interconnected market uniting the world's rich and poor in the quest for a truly sustainable form of economic development. And in the process, the "digital divide" can be transformed into a "digital dividend."

Growing Healthy Markets

By the late 1990s, the combined sales of the world's top 200 MNCs equaled nearly 30% of total world gross domestic product. Yet, at the same time, these same corporations employed fewer than 1% of the world's labor force. Of the world's 100 largest economies, fifty-one are economies internal to corporations. Yet, scores of third world countries have suffered absolute economic stagnation or decline. Over the past decade, growth in the value of financial assets has more than doubled that of actual economic output. Yet, only a tiny fraction of the world

[15] S. Pitroda, "Development, democracy, and the village telephone," *Harvard Business Review*, November-December, 1993.

population participates in the financial markets, and the gap between rich and poor continues to widen.[16]
These trends are not sustainable. If multinational corporations are to thrive in the 21st century, they must seek to generate a broader base of economic activity that is more widely shared than has been the practice in the past. Using developing country locations to produce "global products" for consumption primarily by Tier 1 consumers must give way to a more inclusive strategy aimed also at those at the bottom. This means taking actions, which nurture local markets and cultures, leverage local solutions, and generate wealth at the lowest points on the pyramid. Producing, rather than extracting wealth will be the guiding principle. Key to achieving this end will be tailoring product development to meet local needs and building businesses from the bottom up.

For companies to succeed in the Tier 4 market, they will need to create technologies, products, and packaging forms that are uniquely tailored to the conditions of those at the bottom of the pyramid. In tailoring for the bottom of the pyramid, MNCs must use a creative combination of advanced technology and deep local insights. For example, Tier 4 consumers make a clear choice between "investment in inventory" and the financial necessity of more frequent shopping. In the affluent markets, consumers are willing and able to buy big packages of consumables (e.g. 10 kg of detergents from Sams Club such that they need not shop frequently). They inventory products. Tier 4 consumers, on the other hand, are strapped for cash and unwilling to commit to any one brand. As a result, consumers are looking for "single serve" packages.

Already in India, 30% of personal care and other consumables such as shampoo, tea, and cold medicines are sold in single serve packages. Most single serve packages are priced at Rs. 1 (equivalent of about a cent). Without innovation in packaging, however, this trend could result in a mountain of solid waste. Sustainable technology must, therefore, be an integral part of the product development process for Tier 4. Consistent with this aim, DuPont has recently committed to a strategy of "sustainable growth," defined as creating societal and shareholder value while decreasing environmental "footprint" along the entire value chain, worldwide. As part of this process, DuPont now evaluates technologies and products based upon their ability to serve the needs of all people in the world, not just Tier 1 consumers.

But effective strategies for the bottom of the pyramid cannot be realized without active engagement of people at the local level. *Strategies for the bottom of the pyramid must be built from the bottom up*. Tier 1-led efforts to "solve" the problems of the poor have generally met with failure. After repeated attempts to impose technological solutions on the bottom of the pyramid from Washington or New York, it is becoming increasingly clear that knowledge and practices rooted in local conditions are critical to sustainable development at the bottom of the pyramid. Creativity in effectively marrying decentralized local capabilities with global "best practices" within the total value chain is more likely to succeed. It follows, then that local solutions are a critical part of developing an effective basis for serving Tier 4 markets. To be effective, strategies *for* the bottom must originate *from* the bottom of the pyramid.

For example, the Khira District Milk Cooperative, started in 1946 in the state of Gujerat, India under the leadership of Dr. Kurien, has become a national phenomenon. Twenty years ago, milk was in short supply in India. Today, India has emerged as the largest producer of milk in the world. That transformation has many lessons for MNCs aspiring to serve the bottom of the pyramid. Unlike the dairy farms of the west, milk originates in highly decentralized villages. Villagers may own two to three buffaloes each and they bring the milk twice a day to the village collection centers. They are paid everyday for the milk they bring in, based on fat content and volume. Refrigerated vans transport the milk to central processing plants where the milk is

[16] For details, see D. Korten, op cit, and P. Hawken, A. Lovins, and H. Lovins, *Natural Capitalism*, New York: Little, Brown and Company, 1999.

pasteurized. Railroad cars transport the milk to major urban centers. Milk is also processed into milk powder and cheese. Amul, the brand name of the cooperative, is today one of the best recognized in the country.

The Khira district farmers are members of a cooperative. The cooperative provides services to the farmers such a veterinary care and cattle feed. The entire value chain is carefully managed– starting from the village based milk production to the world scale processing facilities. The distribution of pasteurized milk, milk powder, baby food and other by-products is managed like any other MNC in India. The uniqueness of Amul cooperative is in the blending of decentralized origination with the efficiencies of a modern processing and distribution infrastructure. As a result, villagers are able to earn a steady income. The milk cooperative has changed their lives; it has transformed marginal farmers into active market participants. This cooperative system now claims 6.1 million individual small-scale farmers, 57,000 village level cooperatives, 172 milk producer unions, and 22 state level federations. Milk production has increased 4.7% per year since 1974. Sixty percent of the beneficiaries are marginal farmers. Per capita milk consumption in India has almost doubled from 107 grams/person to 193 grams/person in twenty years.[17]

Strategists must recognize the need to create new business models that are not too disruptive of the cultures and life styles of people. Amul and other such experiments demonstrate that what is needed is not a replication of the Western system, but an effective combination of local and global knowledge.

Putting it All Together

It should be obvious that the four elements of the commercial infrastructure for the bottom of the pyramid are interlinked. Innovation in one element leverages innovation in others. It should also be clear that corporations are but one of the actors needed to develop this infrastructure. We have seen how critically important NGOs, local and state governments, and communities are to the development process. Yet someone must take the lead to make this revolution happen. The question is, why should MNCs take the lead?

Why Multinational Corporations ?

Even readers who are sympathetic to the argument so far are likely to wonder why MNCs should concern themselves with this market segment. Even if multinational managers are emotionally persuaded, it is not obvious that they have real advantages over locally oriented, small organizations. MNCs may never be able to beat the cost or responsiveness of local village entrepreneurs. Yet, there are several compelling reasons for MNCs to embark on this course:

- **Resources**. Building a complex commercial infrastructure for the bottom of the pyramid is a resource and management intensive task. Developing products and services that are environmentally sustainable requires significant research. Distribution channels and communication networks are expensive to develop and sustain. *Few local entrepreneurs have the managerial or technological resources to create this infrastructure.*

- **Leverage**. MNCs are able to transfer knowledge generated from one market, say China, to Brazil or India, as Avon, Unilever, Citigroup and others have demonstrated. While practices and products have to be customized and adapted to serve local needs, *MNCs have an advantage in bringing together a global knowledge base that is unique and not easily accessible to local entrepreneurs.*

- **Bridging**. MNCs can act as nodes in building the commercial infrastructure-- providing access to knowledge, managerial imagination, and financial resources.

[17] Precis: World Bank Operations Evaluation Department, summer 1998, Number 168.

Without MNCs as catalysts, well-intentioned NGOs, communities, local governments, and even multi-lateral development agencies will continue to flounder in their attempts to bring development to the bottom. *MNCs are best positioned to bring together the range of actors required to develop the Tier 4 market.*

- **Transfer**. Not only can MNCs leverage learning at the bottom, but they also have the capacity to transfer innovations from Tier 4 to the up-markets of Tiers 1-3. As we have seen, the bottom of the pyramid is a test bed for more sustainable ways of living; *there is every reason to believe that many of the innovations from the bottom can be adapted for use in the resource- and energy-intensive markets of the developed world.*

Before MNCs can access this segment, however, it is imperative that managers recognize the nature of leadership that is required to play in this arena. Creativity, imagination, tolerance for ambiguity, stamina, passion, empathy, and courage may be as important as analytical skill, intelligence, and knowledge. Leaders need a deep understanding of the complexities and subtleties of sustainable development in the context of Tier 4. Yet, in addition to an understanding of local needs and conditions, a global network is also crucial. Finally, leaders must have the interpersonal and intercultural skills to work with a wide range of organizations and people. Let us now examine how this may be done.

Building the MNC Infrastructure to Serve the Bottom of the Pyramid

Just as we outlined the need to create a commercial infrastructure before an MNC can access the Tier 4 market, MNCs have to build an *organizational* infrastructure before they are ready for managing this opportunity. The critical organizational infrastructure needs are to build a local base of support, reorient R&D toward both global and local issues, form new alliances, increase labor intensity, and reinvent cost structures. As with the elements of the commercial infrastructure, these five elements are clearly interrelated and mutually reinforcing.

Build Local Base of Support. Poverty is, in most places, a constituency.[18] Creating a consumer base out of the poor threatens the existing power structure. Local opposition can emerge very quickly, as Cargill found in their sunflower seed business in India. Cargill's offices were twice burned and the local politicians accused the firm of destroying locally-based seed businesses. But Cargill persisted. Investments in farmer education, training, and supply of farm inputs to optimize crop yields have led to dramatic improvements. Farmers have improved their productivity per acre of land by over 50%. Cargill is today seen as the friend of the farmer. Political opposition has totally vanished. These problems of entrenched local power are not just reserved for MNCs. When Dr. Kurien, of Amul fame tried to enter the oil seed business, the preferred commodity for speculators and petty traders, he found the same opposition.

To overcome these problems, MNCs must build a local base of political support. This should not come as a surprise to anyone who has worked in the emerging markets of Tiers 2-3. As Enron, Monsanto, or GE can attest, it is essential to establish a coalition that allows them to counter the entrenched local interests. The same process is necessary, albeit in a more decentralized and less visible way, at the bottom of the pyramid.

Forming such a coalition of NGOs, community leaders, and local authorities can be a very slow process. Each player has his own agenda; MNCs have to understand these agendas and create among them a common aspiration. In China, this problem is less onerous as the local bureaucrats are also the local entrepreneurs. The alignment of roles is such that they can easily see the benefits to their enterprise and their village, town or province. In countries such as India and Brazil, such alignment does not exist. A significant amount of discussion, sharing of information,

[18] See, for example, P. Sainath, *Everybody Loves a Good Drought*, New York: Penguin Books, 1996, and R. Klitgaard, *Tropical Gangsters*, New York: Basic Books, 1990.

delineating benefits to each constituency and sensitivity to local debates is necessary. Managers must learn to respect the political process and recognize that creating a market-based society results in a significant shift in the balance of power.

Conduct Global and Local R&D. Research and development must be reconfigured to focus on both global and local concerns. Global research focuses on major issues that all consumers face. For example, biodegradable-packaging materials is a critical aspect of sustainable development. Dow Chemical and Cargill are experimenting with an organic plastic that would be totally biodegradable. Packaging that could be easily and quickly returned to the soil would revolutionize markets at all four tiers of the World Pyramid. Another universal problem is aging. Research on aging processes is critical for both the top and the bottom of the pyramid. MNCs are accustomed to setting global research agendas. The only adaptation required is to select areas with the potential to affect all 6 billion in the world rather than just the few in Tier 1.

Local research has three distinct aspects. First, local research must focus on the unique, basic needs of those at the bottom of the pyramid in a particular region or country. In India, China, or North Africa, for example, research on water use–drinking, cooking, washing, cleaning, grooming--is a high priority. Second, local research must seek to adapt solutions from other markets and other applications to local needs. For example, a daily dosage of vitamins can be added to a wide variety of food and beverage products that most consumers use. For pharmaceutical companies such as Abbott, with a significant nutritionals business, the bottom of the pyramid offers a vast untapped market for such nutritional products.

Finally, local research must examine local practices to identify useful principles and potential applications. In Tier 4, there is significant knowledge that is transmitted orally across generations. Being respectful of traditions but willing to examine them scientifically can lead to new knowledge. Acupuncture was laughed at fifteen years ago. Meditation was dismissed as a fad. Body Shop's creative CEO, Anita Roddick has built a business based on understanding the basis for local rituals and practices. For example, she observed that women in Africa use slices of pineapple to cleanse their skin. On the surface, this practice appears to be a meaningless ritual. However, research shows that there are active ingredients in pineapple that clear away dead skin cells better than chemical formulations.

One of the major organizational implications of this approach is that MNCs must develop major research facilities in emerging markets such as China, India, Brazil, Mexico, and Africa. Further, the research agenda must be adjusted to include the needs of the bottom of the pyramid consumers. Few MNCs have made a big effort in this direction so far. One exception is Unilever which has built a highly regarded 500 person research center in India to focus on the needs of the middle and bottom of the pyramid.

Form New Alliances. Since no firm can create the commercial infrastructure at the bottom of the pyramid alone, alliances are a crucial element of the MNC infrastructure. The alliances required to tap the Tier 4 market, however, will be quite different from the market access-oriented joint ventures required by host governments to secure access to Tiers 2-3. By entering into alliances in Tier 4, MNCs gain insight into developing countries' culture and local knowledge. At the same time, MNCs improve their own credibility. They may also secure preferred or exclusive access to a market or raw material.

We foresee relationships of three kinds as being particularly important: 1. alliances with local firms and cooperatives (e.g. Khira District Milk Cooperative); 2. alliances with local and international NGOs (e.g. BP's recent alliance with the Environmental Defense Fund to develop a worldwide strategy for lowering greenhouse gas emissions, focusing on offset investments in developing markets); and 3. alliances with governments (e.g. Merck's recent alliance with the government of Costa Rica to foster rainforest preservation in exchange for bioprospecting rights). To succeed in such alliances, MNC managers must learn to work with people who may not have the same agenda as they do, and may not have the same educational and economic background that they have. The challenge--and payoff--is how to manage and learn from diversity-- economic, intellectual, racial and linguistic.

Increase Labor Intensity. MNCs are accustomed to thinking in terms of capital intensity and labor productivity, given their experience base in Tier 1 markets. Exactly the opposite logic applies in Tier 4. Given the vast number of people at the bottom of the pyramid, the production and distribution approach must provide jobs for many, as in the case of Ruf and Tuf jeans from Arvind Mills: Even though the cost of the jeans was 80% below that of Levis, the strategy still employed an army of local tailors as stockers, promoters, distribution channels, and service providers all rolled in one. As Arvind demonstrates, MNCs need not employ large numbers of people directly on their payroll, but the organizational model in Tier 4 must have the twin objectives of increasing labor intensity (and incomes) among the poor and grooming them as new customers.

Reinvent Cost Structures. It is obvious that in order to serve the Tier 4 segment, managers must dramatically reduce cost levels relative to those in Tier 1. Creating products and services that the poor can afford requires that MNCs reduce their costs by orders of magnitude, say to 10% of what they are today. This would appear to be a big stretch. Such cost levels cannot be achieved by fine-tuning the current approaches to product development, production, and logistics. There is a need for a fundamental rethinking of the entire process with a *focus on functionality and not on the current product and process forms.* For example, financial services need not be distributed only through branch offices (which require extensive brick and mortar investment) between 9:00am and 5:00pm. Instead, such services can be provided at a time and place convenient to the poor consumer--after 8:00pm and at their home. Why not borrow a lesson from Amway, Tupperware, Mary Kay cosmetics or Avon? Cash dispensing machines can be placed in safe areas--police stations and post offices. Iris recognition (a fool proof security device) could substitute for the tedious 7-digit number and card for identification. Once convinced of its utility, iris recognition can bring customers who might otherwise be intimidated by the current identification system.

Cost structure reinvention also forces a debate on creative ways to reduce investment intensity. Such a focus should inevitably lead to an information technology (IT)-based production and distribution system. As discussed previously, village-based phones are already transforming the pattern of communications throughout the developing world. Add to this the Internet, and we have a whole new way of communicating and creating economic development in poor, rural areas. Internet kiosks are spreading all around the urban and rural areas in the southern part of India. Consumers and producers could become connected in fundamentally new ways in the emerging Tier 4 markets--and more quickly than any of us can envision at this time. Creative use of IT will emerge in these markets as a means to dramatically lower the costs associated with access, distribution, and credit management.

Managers must recognize that cost structures reflect prevailing management systems. These systems have evolved over time, primarily in a Tier 1 context, and will persist unless consciously forced out. They are not cast in stone. For example, the reengineering revolution in the US has significantly improved efficiencies and cut costs. Better customer satisfaction, quicker service, and lower costs-- the Dell model--may have important lessons for management in Tier 4 markets. Many questions concerning the value chain need to be asked before entering the bottom of the pyramid: Should operations be more decentralized? Is an IT backbone an essential prerequisite to competing? What should be the mix of local and expatriate talent? Organizational innovation will be critical to reinventing cost structures.

In short, the bottom of the pyramid will challenge the internal working assumptions--often implicit-- of the MNC. Managers who start on this journey will discover that it liberates them from assumptions about how to manage a large firm. They will also find new sources of advantage that may be transferred to Tiers 1-3.

Creating Sustainable Development: An Agenda

The emergence of the 4 billion people whom we have called the Tier 4 market is a great opportunity for MNCs. It is also a tremendous chance for business, government, and civil society to join together in common cause. Indeed, we believe that pursuing strategies for the bottom of the pyramid dissolves the conflict between proponents of free trade and global capitalism and the one hand, and environmental and social sustainability on the other.

Yet, this potential market cannot be accessed with the products and services currently offered to Tier 1 consumers, and will require fundamentally different approaches than those even in Tiers 2-3. Innovations in technology, credit, cost, and distribution are critical prerequisites. Only large firms with global reach have the technological, managerial, and financial resources to crack open the “well of innovations” needed to profit from this opportunity.

The Tier 4 opportunity is not restricted to businesses serving “basic needs” such as food, textiles, and housing. On the contrary, the bottom of the pyramid represents a massive opportunity for “high-tech” businesses such as financial services, cellular phones, and low-end computers. In fact, for many emerging, disruptive technologies (e.g. fuel cells, wind energy, photovoltaics, satellite-based telecommunications), the bottom of the pyramid may prove to be the most attractive early market.

So far, three kinds of organizations have led the way: local firms such as Amul and Grameen Bank, NGOs such as the World Resources Institute, Solar Electric Light Fund, and Conservation International, and a few MNCs such as DuPont, HP, Unilever and Citibank. We have only begun to scratch the surface of what is the biggest potential market opportunity in the history of commerce. To fully capture this opportunity, however, those at the bottom of the pyramid must become active market participants. Opening Tier 4 means narrowing the global gap between rich and poor; it means lifting billions of people out of poverty and desperation; and it means averting the social decay, political chaos, and environmental meltdown that is almost certain to occur in the absence of Tier 4 market development. In a very real sense, those who commit their companies to strategies for the bottom of the pyramid are creating sustainable development.