

# RAGHUNATH MASHELKAR

**Dr. R.A. Mashelkar, FRS, is the National Research Professor at CSIR-National Chemical Laboratory, the President of Global Research Alliance and Chairman of National Innovation Foundation. He has also been the President of Indian National Science Academy and Director General of Council of Scientific Research.**

## **Saving Humanity : More from Less for More People**

### **Global Challenge: Inequality of Access**

This essay is based on a basic premise that one of the ways of saving humanity with even rising societal inequalities is to create the magic of ‘access equality despite income inequality’.

The “Base of the Economic Pyramid” comprises 2.6 billion people worldwide -- a majority of whom live in Asia and Africa - subsisting on less than US \$ 2 a day (PPP). Everyone needs access to essential services, be they education, health, financial services, communication and so on. Then only can one achieve the basic level of human empowerment. Then only can one participate in economic development productively. Presently BoP members are not just excluded from the benefits of economic growth, but also from the ability to contribute to it.

As emerging economies continue to design special policies and programs that focus directly on the needs of the economically excluded, they cannot simply wait for a “rising tide to lift all boats”. One cannot simply address the income inequality exclusively through standard policy levers like tax and transfer mechanisms, subsidies, welfare and entitlements. An agenda which also facilitates the provision of access to essential goods

and services at affordable prices and increases the purchasing power of the BoP will better enable this segment to participate economically, and will reduce the challenge of income inequality, which can be overcome only in decades.

**We need to achieve three objectives simultaneously and rapidly. First, improving the access to essential services. Second, increasing the purchasing power. And third, also reducing the income inequality.**

We can well begin to achieve these three objectives, if we do something that looks impossible at first sight. And that is to create access equality despite the income inequality. And how can we do that? By using inclusive innovation.

### **Inclusive Innovation**

Inclusive innovation is any innovation that leads to affordable access of quality goods and services creating livelihood opportunities for the excluded population, primarily at the base of the economic pyramid, and on a long term sustainable basis with a significant outreach.

The objective of a truly inclusive type of innovation would not be just to produce low performance, cheap knock-off versions of rich

country technologies so that they can be marketed to poor people. That is getting 'less for less'. Inclusive innovation gets 'more from less'. This will mean that we will have to harness truly sophisticated science or technology or truly creative non-technological innovation to invent, design, produce and distribute reach price-performance envelope that leads to quality goods and services that are affordable for the majority of the people.

### **A Paradigm Shift in the Development Path**

Inclusive innovation forces us to measure opportunity by the ends of innovation—what people actually get to enjoy—as opposed to just an increase in their means. In important ways, this rationale invokes a return to the traditional case for innovation—its ability to produce break-through improvements in the quality of life—alongside the usual objective of competitiveness.

Inclusive innovation essentially expands what even meager incomes can afford. It lays down a parallel track of development for the BoP that relies less on redistribution of gains, and more on the direct expansion of the bundle of goods and services against which we traditionally measure purchasing power—and at an ever-accelerating rate.

## Affordable to `extremely` affordable

True inclusive innovation will create not just affordable but `extremely` affordable goods and services.

- Can we make a Hepatitis-B vaccine priced at US\$20 per dose available at a price that is 40 times less?
- Can we make an artificial foot priced at US\$10,000 available at a price that is 300 times less?
- Can we make a high quality cataract eye surgery available, not at US\$3,000, but at a price that is 100 times less?
- Can we make an ECG machine available, not at US\$10,000 but at a price that is 20 times lower?

Incredible as it may sound, all such `extreme reduction` targets have been met.

The strategy to achieve such goals can be sub-divided into six categories.

**1. Product innovation:** Examples include the Tata Nano, a low-cost car produced in India based on a no-frills strategy, and the ChotuKool low cost refrigerator designed for people in rural India without access to stable electricity and priced at only US\$ 69.

**2. Manufacturing process innovation:** For example, decentralized `inclusive` textile manufacturing in India based on low-energy, non-damaging cotton-to-cloth conversion, providing affordable cloth for the local villagers who create it but at also high enough quality to be exported to Italy, France, Norway, the UK and the US.

**3. Business model innovation:** An example here is M-PESA in Kenya as a simple low-price mobile payment company that has become virtually ubiquitous in the country, but which has been slow to develop successfully elsewhere due to regulatory impediments.

**4. Delivery system innovation:** One example is the Indian low cost Medical Emergency Services, which brings together the discipline of emergency medicine, with the disciplines of call centers, IT and operations research. This has changed the nature of emergency management in India based on a private-public partnership combining the efficiencies of the private sector without losing the benefits of the public sector support.

**5. Workflow innovation:** Examples include Aravind Eye Care in India for low cost cataract surgery in which, instead of increasing the number of surgeons, ways to increase a surgeon's productivity were found by perfecting an assembly line technique of surgery that increased productivity by a factor of ten. This was inspired by McDonalds' espousal of delivering the same quality of products in diverse regions through highly trained staff by an assembly line operation. Another example is

the Narayana Hrudayalaya Cardiac Care Centre, also in India, which provides heart surgery at a much lower price due to business process and workflow innovations, and which has now opened a unit on the Cayman Islands to serve the nearby American market at a fraction of the cost of US-based operations but no loss of quality.

6. **Grassroots innovation:** One example here stems from the identification by India's National Innovation Foundation (NIF), set up in the year 2000, of an innovation for a rural washing machine that can work without electricity because it is pedal driven. The original idea came from a school girl in Kerala who wanted to be able to wash her and her family's clothes whilst also studying. Inspired by this example, the MIT D-Lab in the USA has also created a portable pedal powered washing machine with an estimated prototype price of US\$ 127.

### **Towards an Inclusive Business**

An “inclusive innovation strategy” promotes the sustainable production, dissemination, and absorption of inclusive innovations by connecting excluded populations to a nation's innovation ecosystem. Given the BoP's immense aggregate purchasing power, inclusive business can be a sustainable business for private firms.

Inclusive business provides great opportunities. First, firms can benefit from seeking alternatives to high-cost traditional

innovative processes, which are based on the principle of ‘More from More’. Second, they benefit from innovating over constraint-induced hurdles, rather than avoiding those challenges by lowering product quality or changing the target market. Third, the mindset matters: accomplishing these tasks requires a frugal attitude, which tries to achieve ‘More from Less’.

### **Inclusive Business : New Mindsets**

If inclusive business innovation models have to thrive, and in turn drive accelerated inclusive growth, what kind of leadership qualities will be required?

Conventionally, the business leaders believed in doing well and doing good. That means one made a lot of profits, and then set aside a small fraction of it for some public good. No, we have to shift to another model. And that is ‘doing well by doing good’. That means a fundamental commitment to ‘doing inclusive business’. This requires paradigm shift in thinking and action.

First, inclusive business CEOs must develop a deep commitment to inclusive growth, which will force them to think of unserved customers, be they rural poor, who don't have access to telephones or urban poor, who don't get emergency medical services. Companies often start by asking: “Given that we need to cater to the unserved, what should our cost structure be?”

Second, inclusive business CEOs must have clear vision with a human dimension: for example, helping poor Indians travel safely and affordably with their families; using connectivity to improve people's work and lives; and enabling patients to buy cheap medicines.

Third, inclusive business CEOs must establish ambitious goals and clear time frames for achieving them. Companies should ask: "What is our on-the-moon project?" Or, as they do in India's boardrooms: "What is our Nano project?"

Fourth, inclusive business leaders must force project teams to work within self-imposed boundaries that stem from a deep understanding of consumers. That will result in novel, outside-in view of innovation. The language inside their organisations should be about consumers as people, suppliers as partners, and employees as innovators.

And finally, inclusive business CEOs must continuously ask "What if we change the way we operate to reduce costs and focus on return on capital employed, not just on operating margins? If we reduce prices enough and make our products available to the poor, won't there be explosive growth as they quickly find uses for and buy our offerings?"

## **Global Spread of Inclusive Innovation Paradigm**

India's Mahindra & Mahindra sells small tractors to American hobby farmers, challenging John Deere's market share. China's Haier has undercut Western competitors in a wide range of products, from air conditioners and washing machines to wine coolers. Haier sold a wine cooler for half the price of the industry leader. Within two years, it had grabbed 60% of the American market.

In fact, anticipating this trend, Jeffrey Immelt, the CEO of General Electric recently said 'If we do not come up with innovations in poor countries and take them global, new competitors from the developing world – the Mindray, Suzlon and Goldwind will. That is a bracing prospect.'

GE's Vscan, a portable ultrasound device was developed in China. As against the standard ultrasound machine, costing around \$ 20,000, Vscan costs just \$ 1500! It is now a big hit in rich and poor countries alike. The same is true of what GE healthcare in Bangalore did for electrocardiogram (ECG) machines. Their team created a portable high quality ECG machine for just \$ 600, as against the standard \$ 10,000 machine. This has become a big hit too.

This trend will surely not only continue but accelerate. As west moves from times of 'abundance' to times of 'austerity', as the middle class is squeezed and governments curb spending, affordable access and more so 'affordable excellence' will

become the norm rather than the exception. The recent challenge of refugees and migration in EU has accentuated the problem and importance of securing access equality despite income inequality has become even more urgent because that will be the key to avoid the social disharmony that will ensue otherwise.

## **Finally**

Mahatma Gandhi had two famous tenets: “I would prize every invention of science made for the benefit of all” and “Earth provides enough to satisfy every man’s need but not every man’s greed”. The first tenet referred to affordability. The second tenet referred to sustainability. Both of these are so relevant for solving all the problems that the world is facing today. But with growing aspirations, the resource poor want quality too.

It is clear that inclusive innovation if firmly anchored on the solid foundation of quality, affordability and sustainability, will certainly lead to a design a sustainable future for the mankind and save the humanity.

