

**Singapore Institute of Management
CEO Breakfast Briefing**

***“Change; Friend or Foe?
Shifting Perspectives”***

***What is your reaction to
the major revolutionizing forces
that are drastically changing the world you live in today?***

Wednesday, 24 August 2005

by

Tara Kimbrell Cole
Director

SYNOVATIONS® Pte. Ltd.
CATALYZING Innovative Thought®

128 Tanjong Pagar Road
Singapore 088535
Tel.: 65 6234 4552
Fax.: 65 6466 0326
Email: tkc@synovations.com

The contents are not to be cited or reproduced in any form without prior and explicit written permission of the author. Views expressed herein are entirely those of the author.

Copyright © **SYNOVATIONS® Pte. Ltd.** 2005

***“Change; Friend or Foe?
Shifting Perspectives”***

***What is your reaction to the major revolutionizing forces
that are drastically changing the world you live in today?***

by
Tara Kimbrell Cole
Director

SYNOVATIONS® Pte. Ltd.
CATALYZING Innovative Thought®

I'd like to begin by recounting the story of an experiment was conducted in 2002 at the Tucson Conference on “Toward a Science of Consciousness”, sponsored by the Center for Consciousness Studies at the University of Arizona, USA.² The observers were asked to watch very closely two teams of participants throw a ball back and forth. The observers were told to focus on the team with the white shirts and count closely the number of times the ball was being caught and thrown. Focus on the ball! While they were doing this a man dressed up in a Gorilla costume walked directly through the space in which the two parties were throwing the ball back and forth- directly through the line of sight. What percentage of the observers did NOT see the gorilla?

There are 4 choices. Did 10%, 25%, 50% or 75 % of the observers NOT see the Gorilla?

The answer is 50% of the people watching the ball did not see the Gorilla, and this was at a conference during which all were focused on consciousness!

Why am I telling you this story and what does it have to do with the forces revolutionizing our world?

I'm telling the story because it describes the core challenge that all CEO's face in discovering and realizing opportunities from what appear to be problems and challenges. And that all companies face in building the thinking capacity of their executives and capability to meet competitive threats, to innovate, to extract maximum value from innovation and to resolve complexities and solve problems.

The first point is that If we go through the business day fully focused only on the business as it has been or is 'at hand', we miss opportunities that are out of our focus.. We can only see them by shifting our perspectives. This *is* the way problems get transformed. Seeing a gorilla is the beginning of the process

The Second point is that most humans upon seeing a gorilla have a 'knee jerk' reaction that it must be a dangerous problem. It can't possibly be good. It's a gorilla! Let's *avoid* it. It's the same when we see rapid revolutionary changes emerge.

As leaders we must change the prescription in the lenses of our glasses, so that the opportunity may be grasped. These opportunities can *only* be perceived by shifting our states of awareness and our assumptions through which we experience what we observe.

To underscore this point, consider that in 1977, Ken Olson, the founder of Digital Equipment actually said, quote "There is no reason anyone would want a computer in their home!"

A brief outline: We'll take a jet propelled flight through the Seven Major Revolutions in the world as identified by The Center for Strategic & International Studies (CSIS) in Washington, DC in their studies, "THE SEVEN REVOLUTIONS"ⁱ and "the Seven Futures" in 2001 and 2002 respectively. I'll point out some snapshots from fifty thousand feet of a few specific issues in each revolution, which combined research results from other leading research institutions on the actual state of affairs as of the time of the respective research, such as the Milken Institute in Los Angeles, World Health organization, various United Nations agencies, and various United Kingdom research institutions such as the United Kingdom's Sustain/Elm Farm.

I'll then identify eight sectors of opportunities that can be seen amidst these revolutionizing forces. I'll conclude by identifying some main generic features of new models that have already emerged and that deliver sustainable profitable solutions that build domestic markets and engage more efficient utilization of resources.

First some back ground on this information. The Center for Strategic & International Studies (CSIS) in Washington, DC undertook these two studies to identify and analyze key policy challenges that policymakers, business figures, and other leaders will face out to the year 2025. They took trends tracked over the last twenty years and assuming the same set of circumstances, growth rates, cycles, etc., they projected them forward, a task undertaken by computers. Now while we know that it is probably impossible for projections to be realized one hundred percent, even if twenty-five percent of the projections are accurate, there is much to be considered.

The First Revolution is in the nature and mode of conflictⁱⁱ: over the next twenty-five twenty-five years, the lines between lawlessness, crime, disorder, terrorism and war will become blurred and thus challenge governments.ⁱⁱⁱ

It's interesting to note that pre 9 September 2001, this statement may have appeared extreme despite the fact that terrorists had been setting off major bombs incidents consistently since the 1960s. This is a glaring example of not seeing a gorilla.

One third of the world's population was at war in 2003? ^{iv}. One quarter of those conflicts in recent years have involved struggles over vital natural resources.^v In the Middle East has five percent of the world's population live on one percent of world's water^{vi}. The population has highest growth rate in world followed only by its neighbor in sub-Saharan Africa^{vii}.

There were an estimated three hundred thousand children soldiers fighting in armed conflicts in 2003? ^{viii} There are an estimated twenty seven million people in slavery. Slavery is defined as persons who are the objects of in forced labor or human trafficking and child labor.^{ix}

In the year 2003, by which means did more people die armed conflicts or suicide? ^x Suicide.

Let's speed along to the second revolution-taking place in the world's Population: growth, urbanization, and generation gap.

How many people are there in the world? In 2001 CSIS estimated six point three billion^{xi}, in 2003 the Milken Institute estimated eight point eight billion^{xii}. The average of some projections indicate the population will peak in the next twenty to twenty five years or longer with an additional 2 billion people^{xiii}, and that it will level of there for a while before declining.^{xiv} The United Nations projects that the growth will stabilize in approximately 2100 at eleven billion people.^{xv}

There are eight thousand seven hundred babies are born every hour and at the same time 25,000 children die each week from starvation. It is striking that The population is aging even in developing Countries, despite the AIDS epidemic^{xvi}, starvation and the fact that eighty-two percent of the world's smokers live in developing countries.^{xvii} Fifty Percent of the world's population is under twenty five years of age.^{xviii} Consider this: the number of people over sixty years of age is expected to double by 2050.

The aging of population is the most talked about challenge. This will be the first time in history that there will be more people who are elderly than young. The current working age population will drop by fifty percent.^{xix}

CSIS's projects that eight countries will account for half of the world population in 2050: which ones are they? Bangladesh, China, Democratic Republic of the Congo, Ethiopia India, Nigeria, Pakistan, and the United States of America. The United States will be the only developed country with a technically 'sustainable' population because it will continue to grow through its immigration policy.^{xx}

By 2025, CSIS projects the population of China at one billion four hundred and forty five million, India at 1 billion three hundred and seventy million, Indonesia at two hundred and seventy-two million, and Pakistan at two hundred and fifty million.^{xxi}

Migration to cities is expected to continue. By 2015, there will be an estimated twenty one cities with populations over ten million. Three cities will be well above twenty million. Can you guess which they are? Respectively Tokyo, Dhaka and Mumbai.^{xxii}

Let's Fly on to the Third Revolution; it is taking place in Governance. The challenge is adapting social organizations to the "new challenges the world faces."^{xxiii} Capacity of organizations will be severely tested. Governments will fall behind in responding to the needs of constituents and addressing broader social goals.

An international opinion survey conducted in 2002 for the World Economic Forum by Gallup International and Environics, entitled the "Voice of the People," reflected the views of thirty six thousand citizens in forty seven countries across six continents.^{xxiv} According to the survey groups, their sample is statistically representative of 1.4 billion citizens.^{xxv}

The key question asked was: how much do you trust seventeen kinds of broad-based institutions to "operate in the best interest of society?"

What do you think was on top of the most trusted list?

Armed forces were on the top of the trust list.

This was followed by a distant second, Non-Government Organizations (NGO), which was followed by "education systems," and the fourth was The United Nations.

The institutions that were the most distrusted were the key democratic political institutions: "parliament/congress" across the world. The challenge can really be seen in the responses to the question: "Is your country governed by the will of the people?" Forty-two countries of forty-six said "no."

Can you guess which four said yes? Malaysia, Dominican Republic, Israel, Luxembourg.

After governments which intuitions were the second & third least trusted?

Global corporations and national corporations respectively were least trusted.^{xxvi}

Of the One hundred largest economic entities globally, only fifty eight percent are sovereign nations. Forty-two of the top one hundred economic entities in the world are corporations. In 2002, General Motors was the twenty-fourth largest economic power in the world. Wal-Mart's revenue made it the nineteenth largest

economic entity and placed its revenue far ahead of the Gross National income of SWEDEN.^{xxvii}

How much money was donated to charitable causes across the world in 2002? The answer is two hundred and twelve billion U.S. Dollars.

The United States' corporations accounted for what percentage of the two hundred and twelve billion dollars contributed to causes across the world in 2002? The answer is 4.3 percent or USD nine billion five hundred million. The largest contributors were individuals, making up 75.8 percent of total contributions.^{xxviii}

This information intensifies the concern over the growth of corporations and their role in social responsibility.

In the year 2000, how many international non-government organizations (NGO) were registered with the United Nations? There were thirty-seven thousand NGO's registered.^{xxix} This number has grown since 2000.

It's noteworthy that Non Government Organizations (NGO) have become more and more sophisticated in using technology to integrate with each other and globalize civil society undertakings.^{xxx} CSIS projects their governance roll will increase and their voices grow.^{xxxi} Already by necessity, the lines between the roles of NGOs, Governments and businesses have blurred. There in lie many opportunities.

Let's jet along through the "Fourth Revolution: the Development and Dissemination of Economic Integration", the globalization of cross border goods and services.^{xxxii} Here we see the benefits of integration pitted against global inequities. The benefit is that global output has increased. The size of the global economy in 2002 was forty-seven trillion dollars; this is four times the size it was in 1975. CSIS believes that growth will continue until 2050.

CSIS sees these benefits as equally distributed amount developing and developed countries.^{xxxiii} The UN development program maintains that the developing nations have achieved thirty years of progress that took developed nations one hundred years.^{xxxiv} At the same time, the income gaps and inequities are expected to widen even further in the next twenty years.

In 2002 how many people were living on less than two U.S. Dollars a day? Two billion eight hundred million people.^{xxxv} There are still 2 Billion people in Asia alone without electricity. This juxtaposed against the reality that cell phone penetration in Tanzania is seventy-five percent reflects an enormous anomaly and the opportunity that technology provides.

Due to East Asia's economic growth, the number of people living on less than two U.S. Dollars per day has been falling from more than one billion in 1990 to a projected three hundred and forty million in 2015.

How many people do you think have what we, living in a developed country, perceive of as a 'life'? Perhaps there are nine hundred million, but even if there are a billion persons that means there are 6 billion with lives that look absolutely nothing like what we would consider "a life"!

India and China are the countries with the greatest growth in the middle classes today.^{xxxvi}

Consider the following: The World Watch Institute, in their report, "The State of The World 2004" indicated that almost fifty percent of the one billion seven hundred million persons in the consumer class already live in the developing countries. The consumer class is defined as the population with per capita purchasing power parity greater than seven thousand U.S. Dollars.

Vijay Mahajan, in his book The 86 Per Cent Solution emphasizes how the developed markets are no longer the majority of the world market but are a "shrinking part" of it. Since only fourteen percent of the world's population live in developed markets.

The 'Gorilla' opportunities are in the underserved segments of the developing world. We have historically dismissed them because of their low income levels, our lack of familiarity with life at that level and our discomfort in looking too closely at it. Therefore we looked away, but please, look now, again with different lenses.

ASEAN CEO's are ideally positioned to mine these opportunities, since they are better positioned to understand these markets due to their familiarity with the cultures and customs.

It is noteworthy that more people who don't partake in this developed world 'life' are more and more aware of it and their plight than before. It's an irony that while more people become increasingly dissatisfied, in reality life has indeed gotten better for more people!^{xxxvii} This of course is due to the technological revolution even with the growth of digital divide between the developing and developed countries.

Shifting perspectives: viewed a negative, this is a key factor with respect to geopolitical instability. Viewed as a positive, this is a key factor in looking at a new opportunity business models.

We may all have heard about the wax museum in California, but is there a museum of toilets existing anywhere or somewhere in this world?^{xxxviii} Yes and it is in India.^{xxxix} There are seven hundred million people in India without toilets^{xl}.

Sixty-five percent of people still live without toilets in China.^{xli}

What is the per capita Gross National Product (GNP) in developed countries? Ten thousand U.S. dollars.^{xlii} What is the GNP per capita now in India? Five Hundred U.S. Dollars^{xliii}.

Since 1948, only fifty million people have become part of the developed nation 'world'^{xliv}. Which six countries have moved into the ranks of developed countries? Singapore, Israel, Ireland, Italy, Kuwait, Brunei.^{xlv}

Let's move on to our Next stop at revolution number five, "Resource Management and the Environment."^{xlvi} This breaks out into three sectors.

Number one: FOOD

To feed eight billion people by 2025 the World would have to double food production.

The question is "can food production keep up with the population growth?" Of course, the issue is not just the production but also the distribution. One view is that public attitudes will need to shift to accept new advances in biotechnology. Those holding this view believe that these advances would make a difference. There are counter views that point out the inherent potential risks in bio-tech foods.^{xlvii} We see this debate raging in front of us between the US and Europe. Keep in mind that half of the world's population lives in food deficient countries.^{xlviii}

With regard to gauging how well you know the world you live in, do you think you know what you are eating?

- People in industrialized countries eat between 6-7 kilograms per person of food additives per annum.^{xlix}
- Ninety percent of these are cosmetic.ⁱ
- The world-wide market for these additives is three billion six hundred million U.S. Dollars per annum.ⁱⁱ
- Regulators in the United Kingdom claim that five hundred and forty of these food additives are safe but,
- Campaigners against them claim there are questions about one hundred and fifty of the additives.ⁱⁱⁱ
- New York City has just implemented a regulation that restaurants can not use trans-migratory fats. One of the additives the campaigners are against.

What percentage of the worlds obese people live in developing countries? One Third! What an extraordinary incongruity to the number of people without enough food.^{liii} Does this spur you to wonder if research will one day prove some relationship between the amount of additives one eats and obesity? Do you wonder if the out dated old processed food that is dumped in developing countries may have any impact on the anomalous number of obese people there?

Number Two: WATER

In 2025, the most serious challenge is projected to be the scarcity of water. Populations are growing in the geographic areas of the scarcity and the knock-off effects of poor sanitation, public health, irrigation are profound on geopolitical stability.^{liv} Isn't it amazing that populations appear be able to keep increasing in numbers in the face of these developments.

How many times do you have to flush toilet in a developed country to use the same amount of water as the average person in the developing world uses for an entire day's washing, cleaning, cooking and drinking!^{lv} One.

Fresh water makes up two and a half percent of the earth's total volume of water. Three quarters of the fresh water is frozen in the polar ice caps.^{lvi}

How many people lacked access to safe drinking water in 2003? One billion seven hundred million people.^{lvii} By 2025, this is projected to rise to three billion.^{lviii}

The expansion of deserts and soil erosion puts the livelihoods of one billion people at risk and cost forty-two billion U.S. dollars in lost incomes annually.^{lix} In parts of Africa, they are trying out a compost of benzonite & carbon that enriches the soil and is organic.^{lx} There are certainly many opportunities here.

Number three: Energy's Impact on the Environment

This is perhaps the most publicized issue and from this writers perspective still not publicized enough. The U.S. today uses eighty percent of the car fuel in the world. It produces by far the most green house gases in per capita terms^{lxi}. By 2030, sixty percent of the world's primary energy demand is projected to come from the developing countries^{lxii} and the number of cars will have increased by fifty percent.^{lxiii}

We already have a preview of this in China's guzzling of supplies.

China is the world's second largest polluter. Carbon emissions doubled from 1994 to 2002. This is projected to dramatically increase going forward. China's acid rain poisons one quarter of the Chinese land mass

and ruins crops in Korea and Japan.^{lxiv} The toxic dust from Chinese sandstorms travels to the U.S. National Parks obscuring visibility and raising the mercury levels in fish. This, again exacerbates the food problem.

Consider this; a kiwi flown from New Zealand to the UK emits five times its weight in green house gases.^{lxv} The fuel used in the transportation via plane and truck pumps greenhouse gas into the environment. The pattern of transporting all these foods across the globe appears to be impacting global warming.^{lxvi} This in turn impacts our ability to grow food. Then add to the recipe the fact that any fruit or vegetable's nutritional value is diminished by the distance it travels since as it travels the vitamin and mineral content deteriorate.^{lxvii}

Thus the call in early June from the corporate community by some of the world's major corporation for global sovereign carbon emission trading limits be put in place. This call to the U.S. came from corporate citizens like British Petroleum!

Perhaps when you order or buy that apple from a cold climate, you may wish instead to choose the tropical fruits that are grown locally.

Ten percent of the worlds' "Hot spots" are in reserves. These are places that are responsible for the generating of eighty percent of the world's bio diversity. Environmentalists inform that within the next 9 years, it is essential for sustainability to place twenty percent of the 'hot spot' environments in nature reserves.^{lxviii} Needless to say, all the thrashing and burning and timber deterioration exacerbates this problem.

If you put the amount of paper consumed in one year by the world, end to end, how many times could you go to the moon and back? Seven times.^{lxix}

Let's jet along to the Sixth Revolution: Technological Innovation and Diffusion.^{lxx}

This revolutions is taking place in three sectors: computing, genomics and nanotechnology.

The CSIS study projects that the remarkable speeds of computing and advances in molecular and quantum computing resulting in practical applications will continue^{lxxi}. How many play stations does one need in order to assemble a super computer device capable of a half a trillion operations per second.^{lxxii} Seventy. How much faster are our computers today than in the 1970? 100,000!^{lxxiii}

Computers will become ubiquitous not only in homes, offices, but also on and in our bodies. The digital divide will become greater and greater.^{lxxiv} Consider that in 2003, seventy percent of the world's populations had not yet heard a dial tone!^{lxxv} And today, there is a seventy-five percent penetration rate of cell phones in Tanzania!^{lxxvi}

Genomics is expected to change medicine in three fundamental ways:

1. by producing genetic diagnosis and genetic therapy.^{lxxvii}
2. By 2025 germ-line therapy will give you control over your own heredity.^{lxxviii}
3. By 2025, the study of the body's proteins will give us a new pool for medicines and cures.^{lxxix}

Genomics is changing medicine so drastically that if you have children under ten years of age, the introductions of genomic medicines could help many of them live until one hundred and twenty years of age.^{lxxx}

Nanotechnology will make products lighter, smaller, more efficient than most of us can even imagine. CSIS indicates that if nanotechnology moves from its current technology to the molecular and atomic levels, it could entirely revolutionize material science, chemistry and physics.^{lxxxi}

We now arrive at our final destination, the Seventh Revolution: the Development and Dissemination of Information and of Knowledge. Nicholas Negroponte, the U.S. National Intelligence Director and formerly the head of Massachusetts Institute of Technology's (MIT) noted in 2002 that, quote "a single fiber the size of human hair can deliver every issue of the Wall Street Journal ever made in less than one second", unquote.^{lxxxii}

There are 4 aspects of revolution defined here:

1. Information economy: economists traditionally identified 3 factors of production: land, labor and capital. In the information economy that is developing all of these will be overshadowed by a new core factor: knowledge.^{lxxxiii}
2. Knowledge diffusion: this will be facilitated by cyber universities. CSIS concludes that these universities will continue to increasingly break down national barriers and evolve new communities and cultures. Today there are some 55,000 distance learning courses in 130 countries. International Data Corporation estimated revenue from the e-learning industry would net eleven billion four hundred million U.S. dollars in 2003.^{lxxxiv} At the same time, MIT in 2003 announced that it would begin to put all its courses on the web free of charge.^{lxxxv}
3. Knowledge Gap: because knowledge will become increasingly perishable more and continuous lifelong education will be essential for those who want to succeed and survive. This gap is projected to create greater social and financial inequities.^{lxxxvi} Workers of the future will change jobs six times in their careers.^{lxxxvii}

The UN Development Report indicates that industrialized countries are home to eighty-eight percent of the world's internet users. as of 2002 only one percent of the people in South East Asia used the internet! ^{lxxxviii}

4. Information flows and security: Increased dependence on huge information flows will make us more vulnerable to hacking, identity theft, all types of predatory behavior. ^{lxxxix}

In summary, the seven areas that CSIS^{xc} nominates as being "revolutionized" are:

1. Nature and mode of conflict,
2. Population,
3. Challenges to governance,
4. The development and dissemination of economic integration,
5. Resource management and environmental stewardship,
6. Technological innovation and diffusion,
7. The development and dissemination of information and of knowledge.

While considering them, here are some concluding questions for your reflection.

1. Has your company developed a strategic vision and strategy that address how these revolutions are impacting and will impact your market?
2. Is your company leveraging the revolutionary changes to create a competitive edge?
3. Is your key talent familiar with the specific impact of these revolutions and prepared to engage?

Turning now to eight sectors of business opportunities identified by SYNOVATIONS' research: Each one requires a shift in perspective.

Products & Services:

1. Outsourced by NGOs as they provide a wide array of humanitarian services- the interplay of logistics & suppliers;
2. To meet needs of new life styles resulting from the developments in computing, genomics, nanotechnology;

3. In regional agriculture: natural nutritious food (organic and non-organic); There is growing consciousness between the connection of food and illness.
4. Financing the underserved in the lower sectors of the consumer class and the poor. (The trend will shift again to region agriculture, where the climate will accommodate.)
5. Adapted for under-served markets; although there are limited funds per capita, there are many buyers. (A good example is the use of small solar panels in Mongolia.)^{xci}
6. Existing product formats adapted to sustain within the new environment; (There will be many for we will find ways to survive.)
7. For active life from seventy to one hundred years of age; (We have historically dismissed these years and yet with good health there will be many who will enjoy them.)
8. To support humans in overcrowded conditions. (We *will* adapt and a great example is seen in the usage of hotel rooms in Bombay, which are rented in 8 hour shifts so workers who can not afford a home, can take turns sleeping.)

The new cutting edge profitable business models required a 360% change in perspective and perception by those who developed them. Three focal points on which these new models have been structure have already emerged:

1. The huge scale of the potential numbers of consumers and units of sales.^{xcii}
2. Products sold in smaller units have larger profit margins^{xciii}
3. It is not possible to service this sector in the developing world with products that have a cost structure of the MNCs or industrialized world.

All the business models thus far involved new ways of:

1. Identifying, serving and educating new customers
2. Changing product formats
3. Interfacing with the NGO community
4. Creating completely new delivery and marketing channels.
5. Utilizing technology to make some leap.

While some examples of these types of business models have already appeared in India. One example is ICICI Bank,^{xciv} today second largest Bank in India. ICICI Bank (ICICI) is the leading business model that has made lending to the very poor financially viable for banks.^{xcv} ICICI engages new models of credit evaluation, contract enforcement & builds trust with the poor which converts them into responsible customers and empowers them.^{xcvi}

Micro Finance has historically been defined by a donor led model that is unsustainable.^{xcvii} Micro Finance institutions focus on giving access to credit through a capital intensive system.^{xcviii} ICICI used its creativity to structure a

business model the -in brief – included the aforementioned characteristics among many other elements and the following:

- Increasing rural presence through internet kiosks and low- cost ATMs^{xcix}
- Working with NGO and Self Help Groups so that participants could learn to save first and then borrow responsibly.^c
- Relying on an open architecture and local staff and a locally built C R M product.^{ci}
- The majority of their micro finance customers are women, with whom they have a 99% pay back ratio and three of the Bank’s five executive directors are women.^{cii}

There are many other inspiring sustainable profitable examples that at the same time improve the quality of life for many. And of course there are other types of opportunities such as:

- Opportunities for individuals to make decisions in their personal behavior and practices and to communicate these to others.
- Enormous opportunities for service to our community of human beings

The world is facing problems of greater and a greater complexity. These challenges we can more readily meet If we give up our fixed perspectives and view these complexities with a new set of glasses, opportunities will be found. While I recognize that this may appear easier said than done, we can train ourselves to do this as a matter of practice, so that we develop a habit of shifting for profitable discovery.

SYNOVATIONS assist companies in building their Innovation capital, in developing new business models and delivery channels. In so doing we consult, facilitate and coach executives to maximize their own capabilities in the process.

Thank you

ⁱ “The Seven Revolutions” and “The Seven futures” research studies by Center for Strategic and International Studies, Washington , DC.

ⁱⁱ Ibid

ⁱⁱⁱ “The Seven Revolutions” research studies by Center for Strategic and International Studies, Washington , DC.

^{iv} Project Ploughshares Armed Conflicts Report 2003,
www.ploughshares.ca/CONTENT/ACR/ACR00/ACR03-Preface.html.

^v Worldwatch Institute, *Vital Signs 2003*.

^{vi} ‘water hots Spots’ BC News Outline,
news.bbc.co.uk/1/shared/spl/hi/world/03/world_forum/water/html/default.stm.

^{vii} “The Seven Revolutions” research studies by Center for Strategic and International Studies, Washington , DC.

-
- viii Human Rights Watch, 'Facts about child soldiers', www.hrw.org/campaigns/crp/facts.htm. Coalition to Stop the Use of Child soldiers, Child soldiers global Report, May 2001.
- ix Figures from www.antislavery.org and www.iabolish.org.
- x Center for Disease Control (CDC), 'Suicide in The United States', www.cdc.gov/ncipc/factsheets.suifacts.htm.
- xi "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC.
- xii Announced at the Annual global conference 2004, The Milken Institute, Los Angeles, CA, USA.
- xiii Announced at the Annual global conference 2004, The Milken Institute, Los Angeles, CA, USA.
- xiv "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC. Announced at the Annual global conference 2004, The Milken Institute, Los Angeles, CA, USA.
- xv "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC.
- xvi "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC.
- xvii Worldwatch Institute, Vital Signs 2003.
- xviii "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC.
- xix Ibid.
- xx Ibid.
- xxi "The Seven Futures," research studies by Center for Strategic and International Studies, Washington , DC.
- xxii Ibid.
- xxiii Ibid.
- xxiv Ibid
- xxv Ibid.
- xxvi 'Seven Revolutions FYI', issue 2; November 25, 2002.
- xxvii "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC.
- xxviii Ibid.
- xxix Ibid.
- xxx Ibid.
- xxxi Ibid.
- xxxii Ibid.
- xxxiii Ibid.
- xxxiv Ibid.
- xxxv Ibid.

-
- xxvii Ibid.
- xxviii Ibid.
- xxviii The 86 Percent Solution by Vijay Mahajan and Kamini Banga with Robert Gunther (Wharton School Publishing, U.S.A.2005) Vijay Majahan is marketing professor, John P. Harbin Centennial Chair in Business, McCombs School of Business, The University of Austin, Texas.
- xxix Ibid.
- xl Ibid.
- xli Ibid
- xlii Ibid.
- xliii Ibid
- xliv Vijay Majahan presentation to Wharton Fellows, India 2005. Vijay Majahan is marketing professor, John P. Harbin Centennial Chair in Business, McCombs School of Business, The University of Austin, Texas.
- xlvi Ibid
- xlvi “The Seven Revolutions” research studies by Center for Strategic and International Studies, Washington , DC.
- xlviii *50 Facts That Should Change the World*, by Jessica Williams (Icon Books Ltd., 2004).
- xliv *The Atlas of Food*, Erik Milstone and Tim Lang (London: Earthscan, 2003.) figures have been converted from the imperial figures (between thirteen and fifteen pounds).
50 Facts That Should Change the World, by Jessica Williams (Icon Books Ltd., 2004).
- i *50 Facts That Should Change the World*, by Jessica Williams (Icon Books Ltd., 2004).
- ii *The Atlas of Food*, Erik Milstone and Tim Lang (London: Earthscan, 2003).
- iii *The Atlas of Food,op.cit.* Erik Milstone and Tim Lang (London: Earthscan, 2003).
- iii www.who.int/nut/obs.htm.
- liv “The Seven Revolutions” research studies by Center for Strategic and International Studies, Washington , DC.
- lv Ibid.
- lvi “The Seven Revolutions” research studies by Center for Strategic and International Studies, Washington , DC.
- lvii Ibid.
- lviii Ibid.
- lix Ibid.
- lx
- lxi *They Export Pollution Too*”, by Hannah Beech, *Time Magazine Special Report* , June 27, 2005
- lxii “The Seven Revolutions” research studies by Center for Strategic and International Studies, Washington , DC.
- lxiii Research from Chevron Corporation quoted on CNN, July 18,2005
- lxiv *They Export Pollution Too*”, by Hannah Beech, *Time Magazine Special Report* , June 27, 2005
- lxv ‘A Free Ride for Freight’, Financial times, *21 November 2000*
- lxvi *50 Facts That Should Change the World*, by Jessica Williams (Icon Books Ltd., 2004)
- lxvii *50 Facts That Should Change the World*, by Jessica Williams (Icon Books Ltd., 2004)

References to a report from Sustain/Elm Farm Research Center report "Eating Oil - Food In a Changing Climate" that references two studies: D.A. Bender and A.E. Bender, *Nutrition reference Handbook* (Oxford: Oxford University Press, 1997) and MAFF, *Manual of Nutrition* (London: the stationary Office books, 1997)

lxviii The Nature Conservancy, USA, www.nature.org

lxix The Nature Conservancy, USA, www.nature.org

lxx "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC

lxxi Ibid.

lxxii Ibid.

lxxiii Ibid.

lxxiv Ibid

lxxv *50 Facts That Should Change the World*, by Jessica Williams (Icon Books Ltd., 2004)

lxxvi

lxxvii "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC

lxxviii Ibid.

lxxix Ibid.

lxxx "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC

lxxxi Ibid.

lxxxii *Bejing Digital* by Nicholas Negroponte (New York: Random House, Inc.1995)

lxxxiii "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC

lxxxiv Ibid.

lxxxv Massachusetts Institute of Technology, Boston, Massachusetts; www.mit.edu.

lxxxvi "The Seven Revolutions" research studies by Center for Strategic and International Studies, Washington , DC

lxxxvii Ibid

lxxxviii Ibid

lxxxix Ibid.

xc Ibid.

xcii The Innovator's Solution Clayton M. Christiansen, published 2004, *Harvard Business School Publishing*

xciii Vijay Majahan, marketing professor, John P. Harbin Centennial Chair in Business, McCombs School of Business, The University of Austin, Texas. Presentation to Wharton Fellows in Mumbai, India, March 2005.

xciv Ibid.

xcv The Fortune at The Bottom of The Pyramid by C.K. Prahalad (Wharton School Publishing, U.S.A., 2005)

xcv **lbid**
xcvi **lbid.**
xcvii **lbid.**
xcviii **lbid.**
xcix **lbid.**
c **lbid.**
ci **lbid.**
cii **lbid.**