REVIEW OF RESEARCH
IMPACT FACTOR : 5.2331(UIF) UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X
VOLUME - 7 | ISSUE - 10 | JULY - 2018

SUSTAINABLE RURAL DEVELOPMENT AND INNOVATION

Dr. D. V. Ujagare[1] and Prof. Abhijit S. Patil[2]
[1]Dept. of Commerce & Research Centre , S. S. C. College, Junnar.
[2]Dept of Politics , S. S. C. College, Junnar.

ABSTRACT:

Rural development is the combination of two words 'rural' and 'development'. Rural means "open land" and includes all persons living outside urban area and who live on farm. Thus agriculture is generally the main occupation in rural areas. While on the other hand Development refers to the growth, evolution, and stage of inducement or progress. In the present paper Role of Invention and Innovation, Indian scenario and the rise of social entrepreneurship is studied.

KEYWORDS: Sustainable Rural Development, Innovation, Social Entrepreneurship.

1. INTRODUCTION

It is difficult to protect, feed, and educate our children, or keep them healthy, if we cannot find better, cheaper, smarter ways of producing goods and bringing them to markets. One cannot create sustainable jobs or robust economies, capable of withstanding fluctuations in global markets without being able to harness the power of knowledge, innovation and creativity. And one cannot create fully functional health, education or social systems if the public and private sectors remain in separate silos. The need to create growth, which is environmentally, economically and socially sustainable, raises new, global and interconnected challenges. What is the present need is a genuine partnership, in particular between the public and private sector, grounded in the belief that the fruits of scientific endeavor, innovation and creativity should be equitably shared. It is also through such partnerships that science, technology and innovation (STI) can inform our understanding of the mechanisms of sustainable development, produce options for future sustainable growth, and promote adoption of practices founded in the best evidence available. Creating the knowledge necessary to tackle these interrelated challenges will require breaking down barriers between disciplines and strengthening the connection between science and society. There is also a clear linkage to wider social policies, in particular education. Tertiary education systems play a critical role in developing the knowledge intensive skills and innovation on which productivity, job creation and competitiveness depend.1 Therefore, strengthening capacity-building in science, technology and innovation, as well as basic technical skills, for both men and women, and developing 'brain gain' approaches are absolute prerequisites for the future development agenda. Creating platforms and systems through which scientific knowledge can be shared; through which centers of learning can access and add to the stock of human knowledge; and through which people can learn about the frontiers of technology must be a priority. Related to this is a need to recognize that a rich body of scientific and technological information exists in patent databases and more needs to be done to increase access and analysis of that data to support innovation. It must be a priority not only for its own sake but also because it is the basis upon which new technologies will be created and from which development benefits will flow given the appropriate

innovation ecosystem. Likewise, there is a need to expand international cooperation in addressing inequalities and bridging the gaps in capabilities to access scientific data and information for development at national, regional and global levels.

There is a responsibility upon policy makers to create an environment where development needs truly influence science and innovation priorities and where development policy and practice is appropriately informed by the science and knowledge base. And there is a responsibility on policy makers to create an environment where there are adequate incentives for both the public and private sectors to grow that science and knowledge base and place it at the service of humanity. Creativity and innovation are a natural resource in which every country and every community is potentially rich. Intellectual property provides a policy framework that can enable these intangible resources to be transformed into sustainable development assets through the protection and promotion of creativity and innovation.

2. THE ROLE OF INVENTION AND INNOVATION

Invention stimulates entrepreneurship and overall economic activity, according to Merton Flemings, He defines ***invention*** as a focused application of the human mind to the world that yields an original creation with practical use. Inventions are typically patentable, but patents aren't necessary to make it an invention. ***Innovation***, as defined here, is the practice of bringing inventions into widespread usage, through creative thinking, investment, and marketing. That's why basic invention is typically needed to spur innovative activity. "Invention is that spark where it all begins," said Flemings. To stimulate invention, we have to pay careful attention to education. "Invention requires a lot of knowledge," said Flemings, decades. "We teachers feel we have to stuff knowledge into people's mind and brains. But we also have to pay attention to the freedom of inquiry, to allow students to find their own ways and to develop their own creative minds." This balance is particularly important, he said, when it comes to enhancing inventiveness in developing countries. In addition to education, we need to stimulate invention and innovation worldwide by showing that society values those who succeed in these fields. "We need to raise the stature of inventors," said Flemings, "so that we come to think about inventors on the same level as rock stars or sports stars."

Ammon Salter, researcher America, said that invention is not a linear process, from idea to product to economic impact. Rather, invention is a complex interaction between human creativity, technology and the market place, and iteration must typically happen between all three realms before an invention has a significant economic impact. Salter's studies relate to the practice of technology diffusion: How are new technologies propagated through a marketplace, and how good are certain societies at not only creating but diffusing those technologies. In this realm, Salter said, there is good news and bad news. The bad news is that only a small minority of the world's countries are practicing a significant level of invention and innovation. The good news is that this list of countries is growing and is now up to about two dozen. The two most populous countries, China and India, are in the process of becoming world leaders.

Ashok Khosla, president of New Delhi-based Development Alternatives, said that the Story of how all inventions and innovations get to the big time, from Coca-Cola to the Sony Walkman, can be understood through showing how much money was invested at each stage of a product's development and diffusion. "It's a numbers game," he said. The Same process of studying economic returns must be applied to investment in the developing world. "A dam built for $8,000 transforms life for 20,000 people," Khosla emphasized. With a dam in place, people no longer have to spend much of their day walking to a well, and so they can perform more productive work. Meanwhile, the water from the dam irrigates crops that can sustain entire villages and towns. In the developing world, however, innovations such as dams are typically planned and funded by governments or international organizations such as the World Bank, noted

Adil Najam, associate professor of international negotiation and diplomacy at Tufts University's Fletcher School. As a result, local inhabitants sometimes fall into the trap of thinking that new technologies are things that are provided to them rather than something they create on their own. "They say, 'This is a World Bank dam," said Najam. That's why it's so important for invention and creativity to be nurtured on the

local level. As noted by Mert Flemings, an invention can be a little thing that helps a small village. It doesn't have to be a scientific breakthrough like the laser. It can be a simple tool adapted to local needs in developing countries, such as the micro-irrigation pumps supplied by one of the workshop's participants, Nick Moon, co-founder of Appro TEC. That's why "technology push" is often not a good way to do things, said Adil Najam, and why "technology pull," identifying demand in local markets, is so crucial. "What is a winning product?" Najam asks, "A Stair Master is a winning product in the developed world but not in developing world." Yes, Coca-Cola can sell sugar water to anyone, but a fresh lime drink may end up being more popular in certain locations. Highlighting the differences between markets, Nick Moon noted that capital is cheap in the developed world, while time and labor are expensive. In the developing world, however, capital is so expensive as to be practically unavailable, while time and labor are cheap. These stark differences were highlighted in Najam's studies of sustainable development and technology diffusion around the world during the past ten years. Collecting more than a thousand stories from around the world, including India, Pakistan, Bangladesh, Zimbabwe, Chile and the United States, Najam and his colleagues focused on 100 of the most compelling stories and published them in a series of seven volumes.2 A consistent finding was that successful innovation involves reducing unit costs of new products, a process requiring at the outset a significant investment of capital, labor or both. While the conventional wisdom is that there has been very little achieved in the environmental arena since the high-profile Earth Summit in Rio de Janeiro in 1992, "we found amazing things happening at the micro level," Najam says. "You can have lots of small things happening village by village, and that is what we have noticed here."Among the lessons and findings his study un earthed were the following:

• There is a "civic will" for change worldwide, a distinct motivation to improve human life apart from any profit motive.

• Imagination is key. As Einstein said, "Imagination is more important than knowledge," and any improvement in human conditions begins when the human mind imagines the possibilities.

• There are three basic metaphors for accomplishing sustainable development projects:

A) Buildings – start with the end in mind and create an overall blueprint for change.

B) Rivers – different projects combine together, just as drops and streams merge together to form mighty rivers.

C) Forests – trees don't just keep growing into bigger and bigger trees but their seeds spawn more trees which form vast forests.

• You can "push" for change, as the demonstrators at the Seattle trade summit did in 2001, but perhaps more effective is the "pull" for change, such as the Pakistan national conservation strategy, which came from the demands of local markets.

• Successful sustainable development is rooted in communities, involves wise use of local resources, has ecological integrity, involves connectedness and partnerships, and promotes widespread understanding of how things get done.

• Ideas spread – A company that started an idea can go away, but a good idea that is adaptable to a market can live on.

• Raising small amounts of capital is one of the most difficult challenges. "There are places to go for $1 million," said Najam, "but where do you go for $100 or $5,000?"

• Invest in imitation – Replication of a successful product or project is a good thing because imitators typically add something of their own.

• "Listen and learn" – We need to know more about how successful sustainable development happens. "Propagate" – Half may do it wrong but half may do it right. "Nurture" – Incubate innovation through structures such as venture capital and credit systems. Innovation doesn't happen in a vacuum. Successful societies are always subsidized in some way.

• Innovation as a pure handout doesn't work. Dignity comes from doing it yourself, with the support of others. On a national level, different countries have employed different models for using invention and

innovation to improve living standards. Ashok Khosla cites three overarching templates for turning a poor nation into a rich one: the ***copycat***, the ***piggyback***, and the ***leapfrog***. "Copycats" imitate ideas, technologies and techniques from other countries and improve and adapt them. During its first few decades, the United States took the key secrets of the Industrial Revolution from England, Scotland and France and launched its own industrial economy. Two centuries later, Japan and then Korea developed by adapting American manufacturing, raising the quality and lowering costs. These days, China is doing it with much success, moving up the innovation ladder at a rapid rate."Piggy backers" ride on the backs of rich nations by doing more and more of their manufacturing and service work at far lower costs. India is practicing the art of piggybacking right now, using advanced computing and communications technologies to perform software development, tele-services, and even high-level innovation at a fraction of the labor costs compared to performing the same jobs in the United States or Western Europe. A recent study showed that one in ten U.S. software jobs will be exported to places like India and China over the next five years.3 Finally, "leapfrogs" skip over inappropriate technologies and embrace new ones, such as Finland's sudden break from Soviet domination and its rapid adoption and development of new inventions like wireless networks. Khosla believes developing nations need to employ all three models at once. "Industrial countries have made some lousy technology choices," he said. "Why should we adopt what we already know is bad? We need to invent on our own, thinking everything through from scratch." Transportation is a key example for the future. "A hundred years from now, we won't have the internal combustion engine, so why adopt it now?" Leapfrogging makes it sound so easy and elegant, noted Adil Najam. But putting in place technologies such as renewable energy, recycling, local water management, and creating appropriate construction materials, is more like heading down a long, rocky road. "It's not so much a leap frog," he said, "but more like a hard slog."

CASE STUDIES: INDIA

As the world's largest democracy, with a diverse population of more than one billion, India has become a key testing ground for sustainable development. Most of the media attention has been focused on the country's pockets of urban, English-speaking university graduates who are "piggybacking," capitalizing on the Internet and decreasing telecommunications costs to capture hundreds of thousands of software and customer service jobs from overseas, at a fraction of American or European wages.7 The high-tech startups of Bangalore have been heralded in the press. Corporations such as GE and IBM have even opened R&D centers there, employing PhD-level engineers who are helping to invent and improve info tech, biotech and nanotech. But Ashok Khosla, founder of Development Alternatives, is focused on the rural poor, the 70 percent of India's population who are almost completely untouched by any of this. He envisions bringing 700 million people in India out of poverty or subsistence living. Borrowing ideas he has seen all over the world, Development Alternatives has invented a series of new products, including:

- A hand-operated press that converts mud into hard bricks for low-cost housing.
- A vertical kiln that bakes on a continual basis bricks made from native clay.
- A machine for transforming industrial waste into cheap roofing tiles.
- A process for converting local weeds into a substitute for diesel fuel to make electricity.
- Woodstoves that dramatically reduce fuel smoke, thus reducing early cancer death.
- Hand-powered looms and paper-making machines made by modernizing centuries-old designs.

One of Khosla's most significant innovations is his franchising system. Borrowing a page from Ray Kroc of McDonald's, Khosla has created a network of dozens of profitable local telecenters – TARA *kendras*, business and community facilities that set up their own businesses training and supporting people in the use of dozens of these technologies. Just as important as creating jobs at the franchise level are the jobs that are created by the inventions themselves. Each of Khosla's products, once up and running, creates an enterprise that requires hiring from four to four dozen employees. The entrepreneurs who use credit to invest in the company's kilns, looms, paper-making units and energy systems now have a sustainable way to market

products that people want, and can use or sell. Such a systematic strategy gives people the chance to escape the cycle of poverty while having a negligible impact on the environment. Using its own mud bricks, Development Alternatives built its headquarters for 150 employees. The building consumes the same amount of electricity as a single American household. Using similar bricks, one of the organization's customers built the Indira Gandhi National Center for the Arts in only 120 days. The cost was only $40,000. The center has hosted dozens of national exhibitions over the past 15 years. Development Alternatives is in the process of signing up franchises in new locations, providing a source of royalties and training fees that are invested back into the organization. It also generates income from data mining and by running an Internet portal, www.tarahaat.com, for communicating with franchisees and customers. "We are bringing the Internet to small villages," he said. Despite the fact that Khosla has been running his organization for more than 20 years, he struggles to raise capital. Traditional non-profits and for-profit investors typically don't encounter social enterprises that generate income, and so they don't know how to assess what he is doing. Non-profit donors, such as those in the international development community, are often reluctant to give money to anything but pure charities. While Development Alternatives is a non-profit organization, the companies that it operates, such as DESI Power Pvt. Ltd. and TARAhaat, are set up as for-profit enterprises that help pay for further research and development of new products and ideas at the parent company. This kind of model is alien to much of the traditional donor community. He also said that foreign aid and government grants often come with their own conditions and objectives, often making the acceptance of such funding counterproductive.

When it comes to raising money from private venture capitalists, there is a different disconnect. Venture firms are comfortable investing in software startups carrying out customer relationship management applications, but they aren't familiar with hybrid enterprises that primarily focus on social value creation but also generate revenues. Intellectual property is another sticking point. Venture firms typically look for protected intellectual property, such as patents, to assure that they can exclude lower cost rivals from markets, at least for a time. But patents aren't easy to enforce in India. In addition, at least for Khosla, these have not been necessary to provide a motivation for commercialization, and so he hasn't focused on protecting his organization's inventions. In certain cases, however, his success has drawn imitators. After he sold more than 100,000 units of his TARA wood stoves, entrepreneurs in the rest of India and also as far away as Nigeria and Ghana took the stoves back to their shops and copied the products exactly, including the TARA logo. "They didn't know what made it work so well," Khosla said. "So they copied everything." Khosla said this is not necessarily bad for him. "People who copy us open new markets," he said. Lack of financing is the only obstacle Khosla cited, the only thing standing in the way of reaching his goal of reaching the mass markets. He said his overall objective is to "make a dent in the employment problem" in India. He said the country needs to create 15 million new jobs per year. The high-tech and outsourced jobs from overseas only contribute to a small fraction of that and are available only for a limited few. He said that this larger number of jobs is needed for several reasons beyond economic ones: psychologically, these jobs are needed to give people dignity. In terms of the environment, these jobs are also needed to avoid the temptation for people to make money by further damaging the soil, air and water. Khosla said that Gandhi himself had a lot to say about "sustainable technology" and how people relate to machines. Good technology, according to Gandhi's principles, helps people reach their aspirations, liberates human potential, creates economic opportunity, and regenerates environmental resources. "Technology should be the servant of man, not his master," said Gandhi. When Khosla is assessing which kind of products and technologies to develop and market, he looks for those that can catch on in the marketplace quickly, those that can be embraced and replicated by new enterprises that work as his franchisees. "Viral multiplication," he said. "This is the crucial term. It doesn't matter how bleeding your heart is, if it doesn't get out there, it doesn't do any good." He also looks for high social impact, large scale economic returns, environmental benefits, and customer opportunities. Finally, Khosla looks to "cluster" sets of technologies together, so that his franchisees can diversify and sell many products, not depending on just one for their

own livelihoods. On its TARAhaat.com website, the company provides customer support and servicing, and its franchisees and customers trade tips and gossip. Typically, even small villages have phone and Internet connections in community centers and other public facilities. Khosla said that the Internet can enable him to scale out his system to hundreds or thousands of franchisees over time.

Despite all this success, the process is slow. “At the current rate we will be able to raise everyone out of poverty in India in 200 years,” Khosla pointed out.

The rise of social entrepreneurship

All of the examples cited above are instances of social entrepreneurship. While social entrepreneurs have existed since the beginning of time, the relatively recent surge of social entrepreneurship is part of a larger and more recent context, explained Pamela Hartigan. It is emerging at an historical juncture, when the traditional distinctions between business and civil society organizations, between who should provide public and private goods, are blurring. Governments, the traditional purveyor of public goods, are increasingly unable to meet the needs of the poor, and the equity gap continues to increase in industrialized and emerging markets. Misconduct among a few highly visible corporations has affected all corporations, igniting consumer outrage and eroding shareholder confidence. In addition, with so many similar goods and services to chose from, the consumer wields unprecedented power. And so the corporate world has begun to respond to social and environmental imperatives, if anything, to generate good will and retain customers and employees. Non-profit organizations have mushroomed in the last 25 years to address unfulfilled needs. They are increasingly being held to performance criteria adapted from the business sector: effectiveness of resource allocation, transparency, accountability and effective governance. As the citizen sector and its organizations grow in number, funding becomes tighter, competition greater, and the search for sustainable sources of income is a daily challenge.

Hartigan said that social entrepreneurship is catching on in unexpected places in unexpected ways, and one reason that we’re able to identify and track these pockets of progress is that the term “social entrepreneur” itself is being embraced. “I think that it’s actually because of a combination of things, but particularly because of the mental models of entrepreneurship have taken hold in these past 20 to 25 years,” she said. Creating social entrepreneurs is tricky, she said. “This hasn't become a science until very recently, and I wonder if it’s ever a science, but it's beginning to happen,” Hartigan said.“There are many different schools now teaching social entrepreneurship.” Hartigan herself teaches such a course at the University of Geneva. “I think that you can help social entrepreneurs be better at many things,” she said. “But if you hang around the social entrepreneur, you realize that they can't help being the way they are; and that there is something about the way these folks are wired.”The social entrepreneur is a creature of his or her time—a hybrid that combines the driving passion to improve the lot of excluded groups with the practical, innovative and opportunistic traits of the entrepreneur. Social entrepreneurs are focused on the delivery of public goods using business approaches. They will rarely be found among the activists who invest their time organizing to protest against the pernicious effects of globalization. Social entrepreneurs are too busy finding the solutions that will allow all people to participate as active producers and consumers, in the local, national and global economies.

The Schwab Foundation for Social Entrepreneurship exists to disseminate globally the concept and practice of social entrepreneurship as a critical contributor to sustainable development through innovation and transformational social change. Among its activities, the Foundation identifies the most outstanding social entrepreneurs worldwide, as role models for others to emulate with practical approaches to social problems that can be adapted to other contexts.

Ashok Khosla, Nick Moon and Rory Stear are three that have been selected to the Schwab Foundation’s network of outstanding social entrepreneurs. Until he became a Schwab social entrepreneur, Moon said, “I had no idea I was a social entrepreneur.” Yet he and the others are excellent illustrations of the hybrid nature of social entrepreneurs, combining business models with socially-motivated goals. Many

social entrepreneurs seem to model their efforts after David, taking on the many Goliaths that the world has constructed. Hartigan added that such role models are extremely important for stimulating invention worldwide. "Youth don't even know about the possibility of being a social entrepreneur" until they see someone getting recognition for it, and that so rarely happens. In her home country of Ecuador, mostly what people see is the "tremendous inequity" in society. That's why she is focused on the successful case studies.

In Mexico, for instance, American-grown corn is being dumped and sold at 25 percent less than its costs, affecting 1.3 million small grain farmers in that country. In response, a social entrepreneur named Victor Suarez formed ANEC, a membership organization, to empower small scale commercial grain farmers to compete in the mass production dominated global economy. ANEC mobilizes its members to collectively market their crops through regional enterprises. It disseminates market research to its members every week, allowing them to secure prices that are 15 to 20 percent higher than the market, whilst selling all their produce. ANEC, which also provides grain storage facilities for surplus products, provides access to financing and to secondary processing of raw grains into food products. Beginning with 250 members in three states, the alliance now has 120,000 members in 23 states. "It's a social enterprise," Hartigan said. She cited another example, NOVICA, a for-profit entity founded by two social entrepreneurs who aimed to create viable livelihoods for some of the world's most endangered human talent—the artists and artisans in developing countries."Artists abandon their craft for two reasons," she said. "Geographical distance and multiple layers of middlemen." NOVICA works directly with the best artists and artisans in developing countries through its regional offices. Artisans set their own prices, and by cutting out the middlemen, they can earn 10 to 50 percent more than the local going rate. The consumer pays below market prices for their own country—by establishing direct contact with the artist who made the craft. NOVICA is more than a website. It is a network where artisans in emerging markets can showcase their best wares and relate their own life journey to consumers who buy their wares. So far, more than 20,000 artists sell their ceramics, jewelry and household goods through NOVICA, which has tapped into a growing market for handcrafted home décor that in the United States alone is worth more than $10 billion annually. Hartigan concluded with an example from Asia, where in Dakar City, Bangladesh, more than 3,000 tons of garbage is produced a day, 80 percent of which is organic. The municipal government has the capacity to collect only half of that, the rest lying in the streets, in empty lots and along riverbeds. Aside from the stench and unsightliness, the public health hazards are enormous. Iftekhar Enayetullah and Maqsood Sinha were two university students who met while doing a project on waste management. Both had engineering backgrounds and were committed to finding a solution to the organic waste challenge in their city. The young men knew that Bangladesh faced a severe problem of top soil erosion because of the agricultural overuse of chemical pesticides and fertilizers. As all social entrepreneurs, they saw opportunities where others saw only problems. Instead of seeing garbage as garbage, they saw it as a goldmine. Community-composting sites were the answer, they decided. These would give people jobs as house-to-house collectors or as workers in the composting plants where they would convert the waste into organic fertilizer. Given the fact that the waste and the topsoil problem fell in the public sector, the two social entrepreneurs naturally assumed that the government would be interested in collaborating to address the dual problem. After four years of attempts to galvanize municipal or federal interest, they decided to go at it alone. Today, Waste Concern is a huge international success. It has provided 50,000 jobs for the urban poor in eight municipalities; it produces 500 tons a year of compost with a rising demand from farmers estimated at 15,000 tons a year. It also generates considerable income by selling companies that buy and nationally market the compost based enriched bio-fertilizer produced.

What is Waste Concern? Is it a business? It provides jobs, sells fertilizer and generates income to pay its workers. Is it a public sector entity? It certainly is doing the work of the public sector, instigating behavior change and managing health and environmental problems. But it is not a government agency. Is it a philanthropic organization? Hardly. Waste Concern is a social enterprise, a hybrid of the business and public sector, but its strength lies in its innovative approach to social and economic challenges. Such success stories

show how social entrepreneurship holds promise for galvanizing human innovation and inventiveness for the global good.

An Agenda for Further Study

Given the resource base of the developed world, it is a tragedy that more economic development and poverty alleviation hasn't been accomplished over the past generation. As Adil Najam noted, "We have done a lot, but far less than we could have done." He summed it up by evoking the famous Marlon Brando movie line about lost opportunity. "I could have been somebody," cried Brando. "I could have been a contender." But he said there is tremendous hope, and it lies in human ingenuity. One of the best things the rich countries can do for the poor ones, he said, is to get out of the way and let innovation take root.

NOTES

1 "China's Second Wave: Country is Now Poised to Flood World Markets with High End Products Like Cell Phones and Autos," by Jehangit Pocha, *The Boston Globe*, Page D1, January 2, 2004.
2 Najam, Adil and Tariq Banuri (editors), *Civic Entrepreneurship: Civil Society Perspectives on Sustainable Development*, Volume 1: Global Synthesis, (Islamabad: Gandhara Academy Press, 2002); Tariq Banuri, Adil Najam and Nancy Odeh (editors), *Civic Entrepreneurship: Civil Society Perspectives on Sustainable Development,* Volumes 2 to 7; (Islamabad: Gandhara Academy Press, 2002).
3 IBM to export highly paid jobs to India, China," by William Bulkeley, page 1, *Wall Street Journal,* page 1, December 15, 2003.
4 Hobday, Michael; *Innovation in East Asia: The challenge to Japan*; (Edward Elgar, 1995).
5 "Beijing Begins to Pay Heed To Sounds of Growth Strain: Government Moves to Cool Hot Sectors Amid Shortage Of Energy, Raw Materials," by Peter Wonacott, *Wall Street Journal*;
Page 1, December 29, 2003.
6 "China's Growing Thirst for Oil Remakes the Global Market: Beijing's Buying Keeps Prices High -- and Could Reshape Politics of Middle East," by Peter Wonacott, Jeanne Whalen and Bhushan Bahree; Page 1, *Wall Street Journal*, December 3, 2003.
7 "Yuan Longping – Father of Hybrid Rice," by Li Jin hui, China.org.cn, March 5, 2001
8 "For Researchers in Mexico, Apathy Has Been the Smotherer of Invention," by Chris Kraul; *Los Angeles Times*, Page 1, December 4, 2003.
9 "Initiative to Leave No Child Behind Leaves Out Gifted Educators, Diverts Resources From Classes for Smartest To Focus on Basic Literacy," by Daniel Golden, *Wall Street Journal*, Page 1; December 29, 2003.
10 "U.N. Tackles a Changing Globe With Routines That Rarely Do: Decades-Old Deals Rooted In Geography Live On; Old Agenda Items Do Too," by Jess Bravin and Steve Stecklow, *Wall Street Journal*; Page 1, December 16, 2003.
11 "The Elephant and the Chili Pepper," *New York Times*," editorial page, December 24, 2003.See Worldbank.org for more information on Development Marketplace.
12 Porter, Michael, and Scott Stern; "Ranking National Innovative Capacity: Findings from the National Innovative Capacity Index"; Global Competitiveness Report, World Economic Forum, 2003.
13. United Nations Office on Drugs and Crime (UNODC)
14. United Nations Population Fund (UNFPA)
15. United Nations Relief and Works Agency for Palestinian Refugees in the Near East
16. United Nations Research Institute for Social Development (UNRISD)(UNRWA)
17. United Nations System Chief Executives Board for Coordination Secretariat (CEB)
18. United Nations University (UNU)
19. United Nations Volunteers (UNV)

20. United Nations World Tourism Organization (UNWTO)
21. Universal Postal Union (UPU)
22. World Bank
23. World Food Progra\me (WFP)
24. World Health Organization (WHO)
25.World Intellectual Property Organization (WIPO)
26.World Meteorological Organization (WMO)
27.World Trade Organization (WTO)