**The Future of Sustainable Development**

5382 Words

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Human nature is ‘driven by the desire for clarity, certainty and control even in the situations that are intrinsically doubtful, ambiguous and volatile’. So my task today to sketch out the future of sustainable development is very difficult because the world ahead is going to be complex, uncertain and riveted by unknown and imponderables. On the other hand, you expect me to narrate if not in finely drawn lines but some vague contours a picture of what the future holds out for us and our generations.

In order to present an informed view about the future we have to look at the past. My starting point would be to show as to how much gap existed between economists and environmentalists even three decades ago and how much it has been narrowed in the last few years. The extreme position of the environmentalists was best articulated by scholars like Paul Ehrlich, Lester Brown and Club of Rome.

‘The battle to feed all humanity is over. In the 1970s the World will undergo famines – hundreds of millions of people are going to starve to death’ – Paul Ehrlich, 1968[[1]](#footnote-1).

Lester Brown[[2]](#footnote-2), pointed out that soil erosion, water logging and salinity which will ‘reduce 15 percent of China’s irrigated land, air pollution and acid rain by burning of coal and reduction in rice yields by a rise of 3 degrees F in average summer temperatures will lead to a fall in China’s grain production by at least 20 percent between 1990 and 2030. [[3]](#footnote-3)China’s demand would increase from 335m tones in 1990 to 479m in 2030. The short fall of 216m tones – a level that exceeds the world’s entire 1993 grain exports of 200m tons’[[4]](#footnote-4). Both these extreme predictions have not proved true. World population almost doubled from 3.7 billion to 1970 to 7 billion in 2010 but food production has remained way ahead of population growth. Food price index declined from 100 in 1970 to 40 in 1991 and per Capita Calorie supply in developing countries including China rose to 2540 from 1930. In China, food production index has almost doubled between 1990 and 2010 and cereal yield per hectare has risen from 3.6 tons to 6.8 tons. In Emerging and Developing Economies (EDEs) as a group food production has gone up by 88 percent in the same period.

On the other hand, the economists took issue with these prophets of gloom and doom and believed that human ingenuity will always be equal to the consequences of its actions and scientific and technological advances will rise to the occasion and overcome global warming, resource depletion, overconsumption and all the ravages of infinite desire upon a finite world. They[[5]](#footnote-5) argued that ‘Abandoning the appropriately human centered goal of managing the nature to provide people with a better life, the environment movement has adopted a utopian ideology which idealizes a mythical nature and demonizes humankind. Traditional Conservationists like Ted Roosevelt recognized man’s responsibility to make the World a better place, while today’s environmentalists typified by Gore regard human beings as interlopers whose freedom to pursue their own interests must be restricted to prevent them from destroying nature’.

 Bhagwati[[6]](#footnote-6) postulated that the economists generally belong to the philosophical tradition that sees nature as handmaiden to mankind. This humanity – centric view of nature is deeply rooted in the tradition that originated among the Hebrews and the Christians and spread to the Western World. Accordingly, the environmentalists tend to value environment over income whereas trade and other economists conventionally tend to value income over the environment. This difference was at the heart of their conflicts.

Economists consider markets as being efficient in utilization of resources and Government interventions as that disrupt and distort them. Environmentalists typically deal with situations where markets do not exist – as when pollutants are dumped into lakes, rivers and oceans and the pollutant does not have to buy permits to do so. Trade flourishes in absence of regulation, whereas environmentalism suggests its necessity.

Economists, however, began to realize that growth that devastates the environment is surely not being correctly measured if no downside adjustment is made for the environmental damages. Nordhaus and Tobin[[7]](#footnote-7) proposed a new measure of income and its growth that subtracts for environmental degradation. Reduced estimates of growth rate, so adjusted, have been made by Herman Daly[[8]](#footnote-8).

An examination of the widely held belief by environmentalists that growing incomes will always be associated with deteriorating environmental outcomes could not stand the test of scrutiny. Evidence showed that this was not necessarily the case.

[[9]](#footnote-9)As income rises, activities that cause more pollution may contract and those that cause less pollution may expand. In fact, as development occurs, economies typically shift from primary production which is often pollution-intensive to manufacturing which is less so, and then to trade services which are even less pollution intensive. This natural evolution itself could reduce the pollution-intensity of income as development proceeds. The available technology used and newly invented technology may become more environmental friendly over time. Both these phenomena are being observed. Therefore, the assumed tradeoff between growing income and environmental protection is not borne out by evidence. Of course, the quality and pattern of growth do matter. Fossil Fuels used indiscriminately for generating growth do create problems.

Brundtland commission’s[[10]](#footnote-10) definition of Sustainable Development that ‘the environment is where we live and development is what we all do in attempting to improve our lot within that abode--the two are inseparable’ was a turning point in this debate. According to the Commission[[11]](#footnote-11), Economic growth will facilitate the needs of the present without compromising the ability of the future generations to meet their own needs. The conclusion that ‘No other region more tragically suffers the vicious cycle of poverty leading to environmental degradation, which leads in turn to even greater poverty’ established the nexus between poverty and environmental degradation. Thus an attack on poverty became an important element in protecting environment. The Report strongly influenced the Rio Summit of 1992 and the Johannesburg Conference of 2002.

At the same time, empirical studies[[12]](#footnote-12) supported the environmental transition hypothesis i.e. environmental amenities are negatively related to income in countries with less than about $1200-$2200 income per capita and in higher income countries environmental amenities are positively related to income with an income elasticity of >1. Institutional or technological innovations can significantly lower the threshold. Costa Rica achieved the transition at relatively low income level.

In recent years most environmental organizations have begun to embrace market based solutions to environmental issues recognizing that markets and growth are not generally inconsistent with environmental protection. There remains, however, a group of hard core activists who view command and control regulation as the only legitimate environmental policy and who also view economic growth as an enemy of environment. A sensible balance between economic development and job creation/ trade-expansion on one hand and environmental protection on the other hand is possible.

There is now almost a consensus that ‘sustainable development’ extends beyond raising per capita incomes or protecting environment at all costs and needs to be concerned with issues such as equity, inclusive growth, gender and social justice. We also know that growth does not automatically trickle down and public policy interventions are necessary to tackle the needs of human beings. Macroeconomic stability is an essential pre-requisite for sustained growth and institutions do matter for ensuring access and distributing the benefits of growth. Global climate change is no longer an issue dear to the environmentalists lobby but is a real threat to the living standards and sustenance of 8-10 billion people that will inhabit the earth by the end of this century.

The concept of a ‘green economy’ that encompasses the concerns of climate, food and economy now symbolizes this new emerging consensus. A green economy is driven by considerations of Energy, Green buildings, Clean Transportation, Waste management and Land management. It reflects a realization that economic growth and development must be environmentally friendly, conserve natural resources and minimize pollution. At the same time, eradication of poverty and creation of jobs are not possible without robust economic growth that distributes the benefits in an equitable manner.

We now turn to the future. We must recognize that Past experience is an unreliable guide to future outcomes. What is clear, however, is the overarching and all-encompassing role of technology, its advancement and impact on our lives. The pace of innovation is increasing exponentially; new technologies are creating new industries, disrupting old ones, and spawning communication networks of astonishing speed. Global emergencies seem to erupt at shorter intervals. Ideas have become more important than materials and Ideas are unpredictable; science knows no customs, no borders[[13]](#footnote-13). Demographic changes, shift in economic power balance and urbanization are likely to give rise to new challenges.

McKinsey’s Research suggests that 400 mid-size emerging market cities will generate nearly 40 percent of global growth over the next 15 years. The International Monetary Fund confirms that the ten fastest growing economies during the years ahead will all be in emerging markets. Global companies headquartered in emerging markets have been growing faster than counterparts headquartered in developed ones[[14]](#footnote-14).

Unlike the past, the law of diminishing returns that affected resource allocation is no longer valid. Knowledge is not scarce – the more you use it and pass it on, the more it proliferates. It is infinitely expansible or non-rival in consumption. What is scarce is the ability to understand and use knowledge. Therefore the use of ideas, knowledge and technology will be the main drivers of global economy in the future.

ICT technology has made it possible to have abundant information, lower transaction costs and lower barriers to entry. Inexpensive electronic or voice communication, video conferencing, technology-enabled workflows and social-networking technologies have transformed connectivity and knowledge sharing[[15]](#footnote-15). These characteristics all add up to a more efficient and competitive market with benefit to consumers.

Besides Information technologies, container revolution, hub airports, low-cost cargoes, high performance materials, bio-technology, low-cost vaccines, have brought about flexible business processes, just-in-time inventory, hyper competitive purchasing Worldwide, remote services, lower overheads, shorter turnaround time and affordable health care solutions.

Contrary to the popular belief that technology has by and large been labor displacing and job destroying technology has advanced rapidly over the past couple of centuries but unemployment has not risen with it[[16]](#footnote-16). On the contrary, productivity, employment and output have all raised together. How does this work in actual practice?

New technology brings about product innovation or process innovation i.e. the same unit of output is produced with less labor or raw material inputs. Higher productivity reduces costs and lower costs, in turn, lead to lower prices, higher wages or fatter profits[[17]](#footnote-17). Higher wages or lower prices raise real consumer purchasing power and boost demand for higher output for other goods and services in the economy. Higher profits finance expanded investment in these industries where output and jobs are rising due to demand. The net effect on employment will depend upon how much prices respond to lower costs and how sensitive demand is to lower prices. The demand generating effects of new technology have always outweighed the labour displacing effect. Technology has, in the end, created more jobs than it has destroyed.

Let us take the example of productivity in Agriculture in Pakistan. At the time of independence we were unable to feed 30 million people and were dependent on PL-480 imports from the United States[[18]](#footnote-18). Today, we are not only able to provide for higher calories per capita per day for 180 million people but are surplus in wheat, third largest exporter of rice in the world, one of the largest producers of milk and self-sufficient excepting some cyclical fluctuations, in sugar cane. It is another story that we are faced with food insecurity problem but that is not due to technology but human failure – failure of governance and adequate public policies. Technology has facilitated us to produce more out of the same acre of land with high yielding seeds, fertilizers and modern harvesting techniques.

In 1950, more than half of the national output originated from agriculture sector which employed three fourth of working labor force. By 2010, the share of agriculture in the national output has fallen to about 20 percent while those employed in the sector are close to 40 percent of the labor force. Higher labor productivity and increased labor demand resulting from Green Revolution led to considerable expansion in employment or considerable wage increases in other sectors of the economy. Non-agricultural employment in the rural areas exceeds agricultural employment. Consumers have also gained through lower prices of agriculture produce. Since the green revolution generates an economic surplus by more efficient utilization of resources and reduced unit costs, consumer gain did not imply producer losses[[19]](#footnote-19).

Let us put it in a different way. Four million tons of Wheat and Rice were produced by eight million labor force employed on our farms in 1950 i.e. 0.5 tons per worker. In 2010, twenty million labor force in agriculture produced 30 million tons of wheat and rice or 1.5 million tons per worker. The surplus labor released from agriculture has been absorbed in non-farm activities – input distribution and sales depots agricultural equipment and tools rentals, storage, transport, marketing and credit industry and services that are relatively more productive. Our irrigation water losses are still substantial large because of inequitable distribution by the officials entrusted with the task. We can preserve this scarce commodity by substituting flood irrigation by sprinkler and drip irrigation, by laser leveling of land and greater reliance upon water Users’ Association and communities. The challenge we face is no longer maximization of yield per acre but per cubic meter of water. There are many other tested eco-friendly methods of farming that can be piloted, promoted and propagated on large scale. Research and development on varieties that can resist pests and survive upon lower input of water per acre would certainly help.

Scanning the megatrends for the future and taking technological advancement and innovation as the backdrop I would like to focus on five issues that will have bearing upon the future of Sustainable Development. These issues are:

1. Governance at international, national and local levels
2. Climate Change
3. The shift in economic power balance from advanced to emerging and developing economies
4. Inequality in incomes and opportunities
5. Jobs and employment

**Governance**

As the World is shrinking, interdependence is growing, the room for maneuverability by nation states is becoming narrow. The institutions of global governance are either fragmented, weak, missing or ineffective. The Bretton-Woods institutions played their critical role for the issues facing them in the 20th century when reconstruction and assisting the emerging new nations were the pressing needs of the time. The United Nations also carried out its mandate particularly in peace keeping and humanitarian assistance reasonably well. But in the current and future situation of divergent interests, conflicting incentives and differing norms and values these institutions have either to be reformed, revamped or new institutions set up in their place. The G-20 mechanism is a good interim solution and so are the Development Rounds, the Millennium Development Goals and World summits and conferences such as Rio, Copenhagen but a more permanent architecture would have to be put in place and allowed to evolve over time.

Climate Change, Financial instability, nuclear proliferation, health pandemics and terrorism are global public goods that cannot be solved by even the most power nations. But the big nations are the ones most reluctant to cede national sovereignty[[20]](#footnote-20) and the existing international institutional mechanisms to tackle these challenges are quite ineffective.

So is the case with Illegal trade in drugs, arms, Intellectual Property, people and money[[21]](#footnote-21) laundering amounting to $2 trillion. These global bads have precipitated violence and conflicts in many parts of the world and Governments are pitted against agile, stateless and resourceful networks empowered by technology information revolution, stronger political and economic linkages. Shrinking importance of geographic distance has made the issues of governance at international, national and local level highly intractable.

At the national level, a regime’s capacity to govern is measured by how it performs three key tasks; mobilizing political support (legitimization); providing public goods (performance) and managing internal tensions (conflict resolution)[[22]](#footnote-22). State incapacitation is exemplified by the Governments increasing inability to provide essential services such as education, health care, public safety, law enforcement, and environmental protection.

An expanding urbanization middle class in Asia will exert new demands for greater voice and participation, greater accountability for results and better public services[[23]](#footnote-23). This requires effective institutions of governance at the national and local levels. These institutions will have to be retooled with an emphasis on transparency, accountability, predictability and enforceability[[24]](#footnote-24).

Private grievances are more likely to find violent expression when the institutional mechanisms for resolving them are inaccessible, unresponsive and inadequate[[25]](#footnote-25). The instruments of state are used far too much to serve the interests of the rulers at the expense of the citizens. In Pakistan, many observers attribute the growing menace of lawlessness and disorder to the gradual disappearance of the writ of the state arising from the weakening of the institutions at national and local level.

**Climate Change**

Economic growth is the surest foundation for more positive adaptation to climate change. China has demonstrated the benefits of economy doubling every seven to eight years – an unprecedented 16 fold increase in income during a single generation and 10 fold increases in the share in the world trade.

 The Stern Report has raised the awareness of the economists about the costs and benefits of climate agenda. [[26]](#footnote-26)Many policy makers got convinced in the light of the evidence presented in the Report that due to the increased concentration of Carbon di oxide since 2000 the fossil fuels should be substituted by alternative renewable energy sources. China has made and is continuing to make impressive strides in clean technology and renewable energy. It is vigorously investing in clean-energy and its share in World’s solar panels has risen to 32 percent by 2008. As compared to the US, investment made by China in Clean-energy is twice as much. [[27]](#footnote-27)The adoption in 2009 of the target to keep the temperature rise 2-degree below is a welcome step but a recent World Bank report found that the World is on track towards 4-degree Celsius (oC) of warming which would entail extreme heat waves, declining food stocks, loss of ecosystem and biodiversity and life-threatening sea level rise. This necessitates a more urgent response by the international community for adaptation and mitigation. The Green Climate Fund should be financed fully even before the deadline of 2020 so that the developing nations are able to protect their people’s health, agriculture and economies by converting to cleaner energy sources and in adapting to a shifting climate.

At the international level, Copenhagen 2009 proved to be quite disappointing but recent reports suggests that the United States is becoming more receptive to the climate change agenda and to the risks arising from the rise in global temperature. The prospects for the global climate deal in 2015 will improve if the US plays a constructive leadership role. Capping of United States Carbon emissions through legislative action can change the dynamic of the talks. The hurricane Sandy that hit the East Coast has alerted the public to the growing risks of climate change.

 In Pakistan, the World Bank assessment report of 2006 estimates that health costs of pollution and degradation of natural resources are 6 percent of GDP per year. The major issues in Pakistan relate to Waste management, natural hazards and climate change. [[28]](#footnote-28)Pakistan is vulnerable to climate change because it has generally a warm climate; it lies in a region where the temperature increases are expected to be higher than the global averages; its land area is mostly arid and semi-arid and its rivers are predominantly fed by the Hindu Kush-Kara Koram-Himalayan glaciers which are reported to be receding rapidly due to global warming. The negative effects of climate change will be experienced in water resources, energy, health, biodiversity with a major impact on agriculture productivity due to change in temperature.

 As a result of climate change the Indus River System is likely to be affected by gradual glacial recession in the Himalayas. It is projected that the flooding will increase within the next 2-3 decades followed by decreased water flows upto 30 to 40 percent over a period of five decades. This will dramatically cause fluctuations in irrigation water supply with increased temperature and decreased precipitation would register severe impact on water availability for crops. The decline in irrigated wheat yield would accentuate problems of food security.

**Shift in Economic Power**

The shift in economic power equilibrium is taking place with such speed that we are still not prepared to believe it. Emerging and Developing countries (EDEs) which were epitome of sympathy and pity and a source of worry until the end of the 20th century have now become the engine of global economic growth[[29]](#footnote-29). Over the past five years, they have accounted for around two-thirds of global growth. United States, Europe and Japan – the traditional economic power houses of global economy – are in deep recession. For the developing countries of Asia the trend growth rate in 1990 was around 7 percent. By 2010 it had increased to around 8.5 percent and actual growth was above this trend line[[30]](#footnote-30).

It is not only growth in which EDEs are leading the world but as a World Bank former President Bob Zoellick puts it ‘in trade, commodities, currencies and exchange rates, finance, investment, knowledge development, the environment and security too is a tectonic shift that has happened roughly over the past ten years, a microsecond in historic terms’.[[31]](#footnote-31)

The share of United States which was almost half of the global output in 1950 has fallen to 20 percent while that of China which was only 10 percent in 1980 will move up to 17 percent by 2015. Emerging and Developing economies (EDEs) now account for almost half of the world GDP (Asia accounts for 28 percent). In the decade 2000-10 the BRICs added $8 trillion to global GDP equivalent to about 80 percent of the G-7 economies. These countries will add around $12 trillion over the next decade, double the US and Eurozone combined. It is estimated that in the five year period (2007-12) China will expand its output by close to 60 percent; Emerging Asia 50 percent but advanced economies only 3 percent.

Should the current differential in the growth rates (almost 4 percentage points annually) between the Advanced Economies (AEs) and EDEs persist the later will soon overtake the Advanced Economies. In the decade to come, the United States, Japan and Europe are likely to grow slowly but some observers[[32]](#footnote-32) believe that ‘their sluggishness will look les worrisome compared with the even bigger story in the global economy, which will be the three to four percent slowdown in China’. The challenge for countries such as China and BRICs therefore, is how to sustain rapid increases in productivity and managing huge structural shifts as their economies become more sophisticated and therefore more vulnerable to exogenous shocks both anticipated and unanticipated. In the words of the Chinese leader Wen Jiabao, how to avoid the economy becoming ‘unstable, unbalanced, uncoordinated and ultimately unsustainable’.

By 2030, the size of the middle class will rise from 2 billion in 2012 (28 percent of the total population) to 4.9 billion in 2030 (61 percent of the total population)[[33]](#footnote-33). For the first time in human history more people will be middle class than poor. The demand for widening access to education, jobs, social security, and health care will place stress on public finances and the capacity of these new economic powers. This, in turn, depends on the governance structures that have to be evolved to address these issues.

**Income Inequality**

The Global Risks Survey[[34]](#footnote-34) carried out by the World Economic Forum every year identified economic disparity as one of the important risks in the coming decade. Economic disparity is tightly interconnected with corruption, demographic challenges, fragile states, global imbalances and asset-price collapse. Countries with greater disparities of income also fare worse in all manner of social indicators from higher murder rates to lower life expectancy.

Income of the top 20 percent was 14 percent in 1970s and has risen to 27 percent by 1990s while that of the bottom 20 percent rose from 9 percent to 10 percent only. Top 0.1 percent of the earners receive 8 percent of total income (80 times more than the lower 90 percent ) compared to 2 percent in 1960s (20times more ). Top 1 percent earned 20 times more than the rest in 2006 while the ratio was 10 times in 1980s. Income of top 1 percent of United States population, after adjusting for inflation rose by 25 percent between 1979-2006 but those of the middle class only 21 percent and the poor class 11 percent.

[[35]](#footnote-35)Alberto Alesina and Roberto Perolti argues that high levels of income inequality are associated with increased social instability unrest often erupts when a wealthy middle class is weakened.

[[36]](#footnote-36)Even in China, which had a more egalitarian society, the average income of the top 10 percent has risen 23 times higher than that of the bottom 10 percent in 2007 – almost twice as much as it was in 1988. Gini Coefficient has gone up from 30 to 45 in this period.

In Pakistan, despite some robust average growth and modest reduction in the incidence of poverty, lack of access to basic social services such as good education, healthcare and sanitation have created serious implications for the survival of the state. In a multi-ethnic society if the benefits of prosperity mainly accrue to one province or a major ethnic group the other feel deprived, neglected and discriminated. These groups voice their resentment in form of violence against other ethnic groups or join the criminal gangs or mafias to destabilize the order in the society or become part of religious and sectarian extremist groups hitting at the roots of the state. In either case, the resulting social and economic fragmentation undermines the sense of broader national cohesion and solidarity. The people of the Eastern Wing of Pakistan decided to fight a civil war and severe their connection with the Western Wing in 1971 because of the perceived economic disparities.

In countries such as Pakistan, laws, courts, institutions and enforcement machinery governing the economic activities don’t afford a level playing field to the poor and disadvantaged segments of the society. Tax evasion widely practiced in Pakistan is in fact a transfer of income from the poor to the rich. Land disputes are seldom settled in the favor of the weak and unconnected. Property rights and contact enforcement are tilted towards the rich and influential. These tendencies perpetuate and accentuate income in equality.

**Jobs and Employment**

One of the major issues that is causing enormous concerns not only in EDEs but also in advanced economies such as the US, Spain, France etc. is high unemployment. Technology, Trade and Globalization are all blamed by different analysts as the cause for this. Jobs not only provide income but also a learning opportunity, self-esteem, respect in the family and the community. A fully employed economy is more politically stable than on in which idle labor – particularly the youth – is hanging around.

 According to the Asian Development Bank (2007) employment elasticies estimates suggest that developing Asia should be able to create sufficient jobs for new workers provided that growth does not stall and that growth continues to create jobs as it has in the past. If Pakistan grows between 6-7 percent annually it can create enough jobs to absorb new entrants to labor force. Growth is strongly and inversely conflated with agriculture output and employment shares in Developing Asia. But countries that have increased their industry shares most have, on average grown more quickly. Likewise those countries where employment share in industry has risen, most have enjoyed faster GDP growth[[37]](#footnote-37).

 For Pakistan, the largest employment elasticity coefficients are in the small and medium manufacturing and construction industry. Services sector has also figured prominently in the creation of jobs. [[38]](#footnote-38)A wide range of services grows rapidly as industry and manufacturing expand. These include banking, finance, transportation, wholesale and retail trade. Unbundling and outsourcing of non-core activities like market research and accounting services that used to carried out in-house has allowed the firms to focus on core competencies increasing the productivity. As industry advances it creates a demand for knowledge services and requires pool of scientific, technical and managerial workers.

 According to the Economic Survey of Pakistan, informal employment constitutes almost three-fourth of the total employment. The jobs and livelihood earned by those in this sector are highly insecure. It is not only ill-health of the household head which deprives them of their earnings but frequent closures caused by strikes, processions, religious and sectarian rallies and disturbances in urban areas have become a recurring menace for them. Some of the daily wages earners are forced to fall back upon charity for their and their families’ sustenance when the city is shut down for several days. The link between poor governance and corruption failure of institutions for delivery of essential public services, unemployment and income inequality is quite strong. The vicious cycle can be broken only if governance and institutions are set right.

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