

**Challenges of Sustainability and Opportunities at Rio +20**  
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The Rio Conference on Environment and Development in 1992 set in motion a global drive towards cleaner production and consumption patterns worldwide.

Development has to be brought into harmony with environmental protection to ensure that humanity thrives and the planet is able to support the civilization. Yet the natural desire of all people for economic and social development has often been seen as conflicting with the need to protect the natural world, on which all human lives depend. Unconstrained development has frequently made that conflict real – but it need not be so.

The UN Conference on Sustainable Development (Rio+20), to be held in Rio de Janeiro this June, is an important milestone on the road to be reconciling those two forces. The Secretary General of UN has projected that energy is the linchpin that joins them together.

The tension between environment and development permeates the production and use of energy. The conversion of fossil fuel – first coal, then oil, then natural gas – has enabled modern societies to flourish and lift billions of people out of poverty. It has also despoiled the landscape and polluted our air and water. Now the prodigious production of carbon dioxide is changing the very climate of the Earth, with rapidly worsening consequences.

The urgency of the topics of Rio+20 could not be greater. More than a billion people still have no access to electricity – critical to development in a modern economy – even as the climate impacts of energy production are felt around the world in severe weather events that disrupts food production and drive up what for the poor is truly the cost of living.

**Future Development will be Different - Climate Change and Poverty are Defining Challenges**

The World Bank organised a brainstorming session on climate change in Washington, July 2011, inviting about 70 of the world's sharpest minds on climate change to find ways to best support the exploding demand from countries for a low carbon future. They included Nicholas Stern, Professor of Economics from the London School of Economics; Christiana Figueres, Secretary General of the UN Framework Convention on Climate Change; Todd Stern, Special Envoy for Climate Change for the US Government, and Kandeh Yumkella, Director General of UN Energy.

The participants emphasised that there is a direct link between climate change and poverty and that these are the two defining challenges of this century; and that the war on poverty cannot be won without addressing climate change impact and that there is risk of reversing any gains on poverty if climate change is not addressed. Climatizing investment plans is fundamental to development and growth. With Asia yet to construct much of its infrastructure over the next two decades, now is the time to incorporate climate change considerations into planning.

While talking of climatising investment plans as fundamental to development and growth the experts who assembled at the World Bank discussed on various elements that would help in creating a global framework whereby the future infrastructure development becomes crucial not only in the regional context but also in the national context.

The experts were of the opinion that the scale of the risks from climate change is so large that there is a need of no less than a “new industrial revolution” to deal with it.

Nicholas Stern emphasised, “With some climate scientists predicting that the world could be 5<sup>0</sup>C warmer by the end of the century, we may be returning to a scenario not seen in the last 30 million years. This redefines where we live, possibly billions of people will have to move, and this will inevitably lead to extended and severe conflict.”

Emissions need to be cut from nearly 50 billion tonnes of carbon equivalent to below 20 billion tonnes by 2050, and if the world economy grows by a factor of three, emissions per unit of output needs to be cut by a factor of eight to keep to a 2<sup>0</sup> C world. There has to be a new industrial revolution that would need to take place across all sectors and all economies.”

Nicholas Stern emphasised on two important and significant points as follows:

*Transformation through Cleaner Technologies:* “We also need a new narrative around climate change”, he said, “that not only brings home the extent of the risks but also tells the positive story that emerges through transformation. That is a story of development done differently, in which adaptation to climate change, mitigation and development are interwoven. Under this second industrial revolution, “growth is cleaner, quieter, safer, more bio-diverse, inclusive and altogether more attractive,” he said. “Tell that story and why this goal is worth pursuing. We then need good leaders with this ammunition.”

*Reasons to be optimistic – Denial to Action:* Speaking on reflections since his 2006 Stern Review on the Economics of Climate Change, he said, “there is much to be hopeful about. Since 2006, the attitude of world leaders to the urgency of climate change has shifted dramatically from the ‘denial’ towards ‘action.’ At the country, region, city and private sector levels, efforts to reduce emissions and grow differently are taking hold. One of the boldest of these comes from China through its latest 5-Year Plan which focuses on ambitious emission reduction targets through industrial transformation”.

Stern further said: “Perhaps the most important quantitatively and in radical - ness is China’s 5-year plan... it’s of extraordinary importance where key drivers of change are consumption, clean growth and innovation, radically different from high carbon, high investment and externally – oriented manufacturing.”

And even at the climate change negotiation level, which has been labelled as complex and slow-moving, countries are showing through their reporting that they can pursue low-carbon pathways and potentially reduce emissions much further.

## **Rio+20: New and Emerging Challenges**

The Climate Change discussions are basically aimed at identifying the future global development prospective that are directly affected by the climate change. The Rio+20

Conference Secretariat has publicised that the Member States and other stakeholders have highlighted the following challenges for priority attention (July 2011).

- green jobs and social inclusion;
- energy access, efficiency and sustainability;
- food security and sustainable agriculture;
- sound water management;
- sustainable cities;
- management of the oceans; and
- improved resilience and disaster preparedness.

Climate change cuts across all of these areas, as well as being a high priority in its own right. In addition, another cross-cutting priority that is particularly relevant for developing countries is – the means of implementation, including technology, financing and capacity building. While these are not really new challenges, they have taken on more serious dimensions in recent years. It is relevant to create an awareness of these emerging challenges amongst the participants.

*Green jobs and social inclusion:* Job creation is a big challenge facing all countries today. Unemployment is a scourge not only for those without work, but for their families. At Rio, Governments need to share lessons on what policies related to a green economy can create the most jobs. Rio+20 is not just about environment. It is also about social development. Rio+20 is a summit about people’s lives and livelihoods and it is a summit about action to create more jobs, better jobs and more green jobs.

*Energy access and energy security:* Energy poverty is still widespread in Africa and South Asia. Some 14 billion people lack access to electricity and almost twice that number of people continues to rely on biomass for cooking. There is a proposal to launch at Rio+20 a global initiative for universal energy access by 2030. Ambitious goals for energy efficiency and renewable energy are also part of the package. If the international community can endorse such an initiative it would be a milestone. A genuine win-win by bringing environment and development benefits together.

*Food security:* Even with the great advances of the Green Revolution, nearly one billion people are still hungry or undernourished. Food & Agriculture Organisation has been making difficult decisions but the number of poor and malnourished has been increasing. Now, farmers around the world experiment with integrated soil, water and plant management methods. These methods blend modern science and traditional knowledge.

UN Agencies and governments will make a serious attempt at Rio+20 to accelerate an “evergreen revolution”. This revolution will meet the growing global food demand while protecting soils, water and biodiversity.

*Sound water management:* Water is essential to life and is the lifeblood of farmers and even for energy supply. It has long been taken for granted. This must change. Rising demand is running up against greater scarcity. Pollution of water bodies because of no treatment of discharge/waste water adversely reduces the availability of pure water. In many places, desertification and drought are becoming more severe. This is happening even as flooding takes a heavy toll on lives and livelihoods. The risk of conflict over scarce water looms large, as does the challenge of coping with water stress. Global leaders will have to ensure that

closer international cooperation is promoted as that will be needed to avert conflict. Rio+20 offers an opportunity for forward-looking action on integrated water resource management.

*Challenge of urbanization:* Cities are concentration of human energy and creativity. They are both the source of sustainable development problems and laboratories for solving them. Most of the developing world's population will live in cities and towns by 2020. Three-quarters of the developed world's population already does. This means that urban planners and managers, transport planners, real estate developers, architects and engineers all have a crucial role in shaping a sustainable planet.

It is estimated that buildings alone account for roughly 15 per cent of global greenhouse gas emissions. Add transport and the manufacturing of building materials – and the number rises to the 20-25 per cent range. Local authorities will have to present strong pathways for sustainable city development.

*Marine resources:* The world's oceans are too heavily exploited and too little managed. The dire state of many fisheries is hard evidence. Many would like to see forceful actions agreed at Rio to accelerate implementation of chapter 17 of Agenda 21 on protection of the oceans.

*Enhancing disaster preparedness:* National disasters have been adversely affecting growth in developing countries. Significant environmental changes are already upon us, often affecting vast areas at a time. Natural disasters occur more frequently and their impacts are becoming more severe. Many economies and societies are under stress. They must adapt to difficult circumstances.

Mitigation efforts are not sufficient. Resilience will have to be built for disaster. This can only be done through international cooperation and local action.

*Means of implementation:* Technology cooperation, capacity development and finance will be crucial. The biggest challenges and opportunities are clearly in the fast growing economies of the developing world. So-called green technologies will need to be deployed widely in the developing economies. This will provide them the opportunity to take a greener path to development than was taken by wealthier countries. To acquire technologies to build greener infrastructure and industries, finance will be needed. Much of the financing for building greener economies will be mobilized by developing countries themselves. But, international financial support will be needed to move towards greener development, especially in the least developed countries.

### **What is Green Economy?**

It is in this context that the concept of a Green Economy in the context of sustainable development and poverty eradication has gained pertinence. It can be seen as a lens for focusing on and seizing opportunities to advance economic and environment goals simultaneously. Another concept with similar resonance-green growth- has garnered interest in Asia and the Pacific and more recently in the Organisation of Economic Cooperation and Development (OECD). It is widely understood that broad-based economic growth has been and continues to be the most effective contributor to poverty eradication. At the same time, it is appreciated that, in the 21<sup>st</sup> Century, growth will need to be associated with far less intensive energy and resource use and less pollution than historically. This is captured by the notion of green growth, which the Economic and Social Commission for the Asia and Pacific

defines as growth that emphasise environmentally sustainable economic progress to foster low carbon, socially inclusive development. The OECD definition is similar but emphasises also green investment as a driver for economic growth.

*Environment Economy Synergies:* The questions of how prevalent and significant are environment-economy synergies and win-win opportunities are an empirical one, one that various international bodies, think-tanks, and governments are devoting considerable effort to answering. UNEP Green Economy initiative is a case in point.

*Green Economy is beyond Internalising Externalities in Prices:* While the work on Green Economy to date was placed a particular emphasis on internalising environmental externalities in prices to send the right signal to procedures and consumers. Public policy for green economy extends well beyond price rise. If it does not, there is little chance that a green economy in the context of sustainable development and poverty eradication will be up to the task at hand for fundamentally shifting consumption and production patterns on to a more sustainable path. Governments have a critical role to play in financing green research and development, and infrastructure investment, and in providing a supporting policy environment for green investments by the private sector and for the development of dynamic green growth sectors. They also have a crucial role to play in ensuring the green economy policies support, employment and income generation for the poor and vulnerable.

*Green Economy not a substitute for Sustainable Development but a Mean of Achieving the End of Sustainable Development:* It has been noted by numerous countries (including India), that Green Economy does not supplant or substitute for sustainable development but rather is best understood as a mean to achieve the end of sustainable development. It has also been stressed that Green Economy should preserve “ample flexibility and space for national authorities to make their own choices and define their paths towards sustainable development based on national circumstances and priorities”. While these formulations help to clarify the relationship between two concepts, it is only practical experience that can demonstrate the effectiveness of Green Economy strategies, policies and measures an accelerators towards sustainable development.

*Contribution of Green Economy to Growth and other Economic Objectives.*

*Green Economy means Lower Pressure on Natural Resources:* During the past century, aggregate consumption of raw materials has continuously increased; regular improvements in resource efficiency and pollution controlled technologies have not been large enough to off-set the effect to the increase in the size of the global economy. The need for a system of production and consumption that imposes significantly lower pressures on natural resource talks and the environmental is widely recognised. The Green Economy in the context of sustainable development and poverty eradication has emerged as a framework for moving in that direction. While it holds promise, it also poses daunting challenges.

*Increased Understanding of the Risk posed by the Current Economic Mode:* The increased understanding of the risks posed by the current economic models arises at a time when many developing countries are on the threshold of major investments in energy, transport, waste, water and sanitation infrastructure, and sustained economic growth is seen as critical to the competition of the development transition. Would a Green Economy in the context of sustainable development and poverty eradication allow developing countries to

complete their development transitions while laying the ground work for sustaining high levels of human development for generations to come?

*Main Question – How a Green Economy Transmitted would affect Global Growth Rates and Patterns?:* At the global level, the main question is how a green economy transition would affect global growth rates and patterns. Would green growth be slower growth, nearly growth of a different kind, or perhaps, even faster progress towards human development goals – whether or not that translate into GDP growth as conventionally measures? If there are winners or losers, who would they be and how can governments manage the transition?

#### *Prospects for Green Growth*

Green Economy proponents argue that a green economy strategy would emphasize sectors that have been among the most dynamic, in terms of both growth and employment creation. For example, various studies have underlined the exponential growth of some renewable energy sub-sectors such as wind and solar, both in developing and developed countries. Enabling these “green” sectors to grow would “double dividends”, being beneficial both for the environment and for development. Green economy instruments, such as investments in the maintenance and restoration of natural capital would directly contribute to growth through improvements in productivity (e.g. in agriculture) and creation of additional income-generation opportunities (through improved ecosystems services).

Economic sectors often mentioned as candidates for their “greenness” include health, education, cultural activity and other services, renewable energy and related technologies, resource- and energy- conserving investment, and investment in natural assets. To the extent that there is scope for growth concentrated in those sectors, with a concomitant decline of growth in energy and resource intensive activities, this would introduce a fundamental change in the nature of growth. As production and trade of services with low environmental impact have increased with globalization, these would also provide alternative opportunities for developing countries to find markets beyond manufacturing when they can specialize, scale up, and achieve high economic growth.

In practice, there is uncertainty about the long-term growth effects of structural changes of the types implied by the green economy in the context of sustainable development and poverty eradication. Long-term simulations of some versions of a green economy package have started to be undertaken, but are still in early days. Specific areas such as climate change mitigation have been more thoroughly investigated. Some models suggest that climate change mitigation policies could lead to long-run growth in global GDP compared to business as usual, for example, through higher investment in clean energy generation and induced technological innovation. Others suggest somewhat lower GDP at mid-century with greenhouse gas stabilization than without. In either case, the costs of inaction also need to be considered. According to UNEP, eliminating subsidies for fossil fuels would reduce greenhouse gas emissions globally by as much as 6 per cent and add 0.1 per cent to global GDP.

Experience shows that some specific instruments normally included in the green economy mix can result in unchanged or higher growth with improved environmental outcomes. Evaluations of eco-tax reform, mostly in developed countries, suggest that in a number of contexts improvements in environmental outcomes were obtained at no or negative cost to employment and growth. India recently imposed a carbon tax of 50 rupees (US\$ 1.00)

per ton of carbon dioxide on both domestically mined and imported coal. Revenue generated by the tax goes into a clean energy fund, which invests in entrepreneurial ventures and research in the field of clean energy technologies. More generally, how revenues from eco-taxes are used can make an important difference to growth, employment and also equity.

### Green Economy, Structural Change and Growth

From the point of view of individual countries, growth concerns may arise from the expected shifts in global demand away from resource – and energy – intensive commodities which some developing economies specialize and towards green products and sectors in which they may lack competitiveness.

Whether individual countries will be able to attract investment in selected “green” sectors is an empirical question, the answer to which is likely to vary across countries. There is no priori reason why countries that have faced difficulties in attracting domestic or foreign investment into traditional sectors would do better with “green” ones. They might, however, if green sectors would employ more intensively productive factors which particular countries possess in abundance, but the policy environment also matters critically to investment prospects. The attractiveness of a location is substantially greater where domestic policy rewards green investment, as for example with feed-in tariffs for renewable electricity.

### Bridging Green Technology Gaps

Another commonly expressed concern is that a green economy, because it would promote technologies that are currently mastered mostly by developed countries, would disadvantage developing countries relying on conventional technologies. The greater ability of rich countries to finance and support research and development would also result in a loss of competitiveness of developing countries in key “green” industries, further increasing the technological gap. This fear may be reinforced by the results of simulation modelling that predict advantages for early movers into low-carbon industries such as renewable energy.

One probably needs to distinguish here between groups of countries. Some developing countries offer counter-examples to this line of argument. For example, Brazil is at the frontier in terms of research and production of bio fuels, while China is at the forefront of research, development and deployment of clean coal technologies. In renewable energy, the distribution of patents between developed and developing countries illustrates a changing picture where some developing countries are becoming important innovators.

While countries not among the innovators in green technologies would not share in the financial returns, they could still benefit as technology users if competition among innovators and rapid deployment of the technologies drive down costs and make adoption ever more affordable. Ensuring strong competition in green technology markets is therefore critical, and competition policy can contribute to that end.

### Green Economy and Resource - Dependent Economies

A key component of a green economy is “getting prices right”, that is, better reflecting environmental externalities in market prices, especially for natural resources. This includes the removal of environmentally harmful subsidies. The result would be to increase the prices of commodities such as oil, gas and minerals, at least in the short run. Countries that are net importers of these resources may fear that high prices could choke economic growth. This partly explains their preoccupation with lowering dependence on fossil fuel imports.

Natural resource exporting economies have their own concerns, which are the mirror image of those of net importers – namely, that a major shift away from fossil fuels in the long run would hurt their growth prospects, unless they are able to diversify their economies successfully in the meantime. Recent International Energy Agency scenario analysis suggests, however, that major oil-producing countries would see only a small reduction in expected revenues over the period to 2030 in a 450 parts per million scenario compared to a business-as-usual scenario.

### **Issues Influencing Green Business Decisions**

According to Gartner Incorporated the top issues influencing green business decision are as follows.

1. **A focus on cost and overall efficiency throughout the whole supply chain.** This means looking at all water, energy, and waste management practices as opposed to carbon dioxide-only footprint evaluations. Along these lines, capex projects must be more fully explained and justified, and payback and return-on-investment periods better defined.
2. **Energy efficiency is priority.** Within the cost and efficiency focus, energy efficiency gets the most attention. A sharp rise in crude oil, gasoline, natural gas, electricity, and heating oil prices in 2011 and anticipated increases for 2012 are compelling manufacturers to look at usage more strategically.
3. **Continued uncertainty in the regulatory landscape.** There are still many competing loose ends when it comes to figuring out which laws to follow and how to follow them. Regional, national, and global laws are in various states of discussion or implementation, or have been shelved short-term.
4. **Constraints influence.** Other constraints -- particularly growing concerns about adequate water supply -- are gaining attention. A significant supply-demand gap for water exists and will only get worse in the coming decades. Competition for sufficient water allocations for worldwide operations will heat up, and companies need to consider their water use targets.
5. **IT is taking on a new role in sustainability.** Previously, software and tech tools were aimed at compliance and carbon-reduction goals. Today the tools are being used to monitor and manage energy efficiency, track risks, and lower costs.
6. **Heavier focus on product lifecycle accountability.** Companies are going to greater lengths to determine sustainability gaps from design to end-of-life. Again, this doesn't necessarily stem from wanting to be good environmental citizens; it's another way to reduce total operational costs.
7. **The race for clean technology is clearly still on.** Globally, 2010 venture capital investment in clean tech approached high 2008 levels after a dip in 2009. The US and China are driving much of the growth in this space.
8. **Smart, green buildings and cities are a sweet spot.** Although the recession affected the construction market, green building, especially in the commercial segment, was the only growing segment. Companies are looking at ways to retrofit manufacturing facilities, warehouses, and other buildings to save on total energy expenses.
9. **It's still a risky global environment.** Supply chain, sourcing, and manufacturing operations are all global, with each regional location having its own peculiarities. Disasters like an earthquake in Japan or political unrest in countries mining raw materials cast shadows on continuity in sustainability plans.

On one hand, the sustainability conversation move away from compliance-level discussions. It's about time; there is a lot more at stake than following the rules. At the same time, it's disappointing that talks seem to be centred on cost cutting. Money-fuelled initiatives only go so far in changing behaviours. It's fair to say a certain amount of business evolution will be needed to keep the green revolution fired up

### **Business Approach of Green Development in India**

Aligning with the economic reforms and globalization of Indian Economy, the Indian business response to climate change mitigation and adaptation measures have been in line with the other global businesses. ITC Limited is an example of initiative of Indian Industry. ITC Limited has been the first company to take the initiative and has been very often quoted globally for its outstanding achievements in the environmental and social dimensions of the triple bottom line. For the ninth year in a row the company has sustained its “water positive” status, creating fresh water potential that is twice its consumption. For the sixth year in succession, ITC is “carbon positive” sequestering twice its emissions. It has also been “solid waste re-cycling positive” for four years now. As a result, the company is the only enterprise in the world of comparable size to have achieved and sustained these three global environmental distinctions.

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In 2011 all the luxury hotels of ITC have been accorded the LEED Platinum Rating under the aegis of the US Green Building Council. This achievement makes ITC hotels “greenest luxury hotel chain” in the world.

The Board of ITC has taken a conscious decision that to address the challenges of tomorrow with the policies and strategies of yesterday will not give appropriate results. The global challenges of food, energy and water security, climate change and sustainable livelihood creation will need far more effective and innovative solutions. The growing disclosure on sustainability challenges has resulted in a welcome attempt to recast traditional means of calculating economic growth. It is increasingly being felt that GDP calculations must now account for the cost of environmental degradation as well as its replenishment. This new approach, popularly known as the Green GDP, is expected to reflect the two dimensions of economic growth. It will also provide policy makers as well as civil society a realistic assessment of issues, that need to be address for a more sustainable growth of the economy.

The company is focusing on enlarging the size of its Green GDP, while accelerating the creation of sustainable livelihoods. Not only ITC Ltd but a large number of other countries are now focusing on the approach of Green GDP, thereby ensuring the economic growth through green pathways and at the same time sustaining the natural resources.

#### *Many more examples from India can be given*

A few characteristics will have to run common amongst the leading green companies. These are as follows:

- First disclosures of triple bottom line performance must be made mandatory and this can be achieved through sustainability reporting as an integral part of the annual disclosures.

- Second, institutions for measurement and rating of the businesses must be established. This will support the development of a responsible business “trust mark” rating system that could be used to convey to the consumer a company’s environmental and social performance. A company can be awarded credits, based on a objective evaluation of its triple bottom line performance and the accumulation of such credits could earn the enterprise trust mark rating on a progressive scale.
- Third, government must consider the provision of a differentiated preferential set of incentives, fiscal or financial, to companies that demonstrate leadership in sustainability performance. Priority fast-track clearances, purchase preference and other such incentives could be extended to corporate with high trust mark ratings. These ratings should also in due course of time become the major elements in decision making by banks and financial institutions in their lending operations providing benefits to more responsible corporations.

A large number of Indian Corporates are already following the green pathways and thereby ensuring that the natural capital is not eroded through resources use efficiency and sustainability criteria. The experience in India can be emulated by a large number of companies in the developing world, who are trying to create their position in the global competitive markets by honouring the sustainability principles.

### **Low Carbon Strategies**

The Government of India has set up an Expert Group on ‘Low Carbon Strategies for Inclusive Growth’ through pursuit of pro-active policies India’s 12<sup>th</sup> Five Year Plan to be launched on 1<sup>st</sup> April 2012 will have low carbon growth as its key pillar. The main sectors examined by the expert group included, power, transport, industry, building and forestry so as to achieve the target of reducing the emissions intensity of its GDP by 20-25% over the 2005 levels by the year 2020.

In the power sector reducing electricity demand by use of more efficient appliances, introduction of more fuel efficient power plants and changes in the mix of power plants are considered. In the transport sector, promoting goods transport by railways, mass transport for passenger movement, facilitating non-motorized transport and increasing fuel efficiency of vehicles are explored. Among industries, the possibilities of reducing emissions through change in technology in the steel, cement, oil and gas sectors are considered. The scope for reducing energy needs of commercial buildings is assessed. In the forestry, the Green India Mission is briefly outlined.

The Expert Group has considered to achieve the target of 20% reduction in GHG emissions by 2020. Determined mitigation efforts focus on policies that are in place or contemplated up to 2020. This requires continuous up-gradation of technology, new technology and additional finance, both from public as well as from private sources.

The green transmissions will not come unless the “Public Policies” are put in place.

### **How to manage the transition? The role of public policies**

The possible transition costs of a green economy in the context of sustainable development and poverty eradication are a concern to many countries. Changes in the structure of national economies would include adjustments to the structure of capital and

labour supply. For example, in case of a rapid transition to low-carbon energy systems, some of the existing capital for energy production may become obsolete or redundant, which would imply additional costs compared to a business-usual scenario. Even in the favourable case where a green economy would result in net job creation at the national level, how would the new jobs compare in terms of skill and remuneration with those lost through structural change? What can be done to retain displaced workers quickly?

These adjustments would require a leading role for public policies to avoid the negative effects on economic growth, employment and poverty. Countries have different capacities to deal with such adjustments and costs are of particular concern to low-income countries where demands on limited government budgets are already high. How would increased investment and social protection expenditures be financed? One option is to use eco-taxes, which generate revenue that could be used to support adjustments, if designed in ways that do not burden the poor.

The transition to a green economy in the context of sustainable development and poverty eradication can partly be accomplished through market incentives that internalize environmental costs and promote environmentally beneficial sectors, but these are a matter of public policy. Governments set the ground rules for markets that promote environmentally sound investment – for example, tax incentives for purchases of fuel-efficient vehicles or solar power systems. The existing system of implicit or explicit government subsidies could also be redirected to promote sustainable development goals.

Developing countries require vigorous growth, and that growth can be directed increasingly towards carbon-saving investment and energy efficiency. Opportunities for growth in renewable energy are available both in developed and developing countries; seizing them has often depended on the active promotion of Governments. Several organizations have made similar proposals for an internationally funded “big push” to scale up renewable energy in developing countries, capturing learning economies and advancing the date for attaining cost parity with fossil fuels. Government intervention is also crucial for social investment and infrastructure. If the infrastructure is energy-efficient, and if social investment is directed towards education and health services, there will be limited conflict between the economic activity generated and environmental protection.

Government policy plays a crucial role in determining which growth path will be followed. Government investment in infrastructure can lock in patterns of private investment that remain for many years, for example, by developing road or rail networks that determine transportation patterns and industry location in ways that can be environmentally beneficial or harmful.

Governments may also choose to stimulate investment in green technologies and sectors as part of explicit industrial and technology policies, on the expectation that these will emerge as major new growth drivers in the future.

At the international level, institutional changes will also be needed to support a shift to a green economy. Considering how financial systems, capital markets and trade rules encourage or hinder environmentally sound investments and green growth is paramount.

## **Sustainable Energy for All – Thrust in Approach of Secretary General of United Nations**

UN Secretary-General Ban Ki-moon has declared that the highest priority of his second five-year term, beginning in January, will be sustainable development – memorably defined in “Our Common Future” the report of the World Commission on Environment and Development chaired by Dr. Gro Brundtland in 1987, as “development which meets the needs of current generations without compromising the ability of future generations to meet their own needs.”

As the first step toward that end, the Secretary General has launched a very welcome new initiative, Sustainable Energy for All, with three interlinked global objectives for 2030:

- Ensuring universal access to modern energy services;
- Doubling the rate of improvement in energy efficiency; and
- Doubling the share of renewable energy in the global energy mix.

Energy is an enabler of all three components of sustainable development – economic development, social development and environmental protection – declared by the World Summit in 2005 to be interdependent and mutually reinforcing pillar. Indeed, none of the Millennium Development Goals (MDGs) will be met without access to modern energy services. The importance of energy to productive activity is taken for granted in the industrialized world; it is no less true for those who are living on a dollar a day.

Energy provides not only the means of economic empowerment – through water pumps, farm equipment, and industrial machinery, for example – but also social empowerment by enabling better health care and education and by freeing up women and children from the daily drudgery of finding and fetching fuel, hauling water, and pounding grain.

Developing countries must have the freedom to bring energy to their people in the best way they can, but that energy need not be dirty and wasteful. Today renewable resources, such as wind, solar, and bio fuels, can provide the benefits of fossil fuels without their environmental costs and, increasingly, thanks to rapid advances, without added economic costs – particularly if combined with efficient end-use technologies. This is true in rich and poor countries alike and gives hope that energy development can skip a step, much as mobile telephony has allowed countries to skip the universal installation of land lines.

Achieving the Secretary-General’s three objectives would enable all people in the world to have the benefit of modern energy services while reducing global emissions to keep global temperatures from rising more than 2 degrees Celsius – thus making urgently needed progress toward development and climate change objectives at the same time. Each of these steps is essential to the other. As Herman Daly famously observed in 1977, “The economy is a wholly owned subsidiary of the environment, not the reverse.”

Rio+20 offers the world an opportunity to endorse this integrated vision of the future and commit to making it real through immediate action by a wide array of stakeholders. These stakeholders include:

- National governments, which can contribute financial resources and change public policy to enable change directly and facilitate private investment;
- Businesses, which can engage with governments to get the policy and investment context right and deploy new distributed energy technologies at scale.
- Investors and international finance institutions, which can work more closely together to coordinate assistance and mitigate risk in order to encourage the flow of private investment – needed at a rate of 10-100 times the plausible level of development assistance. Public money and expertise alone will fall way short of the scale that is needed; only the private sector has the financial heft to support transformative change – coupled, of course, with the policies and incentives that governments can bring to the table; and
- Civil society, which can find and train energy entrepreneurs, develop new business models, advocate for change, and strengthen human capacity in governments and on the ground.

The expert group at UN involved with the initiative of the UN Secretary General has the following observation: “At a time when political action on climate change has slowed, even as the impacts of climate change have worsened recent conferences on climate change have focused on practical steps at the national level to reduce emissions. A global endorsement of the Secretary-General’s three objectives for Sustainable Energy for All, together with concrete commitments to action by political and business leaders, can spark faster action to reduce emissions and enable growth, reinforcing the progress already made and weaving the strands of environment and development ever more tightly together.”

### **CONCLUSION**

Ensuring Sustainability – including environmental and social development – is the biggest challenge which the mankind is facing. Every challenge can be countered by an opportunity. And that opportunity is available at Rio +20 Conference where the global leaders will brainstorm with professionals, academicians, civil society, business and other stakeholders to chalk out a Future Pathway that will lead to Sustainable Development on the Planet Earth.