BUSINESS AS A DRIVER FOR SUSTAINABLE DEVELOPMENT
TERI–BCSD

TERI-Business Council for Sustainable Development (TERI-BCSD) — initiated by TERI — is a regional network partner of the WBCSD (World Business Council for Sustainable Development), Geneva (www.wbcsd.org). It provides an independent and credible platform for corporate leaders to address issues related to sustainable development and to promote leadership in environmental management, social responsibility, and economic performance.

Disclaimer: The views expressed in this news magazine are of the authors and do not necessarily reflect those of TERI or its affiliated organizations.
As you hold this issue of Encore, we would be holding our annual event, 12th Leadership Summit for Sustainable Development in New Delhi. Last year we held this Summit in Mumbai in a different format with sharp focus on business and were highly appreciated. Encouraged by your support and suggestions, we have improved the format by incorporating a policy engagement.

Oft-repeated, we believe Banking and Financial Services industry must actively participate and help accelerate sustainable development in India. We are happy, meaningful engagements have started and the special session at the summit will allow thought exchanges, input business imperatives from leadership and enrich the evolving of a India specific guidelines for Responsible Finance. It’s a collaborative work in progress.

With effect of Climate Change becoming almost a annual phenomenon, it’s time we scale up our environmental and social engagements with a greater sense of urgency. IPCC’s Assessment Reports 5 were presented and explained by Chairman of IPCC Dr R K Pachauri and select authors from India. Hon’ble Minister Shri Prakash Javadekar shared Government’s policy focus towards mitigation and adaptation measures which were very encouraging. With supporting policy framework and appreciation of the criticality of climate change, business must take the drivers role in making India rank high in inclusive environmentally and socially compatible business strategy and fast execution.

Our CSO (Chief Sustainability Officers’) Forum over last two years has created significant knowledge base and projects implementation framework in value chain, waste management, water and energy efficiency in buildings. During the last term, the Forum also created very rich CSR Guide to provide comprehensive guidance to corporates covering CSR Policy preparation through execution, impact assessment, and business justification sighting case studies of successful projects.

We are happy with our Knowledge Partnership with GIZ for bringing in enhanced value to our members. We are now more actively engaged with World Business Council for Sustainable Development (WBCSD) in specific India focused programme participation from TERI-BCSD and WBCSD member companies. Indian GHG Programme, a three way partnership between TERI, CII, and WRI is making significant contribution to corporate GHG Management programmes which will support our national position in the next critical negotiation in November-December 2015 at the COP 21 in Paris and national SDG goals.

At the Leadership Summit, we are once again looking forward to a meaningful dialogue that will help chart a roadmap for scaled up business led environment and society compatible and economically beneficial business models. We hope you will find the leadership Summit and CSO Conclave rewarding experiences. We shall look forward to your suggestions to improve our value delivery to our membership.
It was the Former President of the World Business Council for Sustainable Development (WBCSD), Bjorn Stigson who often used the statement “Business cannot succeed in societies that fail”. Essentially, this statement articulates the reality that the good health and sustainability of any social system within which business operates is clearly one in which any enterprise, commercial or non-commercial, has a direct stake. In the case of business there are a number of factors that clearly require sustainability and stability of various elements.

For instance, the stability of the labour market depends on opportunities for human progress that a society is characterized by. As far as natural resources and the environment are concerned, business derives enormous value from clean air, clean water, and a range of ecosystems which provide services for all kinds of economic activities. Poor air quality, for instance, would lead to high levels of morbidity, which would result in absenteeism at work as well as decline in productivity on account of the health impacts of poor air quality. Similarly, water in any economic system is supplied from natural sources, in the absence of which a production unit would have to carry out expensive and energy intensive desalination of sea water or transport it over a distance. Indeed, a number of countries in West Asia, for instance, which are rich in hydrocarbon resources, use desalination with heavily subsidized energy, which clearly has a very high opportunity cost, and this is completely absent in other parts of the world which have rational energy prices.

Today’s business enterprise also has to contend with reputational issues. A company which pollutes heavily or uses natural resources in an indiscriminate and wasteful manner is likely to encounter major reputational loss, which may also impact its market opportunities. In such a case unsustainable operations within an enterprise would only lead to loss of opportunities in the market and a decline in the value of the enterprise.

The issue of business as a driver for sustainable development has come to the fore in recent decades mainly because a number of enterprises have displayed a short-term vision and focused on short-term goals of profitability without looking at options over a long time horizon. This appears to be in contrast with the approach followed by business leaders in the past, when they took on risks and made major investments in research and development by forgoing immediate gains and instead expanding their opportunities over a long time horizon. Worldwide today a growing share of economic activity is in the hands of business and private enterprise. Consequently, the impact of business operations and their underlying philosophy is, therefore, much greater today than was the case a few decades ago. As a result, the ethics and philosophy followed by business in its decision-making would become an important determinant of economic activities of society itself.

There is, therefore, a growing responsibility which business needs to exercise to ensure full adherence to the principles of sustainable development. Business, as mentioned above, has a deep stake in sustainability issues. Undoubtedly, business has to deal with the issue of protecting the global commons, because any damage or deterioration in the condition of these commons would impact business negatively. A case in point is the growing challenge of climate change resulting from increase in human induced concentration of greenhouse gases. The impacts of climate change, whether they relate to sea-level rise,
decreasing yields in agriculture, harmful effects on human health, changes in precipitation patterns, and increase in frequency and intensity of extreme events, all have a direct impact on business operations. These would be negative in most cases, leading to a decline in economic performance of an enterprise indirectly.

In an era of growing concern related to the unsustainability of several economic activities, a business enterprise would be judged for its social responsibility on the basis of its adherence or otherwise to the objectives of sustainable development. It also needs to be emphasized that products and processes which support sustainable development would also give an enterprise a good number of economic opportunities by which it can expand its market and profitability. For instance, with the rapid growth that is taking place worldwide in the use of renewable energy technologies, any enterprise that invests in this sector would have a distinctive advantage in the future. This reality is no different from what has been seen in the case of information technology, where the early mover advantage has given several companies very high and unprecedented profits.

Most importantly, any effort by businesses to orient its operations in the direction of sustainable development would require essential analysis and revamping of its operations. In such an effort, typically a company ends up improving the efficiency of use of its resources leading to gains that enhance profitability. There are, therefore, several arguments on why businesses need to take the concept of sustainable development seriously and adopt approaches by which it can apply these principles in its own operations. If business leads in this direction, government and civil society would inevitably follow soon thereafter.
Business as a Driver for Sustainable Development

In today’s flat and resource constraint world, the conventional thought of linear growth models, wherein growth in profits is considered to be achieved only through increased production (increased resource consumption) or by cutting costs, is not valid anymore. Further, demand for higher transparency and equity along with looming global challenges such as climate change are forcing businesses to re-consider another conventional line of thought – one that considers negative impact on environment and society as a trade-off for growth. Disruptive innovations and stakeholder demands are reshaping business models across industries and geographies. I believe an organisation cannot deliver value over the long run if it cannot adapt to this new reality. At CLP, our vision is to be the leading responsible energy provider in the Asia-Pacific region, from one generation to the next. This vision statement has a strong alignment with the definition of sustainable development. We ensure balance between economic, environment and social good by investing in the right technology and establishing the right processes, thus ensuring that our energy mix helps provide affordable energy with minimal environmental or social damage.

When it comes to profitability and bottom-lines, sustainability is steadily becoming the cornerstone of sound business sense. Some of the key reasons why it makes business sense to focus on sustainability are conserving resources and adopting more efficient products and solutions helps in saving costs. At Grundfos India, though our sales have gone up by 68 per cent, we have reduced our water consumption by 61 per cent and the power consumption by 8 per cent on a man-hour basis in 2013 as compared to 2008. This saves the company money on a perpetual basis and makes a business case. If businesses do not proactively start focusing on sustainability, it is likely that the government and the regulators will force them to and this will be a more expensive process.

Mr. Rajiv Ranjan Mishra, Managing Director-India, CLP India Private Limited

Mr. Ranganath N Krishna, MD and CEO, Grundfos Pumps India Private Ltd
Globally in any given country, private sector today, represents 75 to 90 per cent of all investments in the economy. And to protect their investment, it is imperative that they adopt processes and practices that are sustainable and environment friendly. HCC’s sustainability initiatives have resulted in significant efficiency improvements and lowering of our environmental footprint. HCC is the first Indian Company among top global companies to endorse United Nations Global Compact’s ‘CEO Water Mandate, Caring for Climate and Business Leadership Criteria on Carbon Pricing, which has provided a framework to help us realize our sustainability goals. Technology and innovations will play an important role while adapting sustainable processes and practices. It’s clear that behaving in a responsible way is imperative, both for individual organisations and the economies and societies in which they operate.

Mr. Ajit Gulabchand,
Chairman & Managing Director,
Hindustan Construction Company Ltd

It is not the Government alone, but also the corporate sector which would be adversely impacted by climate change, pushing Indian companies to wake up to sustainability issues across value chains. Climate change risks are becoming top priority of Indian boards, and companies are now investing in innovating new models and responding to the need of paradigm shift of integrating environmental considerations into their processes, products and policies. The banking sector is most vulnerable to climate change risk. Fears about systemic risks such as banking stability are prevalent in wake of the slowdown of economy and current political situation in India. Most Indian banks are yet to adopt systematic processes that combine fundamental quantitative analysis with carbon risk research, which would optimise the risk-return profile of their portfolio. This compromises the ‘level playing field’ for those who have adopted such mechanisms. In fact to tackle this disparity, a few banks are developing a voluntary guide to adopt sustainability principles for the sector. As an impetus to this effort, GIZ (Development arm of the German government), UNEP FI and YES BANK, have jointly launched the ‘Sustainability Series’, aimed to create awareness and train the Indian financial industry on environmental and social risk mitigation.

Mr Rana Kapoor,
MD & CEO, YES BANK
In the last decade, terms such as corporate governance, corporate responsibility, and sustainability have left the corridors of discussion and ideation to find the spot right where they belong — in the company’s boardroom. Root it to public query, regulatory intervention, or awakening of the corporate world, the reasoning does not take away from the pertinence of the subject. Often limited to the profit (economic), people (social), and planet (environmental) triple bottom-line approach, today corporates are investing time, energy, and money to define sustainability in a manner that showcases it as part of their business ideology. Not limited to the realm of the pacers and trendsetters, it has now become an inevitable matter of substance. Times are changing, for good.

Seven years ago, when Vodafone started its operations in India, it was aware of the potential of mobile communications but could not predict that it would be able to help change the lives of over 166 million people. The most rewarding part of this exciting journey has been the opportunity to contribute to the socio-economic development of the country. Mobiles have truly transformed the way people engage and interact. What is called the last mile connectivity is just the first step towards opening a new world of information and services, given the huge potential it can unbridle. The true mobile revolution has just about begun and Vodafone India is proud to catalyze it.

The need to engage in sustainable practices is led by an intense desire to contribute positively towards the three pillars of sustainability and CSR — Social, Economic, and Environmental. These three pillars are integral to the way Vodafone runs its business and designs its policies. The Mission, Vision, and Values of the organization clearly reflect its commitment, not only to the direct stakeholders but also to the society in which it operates. Vodafone remains committed to act responsibly and ethically to maintain the trust of its customers, its employees, and other stakeholders.

Taking forward the philosophy it strongly believed in — ‘What is good for society is good for business’— Vodafone has taken several steps to evolve its sustainability platform — Vodafone Cares, which integrates all the good that it does for the society, on one cohesive platform, which rests on the three strong pillars of Education, Environment, and Empowerment (3Es). These 3Es align the organization’s efforts towards being a socially responsible company and to make a meaningful difference to its employees, customers, and the community at large. It also enables the organization to do more of less!

**EMPOWERMENT — Transforming societies, transforming you**

Mobile telephony is the single most transformative technology for development in recent times. It has tremendous potential to influence sustainable socio-
economic development in the country. Of the six billion mobile phones being used across the world, almost 900 million are empowering users in India alone. This offers a significant opportunity to drive social change and provide crucial access to information and knowledge to the entire population at large at an extremely affordable cost.

Vodafone India celebrates the potential of mobile phones to enable empowerment in its own unique way.

World of Difference
Operational in 22 countries worldwide, Vodafone Foundation’s flagship World of Difference (WoD) programme is a volunteering initiative that enables passionate people to come together and work towards social change. Since its introduction in India (November 2011), WoD has seen participation of 78 employees donating over 38,500 man-hours, while working on 73 unique social projects with diverse NGOs, spread over eight-weeks. This is an estimated financial value of INR 5.4 crore, equalling eight highly skilled employees working in the social sector for two years.

RUDI Sandesh Vyavhar (RSV)
In line with its commitment to empower women across the country, the Vodafone Foundation collaborated with the Cherie Blair Foundation to develop a mobile-based management solution for the Rural Distribution Network (RUDI) of Self Employed Women’s Association (SEWA). This innovative USSD-based mobile application has helped automate the rural supply chain process for rural women entrepreneurs of SEWA and for the RUDI management. For the latter, it has helped in reducing inefficiencies that contributed to loss of 15–20 per cent in potential sales and revenue through central tracking and technology. RSV was recently awarded at the Mobile World Congress 2014 in Barcelona. By 2015 it aims to benefit 2,500 women.

Project Drishti
With the aim of providing employment opportunities to the visually-impaired personnel in an outbound call centre, Vodafone partnered with the National Association for the Blind (NAB) to develop ‘Project Drishti’. For this, the selected NAB members were given training on voice recognition systems. This programme with 160 active call seats is currently live in seven circles across Delhi, Mumbai, Kolkata, Maharashtra, Goa, Gujarat, Chennai, and Tamil Nadu. It has been very successful with high productivity levels and is proposed to be rolled out across the country.

ImmunizeIndia
Vaccination reminder services in several countries have been effective in preventing mortality in children due to diseases which are preventable by vaccination. By partnering with The Indian Academy of Pediatrics (IAP), Vodafone India launched the world’s largest vaccination reminder service for their flagship programme, ImmunizeIndia, a national, not-for-profit initiative that aims to prevent 500,000 child deaths and disabilities by 2018. The IAP-ImmunizeIndia programme is a unique initiative that leverages the outreach of mobile technology and penetration of mobile phones across the country to raise awareness and deliver critical alerts about an essential health service. This reminder service is available free of cost to parents across the country and they opt-in to the service by sending a text message by SMS to the national short code 566778 from any mobile network in India.

EDUCATION — Creating awareness, imparting knowledge
Meaningful participation of communities at large in finding and implementing solutions for sustainable development is not possible without education as it develops skills, knowledge, and values, which are priceless possessions that can help shape the future of the country. Vodafone aims to create awareness among our stakeholders for a safer and better tomorrow. Several programmes have been initiated to propagate safety and leverage the potential of mobile technology to facilitate education.

Raise your Hand
Health, Safety, and Well-being (HSW) of its employees and all those associated with it, is vital to Vodafone and the eight ‘Absolute Safety Rules’ (ASR) well define the seriousness of this cause. Living up to its commitment to nurture a safety-first environment internally as well as externally Vodafone initiated ‘Raise Your Hand’, an interactive employee volunteering programme developed to sensitize school children on road safety. Started in July 2013, this programme has been rolled out in 25 locations and in its inaugural year had 1,500
EnCoRE
April–September 2014

volunteers establish almost 100,000 child-connects. The second edition of this programme will commence shortly.

**Learning out of the Box**
To make learning fun, the Vodafone Foundation collaborated with Pratham Education Foundation and conceptualized the ‘Learning out of the Box’ programme. This novel learning solution, using innovative software developed by the Vodafone Solutions Team (Innovations Centre), has reached out to over 50,000 children, across 1,000 schools in India. Several schools across the states of Maharashtra, Karnataka, Delhi, Assam, Rajasthan, and Tripura have already enrolled in this programme.

**ENVIRONMENT — For a better tomorrow, we need to act today**
Environmental sustainability is critical for future survival and growth. All the choices made and decisions taken today impact tomorrow. As a responsible corporate, Vodafone understands its role and takes actions accordingly. From conserving energy to managing waste, from devising innovative business solutions to minimize Greenhouse Gas (GHG) emissions, Vodafone’s pursuits are a manifestation of its commitment towards a sustainable tomorrow.

**Offsetting our Carbon Footprint**
On the occasion of World Environment Day (June 5), Vodafone India pledged to plant 300,000 trees over the next three years. This initiative will be carried out in partnership with Grow-Trees.com, who will plant these trees between Kanha-Pench Wildlife Reserves, creating a first-of-its-kind wildlife-corridor. The tree planting activities will be spread out over 100 hectares of forest land between the two reserves. With this unique project, Vodafone India will be able to offset the 33 million kilogram of carbon footprint generated by its offices every year for three years. In addition, this project will create about 25,000 workdays of direct jobs mainly for women and tribals, inhabiting the area.

**ReSolve**
This *Golden Peacock* Award winning initiative — ReSolve — is about effective and efficient management of non-hazardous solid waste generated at Vodafone offices. Focused on three ‘Rs’ — Reduce, Reuse, and Recycle, this endeavour raises awareness about waste management amongst employees and communities while defining an end-to-end management process of wet waste, paper, and plastic waste. The project provides sustainable livelihood opportunities for urban poor and is presently being implemented by local NGO partners across 10 circles. It was successful in managing over 430 tonnes of waste in 2012–13.

**Green Networks and Data Centres**
Network forms the backbone of the operations carried out by Vodafone India, critical to provide a seamless experience to its customers. Given their huge energy consumption to run this large network, Vodafone has taken several steps to enhance energy efficiency, and reduce its carbon footprint. It is a key contributor to the telecom industry’s initiative of co-location of sites, with 89 per cent of its base stations located at third party tower company sites, leading to reduction in electricity and diesel consumption. By focusing on virtualization across data centres, it was able to reduce the physical server footprint by 20 per cent, just by increasing its virtualization to 34 per cent, leading to monthly reduction of 132,192 kWh of electricity consumption in 2012–13.

Vodafone also has a partnership with TERI to explore options for enhancing usage of renewable energy, managing and reducing carbon footprint, and enhancing energy efficiency. The key highlight of this partnership is to work on strategic advisory, knowledge sharing, energy conservation, and carbon footprint reduction.
Business Leadership for Energy Sustainability

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April–September 2014
What Next for Business in a Climate Constrained World?

New Delhi
Today, cities are home to over half of the world’s population and house most of its assets and economic activities. The rapid growth in the size and importance of cities has led to the fact that most of the key and emerging global climate risks are concentrated in urban areas. Indeed, cities are attractive to people, businesses, and industry because of the high concentration of infrastructure and a wide range of services they provide; however this appeal is highly dependent on the provision that basic services such as water supply, sanitation, energy provision, and transportation systems are functioning well. Disruption of these has implications for local economies and can destroy assets and livelihoods, reinforcing inequalities, and exacerbating poverty. Business and industry are dependent on such services for their operations, and as we know that climate change can be a cause for the disruption of city services and infrastructure, this makes business and industry exposed and vulnerable to climate change.

And climate change is happening now. Asia experienced the highest number of weather- and climate-related disasters in the world during the period 2000–08 and suffered 27.5 per cent of the total global economic loss. The severe floods in Mumbai in 2005 serve as an example to show the evident impact of climatic change combined with other stressors. A large proportion of Asia’s population and industries are located in low elevation zones that are particularly at risk from climate change hazards. Delhi, one of the five world’s most populated cities, is located in an area with high risk of floods, and Kolkata and Mumbai are in the top Asian cities in terms of projected assets exposed.

Impacts of climate change on business, industry, and infrastructure deterioration are already being observed and cannot be ignored. Ports, roads, rail, airports, and power and water supply systems are highly sensitive to extreme weather events such as flooding from extreme precipitation, high winds, storm surges, and sea-level rise, whose frequency and intensity are increasing in many parts of the world. Urban areas impacted by flooding due to heavy rainfall and storm surges can in turn lead to the destruction of properties and public infrastructure, contamination of water sources, water logging, loss of business, and livelihood options and increase water-borne diseases.

Rising sea-level and more frequent and intense storm projections will cause more frequent and serious damage of services, impede economic activities, and disrupt port and supply chains unless adaptation is enforced. Ports which are central to international trade, large petro-chemical and energy-related industries, and interdependencies with trade, shipping and inland transport services are especially vulnerable to flooding. Some studies find that with a 0.5 meter sea-level rise by the 2070s, the asset exposure in large port cities increases more than ten-fold, and by more than 60-fold in Ningbo, Dhaka, and Kolkata. The ‘top-20’ cities identified for asset exposure to coastal flooding in the 2070 ranking are concentrated in Asian deltaic cities, and include Mumbai and Kolkata.

Of course, coastal tourism, energy supply, transport, telecommunications, buildings, oil, gas, mining, and quarrying sectors, to name a few, are all affected by the risks of and projected to be impacted by climate change. One of the main challenges related to climate change’s impact on business and industry is the interconnectedness of many systems and the cascading characteristic of climate risks. Indeed, the disruption of activities in one sector and/or location can have far-reaching consequences within and across multiple sectors, and profound impacts on a broad spectrum of other city functions, infrastructure, and services, as this will interact with and may exacerbate many existing stresses. The cascading effects are especially evident in the water, sanitation, energy, transport, and communications sectors. For example, the flood that struck the Chao Phraya river in 2011 caused a high loss of life and damage to many companies and several industrial estates in Bangkok (estimated local damage
and loss was 3.5 trillion Yen), but it also disrupted global scale industrial supply chains. We are now certain of the substantial risk posed by climate change, and of the fact that it will have a profound impact on the society and on the economy.

Indeed, as continued emissions of greenhouse gases will cause further climate change, limiting it will require substantial and sustained reductions in emissions. However, despite a growing number of mitigation and adaptation policies, annual GHG emissions have continued to increase since 1970, and they are expected to persist driven by economic and population growth, if no further efforts are pursued beyond those already in place today.

This is why we cannot consider climate change to be just another issue. Effective action to deal with climate change will only be achieved if individual agents advance their own interests all together; and business and industry are key players in the process of responding to climate change now, not only in terms of mitigation, but also and importantly in terms of adaptation. Adaptation is necessary (but not sufficient) to reduce and/or avoid the risks and impacts of climate change. As yet our capacity to adapt is finite, and thus there are barriers and limits to adaptation. Mitigation is vital as it reduces the rate and magnitude of climate change and increases the time available for adaptation potentially by several decades. This means that the earlier we take action to adapt and mitigate to climate change, the more chances we stand of not having to face painful choices in the future between economic and social development on one hand, and climate change on the other.

This leads us to consider the great opportunity offered by climate compatible development. In developing countries where very large additional investments are needed to develop the still poor infrastructure and services, and where much of the future urban growth is yet to occur in cities that do not yet exist, ‘climate smart’ infrastructure planning is an opportunity that combines pro-poor development and climate change adaptation and mitigation. For instance, a report by ADB and UN estimates that “About two-thirds of the $8 trillion needed for infrastructure investment in Asia and the Pacific between 2010 and 2020 will be in the form of new infrastructure, which creates tremendous opportunities to design, finance, and manage more sustainable infrastructure”. Many adaptation measures that offer ‘no regrets’ solutions exist for developing countries, “Where basic urban infrastructure is often absent (e.g., appropriate drainage infrastructure), leaving room for actions that both increase immediate well-being and reduce vulnerability to future climate change”. This ‘climate compatible development’ gives a prominent role to urban planning and urban planners in adaptation to climate change impacts.

Consumers, governments, and businesses are three co-dependent players who have the ability to make their contribution to deal with climate change efficiently and mutually with the right approach. All three have enormous potential to drive a positive change and business, which invests and delivers, can be a catalyst for bringing about the change and must take the lead and responsibility, and ambition to be an important part of the solution. While businesses have already made significant progress in responding to climate change, the aim is for tomorrow’s businesses to become sustainable in order to grow. For example, new standards for measuring corporate and product-related emissions will have to be agreed to help drive continuous improvement.

In any case, we will have to deal with climate change sooner or later, and what is certain is that there will be winners and losers in all spheres of the society and in the realm of businesses and industry too. What is certain is that failure to act now will increase the costs and risks for businesses in the future. And what is certain is that the sooner we respond to climate change, the higher the short-term costs, but the lesser the long-term economic, social, and environmental ones. Businesses have a rare opportunity to show that dealing with climate change is not conflicting with a strong economy and actually goes hand-in-hand with improved well-being and prosperity.

In conclusion, it is crucial to grasp that the actions we take and the decisions we make now and in the next few years, will decisively shape the world for many generations to come; and substantial changes are still required to meet the goal of sustainably handling climate change. Our economies and most policies were designed for emission-intensive economies; but in a low carbon future, companies will have to be green to grow, new regulations and incentives will have to reward businesses and consumers for good behaviour and for making the sustainable choice, and will have to support sustainable patterns that respect regional and global ecological and resource limits.

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1 Climate change: Everyone’s business, CBI 2007
2 ADB et al. 2012
3 Hallegatte and Corfee-Morlot 2011
4 Climate change: Everyone’s business, CBI 2007
5 Climate change: Everyone’s business, CBI 2007
**Integrated Solid Waste Management**

Mr Sumit Prasad, TERI

Waste has always been a perennial problem and solid waste remains a big predicament up to this day since the amount of solid waste increases as population rises and economies develop. Today, the total amount of waste generated annually worldwide (municipal, industrial, and hazardous) is more than four billion tonnes and the municipal solid waste alone is between 1.6 to 2.0 billion tonnes. Also the global impacts of solid waste are growing fast as solid waste management costs will increase from today’s annual $205.4 billion to about $375.5 billion in 2025.[2] The issue of solid waste and its proper management stems from the number of consequences that arise from improper handling of the solid waste. Apart from increasing quantities of garbage that is taking up so much space, there is also the problem of health-related risks and environmental pollution that are associated with solid waste. Solid waste holds such a widespread impact that proper planning and implementation of a comprehensive solid waste management system is needed for solid waste collection, handling, transport, and disposal. [1]

Countries face uphill challenges to properly manage their waste with most efforts being made to reduce the final volumes and to generate sufficient funds for waste management. If most of the waste could be diverted for material and resource recovery, then a substantial reduction in final volumes of waste could be achieved and the recovered material and resources could be utilized to generate revenue to fund waste management. This forms the premise for Integrated Solid Waste Management (ISWM) system based on 3Rs — Reduce (Waste Prevention), Reuse, and Recycle. Integrated solid waste management (ISWM) is the application of suitable techniques, technologies, and management programmes covering all types of solid wastes from all sources to achieve the two objectives: waste reduction and effective management of waste (produced after waste reduction).

Waste prevention includes management solutions that deal with waste reduction. It is done by reducing the amount of waste produced by households and companies. It may also be called ‘source reduction’. This waste prevention includes reusing and minimizing the packaging of products, and designing longer-lasting products. Recycling involves salvaging waste materials such as glass and metal and using them to make improvised products. Organic materials, on the other hand undergo composting since they are rich in nutrients and they make valuable natural soil fertilizers. Disposal is also an aspect of integrated solid waste management that aims to deal with solid wastes that cannot be addressed by Recycling or Reusing, which are the most widely used and preferred way to deal with solid waste. Waste disposal may be done by placing the waste into a well-designed landfill. The best technology used in some of these landfills is the employment of disposal systems that are able to harvest energy via the recovery of methane that is released from the solid waste upon containment. A combustion process on the other hand is preferred to reduce the amount and volume of the solid waste via controlled burning. New technologies allow combustion facilities to generate steam in the process and use it to generate energy with water produced as a byproduct.[1]

Developing and implementing ISWM requires comprehensive data on present and anticipated waste situations, supportive policy frameworks, knowledge and capacity to develop plans/systems, proper use of environmentally sound technologies, and appropriate financial instruments to support its implementation. Different wastes and waste management activities have varying impacts on energy consumption, methane emissions, and carbon storage. For example, recycling reduces greenhouse gas emissions by preventing methane emissions from landfills or open dumps and by preventing the consumption of energy for extracting and processing raw materials. Communities that are looking for ways to help prevent health implications arising from waste and make the environment free from its detrimental impacts can start by implementing an integrated solid waste management programme.
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