

# 11

## Incorporating Resilience and Inclusiveness in Policy Framework of Urban Development: Indian Case

### Introduction

Initiatives for putting resilience in the centre-stage of global action agenda or positing it as the key requirement for sustainable development have become the major challenge in the Post Kyoto-Doha declaration era. In addition, there is a need to counter the exclusionary pattern of urbanisation, resulting in deceleration in growth of urban population, shrinking of cities, slowing down of the pace of rural urban migration and sectoral diversification. It would therefore be important to work out a strategy to make the settlement pattern, particularly for the large cities, resilient and inclusive. The necessity of analysing the spatial implications of such a strategy and building a robust framework for its implementation and monitoring in a large country with a fast growing economy cannot be overemphasised. This would require an understanding of the environmental implications of present structure of human settlements. The impact of a top heavy pattern of urbanisation in Asia Pacific region, energy costs of vertical growth in large and non-inclusive cities and that of bringing water and basic necessities from long distances and the cost implications of maintaining the lifestyles in these cities must be examined in considerable detail. It is only then that a framework to shift to a different paradigm of making the settlement structure more inclusive and sustainable can be proposed and the outlines of a monitoring system can be detailed. An attempt has been made in this paper to build up such a framework, taking India as a case study.

The analysis has been carried out in five sections. The second section, which follows the introductory

section, presents the context for the adoption of the Sustainable Development Goals (SDGs) by 193 member states in 2015, that endorsed integration of climate actions into policies and programmes to reduce poverty, hunger and inequality, by making the settlement structure more eco-friendly and inclusive. It underlines how the Millennium Development Goals (MDGs) and the proposed targets for provisioning of basic amenities that were enunciated without having a perspective of settlement structure led to emergence of serious spatial disparities, smaller urban settlements and rural areas recording significant deficits in Asia Pacific region, in general, and India, in particular. It makes a case for setting up specific targets relating to settlement hierarchy and spatially disaggregated environmental goals and operationalisation of a monitoring system, based on robust statistical evidence. The third section raises certain conceptual issues relating to proposing of the SDG 11 in the background of limited success of MDGs and deliberates on a few operational issues in implementing the former within the present system of governance. The next section analyses the programmes and policies followed during the past decade in India, highlighting how sustainability issues received scanty attention. It proceeds to identify the areas of concern in the context of the trends and pattern of urbanisation in the country focussing on the deprivations in different size class of urban settlements. In the fifth section, a scenario of sustainable urbanisation has been worked out at the macro level. The last section proposes a framework for implementation and monitoring of the strategy which can lead to better outcome indicators in terms of inclusivity and sustainability and make

it possible for the country to showcase its initiatives of moving on the path of sustainable development, as per its global commitment. This would help in demonstrating India's seriousness in meeting the SDGs, facilitate bilateral and multilateral dialogues and build political pressure on other countries exhibiting reluctance in compliance.

### The Challenge and Context

The challenge of building a resilient system in a country having the elasticity to absorb the disturbances arising from anthropogenic factors and return back to a dynamic growth path, by shifting from one steady state to another, is enormous. This is because the efforts of an individual country, howsoever large, can make only marginal effect since the world architecture concerned with the problems of Climate Change has not yet found a mechanism that can mandate compliance with a strong system of incentives and penalties for all the countries in the world.

The countries at low and middle level of development including India and China, generally stand with the principle of equal but differentiated responsibility and blame the developed countries for sabotaging it. This enunciates a normative position that the less developed countries, including the emerging economies, must be exempted from the compliance norms, at least for a couple of decades, as they have serious deficits in most of the MDG targets pertaining to social and economic development. It is, however, unlikely that this ethically grounded position, which constituted the basis for global architecture for Climate Change in the past couple of decades, would carry significant weight in current international negotiations, given the extreme inequity in political and economic power. Many of the emerging economies are willing to put a cap on their emissions when they reach the per capita figure of the industrialised countries. Evidently, if each country makes such conditional commitments, the business as usual scenario would prevail due to game theoretic considerations, pushing the global temperature well beyond 2 degree Celsius, threatening life and livelihood of entire humanity. Per capita emission equivalent to that of the world average for all less developed countries is not sustainable, and hence the need for a paradigm shifts in development strategy.

There seems to be a general agreement that if the rise in global temperature has to be contained to 2 degree Celsius, the level of fossil fuel consumption must be brought to half of the level of the pre-industrialisation period by 2050. By the most conservative projections, the global income will be three and a half times of the present level by that time, Asian economies growing at 6.5 per cent per annum. Given the 350 per cent increase in world GDP and the stipulated reduction in energy consumption, noted above, we need to increase carbon efficiency seven times of the present level or an 700 per cent increase in the productive capacity of energy. It is high time that all countries seriously consider issues of sustainability of their present path of development and lifestyle. Focus would be on the emerging settlement structure, its energy efficiency and inclusivity, the implications of which have been discussed in the following sections. They must consider the possibilities of reorganisation of economic activities and settlement structure for attaining required resource efficiency.

What is more worrying is that the global summits and international conventions are still discussing the reduction in emission by 30 to 40 per cent only by 2030. The importance of such conventions must, therefore, not be exaggerated. Although our success since the 1990s has not been stunning, it is argued that 40 per cent reduction is not difficult to achieve through forestation programmes and adoption of available technologies. Many among the national governments are showing willingness to accept even higher targets. There is growing realisation in the UN that the "gap between scientific evidence and political response" is growing. This provides the context for the adoption of the SDGs, that besides taking care of the unmet targets of the MDGs, would combine these with concerns for sustainability. The key issue here would be how to set specific targets at national level and transform them into city level or programme-based norms and ensure their compliance.

Regional MDGs Report 2014-15<sup>1</sup> for Asia-Pacific reveals that this region which accounts for more than half the world's population and has two of the most dynamic economies, China and India, has helped the world in achieving major breakthrough in meeting the MDGs. The serious deficits, however, have been noted in all sub-regional units in terms of

the prescribed health targets, particularly linked to children and women. This is compounded by the fact that the progress in achieving basic sanitation has been extremely tardy. In case of educational targets such as completion of the final year of primary education and achieving gender parity, South East Asia and South and South West Asia emerge as areas of concern. Similarly, in maintaining the forest land, South East Asia and East and North East Asia give alarm signals.

India is a better performer in most of the MDGs which possibly can be attributed to its relatively higher growth in GDP in recent years. The country is among the early achievers in terms of the goals of poverty reduction, enrolment in and completion of primary education, gender parity in primary education and controlling HIV Aids and tuberculosis. The major deficits, however, are in tertiary education and gender parity in that. The very high dropout rates particularly in rural areas and smaller urban settlements are responsible for this shortfall. The other equally important concern is the deficit in skill development and here again the disparity across size class of settlements is extremely high. The Regional MDGs Report 2014/15 further confirms that India has made very slow progress in achieving the targets in the field of health. Significant gaps are noted in meeting the infant and under five mortality goals as also of maternal mortality. Alarming deficits are noted in the provisioning of basic sanitation which would partly explain the disastrous outcome in health for the country and the region. The satisfying point, however, is that in no dimension India reports a total stagnation or regression. It is evident that in the spheres wherein the targets have been missed, there has been substantial progress which could serve as a launching pad for the sustainable development in coming years, as noted in the Report.

To maintain this momentum in the period after 2015 and feed that into achieving the SDGs, the region must address the bottlenecks in extending the benefits of technologies to all – particularly the population living in less developed regions, villages and small urban centres. This has to be accepted as the key challenge in the Post MDG agenda. The second challenge is implementing and monitoring various missions and programmes launched by different countries with reference to the SDGs. The Report considers that this is not possible unless a robust statistical system is

built that can help in constructing reliable outcome indicators so that the benefits occurring particularly to the backward regions and poorest groups can be monitored and corrective actions taken.

## Conceptual Issues of the SDG 11 and Concerns for Operationalisation

Many of the SDGs have been considered as mere extensions of the MDGs at conceptual as well as operational level. The former, however, are envisaged to bring about a global systemic reform to remove the impediments that came in the way of achieving the MDGs, exert greater international pressure for compliance, covering population of all regions and settlements. The SDGs from one to seven are, indeed, similar to those of MDGs, the only difference being that the mandate is more comprehensive and inclusionary, stipulating mitigation of developmental deficits in different regions, settlement categories and for different sections of population.

The SDG 11 of ‘Making Cities and Human Settlements Inclusive, Safe Resilient and Sustainable’ is one of the major goals designed to integrate climate action into policies and programmes to reduce poverty and deprivation. It lays down a framework for ensuring sustainability of settlement structure and the process of urbanisation. It envisages provisioning of housing, basic amenities, open green space, healthier micro environment, efficient transport system, capacity building for better governance, protection against disaster and safeguarding heritage (Annexure I). The first 7 of the 10 targets pertain to what needs to be done within the cities and the other 3 envisage urban development policies in regional context. This goal is expected to be achieved through an urban development strategy which allows all stakeholders, including the citizenry to actively participate in social and economic life.

Two of the targets under SDG 11 stipulate that a sustainable city must provide access to safe, affordable, accessible and sustainable transport and create green and public spaces for all by 2030. The success in achieving these targets will enable meeting the targets in several other SDG goals. The improvement of the transportation system with emphasis of public transit would automatically improve access to education, health and employment, in particular for women and

children, older persons and those with disabilities. This would contribute directly to achieving the goals of poverty eradication (SDG 1), ensuring healthcare (SDG 3) and providing access to quality education (SDG 4). Furthermore, it would lead to reduction of non-communicable diseases (SDG 3) by encouraging cycling, walking and community interactions.<sup>2</sup> Additionally, an improved transport system would bring down the number of accidental deaths and injuries.

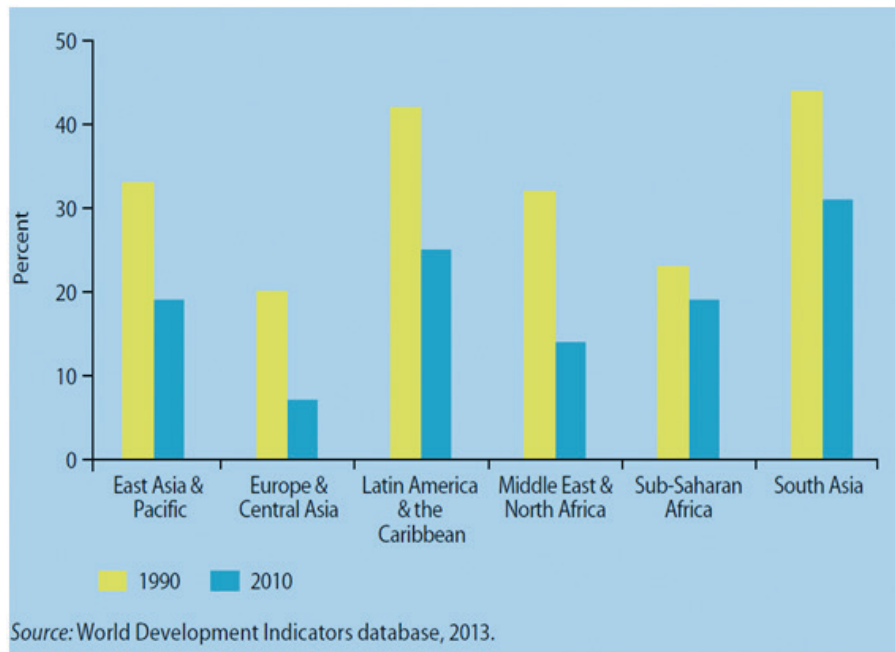
The importance of SDG 11 cannot be over emphasised in the context of limited success in meeting the MDG 7. The main reason for the latter is setting no quantitative targets for various monitoring indicators such as the proportion of land area to be kept vacant or brought under forestry, water resources and marine areas to be protected, CO<sub>2</sub> emission, household's access to water sanitation, etc., at the national level. Most countries, however, pursued the target 7D, of improving the conditions in the slums in an attempt to 'sanitise' the cities quite vigorously. However, engagement of private actors in their strategy resulted in rise in the value of land, leading to dislocation of

slum dwellers and their replacement by middle class households, who could afford the enhanced prices. This led to a process of exclusion whereby the growth rate of urban population turned out to be significantly below what was projected by the UN before a decade.

Currently, more than half of humanity – 3.5 billion people – lives in urban areas. By 2030, almost two-thirds of the global population will be urban. In 1990, there were ten mega-cities with more than 10 million inhabitants. In 2015, there are 28 mega-cities, home to a total of 453 million people. The importance of SDG 11 cannot be exaggerated in view of the concentration of urban population in a handful of large cities, particularly in South Asian countries, necessitating vertical growth on limited urban space and the cities drawing in water and other resources from distant hinterland. This has resulted in just 3 per cent of the urban land accounting for 60-80 per cent of energy consumption and 75 per cent of carbon emissions many of the South Asian countries.

Furthermore, the gaps between rural and urban areas in their per capita income, quality of employment, and access to basic amenities are very high globally. These turn out to be the highest in South Asian region.

*Figure 1: Urban Rural Gap in Percentage of Households having Access to Sanitation*

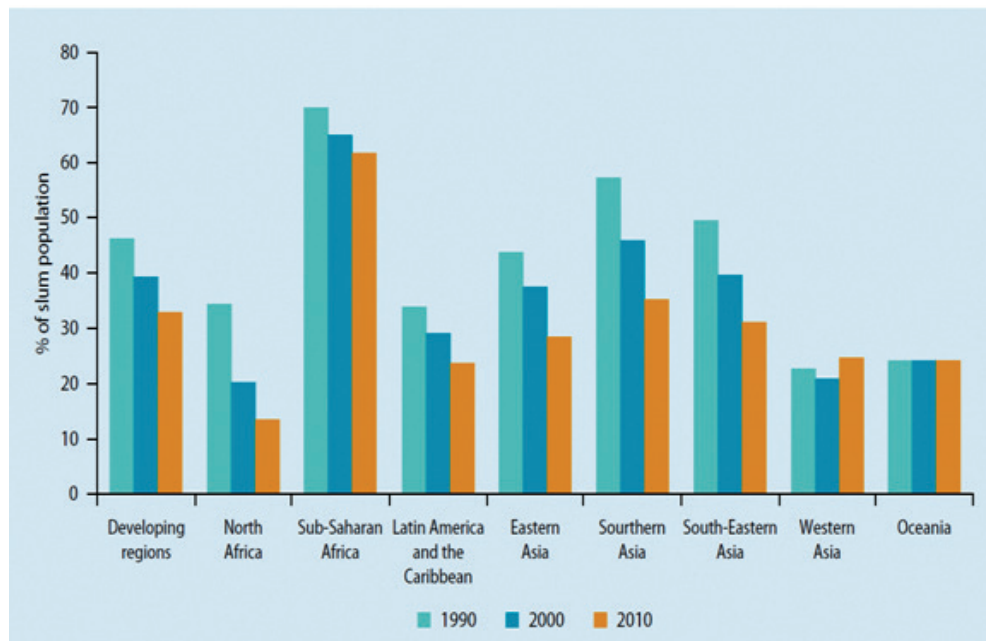




The gap in terms of households having sanitation facilities (Figure 1) was as high as 44 per cent against that of 42 per cent in Latin America and Caribbean in 1990. The gap has gone down dramatically in the latter in 2010 but not in South Asia. Importantly, the percentage of slum population has declined significantly at the global level, this being hailed as a big success of the MDG 7. The reduction is the highest in case of South Asia (Figure 2). India is at the forefront in confirming this success story as the slum dwelling population which was projected to go up from 63 million to 93 million during 2001-11 was estimated to be 65 million only, recording a decline in the share of slum population in urban areas from 24.4 per cent to 17.2 per cent. It is curious that the limited success in improving the drinking water facility, extremely tardy progress in extending sanitation system (Target 7C) and the concomitant Rural Urban inequality have not received due policy concern. The key factor behind the grossly inadequate outcome for most of the indicators under MDG 7 is that the targets were not supported by a clear roadmap towards sustainability, at global or national level. Consequently, these were not brought into active policy domain of the national and state governments.

Doubts have been raised whether the world is ready to adopt the SDGs as there are serious issues in integrating sustainable development targets with those of inclusivity within current priorities of development in different countries. For making these into reality, the cities need to forge new local and regional partnerships, a different paradigm of engagement with the market and a new system of governance. They can play a critical role in successful implementation of SDG 11 through establishment of an interactive system of exchange of indicators and monitoring by an apex agency. The key concern here will be whether the cities are able to economically absorb the persons displaced from primary sector in a meaningful manner and provide them access to employment and basic amenities. Unfortunately, the goal does not specify any target relating to inclusivity of cities nor indicate how this is to be achieved through intervention in urban production system and labour market. Some detailing out of the targets of inclusivity at global and national level is an imperative for achieving success in this domain.

*Figure 2: Proportion of Urban Population Living in Slums 1990-2010*



## A Strategy towards Meeting the SDG 11 and Making the Cities Inclusive and Resilient in India

The level of urbanisation and the growth rate of urban population in India has at best been modest since Independence, in a sharp contrast with the projections made by UN system.<sup>3</sup> The rate of (annual exponential) urban growth was reasonably high in the 1950s at 3.3 per cent, fell sharply during the 1960s to 2.2 per cent but reached its peak at 3.8 per cent in the 1970s, as reported by Population Census in India. These rates were similar or lower than those of Africa or Latin America throughout the period. However, there has been a slump during 1980s and 1990s, the rate for India coming down to 3.1 per cent and 2.7 per cent. This rate could be maintained at 2.7 per cent during 2001-11, simply because of identification of 2800 new urban centres, attribute partly to Census activism. The sluggish growth of urban population in India has been responsible for the delay in matching the milestone of the world population becoming half urban, by at least 3 years.

The global projections are that 95 per cent of urban expansion in the coming two decades will take place in the developing world. The epicenter of urbanisation is expected to shift from Latin America to Asia. India is predicted to be 'hit by urban avalanche', the number of urban dwellers doubling over the next 35 years. Shift of labour force from primary sector to more productive manufacturing and tertiary activities in urban areas, having high density of population and economic activities, would bring efficiency gains and sustain a higher rate of economic growth, as predicted by the most international organisations. While forestation programmes, reduction in the use of fossil fuel based energy and technological innovations would reduce resource and energy intensity per unit of GDP, as committed by India in terms of its INDC (Intended Nationally Determined Contribution), rapid urbanisation and its top heavy character is likely to exert pressure on agricultural land, ground water resources, quality of air, etc., in and around large cities and development corridors.

The prediction of urban explosion by global and regional development cum banking agencies have, however, proved to be fallacious. There has been a

significant deceleration in demographic growth of the large cities in recent years. Many of these have turned out to be exclusionary in character and gone into 'a sanitisation drive' through eviction of slums and restriction on growth of informal activities. Their demographic growth rates have declined at a faster rate than what can be attributed to fertility decline. The fall in the overall growth rate of urban population can, thus, largely be attributed to the top heaviness in urban structure in the country. Since over 25 per cent of the total urban population are accounted for by cities with population over 5 million, deceleration in their demographic growth, would bring down the overall rate of urbanisation. The increase in the share of 5-million and million plus cities has, thus, been stalled in the last Census decade.

The challenge and responsibilities of achieving the SDG 11 are imperative in India. Urbanisation must usher in a process of inclusive economic growth and counter the trends in rural-urban and intra-urban inequality that have grown at an alarming rate. It has to ensure that the all sections of population, including women, children, SC/ST population and religious minorities have access to safe and affordable housing, basic amenities and open green space. It would involve slum up-gradation, improvement of urban planning and management practices in a way that is both participatory and inclusive, besides safeguarding the heritage and protecting the citizenry against natural disasters.

Research studies and available information on the economic costs of providing infrastructure and basic services suggest that the per capita costs work out to be six to seven times in class I cities, compared to that in small and medium towns. The ratio works out to be much higher when the environmental costs are brought into the calculation. The emphasis, therefore, must be on 'distributed urbanisation' in the country, focussing on growth of a large number of small and medium towns that can serve their rural hinterland, as stipulated by the Planning Commission in the 12th Five Year Plan. Consequently, the changes in the size class distribution of urban population, brought about through spatial strategy of development, will determine whether India can bring down the consumption of energy and other natural resources, in support of its claim of meeting the SDG 11 and moving towards

a sustainable path of development in a time bound manner.

India has time and again underlined the need for climate justice and has argued that although it was not part of the problem of Climate Change, it is willing to be part of the solution. After declaring that the response of developed countries has been “tepid and inadequate” resulting in an “emission ambition gap”, it has announced its INDCs, stipulating reduction in carbon emissions relative to its GDP by 35 per cent by 2030 from the levels of 2005. This may be seen as a mere extrapolation of an earlier commitment, to reduce its emission intensity by 25 per cent by 2020 from its 2005 levels. There is need for a firm commitment to cut absolute quantum of emissions as has been initiated in the countries like the US, EU, China and Brazil. These INDCs envisage a number of new initiatives and priority areas like transport system, building design, appliances and waste management. The national and international expert bodies, however, hold that India can reduce its emission intensity by up to 40 per cent simply through forestation programme and shifting to alternate mode of energy production. It can thus set an example by overshooting the target by a margin.

The second important INDC declaration is that 40 per cent of the country’s electricity would be based on non-fossil fuel, such as wind and solar power, by 2030. Understandably, there will be substantial reduction in thermal power and increase in nuclear energy generation. Thirdly, the government has chalked up an ambitious blueprint for a carbon sink plan and has made significant progress towards forestation. The environment ministry has issued guidelines to hand degraded forests over to the private sector to grow timber and other forest products. The proposed conversion of natural forests into monoculture plantations, however, is likely to result in loss of habitat and biodiversity.

All these measures would mean serious financial commitment on the part of the government since it is unreasonable to expect much by way of international climate finance. An expenditure of over 2.5 trillion dollars is likely to be incurred between 2015 and 2030 to carry out intended climate actions. Adaptation in the energy sector alone could cost more than 70 billion dollars. India’s annual economic cost from climate change linked measures could be 1.8 per cent of the gross domestic product by 2050. While all

these expenditures are likely to become mandatory under international pressure, there is no going back for India from its aggressive path of technological transformation. Thankfully, the missions of Smart Cities, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Housing for All by 2020, Swachh Bharat Mission (Massive sanitation drive), are largely in line with the targets set under SDG 11. However, many of the components of these missions, implemented through private sector participation, are likely to bring high tech solutions and make the cities unaffordable to the poor. Also, this may not go well with the proposed shift to renewable sources of energy. Massive forestation programmes may also conflict with the development of industrial corridors and Make in India mission that are linked with infrastructural provision in cluster of villages under the Rurban programme. The economic success of these programmes would depend on the global and national competitiveness of the industries which may push for frontier technologies, mostly unsuited for infrastructure development in backward areas. Finally, studies focussed on technological options suggest that there is saturation of manufacturing efficiency in several industries, implying that manufacturing growth here can occur only at the cost of higher level of emissions.

### **Proposing a Framework to Develop Indicators for Monitoring and Launching Corrective Actions**

Designing a system of incentives and penalties for effective implementation of the current missions and programmes would involve determining a set of parameters reflecting energy efficiency, emissions of pollutants and climatic vulnerability on the one hand and those articulating inclusivity, spatial balance in development etc., on the other. A number of UN, governmental and non-governmental agencies have proposed vulnerability indices taking all the physiographic and socio-economic factors into consideration within the framework of inclusive development. It would be important to build up these indices, with appropriate modification specific to Indian situation at the city level.

For implementing and monitoring development projects, it would be necessary to build a transparent and unambiguous system of indicators and link these to

incentives and penalties. These should reflect the status of ecological vulnerability, efforts made to improve sustainability as also inclusiveness. These would constitute the basis for sanctioning of the grants and getting exemptions from emission compliance norms, set at national level. These are to be updated at regular intervals as technical knowledge regarding the costs, benefits and resilience advances over time.

The success of the approach would depend on creation of green funds under every central government programme, implemented at the city level. An institution with a multi-disciplinary expert body would have to be established at national level entrusted with the responsibility to formalise the methodology for working out the indices.<sup>4</sup> Apportionment of green funds across the cities would have to be done based on the recommendations of this institution.

The impact of a development programme on the local environment would vary across regions and cities not only because of their varying physiological features but also the socio-economic characteristics of the population. The ecological vulnerability and inclusivity indices, therefore, must be sensitive to the changes occurring in the cities. These indicators can be built from the existing national systems that provide information at settlement level. Choice of indicators and temporal and cross sectional comparability are the major issues here. Specific indicators need to be designed to capture the specific vulnerability of the cities located in coastal areas or in climate zones of heavy rainfall, high temperature variation etc.

Sources collecting exclusively biophysical data to identify regional hotspots can provide only limited inputs in estimating the levels of coastal protection. However, information from the Population Census, National Sample Survey etc. would be useful in proposing a number of anthropogenic indicators. Vulnerability and inclusivity would, thus, be determined through aggregation of these two sets of indicators. Building some kind of regional consensus on the choice of indicators and method of composition would be important for classifying the cities into categories and determining fair allocations from the green fund assistance. The final decision regarding the selection of appropriate indicators should be made by the apex institution in a manner so as to give weightage to regional specificities.

Any attempt at constructing such summary statistics involves resolving legitimate political or normative issues. It is important to note that designing resilience indices is as much a socio-political as a scientific task. Changes in the thrust areas of resilience would produce different rankings of the cities and suggest different strategies. However, instead of determining ranking and fund allocation through political bargaining, attempts must be made to institutionalise the process of exercising political judgment through a formal methodology for constructing the indices.

The proposition that the cities that are most vulnerable to climate change should receive priority assistance, irrespective of their scale of adaptation/resilience measures, computed within a human development framework, would be contested, on the ground that this would make the recipient cities complacent with regard to fund availability. The format of city challenge competition, as adopted in selecting the smart cities, would be appropriate in this context as well. It is possible to work out an aggregative index by incorporating aspects of vulnerability, initiatives towards achieving sustainability and inclusivity. However, bringing all these considerations into a single index would blunt the focus and restrict its usability in policy making. Vulnerability index would reflect the present state of environment with regard to resource base, quality of air and water, etc., while the resilience strategy index would articulate the efforts made at the city level for addressing the problems. The inclusivity index, constructed separately, must reflect the measures undertaken to open up the city and its economy to migrants and socio-economic groups.

A case, thus, can be made to work out a number of disaggregated indices. The need for special indicators for residential, industrial and administrative cities must be recognised. The policy perspectives underlying these indicators and their usability in measuring and monitoring performance of different projects in terms of carbon efficiency and inclusivity need to be brought into the public domain. The critical challenge would be to formalise the methodology and work out indicators of depreciation of natural assets and their costs within a framework for national green accounting. These must be generated at regular intervals to monitor the projects and work out the course of corrective action. A few among the developed countries are already building temporally comparable indicators at disaggregated level on an experimental basis. It is important that



India, at national level through a network of regional institutions, takes immediate steps in evolving the methodology for constructing and releasing a set of temporally and cross-sectionally comparable indicators at a spatially disaggregated manner and employ these in monitoring the projects.

### *Endnotes*

- <sup>1</sup> Asia-Pacific Regional MDGs Report 2014-15, Making it Happen: Technology, Finance and Statistics for Sustainable Development in Asia and the Pacific
- <sup>2</sup> Kristie Daniel is Program Director, Livable Cities Program, HealthBridge Foundation of Canada, Ottawa.
- <sup>3</sup> The UN projections are based on modified exponential models that stipulate that urban rural growth differential will increase till a country reaches 50 per cent level of urbanisation.
- <sup>4</sup> A similar system has been proposed by various UN agencies at the global level United Nations (2008).

## Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable: Targets and Indicators

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate 11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people <sup>a</sup> 11.5.2 Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services <sup>a</sup>
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities 11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	11.b.1 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 <sup>a</sup> 11.b.2 Number of countries with national and local disaster risk reduction strategies <sup>a</sup>
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	11.c.1 Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials

# 12

## Sustainable Consumption and Production

### Introduction

The importance of sustainable consumption and production (SCP) has long been recognised in global discourse, yet the Millennium Development Goals (MDGs) did not address this key objective of achieving SCP patterns. The High-Level Panel of Eminent Persons on the Post-2015 Development Agenda specifically noted the omission. Many governments in the Open Working Group on Sustainable Development Goals (SDGs) recognised that this objective should be embedded in the SDGs, either as a stand-alone goal, or cutting across other goals on food, health, economic growth, industrialisation, cities and ecosystems.

Chapter 4 of Agenda 21, endorsed by the United Nations Conference on Economic Development (UNCED) in Rio de Janeiro in 1992, identified unsustainable consumption and production patterns, particularly in industrialised countries, as the major cause behind the continued deterioration of the global environment. Agenda 21 stresses that changes in consumption and production patterns are necessary to ensure more sustainable development. The concept of SCP was also recognised in the Johannesburg Plan of Implementation adopted in 2002 at the World Summit on Sustainable Development (WSSD).

The following year in 2003, the Marrakesh Process was initiated to respond to the specific call of the Plan of Implementation to develop a 10-year framework of SCP programmes.<sup>1</sup> In 2012, the United Nations Conference on Sustainable Development (Rio+20) reaffirmed that fundamental changes in the way societies consume and produce are indispensable for achieving global sustainable development (UNGA Resolution 66/288, p.4).

Eventually, sustainable consumption and production has been included as a stand-alone SDG as the goal 12 reads – Ensure sustainable consumption and production patterns. The goal 12, however, has strong linkages with other goals – several themes that are of relevance under Goal 12 are also of interest to other goals. For example, SCP can contribute to social goals or poverty reduction without an increase in the global use of resources, materials and chemicals and, thereby, sustain this progress over time. There are thus linkages with Goals 7, 8 and 13 on sustainable growth, energy and climate change. Another linkage is that in the context of efficiency of water use which is dealt under Goal 6 as well (ensure availability and sustainable management of water<sup>2</sup> and sanitation for all).

### The Conceptual Framework

Sustainable consumption and production (SCP) promotes social and economic development within the carrying capacity of ecosystems, raises efficiency and ensures sustainability in the use of resources and production processes, reducing resource degradation, pollution and waste. Sustainable consumption addresses the demand side, focussing on consumers' choices of goods and services such as food, shelter, clothing, mobility and leisure, to fulfil basic needs and improve the quality of life (UNEP, 2006). It means buying goods and services that do not harm the environment, society, and the economy. However, it is important to understand that sustainable consumption is not necessarily about consuming less; it is about consuming better, i.e. more efficiently, with less risk to our health and environment.

Sustainable production concerns the supply side, focussing on the economic, social and environmental impacts of production processes. The focus is on achieving more resource efficient and cleaner production, which aims at reducing the risks to humans and the environment. Producing sustainably refers to optimising the use of natural resources such as raw materials, energy, and water at all stages of the production cycle, thus reducing the ecological footprint of products. More resource efficient production practices allow consumers to meet more of their needs (therefore, consume more) by using the same amount or even less resources. At the core of the SCP concept is the lifecycle approach which requires that at each stage of a product's lifecycle, due consideration is given to alternatives which improve the system, and ensures that there is no burden shifting between different stages of product life cycle.

Countries need to either reduce their footprint, or might increase it only to the extent that they remain within global and regional bio-capacities (Kitzes *et al.*, 2008). The changes in consumption and production patterns must be led by the developed world where per capita consumption is high and that has particular responsibility in sharing SCP-related technologies (High-Level Panel of Eminent Persons on the Post-2015 Development Agenda (HLP), 2013). Sustainable consumption can be promoted through a mix of policy, economic and voluntary instruments, including formal and informal education.

## The Targets and Potential Indicators

This section briefly discusses the philosophy behind each of the targets and the technical architecture for monitoring them and suggests some potential indicators. The goal on SCP has eleven targets linked to it, progress against which will need to be monitored by defining indicators. This paper focuses on the aspects of the targets which are not already included elsewhere such as under agriculture, transport, and energy.

### *12.1 Implement the 10-Year framework of programmes on sustainable consumption and production (10YFP), all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries*

This is more of an implementation framework rather than a target and actually covers all other targets. The primary objectives of the 10 YFP are to:

- Support regional and national policies and initiatives to accelerate the shift towards SCP, contributing to resource efficiency and decoupling economic growth from environmental degradation and resource use, while creating new job/market opportunities and contributing to poverty eradication and social development.
- Mainstream SCP into sustainable development policies, programmes and strategies, as appropriate, including into poverty reduction strategies.
- Enable all stakeholders to share information and knowledge on SCP tools, initiatives and best practices, raising awareness and enhancing cooperation and development of new partnerships – including public-private partnerships.

The 10 YFP includes an initial list of five programmes to be developed under the Framework, as well as a mechanism to further develop and expand this list over time to include other programme areas. The initial list includes: consumer information, sustainable lifestyles and education, sustainable public procurement, sustainable buildings and construction and sustainable tourism, including ecotourism.

Since this is not a pure target, the indicators for this target need not be outcome oriented. Rather, in this context, it will be important to see if there are frameworks, policies and actions in place. Nevertheless, an effort can be made to make it more specific and measurable by looking at the public expenditure on programmes in each of these areas as percentage of GDP or government expenditure.

*Sustainable Land and Water Use:* This will look at whether India has a comprehensive framework to deal with these issues. Since, state governments have a major role to play in this regard, comprehensiveness will require that all the state governments also have such frameworks in place.

*Renewable Energy Development Policies/Actions:* This will include promotional and regulatory policies for renewable energy including incentive schemes and subsidies and support for research and development. In this area also, state governments will have an important



role to play and hence their policies on feed in tariffs, net metering etc. will be part of the considerations.

*Sustainability or Green Parameters in Public Procurement Policy:* Governments and its agencies are the biggest consumers in any economy. Hence if government consumption becomes sustainable and if it demands sustainable production process from its suppliers, an economy can make a major breakthrough towards sustainable consumption and production.

*Standards, Certification and Eco-labelling:* If consumers want to adopt sustainable consumption habits, they will require information about the production process through which the goods that they are consuming have been produced, and they also require information about the performance of the products. Such information can be made available to them through standards, certification and labelling.

**Policies and rules on recycling:** There is no comprehensive recycling policy in India but it is primarily driven by economic considerations. However, in recent years, recycling has become a part of policy framework in some sectors. This indicator can look at coverage of sectors in recycling policy.

*Policies and Rules to Limit or Ban Use of Hazardous Materials:* Consumer use many products in their day to day life which include hazardous materials like lead, mercury and other CBRN (chemical, biological, radiological and nuclear) materials. Some countries have either banned or limited use of such materials in some relevant products through standard setting. This indicator will see if the country has such policies and their coverage of sectors/products.

*Building Code and Policies:* These are used for promoting materials and energy efficiency in construction activities.

*Multilateral Environment Agreements (MEAs):* It will be useful to prepare a list of inventories of MEAs that are relevant for the country and see how many of them have been signed and ratified by this country. This will include agreements on hazardous chemicals and waste such as the Basel, Rotterdam, Stockholm and Minamata conventions, the ILO Chemicals Conventions and the International Health Regulations. This will also include agreements like Montreal, Kyoto and Cartagena protocols and Convention on

Biological Diversity, the UN Convention to Combat Desertification, etc.

## **12.2. By 2030 achieve sustainable management and efficient use of natural resources**

Natural resources are fundamental for any economy or society. They provide raw materials, energy, food, water and land, as well as environmental and social services.

The High-Level Panel of Eminent Persons on the Post-2015 Development Agenda (HLP) has specifically noted that the poor directly depend on natural resources, for food, fuel, medicine, shelter and livelihoods, and are especially affected by resource depletion and environmental degradation (United Nations, 2013). Thus there is growing recognition that the natural resource base of economic growth and human well-being has to be managed more effectively and efficiently to secure future prosperity and well-being on this planet (UNEP, 2014). India is committed to the efficient and sustainable use of resources. Resource use efficiency is one of the stated objectives of India's National Environment Policy. The need to improve energy efficiency across the energy chain is one of the guiding premises of India's Integrated Energy Policy.<sup>3</sup> One of the eight national missions under the National Action Plan on Climate Change deals directly with the issue (National Mission for Enhanced Energy Efficiency) while several other missions refer to the need to enhance resource use efficiency (e.g. National Water Mission, National Mission for Sustainable Agriculture). Resource-specific strategies and policies such as the National Water Policy 2012 also highlight the imperative for enhanced efficiency.

Ideally, an indicator of efficient resource use should take account of all resources including fossil fuels, biomass (e.g. agricultural, timber, marine resources) and minerals that are used in the economy. However, there is insufficient information to give an integrated view of how minerals, metals, energy, timber or water flow through the economy. In recent years, several efforts have been made to develop the methodologies for material flow analysis (MFA) and the number of practical applications is growing. Countries are, however, at a variety of stages in developing and using MFA (OECD, 2008).

Most available indicators emphasize efficiency considerations with little or no attention to the need of maintaining a critical stock of natural resources.

While efficiency measures might suggest progress in the right direction, they frequently do not indicate when a natural or ecological threshold may be crossed, undermining long-term sustainability (UNEP, 2008). Thus, we need to find the appropriate balance between “critical stock” indicators on absolute environmental limits) and relative performance-based efficiency indicators.

UNEP (2008) reviews SCP indicators used by international agencies, developed countries (OECD and European Commission) as well as 20 developing countries. From this review, we list below the main indicators that are of relevance for India. We exclude from this review indicators of land, forests, and biodiversity, which are the topic of Goal 15, and water which is dealt with specifically under Goal 6.

- Material intensity of consumption (tonnes per capita)
- Material intensity of GDP (PPP)
- Energy consumption per capita
- Energy intensity of GDP (PPP)
- Depletion rate of minerals and non-renewable resources
- Alternative indices such as the Ecological Footprint and the Inclusive Wealth Index

### ***12.3 By 2030 halve per capita global food waste at the retail and consumer-level, and reduce food losses along production and supply chains including post-harvest losses***

FAO estimates that each year, one-third of all food produced for human consumption is lost or wasted – around 1.3 billion tonnes. Food losses and waste can occur at various stages from the production of food to its handling and storage, processing and packaging,

distribution and marketing right up to its consumption. Thus, ideally we would need indicators to quantify wastage at each of these stages. However, studies suggest that in the case of developing countries, most food loss takes place in post-production, harvesting, transportation and storage, and is primarily related to financial and structural limitations in harvest techniques, storage and transport infrastructures, combined with climatic conditions favourable to food spoilage. On the other hand, food waste is largely a problem in the marketing and consumption stages in more developed countries (Gustavsson *et al.*, 2011).

Containing food loss is obviously an important issue for India in view of the number of malnourished children and the prevalence of hunger in the country. In India, while people take care not to waste food at homes, but in social gatherings (like marriages, meetings, parties, etc.) substantial food is wasted. A study by IIPA (2011) estimated that 15-25 per cent of food is wasted in such gatherings. Addressing post-harvest loss however has its own challenges. This will need significant investment in supply chain and storage capacities which will also make the system more energy intensive. We are not sure what the net result will be as the gains from reduction of wastage might be offset by the higher level of consumption of energy and the material consumption that will be accompanied with the huge investment in the supply chain system.

Moreover, the cost of measuring losses and waste by tracking quantities of a commodity from production through different stages of the value chain and distribution to final consumption could be challenging both methodologically and cost-wise.

#### ***National Programme for LED-based Home and Street Lighting in India***

Light Emitting Diode (LED) bulbs are 10 times more energy efficient compared to ordinary incandescent light bulbs and consumes about half the energy compared to compact fluorescents lamps (CFLs) per unit of light generated (lumens). LED bulbs also have a very long life, almost 50 times more than ordinary bulbs, and 8-10 times that of CFLs, and therefore provide both energy and cost savings in the medium-term. However, consumers do not go for LED bulbs due to high upfront cost. To overcome this problem, the Government of India launched a National Programme for LED-based Home and Street Lighting in January 2015. Under the programme, as scheme was launched in Delhi where LED bulbs will be provided to all domestic consumers at an initial payment of Rs. 10 each and recovery of Rs. 10 each for 12 months from their electricity bill. Hence, the cost for an LED bulb to domestic consumer will be Rs 130 through this programme due to bulk procurement, compared to the current open market retail price in the range of Rs. 350-600 for LED bulbs.

***12.4 By 2020 achieve environmentally sound management of chemicals and all wastes throughout their life cycle in accordance with agreed international frameworks and significantly reduce their release to air, water and soil to minimise their adverse impacts on human health and the environment***

Many industrial areas have seen gross chemical contamination, with grave damage to human health, genetic structures and reproductive outcomes and the environment. India has been among the worst victims of an accident involving hazardous chemicals. The Bhopal disaster is the world's worst industrial catastrophe. It occurred on the night of December 2–3, 1984 at the Union Carbide India Limited (UCIL) pesticide plant. A leak of methyl isocyanate gas and other chemicals, according to government, caused 558,125 injuries including 38,478 temporary partial and approximately 3,900 severely and permanently disabling injuries and the estimated death was 15,000.<sup>4</sup> Since it involved a foreign company, India found it difficult to ensure justice and adequate compensation to the victims. India was thus quite serious in dealing with the issue of safe handling of hazardous materials. The three major conventions, namely, the Basel, Rotterdam and Stockholm Conventions all came after the Bhopal disaster, and hence India played an active role in developing them.

About 4.4 million tonnes of hazardous wastes are being generated by 13011 units spread over 373 districts of the country (This data is based on the waste categories indicated in the Hazardous Wastes (Management and Handling) Rules, 1989 and is likely to be revised in view of the amendments of 2000). The states of Maharashtra, Gujarat and Tamil Nadu account for over 63 per cent of the total hazardous wastes generated in the country.

The Hazardous Substances Management Division (HSMD) is the nodal point within the Ministry of Environment, Forests and Climate Change (MoEFCC), for management of chemical emergencies and hazardous substances. The Division is also the nodal point for the three International Conventions mentioned above. The Manufacture, Storage and Import of Hazardous Chemical (MSIHC) Rules, 1989/2000 and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 are the main instruments for ensuring chemical safety in the country. Currently, there are 1464 Major Accident Hazard Units (MAH) in India. A comprehensive National

Chemical Profile assessing the existing institutional, administrative, technical and legal infrastructure vis-a-vis the requirements of safe handling of chemicals is being prepared.

India is actively involved in the work relating to preparation of technical guidelines for environmentally sound management of ship-breaking along with Norway and the Netherlands under the Basel Convention. As far as Rotterdam Convention is concerned, India is fully compliant with its commitments. India is also a party to the Stockholm Convention on Persistent Organic Pollutants (POPs). The Convention seeks to eliminate production, use, import and export of 12 identified POPs. A Preliminary Enabling Activity Project to prepare National Implementation Plan (NIP) for POPs has been assigned to Industrial Toxicology Research Centre (ITRC), Lucknow in association with United Nations Industrial Development Organisation (UNIDO) under Global Environment Facility (GEF) assistance.

In the first part of the target, the indicators can be derived from the Basel, Rotterdam and Stockholm Conventions. The indicators, at the first level, can look at the national implementation plan of the Conventions and incorporate specific commitments and their coverage in relation the hazardous chemicals listed under the three Conventions.

At the second, level, indicators can include data on these chemicals that are released in the environment. It is understood that data might not be available for all different types of chemicals but a subset of them can be included. At another level, it will look at the quantity of different types of waste generated on a per capita basis.

MoEFCC has developed two important web-based information systems. National Hazardous Waste Information System (NHWS) which gives the status of Hazardous Waste Management in the country. Chemical Accident Information Reporting System (CAIRS) storing, retrieving and analysing data in visual form for all the information related to the chemical accidents happening in India. These will be useful in measuring the indicators.

***12.5 By 2030, Substantially Reduce Waste Generation through Prevention, Reduction, Recycling, and Reuse***

Wastes are inevitable by-products of consumption and production processes. Sound management of waste is necessary to avoid substantial adverse human health



and environmental effects. Despite achievements in waste recycling, amounts of solid waste going to final disposal are on the increase as are overall trends in waste generation. The Indian Government has enacted laws to regulate many kinds of waste generated in the country. The wide range of wastes include household/municipal waste, biomedical waste, e-waste, waste electronic and electrical equipment, waste from construction and demolition activities, waste from end of life cars, mining waste, waste from power plants, hazardous waste, waste from agriculture/forestry etc. The Environment Protection Act (EPA), 1986 is the umbrella Act that pertains to management of solid waste in the country. The National Environment Policy (NEP), 2006 of the Government of India emphasises the need for recovery and reuse of any material thereby reducing the waste destined for final disposal. The rules made under the EPA that would govern the management of all kinds of waste in India include:

- Management and Handling of Municipal Solid Waste (2000),
- Management and Handling of Bio-Medical Waste (1998, amendment 2003),
- Management and Handling of Hazardous Waste (1989, amended in 2000 and 2003),
- Recycled Plastics Manufacture and Usage Rules (1999),
- Notifications for the disposal of fly ash,
- Management and Handling of batteries, 2001, and
- E-Waste (Management and Handling) Rules, 2011.

Indicators could relate to the total amount of waste produced by sources including domestic, industrial and nuclear waste. Intensities are also used to show the amount of waste produced per capita and per unit of GDP (PPP). In the context of recycling indicators could apply to paper, glass, electronics, although they can and should be adopted for many other resources. The following can be considered:

- Municipal solid waste generation (volumes or mass) per capita and per year,
- Percentage of city population with regular solid waste collection (residential),
- Percentage of solid waste that is well managed to adequate final disposal (recycled, reused, composted, deposited in landfills, incineration sites, etc.),
- Recycling rate (Percentage of a city's solid waste that is recycled), and

- Percentage of the city's solid waste that is disposed of in a sanitary landfill.

### ***12.6 Encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle***

The objective of sustainable production cannot be achieved without companies playing the leading role. India is one of the first countries in the world to mandate responsible business practices. The Securities and Exchange Board of India (SEBI) from November 2011 mandates the 100 largest listed entities must submit Business Responsibility Reports, as a part of their annual reports. This happened as a cascading effect of the launch of the National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business on 8 July 2011 by the Ministry of Corporate Affairs, Government of India. The new Companies Act, effective from 1 April 2014, has many new provisions, the most important being, liability of profit-making companies to spend a certain percentage of their profits on activities under Corporate Social Responsibility (CSR) as enumerated in Section 135 of the Act.

Sustainability reporting helps organisations set goals, measure performance, and manage change in order to make their operations more sustainable. Many companies and international organisations, such as the International Organisation for Standardisation and the Global Reporting Initiatives, have developed a set of indicators to measure progress of environmental performance and sustainable business. In India, companies have been reporting on sustainability since 2001 by using the GRI Framework, following the Carbon Disclosure Project (CDP) or completing the UN Global Compact's Communication of Progress (CoP). However, a small number of companies report under all these reporting norms. The indicator for this target could be quite straight forward. The big companies could be defined with an appropriate threshold level and it can be seen what proportion of them are reporting sustainability information.

### ***12.7 Promote public procurement practices that are sustainable in accordance with national policies and priorities***

Sustainable Procurement is a process whereby organisations (public or private) procure goods and services in a manner that generates benefits to the



### *PET Bottle Recovery and Recycling in Mauritius*

The Ministry of Environment and Sustainable Development of Mauritius promulgated the Environment Protection (PET bottle permit) Regulations in 2001. In line with these regulations, bottling companies must encourage the return of used PET bottles and set up a collecting/compacting system so that the used PET bottles can be recycled and/or exported. In response to these regulations, the three big soft drinks producers, namely, Phoenix Camp Mineral (PCM), Quality Beverages Limited (QBL) and Compagnie Industrielle de Pailles (CIP), have set up the Mauritius Bottlers' Association which contracts out the collection, process and recycling of PET bottles to a private company called Polypet Recyclers Ltd. This company is actually responsible for purchasing used PET bottles from individuals, NGOs, schools and other organisations. Used pet bottles are collected, baled and sorted out by batch according to their colour. The used pet bottles are washed, granulated, re-washed and dried in specially designed machines. They are then ground and fed into other machines which melt them under sweltering heat and pressure. The PET waste is finally processed into pellets for export to South Africa.

*Source: Sustainable Consumption and Production: Best Practices in Mauritius, Ministry of Environment and Sustainable Development, Government of Mauritius and United Nations Environment Programme, 2013.*

organisation, society and economy, while ensuring that the environmental impact is minimal. On average, total public expenditures by central and local governments (including consumption and investment expenditures) are estimated to account for about 20 per cent of GDP in OECD countries, and roughly 15 per cent in non-OECD countries. Sustainable Procurement has a huge potential in India given that an estimated 20 per cent of the GDP per annum is spent on public procurement in India.

The main effort in the area of developing relevant indicators has been for the European Commission's Green Public Procurement programme. There are no universally accepted or widely used indicators of Sustainable Procurement, and one of the commonly proposed ones in the literature is<sup>5,6</sup> :

- Share of labelled or otherwise classified sustainable goods and services at various levels of public procurement – municipal to national in monetary value and in terms of the number of contracts.

### *12.8 By 2030 ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature*

Changing public understanding and attitudes are essential for the transition to SCP. Information and education can help create this understanding and attitude by raising awareness and thus leading to mass movements for recycling, renewable energy and

other sustainable consumption practices. Specifically, awareness-raising in schools, and public information campaigns could play a big part in changing mind-sets by showing the advantages of moving towards lifestyles that are in harmony with the nature. The new forms of participation such as social media can enable governments, businesses, CSOs and academia to interact with, understand and respond to citizens' needs in new ways. However, it will be difficult to develop workable indicators. The following can be attempted:

- Awareness and know-how about sustainable development is integrated in curricula and has significantly increased.
- Presence of Labelling: For example, for energy efficiency of white goods, labelling of food products, labelling of pharma products should be essential for any products that contain hazardous substances.
- Sales volume of eco-labelled products.

### *12.a Support developing countries to strengthen their scientific and technological capacities to move towards more sustainable patterns of consumption and production*

India is not expected to have any obligations on this but it is expected that, as a developing country, India should receive assistance from developed countries in developing its scientific and technological capabilities. This can have two parts: financial assistance and technological assistance. While measuring financial assistance could be relatively easy, quantifying

technological assistance is a difficult proposition. India might have acquired some of the technologies but this might have been purely through market mechanisms and the element of assistance may not be visible.

Another important aspect of the issue is that though India does not have any obligation to assist other countries, in practice, India is actually providing both financial and technical assistance to other developing countries. However, India should not be included in the proposed indicator for comparing assistance to other countries, as India provides it under the framework of South-South Cooperation and at par with the major donors.

### ***12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products***

India recognises the importance of the tourism sector in the promotion of faster, sustainable and more inclusive economic growth. Recognising its role in promoting sustainable tourism, the Ministry of Tourism, Government of India, had, as far back as 1998, extensively deliberated with the industry and other stakeholders to formulate the “Ecotourism in India – Policy and Guidelines”. The tourism sector’s capability as a driver of sustainable and inclusive development, was renewed with the National Tourism Policy, 2002. The Ministry of Tourism has also framed Sustainable Tourism Criteria and indicators for India applicable to tour operators and the accommodation sector.

Organisations such as the World Tourist Organisation, the EU, and OECD as well as institutions and experts, have made efforts to create indicators of sustainable tourism. The World Tourist Organisation<sup>7</sup> and the Global Sustainable Tourism Council (GSTC) have come up with sustainable tourism criteria for tour operators, hotels and destinations.<sup>8</sup> However, these indicators are site specific. At the macro level, indicators on the number and type of eco-tourism facilities and the number of operators/ tourist facilities that are certified as sustainable may be more relevant. However, given the lack of relevant information on the sector and very low level of certification, developing effective indicators will be challenging.

### ***12.c Rationalise inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse impacts on their development in a manner that protects the poor and the affected communities***

Fossil-fuel subsidy reform can deliver on all three domains of sustainable development. They are costly and represent a deadweight loss to society because they artificially lower costs, which encourages inefficient allocation and use of resources and reducing them can create economic gains. Fossil-fuel subsidies create incentives for higher levels of consumption, which in turn produce more local and global pollutants. Additionally, fossil-fuel subsidies are often socially regressive as they typically benefit medium- to high-income households and lead to diversion of the targeted resources.

India has done away with petrol and diesel subsidies but they are still there for kerosene and LPG. In fact petrol is now highly taxed, while diesel is moderately taxed. On cost of production basis, there is no subsidy on coal but on international price basis it enjoys some subsidy. Electricity, which is generated mainly through coal is however subsidised in several states. Currently, on a net basis, there is no fossil fuel subsidy in India, but this can change in the event of international energy prices rising substantially (Nanda 2015).

### **Means of Implementation**

Means of implementation would be more of generic issue rather than goal or target specific. The open working group proposal for sustainable development goals has given 19 targets under five heads, which are: finance, technology, trade, capacity building and systematic issues. There is increasing bent towards domestic resource mobilisation for the developing countries. Domestic reserves are more effective since financial inflow is stable and has strong linkages to taxation, accountability and broader state building goals (Strawson and Ifan, 2014).

On the other hand international aid is encouraged to be effective and low cost. According to Roodman (2014) aid must play a supportive and catalytic role, instead developed countries in an attempt to meet their ODA obligations have tended to overstretch Official Development Assistance (ODA) boundaries to include development loans charging interest near market rates, and export-promotion credits hugely paying for expatriate personnel offering “technical expertise”. On a per capita basis, the amount of aid that India receives is quite low and it is unlikely to see a drastic rise and hence domestic resource will remain the mainstay. India has made it mandatory for companies to spend a portion of their profits on CSR and imposed a cess on coal. A part of the money involved can be used to promote the goal of SCP.

Fundamental to the issue of technology is its accessibility to the developing world. The intellectual property regime is a barrier towards technology transfer from the developed countries to developing countries (Cannady, 2009; UNCTAD, 2014; Schloss, 2013). Further, Cannady (2009) encourages mobilisation of intellectual capital that already exists in developing countries and encourages research and development within the developing world. UNCTAD argues that it is critical to translate technology transfer into local innovation that is economically relevant. It is also observed that technology from the developing world which is more adaptable and less costly is often overlooked in development assistance. It is encouraged therefore for South-South development cooperation to be considered for development assistance.

Central to international trade is market access. ITC (2010) established that poor countries cannot grow and reduce poverty without exports therefore market access and market entry is critical. There are concerns that standards can have a negative impact on equity and livelihoods if they are not designed carefully to integrate the views and concerns of the small producers and even to localise the standards to their understanding. There is also need to develop export capabilities in developing countries in terms of domestic supply capacity constraints, trade infrastructure and standards. Export performance is important for developing countries to raise finance on their own.

Core to the systematic issues is macro-economic stability. The financial crisis of 2008 affected developing countries including India by reducing foreign investment, demand for imports, and foreign remittances, as well as triggering capital outflows and instability. Proliferation of bilateral and regional trade and investment agreements that lead to shrinking of national policy space raises several concerns. While some agreements have imposed TRIPS-plus conditions on parties that reduce flexibilities and further reduce access to technologies, some have reduced their capability to regulate foreign capital that might be necessary to protect development interest. While protectionism might not be a good idea, developing countries often require adequate safeguard against trade induced deindustrialisation. The recent experience of Greece and some other European countries shows how dangerous shrinking of policy space could be for a country whether developed or developing. It will be important for India not to sign such trade agreements and thereby shrink its policy space.

## Concluding Remarks

India does not have a comprehensive sustainable consumption policy or framework, though most of its elements are captured in several policies in different areas. Having an integrated policy or framework could be a good idea. Energy efficiency has been an important policy concern in India for several decades, but same cannot be true for other resources, particularly in case of water and mineral resources. While, per capita resource consumption is quite low, India must adopt measures to ensure delinking of its economic growth from resource consumption.

In India avoiding waste and recycling have been the cherished habits of people since ages. But things are changing gradually. For example, while farmers in eastern part of the country uses paddy straw as fodder and for other purposes, in north-western states like Punjab and Haryana, they are simply burnt down which is not only a wastage of bio-resources but also causes severe pollution. Awareness campaigns should be launched to ensure that people do not give up their good habits and do not adopt bad practices. There are several good examples in different parts of India which can be shared not only within India, but also outside. On the other hand, India can learn from other countries, particularly from the developing world.

The Government of India very recently launched programmes and campaigns like Clean India, Make in India and Smart Cities. Efforts should be made to leverage such programmes and campaigns to promote sustainable consumption and production by mainstreaming resource efficiency and sound management of wastes. While, finance and technology will have important roles to play, significant achievements can be made by awareness generation, education and promotion of good habits and practices.

## Endnotes

- <sup>1</sup> The Marrakech Process, co-led by UN DESA and UNEP, is a global multi-stakeholder process to support the elaboration of a 10-Year Framework of Programmes (10YFP) on sustainable consumption and production.
- <sup>2</sup> It is important to make a distinction between water for drinking purposes and water for agriculture and industry and obviously water for direct human use must get priority.
- <sup>3</sup> See page 17 of India's Integrated Energy Policy. Available at: [http://planningcommission.nic.in/reports/genrep/rep\\_intengy.pdf](http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf)
- <sup>4</sup> Some non-government estimates put these figures at much higher levels.
- <sup>5</sup> [http://seri.at/wp-content/uploads/2009/11/INDI-LINK\\_D-1.3.pdf](http://seri.at/wp-content/uploads/2009/11/INDI-LINK_D-1.3.pdf)
- <sup>6</sup> <http://rru.worldbank.org/Public-Procurement/>
- <sup>7</sup> <http://sdt.unwto.org/sites/all/files/docpdf/croatia.pdf>
- <sup>8</sup> GSTC has a diverse and membership including UN agencies, leading travel companies, hotels, country tourism boards, tour operators, individuals and communities. <http://www.gstcouncil.org/about/learn-about-gstc.html>

## References

- Abreu, M. de P., M. Agarwal, S. Kadochnikov, M. Mikic, J. Whalley, Y. Yongding. 2009. "The Effect of the World Financial Crisis on Developing Countries: An Initial Assessment." Centre for International Governance Innovation, Ontario. Retrieved from [https://www.cigionline.org/sites/default/files/task\\_force\\_1.pdf](https://www.cigionline.org/sites/default/files/task_force_1.pdf) (accessed on 23 July 2015).
- Cannady, C. 2009. "Access to Climate Change Technology by Developing Countries: A Practical Strategy." *Issue Paper No. 25*. International Centre for Trade and Sustainable Development, Geneva. Retrieved from <http://www.ictsd.org/downloads/2009/11/access-to-climate-change-technology-by-developing-countries-cannady.pdf> (accessed on 13 July 2015)
- IIPA. 2013. Report on Assessment of Wastage of Food and Ostentatious Behaviour During Social Gatherings (Marriages/Parties/Meetings, etc) in National Capital Region Delhi. Indian Institute of Public Administration (IIPA), New Delhi.
- ITC. 2010. *Market Access, Transparency and Fairness in Global Trade: Export Impact for Good 2010*. International Trade Centre, Geneva. Retrieved from <http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/Market-access-transparency-fairness-in-global-trade-Export-Impact-for-Good-2010.pdf> (accessed on 20 July 2015).
- Gustavsson, J., C. Cederberg, Robert van Otterdijk and Alexandre Meybeck. 2011. *Global Food Losses and Food Waste: Extent, Causes and Prevention*. Food and Agriculture Organisation of the United Nations, Rome. Available at: <http://www.fao.org/docrep/014/mb060e/mb060e.pdf>
- Kitzes, J., M. Wackernagel, J. Loh, A. Peller, S. Goldfinger, D. Cheng, and K. Tea. 2008. "Shrink and Share: Humanity's Present and Future Ecological Footprint." *Philosophical Transactions of Royal Society B*, 363:467-475.
- Nanda. 2015. "Fossil Fuel Subsidy Reforms in India." Presentation at the OECD International Tax Dialogue, Paris, July 1-3.
- OECD. 2008. "Measuring Material Flows and Resource Productivity: The OECD Guide." <http://www.oecd.org/environment/indicators-modelling-outlooks/MFA-Guide.pdf>
- Roodam, D. 2014. "Straightening the Measuring Stick: A 14-point Plan for Reforming the Definition of Official Development Assistance." *CDG Policy Paper 044*. Center for Global Development (CDG), Washington. Retrieved from <http://www.oecd.org/dac/stats/documentupload/ROODMAN%20straightening-measuring-stick-redefining-oda.pdf> (accessed on 17 July 2015).
- Schloss, S. 2013. "Implementing a Green Economy in Least-Developed Countries: The Challenges of Intellectual Property Rights and Technology Transfers within the TRIPS Agreement." *Independent Study Project (ISP) Collection. Paper 1638*. Retrieved from [http://digitalcollections.sit.edu/isp\\_collection/1638](http://digitalcollections.sit.edu/isp_collection/1638) (accessed on 20 July 2015).
- Strawson, T., and G. Ifan. 2014. "Aid for Domestic Resource Mobilisation: How Much is there?" Development Initiatives, Wales. Retrieved from <https://sustainabledevelopment.un.org/getWSDoc.php?id=4967> (accessed on 11 June 2015)
- UNCTAD. 2014. *Transfer of Technology and Knowledge Sharing for Development: Science, Technology and Innovation Issues for Developing Countries*. United Conference on Trade and Development (UNCTAD), Geneva. Retrieved from [http://unctad.org/en/PublicationsLibrary/dtlstict2013d8\\_en.pdf](http://unctad.org/en/PublicationsLibrary/dtlstict2013d8_en.pdf) (accessed on 20 July 2015)
- UNEP. 2006. "Sustainable Consumption and Production: How Development Agencies make a Difference." Review of Development Related projects, April. United Nations Environment Programme (UNEP).
- UNEP. 2008. *SCP Indicators for Developing Countries: A Guidance Framework*. United Nations Environment Programme (UNEP). Retrieved from <http://www.unep.fr/shared/publications/pdf/DTIx1085xPA-SCPindicatorsEN.pdf>
- UNEP. 2014. "Sustainable Consumption and Production in the Proposed Sustainable Development Goals." A Paper from the Inter-Agency Coordination Group (IACG) of the 10 Year Framework of Programmes on SCP (10YFP) with the support of the 10YFP Secretariat, 16 June.
- United Nations. 2013. *A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development*. The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda



<b>Goal 12. Ensure Sustainable Consumption and Production Patterns: Targets and Indicators</b>	
12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP
	12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 Global food loss index
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement
	12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	12.6.1 Number of companies publishing sustainability reports
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Number of countries implementing sustainable public procurement policies and action plans
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	12.a.1 Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	12.b.1 Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools
12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels