Espacialidades, Revista de temas contemporáneos sobre lugares, política y cultura tiene como propósito constituirse en un foro de discusión académica que aborde la compleja, contradictoria y multicausal relación entre el espacio y la vida social. *Espacialidades* se inscribe en el debate académico internacional sobre el giro espacial en las ciencias sociales e invita al análisis de diversas prácticas sociales y formas de organización y acción política desde una perspectiva multidisciplinaria que ponga énfasis en las diferentes escalas territoriales. Los textos publicados incorporan métodos y problemas tratados desde la sociología, la ciencia política, la economía, los estudios urbanos, la geografía, los estudios culturales, la antropología, la literatura, el psicoanálisis y el feminismo, entre otros. La revista cuenta con una sección de artículos novedosos e inéditos de investigación teórica, empírica y aplicada y de reflexión metodológica sobre temas tan diversos como la justicia espacial, la democracia, la representación y la participación, la globalización, el multiculturalismo y las identidades, el género, la construcción de formas de representación y participación, los conflictos socioterritoriales, la gobernanza, el medio ambiente, la movilidad poblacional, el desarrollo regional y el espacio urbano. Cuenta también con un apartado de reseñas de libros relacionados con la dimensión espacial de los procesos sociales, políticos y económicos.

Sustainable Urbanization: A Conceptual Discourse

Urbanización sustentable: un discurso conceptual

BIKRAMADITYA K. CHOUDHARY[*]

Resumen

Las ciudades son los lugares en donde sucede la gran parte de la pérdida de recursos y la generación de contaminación. La mayoría de los debates y discursos sobre sustentabilidad son moldeados en las ciudades; por lo tanto, éstas también tienen un papel importante dentro de la promoción del desarrollo sustentable. Con más del 50 por ciento de la población mundial que se espera para 2020 en las áreas urbanas, la forma y la estructura de las ciudades plantean los problemas más urgentes y persistentes. Además, ya no hay únicamente un "afuera" o un "límite" de la ciudad, ya que la huella socioecológica de las ciudades se ha hecho global. Las ciudades de hoy deben cumplir con los objetivos medioambientales para la gente que las habita y representar un costo mínimo ambiental para sus márgenes. El desarrollo sustentable es un camino posible a través del cual la cuestión del agotamiento continuo de recursos puede ser abordado. En este contexto, el presente trabajo analiza la posibilidad de lograr la sustentabilidad en las ciudades contemporáneas.
PALABRAS CLAVE: ciudad, sustentabilidad, desarrollo sustentable.

Abstract

Cities are the sites where most of the resource destruction and pollution take place. Most of the debates and discourses about sustainability get shaped in the cities; therefore, they also play a critical role in promoting sustainable development. With more than 50 percent of the global population expected to be in urban areas by 2020, the form and structure of cities pose the most urgent and pressing problems. Furthermore, there no longer is an "outside" or "limit" of the city, as socioecological footprint of the cities has become global. Cities of today need to meet environmental goals for the people who inhabit it with a minimum transfer of environmental cost outside their limits. Sustainable development is one possible way through which the issue of continuous depletion can be addressed. In this context, the present paper analyses the possibility of achieving sustainability in contemporary cities.
KEY WORDS: city, sustainability, sustainable development.

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[*] Profesor en el Centre for the Study of Regional Development, Jawaharlal Nehru University, Nueva Delhi. C.e.: bkcjnu@gmail.com

Introduction

Sustainable development as a dominant policy paradigm in recent years becomes inevitable as cities destroy and pollute most of the world's resources. However, most of the debate and discourses about sustainability emerges in the cities and in this way they also play a critical role in promoting sustainable development (Saha and Paterson, 2008). Urbanization is rightly considered as the most important phenomena at the global level for various reasons, for three reasons. First, the proportion of world's population living in urban places is rapidly approaching the 50 percent mark. Second, it is expected that in next two decades about 60 percent of people will live in urban areas. Finally, by 2050 about 6 billion, two third of humanity will live in towns and cities (Champion, 2001; UN Habitat, 2008). The process of urbanization coupled with industrialization brought forth a number of environmental problems like the energy crisis, depletion in the quality of air, water, and land, depletion of biodiversity and so on. The impact of civilizations and human influences on the environment is understood as a serious threat. The physical conditions in the cities continued to deteriorate, as there is no control over the exploitation of resources, especially energy consumption in growing economies and the revision of the increasing pollution levels in the cities (Sadorsky, 2014). It is a priority of planners to make existing cities and new urban developments more ecologically based and liveable, and thus, a global push for sustainability has become an urgent priority at least in academic writings (Chiu, 2008; Kenworthy, 2006; Zheng, *et al* 2014).

Environment in a narrower sense is kept limited to plants, trees, air, water and so on; however, a wider understanding of environment encompasses social and ecological conditions together that are required for human to attain and sustain life. Contrast and change is a consistent reality of human life, so had been the urban studies and urban planning. On one hand, in urban studies focus has primarily been on environmental quality within cities and on environmental health burdens within city-population and city-boundaries (McGranahan and Satterthwaite, 2002). On the contrary, Friedmann (2000), commonly known as the father of modern planning, while conceptualizing the utopian city and common good of the city, identified four pillars of a "good city" without any direct mention of physical environment. He noted:

The good city […] has its foundations in human flourishing and multiplicity. Four pillars provide for its material foundations: housing, affordable health care adequately remunerated work and adequate social provision. And because process cannot be separated from outcome […] the question of what a system of good governance might look like (Friendmann, 2000:471).

Increasing focus on environmental qualities within cities ignores the study of transfer of environmental burdens, both in terms of space (transferring burdens to the population or ecology of surrounding regions or distant elsewhere) and in terms of time (transferring environmental burden to future). The exclusivist ideas about a utopian city without mention of physical environmental quality tend to result in deteriorating liveable condition within the city, again an unaffordable proposition. It is thus necessary to look into these exclusivist conceptions with greater care, as urban process harbors both social and ecological processes. Cities of today need to meet environmental goals of sustainable development of the people who live in the city with a minimum transfer of environmental cost to outside its limits. The very idea of displacing environmental problems of the cities to the outside areas is problematic as well as antithetical to the idea of "sustainable". There cannot be an "island of sustain-able practice or habitat" amidst what Davis (2007 calls "planet of slums". Further, there is no longer an outside or limit of the city and socioecological footprint of the city has become global (Swyngedouw and Heynen, 2003). Environmental issues thus are liable to become central to urban change and urban policy. There is a contradiction, though discussions about environmental problems and the possibilities for a sustainable future largely ignore the fact that the origin of many problems lays in the origin of urban itself i.e. creating consumption and a consuming class.

City as an Entity

Cities are part of a complex whole and serve the surrounding countryside with which they are spatially and functionally knit together. It is the nature, types, and variety of activities that make them distinct from the areas called rural. This kind of understanding continues considering urbanization as an evolutionary process, as Hall (1988) argued: the urban system has been massively transformed (six-stage cycle) in recent decades by the process of industrialization and de-industrialization. These centres have been the locale of opportunities for entrepreneurs as well as a seedbed of democratic change (Kidwai, 1997) or

what Jane Jacobs (1970) said "the mothers of economic development" (Soja, 2000). Cities are also held responsible for large slums, squatters, poverty and so on. Most often these problems of city space are seen as the problem of capitalist mode of production (Harvey, 1978; Lefebvre, 1991; Mingione, 1981; Saunders, 1993; Williams, 1973; Walker, 1981). The mainstream existing literature, documents a positive association between the processes of urbanization and industrialization, and places all other arguments under the rubric of "critical literature". Economic growth and accumulation of wealth is an obvious outcome of industrialization, which in turn promotes excess of production for mass consumption. Nevertheless, cities large or small, local or global, north or south have become the principal material expression of contemporary human civilization as they offer substantial benefits over other forms of settlements (Dear, 2000). Cities are nodes of settlements and act as foci for socioeconomic growth and they perform number of important activities. They owe their origin and growth to the functions they perform for themselves as well as for the surrounding areas. The process of urbanization is always contested between economists and environmentalists (Satterthwaite, 1997). The dominant branch of economists under-

stands urbanization as the higher stage of civilization which can produce "surplus" to sustain population; while the environmentalist consider that great cities are planned and grow without any regard for the fact that they are parasites of the countryside, which must somehow supply food, water, air, and generate huge quantities of waste.[1]

In between the two extremes, there have been many branches of knowledge that have tried to understand cities over time and space. Urban ecologists tried to understand the physical design of the city and the link between the physical and social dimensions of cities. Cities in this conception were studied as a congregation of individual men and women; and of social convenience including streets, buildings, electric lights, tramways and telephones, etcetera. However, cities are more than a mere constellation of institutions and administrative devices of different sorts. Cities are like organized mosaic of distinctive ethnic communities, commercial centres, and industrial districts. They keep changing

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[1] Some economists also consider urbanization as parasitic for the region as such urbanization process siphoned out all resources and labour from the hinterland, especially in the cities of Third World countries. For details on the role of cities as generative and parasitic, see; Jackobson and Prakash, 1971; Kidwai, 2006; McGee, 1971, 1976; Richardson, 1996; Wellisz, 1971 and so on; Odem (1971) in his book on ecology led ecologist to have this understanding for the cities due to environmental reasons.

relation with each other like a living organism. While ecological approach views cities as a natural organism with particular districts and neighbourhood developing according to an internal logic; political economists claim that cities are defined by various kinds of power and contestations (Castells, 1977; Harvey, 1973; Lefebvre, 1991; Saunders, 1993; Short, 1996). These different approaches have one thing in common: they consider cities as natural systems, sometimes as an open system, sometimes as an organic system, or as living system and so on. Melosi (2003), while discussing the cities as a system Graeme Davison (1983) thinks that:

> Few ideas have exercised as powerful an influence upon students of urban society as the organic or biological conception of the city. From Aristotle's Politics to the Chicago School and beyond, social theorists have likened cities to bodies or organism; dissected them into constituent organ, such as "heart", "lungs", and "arteries"; and charted their growth and decay.

The idea of the city as an organism continued and the city is considered as "a transformed combination of resources" (land, water, air, mineral, and human) and the goal of the city has been identified as "to convert the resource base into cities" (Havlick, 1974). Castells (1983) also con-

sidered cities as dynamic systems and said that "cities are living systems, made transformed and experienced by people". Urban forms and functions are produced and managed by the interaction between space and society that is by the historical relationship between human consciousness, matter, energy and information (Castells, 1983). Human influence on environment in the urban areas has a long history; however, urban ecology has been associated for solving problem of cities. Studies in early 1900s have shown the efforts for controlling floods, vector born disease and toxic waste in St. Luis (Nilon, 2003). These studies led to the development of the understanding of cities as an ecosystem that combines the physical, biological, and social components.

City as an Ecosystem

The concept of ecosystem has been of immense importance to urban studies.[2] Recent studies using multiple approaches discuss services and amenities in a framework of ecosystem services (Elmqvist *et*

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[2] Ecosystem has drawn us logically to study in detail the relationship and interaction occurring in communities including the patterns of store and flow of essential materials because of this ecosystem is a concept that can appropriately be applied to cities; for details on ecosystem approach to cities see, A. D. Bradshaw, 2003.

al., 2015; Grĕt-Regamey *et al.,* 2015; Wan *et al* 2015). However, the terminologies like "green space", "blue space", are more understood in a rather utilitarian way that means extracting more benefits with existing expanse of these spaces. Ideal would have been when these spaces are maintained for their own existence and effect of urbanization on these resources and ecosystem services (Wan *et al* 2015) rather than the technocentric utilitarian value. Cities are made up of living and interacting organisms whose life and development depends on satisfactory supplies of many different materials and subsequent disposal of waste. The urban landscape contains elements of natural ecosystem, structure (species composition, trophic structure, vegetation architecture, soils, water) plus built structure, designed structures and social structure. In a matrix of space-time continuum any habitat is treated as a dynamic product of various environmental situation, human achievements and processes. There are several subsystems within the city ecosystem like "natural ", "social ", "economic ", and "scientific " ; together they constitute an interdependent "social-economic-natural-complex city ecosystem" (Wang and Ouyang, 2003). However, the scientific-industrial-cultural approach sees urbanization in the Twentieth Century mainly as a demographic transition driven by economics and abetted by modern technology. This is why Rees (2003) finds cities more complex, he wrote:

> Cities of course are much more economically complex than feedlots. They certainly contain various ecosystems that although greatly modified by human activities or inputs include all the essential parts and function more or less normally. As already noted, such "urban ecosystems" are worthy objects of study because of adaptation: their constituent species have made to the urban environment or because of their impact on the quality of urban environment for humans.

Cities are a complex ecosystem, which consists of more than one ecosystem within them and keep interacting amongst themselves. A promising way to deal with this complexity is through the ecological landscape approach of defining patches at a range of spatial scales (i.e. defining a patch hierarchy).[3] The landscape ecology has spooned significant innovation in landscape planning and design making policy and guidelines for managing public lands,

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[3] Hierarchical patch dynamics model provide a new way to look at complex systems that change through time. Processes are measured at a specific scale for fundamental units of the landscape at that specific scale. Those fundamental units are called patches and their structure (sizes, arrangements, and types) can be a major determinant of the processes. For details of hierarchical patch dynamics see, N. B. Grimm *et al.,* 2003, p. 103.

optimization of use of space, environmental conservation, and improvement (Dramstad *et al*., 1996; Dunn *et al.,* 1990; Forman and Godron, 1996; Gardner *et al.,* 1987; Jim and Chen, 2003, Kowarik, 1990; McGarigal and Cushman, 2002; Nassauer, 1999; O"Neill, 1988; Pouyat and McDonell, 1991; Turner, 1989; Wang and Jhang, 2001; Whittaker, 1967). It deals fundamentally with how, when and where spatial and temporal pattern influence ecological processes, and how feedback from ecological processes influences ecological patterns. There are alternative approaches to study the network of services and people; and analyzing cities as ecosystem like ecosystem approach, natural system approach, ecological economics approach, urban regime approach, social ecology approach and so on (Bradshaw, 2003; Grimm *et al*., 2003; Grove *et al.,* 2003; Rees, 2003). There has been works and reports of the municipalities in the US that argued that new urbanism[4] is another way to attain sustainability based on the new urban re-

design commonly referred as ecodesign of urban neighbourhood (Garde, 2004). These works laid down the foundation of sustainability discourse. With sustainability, a fashionable word, there is a general understanding of the need to consider the long-term consequences of our present urban life-style as the impact is not limited to the city boundaries but are expanding to larger humanity engulfing entire planet making state of earth somewhat precarious (Wilbank, 1994). In these circumstances, cities are to be kept "liveable for larger number of people" and "they should sustain" brought the concept of social sustainability in later day's debate (Amos, 1993). Before urban sustainability is analyzed it is imperative that the concept of sustainability is analyzed; as the main problem still is that there is no clear view on the meaning of sustainability, nor the manner in which it can be attained (Allen, 2001).

Sustainability and Sustainable Development: Different Dimensions

Sustainable development has become equally popular and dominant paradigm in the writings on "development" and "environment" and experts of both fields stake their claim on the issue (Adams, 2001; Clark, 1995; Kumar, 2005; Lee, 1991; Muttagi, 1998; Perring and Ansuategi, 2000;

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4 The New Urbanist approach primarily advocates mixed-use, mixed-income, pedestrian-oriented, compact developments and expect to minimize environmental deterioration by reducing land consumption, reducing the number and length of automobile trips, and conserving energy. New Urbanists approach derives primarily from broadly defined fields of policy and planning and ecodesign and built environment and their ideas are conceptually more attuned to the concept of "Redesign Cities" method. For details on new urbanism and its application in US see, A. M. Garde, 2004.

Rees, 1998; Saha and Paterson, 2008). While writings in development discourse are primarily concerned with philosophical issues of sustainability and its role in the development process, the writings related to environment deals with various models and measures that can be adopted for efficient management of the resources and environment. There have been works trying to use the utilitarian conception of environment and brought the sustainability issue with the idea that it will help economic and environmental aspects both in the long run using several kinds of econometric formula like "the environmental Kuznet curve"[5]. In different types of writings, sustainability has several dimensions like the environmental, economic, social, and so on. It is difficult to define the term "sustainable development" in one acceptable way as it is a multidimensional issue and has several defini-

tions since the inception of the term in 1972 at the Stockholm conference.

Sustainable development is the development, which is "likely to achieve lasting satisfaction of human needs and improvement of the quality of human life" and aims for "promoting growth, alleviating poverty, and protecting the environment that has mutually supportive objectives in the long run but not in the short run" (Allen, 1980; World Bank, 1987). In the beginning, the concept came to surface against the skepticism about desirability of growth in limit to growth literature (Castro, 2004; Wilbanks, 1994). Sustainable Development is "likely to achieve lasting satisfaction of human needs and improvement of the quality of human life" (Allen, 1980). In planning literature, sustainability is about the maintenance of infrastructure, whereas for ecologists, sustainability is all about clean air, water, soil, and healthy vegetation: the "global commons" (Adams, 1995; Amos, 1993; Carson, 1962). Sustainability is sometimes considered as dialectical and syllogistic process where the scientific needs to be appropriately balanced by human attitude (Philips, 2003). Sustainability in social science means a thriving socioeconomic order within the production structure and relationship ensures a fair distribution of income, power, and opportunities

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[5] Environmental economists have identified an empirical relationship, called as environmental Kuznet curve between per capita income and certain indicators of environmental quality that, on the surface at least, seems to tell the opposite story. The relationship was first observed in work undertaken by Grossman and Krueger on the environmental implications of Mexico's inclusion in the North American Free Trade Area (NAFTA) (Grossman and Krueger, 1993). It showed that certain indicators of environmental quality first deteriorate and then improve as per capita incomes rise: that economic growth is initially associated with a deterioration of environmental quality and later an improvement, for details of 'environmental Kuznet curve' and its implication at macro level environmental indicators, see, Perring and Ansuategi, 2000.

and for the ecological sense about long-term carrying capacity of regions with no negative impacts on their immediate and inter-related environment. More than 60 versions of the definition of sustainability, ranging from philosophical, political, social, ecological, and scientific have been recorded (Gupta and Gujjar, 1989).

The Brundtland Report (1987) describes the ongoing concern about sustainable development as:

> Sustainable development is development that meets the need of the present without compromising the ability of future generation to meet their needs. It contains within two key concept: the component of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

This definition does address the issue of intra-generational resource distribution along with inter-generational equity with expressed concern for the poor. Devuyst (2001) said that the principle of inter-generational equity is at the heart of the definition of the sustainable development, it depends on the combined and effective application of other principle of sustainable development mainly intra-generational. The

principle of intra-generational equity requires that people within the present generation have the right to benefit equally form the exploitation of resources and that they have an equal right to a clean and healthy environment. Chichilnisky (1997) tried to develop a model of sustainability on the basis of this definition by identifying two axioms deducing from this definition. This principle can be applicable to the groups of people within a country and between countries and can be applied in international negotiation, but within nations it is particularly susceptible to cultural and social forces (Devuyst, 2001). When the scholars could not settle the sustainability debate some of them turned towards reductionism arguing that whatever has been there, the concern should be more towards the implementation aspect of sustainability by identifying what is unsustainable, how can it be practiced as sustainable, and how to evaluate it (Alvarez and Rogers, 2006). Nevertheless, the discourse on sustainability and sustainable development remain far from ending; though the definition of sustainability remains ambiguous (Saha and Paterson, 2008).

The mainstream definition of sustainable development remained confined largely to the compatibility of the technocratic, managerial, capitalist, and modernist

ideology with western economic development theory and development practice having little real concern for the poor giving rise to suspicion and opposition of this concept from different quarters, especially from poor countries and poor people (Foster, 2003; Rees, 1998). Sustainable cost-benefit analysis of the social and economic system in terms of past and present needs remains the core of such utilitarian thinking of sustainable development (Chichilniski, 1997). It is true that the definition of sustainable development needs to incorporate the issue of inter-generational and intra-generational aspects in one framework (Adams 1995; Rao 2000). The sustainable development in economic terms is described as a "pattern of social and structural transformation which optimizes the economic and other social benefits available in the present without jeopardizing the likely potential for similar benefits in the future" (Gilbert and Braat, 1991; Rao, 2000). Rao (2000) called this as the definition of sustainability and tried to differentiate between the concept of sustainability and sustainable development. He argued that "sustainable development is the process of socio-economic development that is built on the sustainability approach with an additional requirement that the worth of the capital stocks vector (valued at applicable prices)

is maintained constant or undiminished at each time interval forever". This definition of sustainable development is primarily talking about the economic efficiency of resource utilization and the possibility of resources to exist for future needs without any deterioration in the quality of it.

Two key components are crucial for any debate on sustainable development: a) the component of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and b) the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs. The inter-relation between the two components at different scale and the priorities of different communities regarding these two and the role of power structure in deciding the priority resulted in different conceptions of sustainability. Sustainability concept and the idea of sustainable development has always been debated with different quarter with concerns for environment, people, economy, capital, and technology. The change in the motto and diverging interest in adopting sustainable development as a way to develop has given rise to several debates[6].

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[6] Some of them can be highlighted as 'Economic vs. Ecological' (Adams, 1995, 2001, Foster, 2003, Rao, 2003); 'Developmentalism vs. Environmentalism' (Rao, 2003); 'Northern Environmentalism vs.

The major debate in the realm of sustainability discourse remained centered around the so-called north-south debate that has been dealt with at length with different names. Technological advancement have led to economic prosperity, changes in demographic, social, cultural and political system of world over, on the other it has frequently lead to reinforcement of the existing disparities and foster a fragmented sense of self and even to social unrest (Muttagi, 1998).

In the north, the main ecological concerns have been related to climate change, ozone depletion and pollution for which global solutions are recommended and prescribed standard are sought to be followed to protect the "global common". The south consistently argues to link the natural environment to issues of subsistence and social justice both in domestic and international arena. The developed countries view the global environmental problems on the population growth, agricultural production and the exploitation of natural resources of developing nations; the developing countries are to change their

Southern Environmentalism' (Adams, 1995, Sherman,2004); 'Technocentric vs. Ecocentric' (O'Riordan, 1988, Turner, 1988); 'Red Development Vs. Green Development'(Adams, 2001); 'Conservationist vs. Ecological Anarchism' (Adams, 1995); 'Reformist vs. Radicals' (Adams, 1995, Foster, 2003, Lewis, 1992); 'Reductionist vs. Contextualist' (Harrison and Burgess, 2003).

policies. Chichilnisky (1996) highlighted this in his studies saying:

> In fact, population growth is not the main source of environmental degradation, as the maximum emissions of CO_2 and greenhouse gases are from the 5% population representing developed nations. South is having more forests and more natural resources with less emissions of CO_2 and greenhouse gases. The maximum energy consumption is in the north. Therefore these arguments and counter arguments are complicating the realization of Sustainable development (Chichilnisky, 1996).

The north-south debate of sustainable development continues today also and over the period has evolved into different conception with similar concerns. The meaning of sustainability is the subject of intense debate among environmental and resource economists. The debate currently focuses on the sustainability between the economy and the environment, or between "natural capital" and "manufactured capital", a debate captured in terms of weak vs. strong sustainability (Ayres and Callway, 2005; Rees, 1998). A development is said to be weakly sustainable if the development is non-diminishing from generation to generation, while strong sustainability argue for non-diminishing life opportunities (Brekke, 1997). Strong sustainable development is the process of socioeconomic

development which is built on a strong sustainability approach, along with the additional requirement that each individual component of the ecological capital stocks vector is preserved at constant or undiminished level at each time interval forever (Rao, 2000; Rees, 1998).

Economic approaches to sustainability have been built on long-established ideas of maximizing flows of income while maintaining the stock of assets from which they come (Adams, 2002). Rao (2000) explained economic approach to sustainability and sustainable development further taking economic principles from Rio Declaration and identifying role of environmental and bio-economic constraints in the process of economic development. Domination of economic rationality over the conservation of nature and respect for the life-world to gain a complete picture has been major challenge to the concept of Sustainable Development (Fergus and Rowney, 2005). The emerging scenario suggests the existence of a two-way interaction between environment and human activities that are more than mere economic in nature.

Structuralists are primarily concerned with "social environment", while, the ecologists have their primary interest in the physical environment. Ecologists, often called environmentalists at a different point

of time have, analyzed that civilizations collapsed when its demand on natural resources exceeded the land's ability to supply the same and relied on the technocentric remedies. The mainstream discourse on sustainable development talks about technocratic management along with economic measures like rational utilization, and regulation of the environment. The core of technocentrist thinking in sustainable development is a utilitarian view of science and the application of science to solve the human problems and human needs (Adams, 1995). Structurist's concern for social environment was taken up by radical ecologists who successfully argued the need for redefinition of needs, redistribution of resources, reassessment of the industrial mode of production, replacement of private ownership in favour of social justice and a search for new form of social order, which eliminate alienation, state control and centralization (Adams, 1995). These radical ecologists draw their strength form different groups like traditionalist, marginalized and post-materialists and so on, and focused on non-hierarchical and decentralized structure of decision-making and reject consumerism. The debate around sustainable development has been conceptualized in different ways.

Environmentalists" dependence on values to attain sustainable development and their prescriptive remedies are often based on environmental values of various societies. Environmental values are often mystified and such mystifications prevent society from elaborating effective environmental policies. Four ways, "high technology", "externalities", "intergenerational equity", and "own ideology" is commonly identified (Redclif, 1984; Kumar, 2005). Within environmentalism there is constant tension between reformist and radicalist; and within technocentrism and ecocentrism, and the same continues for the debates about sustainable development. Adams (2001) puts it in four categories namely: "technocentrist environmentalism and sustainable development", "science and sustainable development", "conservation and sustainable development" and "green ideology in sustainable development". In each of the above categories, one or other ideologies of development paradigm have been in the centre to situate the concept of sustainable development.

Depending upon various conceptions of development and sustainability, scholars have categorized people also in different categories like reductionist models construct individuals as "rational consumers" acting on their preferences, respond-ing to market forces, and seeking to maximize their own self-interest; whereas contextualist theories construct them more as ethical citizens (Harrison and Burgess, 2003). Human role on sustainable development has been debated and two distinctive worlds-views, each having its own assumptions and visions, have been formed. Milbrath (1989) levels these groups "dominant social paradigm" and "new environmental paradigm"; while, Taylor (1991) calls them the "expansionist worldview" and the "ecological worldview" (Rees, 2001). These conceptions also illustrate how people engage themselves with the political process, which frames rules and norms of society including that of environmental regulations.

At a global level for promoting habitat balance, habitat ecology approach is of prime importance. The core of this strategy is eco-development, which refers to a form of planned growth primarily concerned with the development of the locally available resources within constrains of the local environment. The main object of this approach is to maximize local capacities of biosphere to support human life quality and assimilate waste. Environmental management and patterning of the urban landscape can be done in a better way by the rational integration of five elements i.e. na-

ture, man, society, cell, and network. The approach often depends on how sustainable development is understood. Sustainable development is often framed as environmental problems and efforts were taken to solve by a scientific approach thereby excluding (whether deliberately or not) debate about the wider sustainable development issue, such as the north-south divide, social inequalities, debt burden, and the endless pursuit of consumption. There has been enough emphasis on the potential benefits and optimization of resource uses and concern for social sustainability became marginalized, as highlighted by Harrison and Burgess (2003):

> Through the work of environmental economists in particular attempts have been made to assign costs to the losses and benefits of previously taken-for-granted environmental goods and services, however, the social, political and cultural that prevent environmentally sustainable development from taking place have not been elucidated so clearly.

A long term perspective is needed to assess the sustainability of developmental process, as it is only in the long run that we are able to assess the effects of change on human population and the environment. For Sustainable Development to reach its potential, radical change is needed in our epistemological thought (Foster, 2003). The development of a discourse based on an integration of diverse ideas and research may provide a way for organizations to move towards a full expression of sustainable development: that is incorporating an ethics of value based on the inclusion of alternative epistemologies. Sustainable Development should be a long-term goal of the society and also of a firm as it cannot be a short-term normal business practice. By adopting sustainable development, society at large and firms in particular try to broaden the narrow focus from a single economic bottom line to develop a "triple bottom line" approach by combining the goal of economic prosperity with the concerns of social equity and environmental protection. Sustainable development can be achieved if three "Es" i.e. environment, economy, and equity dimension is addressed with local government initiatives (Saha and Paterson, 2008). A model of sustainability in industries should include a positive desire towards the sustainability implementation process in production in industries; studying the applications and impacts of various greening strategies in industries; enabling environmental professionals to identify environmental protection measures through new technologies for sustainable development process; and

providing insight into current environmental degradation for stakeholders (Payne and Raiborn, 2001).

Sustainable Development in Cities vis-à-vis Sustainable Cities

The last two hundred years have been the years of industrialization and consequent urbanization. The process has produced an affluent economic system but its byproduct has been an increasing tendency to create fragmentation in urban society along with increasing levels of pollution and ugliness. The form and structure of the city pose a most urgent and pressing problem of sustainability (Phillips, 2003), especially when sustainability is a complex concept (Zheng *et al.,* 2015). Urban areas are by far the most serious pollutant of our environment and they have become the functional entities by which humanities organizes its metabolism with nature (Hamm and Muttagi, 1998) and create in general four areas of unsustainability: namely "meager urban services", "environmental degradation", "natural resource shortage" and "social conflict" (Wei *et al.,* 2015). Population growth is considered as the prime cause for urban expansion because more people consume more land and the most part, this means more urban land. Even in the absence of crude population growth, fragmen-

tation of the family, divorce, changing marriage pattern, and an aging population also contribute to the additional demand for urban housing (Kumar, 2005). An overall upward trend in affluence has also become a factor for more pressure on urban land. In large global cities the basic needs of life are largely catered for growing affluence and have boosted the consumption of land and consumption of other resources. With a changing lifestyle for the dominating section of population, rapid growth in home ownership, a trend which for financial as well as social reasons has been largely satisfied by extensive areas of low density individual homes. Urbanization has had and continues to have a negative impact on green-space within cities. The impact of urbanization on urban green-spaces can be illustrated by many examples; one such example is the Mexico City where the proportion of the city area i.e. made up of urban green space is falling by about 3.7 percent annually (Kong and Nakagoushi, 2005). In brief, the processes of rapid urbanization and industrialization place enormous stress on urban infrastructure, human well-being, cultural integrity, and socio-economic arrangements as the process of urbanization exerts tremendous stress on the hinterlands of cities, imposing much larger "ecological footprints" than the

cities themselves (Cocklin and Keen, 2000).

The problem of sustainability is arguably a causal effect of the processes of urbanization and industrialization over the last century. Sustainability in this sense is taken as an environmental problem and ecological solutions are proposed to overcome the pollution, congestion and deteriorating physical environmental quality of the city. Ecological solutions to urban problems are aptly thought as an outcome of environmentalism philosophy. Environmentalism is often understood as a set of policies that incorporate philosophy of human conduct, as noted by O'Riordan:

> Environmentalism is much a state of being as a mode of conduct or a set of policies. Certainly it can no longer be identified simply with the desire to protect eco-system or conserve resources – these are merely superficial manifestation of much more deeply rooted values. At the heart environmentalism preaches a philosophy of human conduct that many still find difficult to understand, and those who are aware seemingly find unattainable.

Environmentalism needs to be examined not from the point of view of ecological rationality and alternative politics, but as an integral part of spatial transformation and social regulation, as it does not talk of ram-

pant poverty, filthy living conditions in urban slums, problem of unemployment in cities and so on especially the problems that need structural solutions. It is this understanding that the concept of "sustainable city" came under criticism, as the concept has been seen as an intrusion in the human life by the state apart from it being insensitive for larger section of population, especially for the poor, and the process has remained more or less managerial in nature. Peter Brand (2007) argued:

> The sustainable city idea is a good case in point. It is constructed around a loose assemblage of problem analytic fields and data (on resources, energy flows, production and consumption patterns, waste and pollution, life styles, and so on) which purports to demonstrate that the present organization of cities is not sustainable but can be made so if correct measures are taken. Crucially, by introducing the future and its risks, it conveys a moral imperative to do something. A successful metaphor such as the sustainable city, not only describes but prescribes, organizing meaning and action across different discursive modes and their institutional and social context.

In this sense Brand sees the environment constituting a "field of social regulation, which intrudes on personal/ private life in a way, which in any other area would lead to an outcry about intrusive government". He

further notes that with the protection of the environment being universally held to be scientifically sound and morally good, the micro-politics of environmental governmentality has gone largely unchallenged (Brand, 2007). Likely, general concurrence on the need for sustainable development obscures equally widespread disagreement over the practical meaning of the concept. Rees (2001) sums the contradiction of the political positions saying that "environmentalists of all strips and groups on the political left emphasize the sustainable part and need to put earth first, limit material growth, return to community value and devise ways to share the world's wealth more equitably. Economic planners, the political centre, and all those to the right lay stress on the development component. From this perspective there are no limits, growth comes first, and the present system works; and the global expansion of market economies more often create "all the wealth" needed for the ecological, social, and human security of the world (Cocklin and Keen, 2000; Rees, 1998).

While sustainability is seen as a problem created by the over-concentration of people living in cities and contested by those who argue that the problem of sustainability in cities is due to concentration of wealth by few at the cost of many in these cities, the problem is likely to be exacerbated by an over-concentration on the details of urban development to the neglect of natural landscape. In these conditions, sustainable development is the only way out for generating employment and also preserving the living condition for the traditional inhabitants. Sustainable development encompasses a) use by developing resources space and time scales at the optimum functioning of natural system b) assessment of the impact of both technical and policy development, and c) monitoring the state of both pristine and developed systems, their processes and prospects in a phased manner. Sustainability in a urban setting; describes the potential of a city to reach qualitatively a new level of socio-economic demographic, and technological output, as well as environmental conditions, which in the long run reinforce the foundation of the urban system. In achieving sustainability, processes are more important and the emphasis should be laid down to ensure that the mechanism that is adopted in day-to-day operation of the city-life should be sustainable in nature. Drakakis-Smith (1996) in his study for third world countries concludes that the debate should not be about sustainable city nor it should be about the contribution of city to sustained growth; rather, the focus should be on the processes

involved rather than the entities i.e. urbanization rather than cities. These criticisms have propped up new approaches and new sets of indicators for sustainability studies (Hak, *et al* 2016; Tran 2015; Zhou *et al* 2015). The individual and community were considered part of efforts to achieve sustainability, indicators like "responsibility assignment matrix" and "content analyses" became part of sustainability studies against the technocratic approach. Further, these kinds of criticism do not mean that one should not look for the sustainable cities, as the future of mankind depends largely on the quality of cities they live in.

Summing up

Conceptualization of city as an ecosystem is based on the fact that each process and actor interacts with other in a dynamic equilibrium, though a section of scholarship leans towards the utilitarianism. Environment, both physical and social, remains an important marker of development and should therefore be internalized at every decision-making level incorporating people who inhabit the environs. There have been several efforts to understand the city as a system of nature, because the natural environment permeates the urban spaces and embraces the city. The city of present day

is to be understood as an entity that has a compact, mixed-use urban form that uses land efficiently and protects the natural environment, biodiversity and food-producing areas, if sustainability is to be attained. A set of policy recommendations, which can modify current land use policies and make areas for ecologically sound and sustainable development is urgently needed. The fundamental question that urban planners and policy makers should examine is how to meet increasing basic human needs without destroying the available resource base completely.

Sustainable development is one possible way in which the issue of destroying resources can be addressed, though the concept of sustainable development has been attacked for its vagueness and consequent multiplicity of interpretations. Multiplicity of meaning of sustainability often becomes an obstacle to comprehension. Lack of precision has been another reason for sustainability being not widely accepted. However, more people oppose the concept for the simple reason that it has troublesome implications to their positions and they are the one who dismiss the entire idea as utopian. Nevertheless, the reality is that sustainable development is an eminently workable idea. The conflict between the exponentially growing eco-

nomic system and the increasingly be-sieged ecosystem has reached to critical proportions and may culminate in the collapse of both. The main need is that nations are prepared to pursue a new course of action and people are willing to accept a new lifestyle that Shumacher (1973) calls "a life style designed for permanence", or I would call it as "reduced consumption". The world has only one hope and that is to create an atmosphere, an economy that will not be dependent on consumption driven growth trajectory. Once economies can sustain in an environment of reduced consumption then by creating awareness and value an ecosystem approach to urban sustainability would work.

Sustainability can be achieved as long as some very basic issues are examined, developed, and implemented. Sustainability can be assessed using several aspects like "satisfaction of basic needs", "equitable dis-tribution of benefits and burden amongst stakeholders", "different values of nature" and so on (Aall, 2001). The sustainability can be achieved only if there is coordination amongst people, institutions, developmental agencies, and the urban planners. In order to involve different actors, there is a need for a system of knowledge and information of the urban and natural environments that can be accessible to all actors: physical planners, politicians, institutions, and citizens. Efforts should be undertaken to incorporate people at various decision-making levels. It is therefore needed to adopt an integrated approach to urban sustainability that should not split up the problems into isolated themes, functions, and spatial scale; and aim to capture cause-impact chains and interrelationships between such chains to solve various problems. •

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