
Research

Sustainable Development, Urban Sustainability and Ecological Philosophy: the emergence of theoretical conflicts and the necessity for establishing common grounds for the sound action

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Abstract:

It is expected that at the beginning of the third millennium, almost half of the world population likely to live in urban areas, where most resources will be consumed and most waste and pollution would be produced. There is an agreement that the current patterns of urban development and human activity have led to global warming, greenhouse gases, ozone layer depletion, acid rain, and other environmental degradation. The Rio earth summit in 1992 came to the conclusion that such patterns of development are not sustainable in the long term without some significant changes. Under circumstances, the role of city/urban form has rapidly gained considerable attention from governments and academics for its share in terms of the lack of sustainability. Therefore it is suggested that cities should act as a locus for solving global problems towards achieving sustainability. However, there are several ambiguities and theoretical clashes in the concept and achievement of sustainability; that might be seen as a potential danger to the fulfillment of sustainable development. This paper, therefore, seeks to examine the origins of environmental theories, and the social-historical background that finally led to the sustainable development school of thought. The literature search resulted in the identification of two dominant theories in the environmental discourse: I) Technocentrism and ii) Ecocentrism that are influential in forging later urbanism and planning theories. The paper tries to explore the roots of contemporary urban planning and design theories in the light of their socio-historical backgrounds through a content analysis method. The intention here is to provide a basis for better understanding and assessing the new theories when applying them to the realms of urban planning and urban design in the new millennium.

Key words:

Urban sustainability, Ecological Philosophy, Ecocentrism, Technocentrism, Compact city.

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Introduction

At the start of the twentieth century only 10% of people lived in towns and cities. By the beginning of the 21st century it is expected that 50% of the world population likely to live in urban areas. The rate of global population growth is set to continue with a current projection of 8.5 billion inhabitants by 2025 (DoE, 1999). Alarming, in just 25 years, the population of cities and urban settlements will reach about 5 billion people. The combined effect of population growth and urbanization will place tremendous strain on resources and the environment; this is the case particularly in urban areas, where most resources will be consumed and most waste and pollution would be produced. Some negative impacts and areas of environmental stress have already become apparent. And it has been widely agreed that the current patterns of urban development and human activity have led to global warming due to greenhouse gases, ozone layer depletion, acid rain, and other environmental degradation. All of these have created serious problems for natural resources and wild life, and also the quality of life for human beings particularly in urban areas (CEC, 1990; Elkin et al, 1991; Earth Summit, 1992; DoE, 1994).

The Rio earth summit in 1992 came to the conclusion that such patterns of development are not sustainable in the long term without some significant changes. It has been widely

recognized that the role of cities and urban forms in terms of lack of sustainability are very important (Breheny, 1992a, 1992b; Earth Summit, 1992; Newman and Kenworthy, 1992; Jenks et al, 1996; Masnavi et al. 1998, 1998a; Williams et al. 2000; Jenks and Burgess, 2000;). Hence the role of urban form has rapidly gained considerable attention from governments and academics in the process of achieving sustainability. This led to the main question: Why does the role of urban form appear to be a major concern of governments and researchers?

One reason for this is because of the excessive use of energy and resources, and production of waste and pollution through the increasing population of cities, their spatial structure, and patterns of movement and transportation through the use of motorized vehicles, particularly the private car (Owens, 1986; Newman and Kenworthy, 1992; DoE, 1993, Masnavi et al 1997, 1998b; DoE 1999; Williams et al. 2000; Jenks and Burgess, 2000).

Accordingly, it is suggested that cities should act as a locus for solving global problems (Breheny, 1992a; DoE, 1999). This is a twofold suggestion; on the one hand it naturally reinforces the importance of the role of town planning, urban design, and architecture of the city, in moves towards sustainability. While at the same time it

believed that inappropriate urban planning is influential in the many unsustainable-contemporary urban forms (Elkin et al, 1991). While there were many different ideas and utopias in urban design and planning theories examined in the 20th century by social reformers, planners and architects with the aims of tackling the socio-economic problems of the city, and improving the quality of urban living (Campbell and Fainstein, 1996), it can firmly be claimed that by and large, the Garden City of Howard (1850-1928), Broadacre City of Wright (1869-1959), and Radiant City of Le Corbusier (1887-1965) were those theories that have had the most impacts on the architecture and town planning of the twentieth century. Le Gates and Stout (1996) maintain that these three (Howard, Wright and Le Corbusier) define the mainstream of utopian tradition and that "each had an enormous influence on the way contemporary cities, and the city life, developed in the twentieth century. In Peter Hall's view, this impact "has been almost incalculably great" (Hall, 1996). However, to some extents the results did not prove to be satisfactory; and in general, it can be said that the outcomes of modern planning theories and socio-economic urban development were connected with some socio-environmental problems in the final decades of 20th century. Hall maintains that in the 1950s and 1960s, despite his initial achievement and influencing

visions, the outcomes of Le Corbusier's ideas as an example "were at best questionable, at worst catastrophic".

In addition, the rise of issues of sustainable development and environmental sustainability on a worldwide scale has rapidly undermined many social, economic, and political theories (Meadows, et al., 1972; Our common future, 1987; CEC, 1990; Earth Summit, 1992). In such a rapidly changing environment, the realms of urban planning and urban design theories are no exception. Many influential ideas, that not long ago were acknowledged facts of life, are widely disputed or rejected today.

These led to a contradictory situation. On the one hand, there is some consensus over the shocking facts of the present environmental crisis and there is no doubt about the necessity of urgent attention; on the other, there are several ambiguities and theoretical clashes in the concept and achievement of sustainability (Breheny, 1992a, 1992b; Williams, et al. 1996, Jenks, et al. 1996, Scott, 1998; Bahrainy 1998; Tabibian, 2000; Bahrainy and Maknoon, 2001). This conflict can be seen and is best reflected in the United States reaction to *limit to growth and sustainable development* ideas from the beginning. It is evident in the U.S. government's opposition to *the Earth Summit* (Rio Declaration in 1992 which was signed by over 150 countries); and also in the rejection of

Kyoto Conventions in 1998, which was seen as a major obstacle in achieving global sustainability. Jenks, et al. (1996) maintains that on average, consuming energy amongst citizens of North America is 16 times more than those in Africa, and over eight times more than citizens in Asia or South America and twice more than European countries (UNEP, 1993; WRI, 1995).

This theoretical struggle had an impact on many disciplines and branches of the world society; from economy to industry, and urban planning, and so forth.

In the concept and achievement of sustainable development through urban planning for example, this conflict resulted in the rise of the two dominant and contradictory theories in identifying alternative urban forms: *the Compact city and the Urban dispersal* ideas in the late 20th century. The vision of the compact city has been dominated by the model of densely developed core of many historic European cities (Jenks, et al. 1996); that is aimed to provide a concentration of socially sustainable mixed uses and hence reduce the need to travel, to promote the use of public transport and walking and cycling and thus reducing vehicle emissions. The counter-arguments, coming predominately from Australian and American experiences, claim that low densities can be sustainable and that the quality of life in them is much higher

(Troy, 1996).

These ambiguities and clashes might be seen as a potential danger and also as a primary obstacle to the fulfillment of sustainable development. Under the circumstances, one way to overcome the problem might be to refer to the historical roots of the theories and their conflict throughout history. In initiating such an approach, Peper (1984) asserted:

A study of the history and philosophy of environmental ideas provides an invaluable perspective to those who are attempting to find a way out of our predicament. On the other hand, a study of the facts alone seems to lead nowhere (Pepper, 1984).

This paper, therefore, seeks to examine the origins of environmental theories, and the social-historical background that finally led to the *sustainable development* school of thought. The literature search led to the identification of two dominant philosophies theories in the environmental discourse that are influential in forging later urbanism and planning theories. The paper tries to explore the roots of contemporary urban planning and design theories in the light of their socio-historical backgrounds through a content analysis method. The intention here is to provide a basis for better understanding and assessing the new theories when applying them to the realms of urban planning and urban design in the new

millennium.

Context

The concepts such as *sustainability*, *sustainable development* and also to live in *harmony with nature*, to understand and *protection of the environment* and being as part of it are not fairly new to the people of the Eastern countries particularly Iran. Our ancestors lived and managed their environment and used natural resources with a wisdom that combined the simplicity of life with the complexity of mind, within a circle of spiritual purity. This way of life helped them to continue to live in harmony with their environment and nature for centuries without having problems and without imposing threats to the nature. There is an urge to get back to basics, which in turn will lead us to learn a great deal about those wisdom, and knowledge of sustainability inherent to our ancestor's traditions.

However, considering the rise and the responses to the environmental and ecological crisis in the western countries which were taken seriously and also the modern definitions and terminology of sustainability in western culture at first instance, and to reach more tangible results, the scope of the study and the analyses of these concepts in the next section will thus be limited to the evolution of environmental theory in western culture. The

paper traces the origins of the environmental theories and their background back to the age of scientific revolution of the 16th to 18th centuries, which resulted in growth of capitalism (Peper, 1984), and also forming romanticism of the 18th and 19th centuries.

Since nature is a central focus to environmental issues, it is therefore necessary to analyze the views and attitudes of the theories towards nature in the first instance.

Man, Nature and Environmental movements, the socio-historical background

"Nature", according to "the Green Dictionary", by definition means "innate quality of things, *existence*; and expression of such qualities". (Johnson, 1991). A more inclusive and precise definition of nature is given as the expression of *the infinite potential of existence*, as the life, wildlife, as the *environment* and its physical dynamics, as weather, the ocean, and so forth. Nature is also sometimes seen as synonymous with *Life*. In viewing "nature" as an entity however, the history is evident that "human nature" is becoming gradually predominant, at least in certain destructive levels and threats, to the rest of nature. This means that the balance of the power between man and earth has shifted in favor of man. Schell(1982) asserts "nature, once a harsh and feared master, now lies in subjection, and needs protection against man's power" (cited in Johnson, 1991).

However, this increase of power for man has been seen to be paradoxical. Since man is as a "soluble bit" in the "solvent nature" as a whole, his destructive attitude will affect himself prior to nature. In this imbalanced situation, Schell then concludes "yet because man, no matter what intellectual heights he may scale, remains embedded in nature, the balance has shifted against him, too, and the threat that he poses to the earth is a threat to him as well".

But, how did man disrupt the accordant harmony of nature and dominate himself over it? And how did he eventuate himself to such a paradoxical situation? We need to go back further in history. However in doing so, the focus of this study, is from the 16th century onwards, the age of scientific revolution and radical thoughts.

Evolution of Ecological Philosophy and the formation of Ecocentrism and Technocentrism

Through the investigation of ecological philosophy, which in its evolution has been called "environmental theory", two main schools of thought may be distinguished: Ecological and Technological environmentalism which are termed by O'Riordan (1981) "*Ecocentrism*" and "*Technocentrism*" respectively.

Ecocentrism was defined by O'Riordan as "... a democracy amongst God's creatures, such that nature was respected for its own sake, above and beyond its usefulness or relationship to man. "(cited in Pepper, 1984). Thus it is a mode of thought viewing man as a part of a global ecosystem and subject to ecological laws. There is a strong sense of respect for nature in its own right as well as for pragmatic reasons. *Technocentrism*, however, takes a more rational view of the man-nature relationship; it could be understood in terms of O'Riordan's description: 'A belief in the ability and efficiency of management in solving problems by the use of *objective analysis* and recourse to the laws of physical science, the natural authority of which is extended to economic laws".

Technocentrism

Although some trace the origins of technocentrism in western culture back to biblical times, for example (Al-Gilani, 1994; Coleman, 1996); the focus of this paper is from the 16th century onwards—the age of enlightenment; the period, which marks the start of the scientific revolution. It was a time in which many raised ideas based on the certainty of scientific knowledge, and its power to explain natural phenomena. This is a period that consequently had most influence in

the formation of Man's point of view towards the world, including the natural environment.

In the casting of technocentrism, the mastery of nature, and its share in ecological philosophy, "a common point of departure and historical foil has been either the empiricism of Francis Bacon or rationalism of Rene Descartes" (Macauley, 1996).

These were later promulgated in the form of the socio-economic manifestoes by Thomas Hobbes. This is because they succeeded in developing new methods for steering scientific research; a process through which they could characterize the natural world and its exploitation in favor of humans and their unlimited desires. Yet, Session (1996) argues that the philosophies of Bacon and Descartes were influenced by the Greeks, and also Judeo-Christian traditions of anthropocentrism.

Ecocentrism

At the other end of spectrum of the "ecological philosophy" there were advocates of nature and its beauties and sacredness. There is an argument over the relationship between primal cultures, and the formation of ecocentrism. Sessions(1996) maintains that the cultures of most primal societies were mixed with nature-orientated religions that forged the ecocentrism theory. These cosmologies believe in a sacred earth and a link between all its organisms and constitutes; a way of living

which achieves equilibrium. In western culture however, the main radical movement towards nature seems to have been a response to the consequences of technocentrism. The key components, as well as some leading thoughts and figures in this realm are including: European "romantic movement", American transcendentalism, Rousseau, Spinoza, Malthus, and Darwin which had great influences in the forming of ecocentrism. Pepper tracks the modern environmentalism (ecocentrism) from two roots. He sees it as having particular affinities with 19th-century romanticism which he called its "non-scientific" roots; and also characterizes the ideas of Thomas Malthus (1766-1834), and Charles Darwin (1809-82) as its "scientific" roots.

Session (1996) embraces the significance of Baruch Spinoza's (1632-1677) thoughts in the process of ecocentrism and Romantic Movement as well, which arguably his role was disregarded in the work of Pepper. Spinoza is mentioned as one of the most influential character on European Romantic Movement in the 17th century. He developed his *Pantheism* (worship of nature, Monism, in which "God is everything and everything is God"; Bullock et al, 1988) and his 'non-anthropocentric' philosophical system in opposition to the Descartes and Western anthropocentrism (Session, 1996).

Similarly, Lovejoy (1974) argues, the Romantic Movement glorified itself in unity and diversity in many literary forms, in the arts, in the demand for local color and faithful admiration of landscape, in rejection and in distrusting universal political prescription of technocentrism. An example of a most passionate feeling towards nature is Emerson (1803-1882). In "Nature" (1836) he describes the woods as the "plantation of God"; he wrote: "... the currents of universal being circulate through them. I am parcel of God". (Al-Gilani, 1994). Thus we may identify some parallels between *Pantheism, Pagan* (belief in many gods), and renaissance and romantic *Animism* (belief based on the universal human experiences of dreams and visions, in "spiritual beings" comprising the souls of individual creatures and other spirits: Bullock et al. 1988) as well as their affinity and contribution in forging ecocentrism in western societies.

Conclusion

By and large, it might be concluded that technocentrism is a school of thought which primarily was based on Judeo-Christian traditions and anthropocentrism, and later evolved by Baconian empiricism and Cartesian reductionism throughout the process of scientific revolution. It has affinity with the European Enlightenment movement. It is a philosophy in which knowledge is premised

upon an exhaustive *control* over *nature* and *environment*, and experimental conditions. It looks at nature as a machine and a commodity only to serve humans. Hence, through scientific rationalism, technocentrism sought to derive the *universal laws* and standards to govern and explain society and nature. It is based on *free will*, which with the notion of unrestrained *power over nature*, gives man superiority over nature to fulfill his unlimited desires through subduing the earth and the exploitation of it in favor of man. In technocentrism society is a complex of conflicts and enmity. A state of war between individuals and groups is declared as a result of the competition for gaining power not only over nature, but also power over others, which shows no end to this means. This resulted in a permanent struggle for subduing the earth, and transgression of every cultural and natural limit to produce more and more, and achieving unlimited growth, manifested as economic growth in the modern western society.

Ecocentrism on the other hand is a mode of thought based on the respect for nature and all the creatures in an equal position. Ecocentrism believes in a sacred earth and a link between all its organisms, and constitute a way of living, which achieves equilibrium. In opposition to technocentrism, which advocates man's control and power over nature, in ecocentrism there is no superiority of man over

nature, where he is a "part of the cycle of life" and "chain of being" which are controlled by God.

It advocates the Excellency of *differentness and diversity* in nature. There is a notion of a God-nature relationship and there is no right for man to exploit and destroy God's creatures in favor of himself. In contrast to technocentrism, which recognized free will; in ecocentrism there is an environmental determinism, and the power of man has been controlled. In western culture, ecocentrism was primarily a response to Baconian and Cartesian mechanistic-materialistic thoughts, and their suggestions on man's dominace and power over nature to achieve unlimited growth—outcomes of scientific revolution. Ecocentrism in the Western culture was most reflected in the European romantic movement and the American Transcendentalists, the Apinoza non-anthropocentrism, Malthus limited growth, and Darwin web of life, and the theory of equilibrium.

With the tracing of socio-economic and philosophical characteristics of technocentrism and ecocentrism, and also the analyses of the foundations and the evolution of ecological philosophy, it is hoped that this could provide a basis for the better understanding and assessment of the new environmental movements. Recognizing their influences on, and their relationships to, the forthcoming

theories, we might now channel from eco/technocentrism into the modern environmental theories of the twentieth century. Further we may analyze the chains of events and sequences, which caused ecological/environmental crisis and ultimately led to the rise of the issue of sustainability and sustainable development in the second half of 20th century.

A varieties of reasons are given for such a circumstance includes: the expansion of industries and polluting and hazardous manufacturing; the development of nuclear weapons and their un-absorbable waste in nature; and the process of urbanization, where particular attention is given to the role of cities and current pattern of urban development, and so forth. Many of them are considered to be the direct results of the "scientific revolution" and its industrialization philosophy, and the dominance over nature.

However, it might be fairly safe if we derive the sustainability doctrine as the wise resultant of the previous theories that has combined both advantages of technocentrism and ecocentrism. It is the idea that acknowledges the limitation of mother earth and nature and therefore proposes limits to industrialization and rampant technology; while it believes in *clean technology* and technical advancement that is not willing to control over nature but is trying to save the

environment and to reduce the ecological problems and to remedy its weaknesses. However, there is also an ongoing debate on the roots of the problem: the *culture of consumption*; man's *egoism, arrogance* and *disregarding* behavior towards nature. There might be a need for the new definitions of *happiness, needs, and satisfaction* which in turn might not necessarily be associated with more and more material consumption but rather a return to religious and philosophical teaching and spiritual purity that indicates the importance of a sense of self-worth and a relative position within society.

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پایداری شهری و نگرش های اکولوژیکی:

ضرورت بستر سازی مشترک برای کاربرد نظریه ها

دکتر محمدرضا مثنوی *

چکیده

با شروع هزاره سوم، تخمین زده می شود که تقریباً نیمی از جمعیت جهان در مناطق شهری سکونت یافته باشند، یعنی جاهایی که بیشترین منابع را مصرف و بیشترین ضایعات و آلودگیها را تولید می کنند. از سالهای ۱۹۷۰ به بعد در مورد اینکه الگوهای فعلی و رایج توسعه از یکسو، و رفتار و عملکرد انسان شهری از سوی دیگر، باعث بروز مشکلات زیست محیطی و اکولوژیک مانند افزایش گرمای زمین و گازهای گلخانه ای، کاهش لایه اوزون، بارش بارانهای اسیدی و دگرگونیهای زیستی شده است یک توافق نظر کلی وجود دارد. به همین جهت کنفرانس ریو در سال ۱۹۹۲ با صدور قطعنامه زمین به این نتیجه رسید که چنین الگوی توسعه ای در دراز مدت و بدون تغییرات اساسی، پایدار نخواهد ماند و تغییرات عمده و چرخش در جهت های فعلی باید در جهت رسیدن به توسعه پایدار صورت بگیرد. در این میان نقش شهر و نواحی شهری به طور مستقیم و شهرسازی و ساخت فیزیکی آن به طور غیرمستقیم و سهم آنها در ناپایداری موجود، به سرعت، توجه جدی محافل علمی و حکومتی و سیاستگزاران را به خود جلب کرده است. توصیه ها بر این است که شهرها باید به عنوان نقاط و کانونهای اصلی برای حل مشکلات جهانی و دستیابی به توسعه پایدار مورد نظر و استفاده قرار گیرند. اما برخی ابهامها و جدلهای تئوریک در مفهوم و چگونگی دستیابی به پایداری شهری وجود دارد. این ابهامها و تضادهای تئوریک می توانند به عنوان خطر بالقوه و یا مانع اساسی در مسیر تحقق توسعه پایدار عمل کنند. هدف این تحقیق، در نتیجه، جستجوی ریشه های تئوریکهای زیست محیطی و شرایط اجتماعی اقتصادی که نهایتاً منجر به شکل گیری بینش توسعه پایدار گردید می باشد. جستجوی متون علمی و ادبیات تحقیق منجر به دریافت دو تئوری مسلط و عمده در فلسفه اکولوژیک تحت عنوانهای: اکوستریسم (طبیعت محوری) و تکنوستریسم (فن محوری) شد. این دو بینش در شکل گیری تئوری های بعدی شهرسازی تأثیر زیادی داشته اند. این تحقیق تلاش دارد تا ریشه های تئوریکهای معاصر شهرسازی را بر اساس بینش های زیست محیطی و در روشنایی زمینه های اجتماعی - اقتصادی آنها مورد ارزیابی قرار دهد تا بستر مناسبی برای درک بهتر و ارزشیابی و قضاوت آنها، هنگامی که در حوزه های شهرسازی و برنامه ریزی های محیطی بکار گرفته می شوند، را فراهم کرده باشد.

کلمات کلیدی:

توسعه پایدار، پایداری شهری، تئوریکهای زیست محیطی، اکوستریسم (طبیعت محوری)، تکنوستریسم (فن محوری)