

SUSTAINABLE DEVELOPMENT STRATEGIES AND APPROACHES

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Abstract— This paper on sustainable development strategies and Approaches is an attempt to get a holistic view of the sustainable development and how this can be achieved through the integrated development approach at various levels. The paper starts with understanding the definition of the sustainable development and they the author attempt to analyze the sustainable development strategies and approaches at different levels. Starting with building and moving towards sustainable neighbourhood and then towards the sustainable urban and regional areas is a good attempt to get an overall approach to the sustainable development rather than thinking about the different links and missing out the final goal and objectives of the sustainable development. Readers will find this article to get the overall picture that emerges after the continued efforts at different levels, international, national level, regional, neighbourhood and building level in such a lucid manner that any non-technical person can easily understand the concept of the sustainable development and various prevalent sustainable development strategies and approaches.

Index Terms— Sustainable Development, Sustainable Strategies, Sustainable Approaches, Definition of Sustainability, Sustainable Building, Sustainable Neighbourhood, Sustainable Region

I. INTRODUCTION TO SUSTAINABILITY

Sustainability as a concept has been around for centuries. Throughout the long history of human existence on the earth, human being has been constantly adopting adapting himself to sustain human race with the changing climate, topography, vegetation, economic base and evolving social systems. We will not go in detail of our earlier evidences of sustainability. Rather we will concentrate on the modern concept of sustainability, which emerged through various international conferences.

During the 1960s, development thinking tried to prioritize economic growth and the application of modern scientific and technical knowledge to ensure that the fruits of the development reach to the underdevelopment nations too.

Industrialization through capitalist growth was seen as the central requirement in order for development to take place and through this strengthening of the material base of society; all countries had an equal chance to develop. The optimism of the theorists of the 1960s, however, was generally not borne out by experience of development on the

ground in that decade. By the 1970s, inequality between and within countries had in fact worsened.

By the 1980s, dependency theory had largely moved out of fashion within development thinking, criticized in particular for its rather deterministic emphasis on the role of external economic structures in shaping society and development (Ferraro, 2008).

A belief in what Simon (2002: 87) terms the ‘magic of the market’ developed and neo-liberal ideas of development took hold. Neo-liberalism is essentially an approach to development that considers the free market to be the best way to initiate and sustain economic development. For many nations in the developing world, their entry into the world economy through the 1990s was increasingly defined by the neoliberal policies of the World Bank (WB) and the International Monetary Fund (IMF).

The use of the term ‘Sustainability’ in connection with the built environment is more recent; first arising in a publication entitled “World Conservation Strategy”, published in 1980 by the International Union for the Conservation of Nature (Steele, 2005). The publication of a publication “Our Common Future” by the World Commission on Environment and Development in 1987 brought the concept of sustainability to forefront of the public discussion. The commission in its report defined sustainability as development “...that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment & Development, 1987, p8). In 1992, the United Nations Conference on Environment and Development, the ‘Earth Summit’, took place in Rio de Janeiro, Brazil. At the time, it was the largest ever international conference held, with over 170 governments represented (Adams, 2001) and a further 2,500 NGOs and 8,000 accredited journalists attending (O’Riordan, 2000).

The central aim was to identify the principles of an agenda for action towards sustainable development in the future.

In 2002, 104 heads of state once again met in Johannesburg, South Africa, for the World Summit on Sustainable Development (WSSD). The global challenge of sustainability is now understood to lie in the complex interdependencies of environmental, social and economic développement (Potter *et al.*, 2004).

II. DEFINING SUSTAINABILITY

Sustainability is widely discussed issue and a trend in the modern world planning and development. We will discuss the nature and character of the sustainability and the concept of the sustainable development. There are many definitions given by many scholars and organizations working in the field of development and planning. Let’s have a look at some of the

Manuscript received October 19, 2013.

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most suitable definitions given by scholars and organizations." Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts

- 1) The concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- 2) The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs." (World Commission on Environment and Development, 1987)

"Sustainable development involves devising a social and economic system, which ensures that these goals are sustained, i.e. that real incomes rise, that educational standards increase that the health of the nation improves, and that the general quality of life is advanced (Pearce, Makandia & Barbier, 1989)." "Sustainable development, sustainable growth, and sustainable use have been used interchangeably, as if their meanings were the same. They are not. Sustainable growth is a contradiction in terms: nothing physical can grow indefinitely. Sustainable use is only applicable to renewable resources. Sustainable development is used in this strategy to mean: improving the quality of human life whilst living within the carrying capacity of the ecosystems" (IUCN, UNEP, WWF, 1991)". In principle, such an optimal (sustainable growth) policy would seek to maintain an acceptable rate of growth in per-capita real incomes without depleting the national capital asset stock or the natural environmental asset stock (Turner, 1988: 12).

'The net productivity of biomass (positive mass balance per unit area per unit time) maintained over decades to centuries' (Conway, 1987: 96).

Time has come when we must think about the sustainable development approach which means that we must have due consideration of the social equity and the conservation cum protection of the natural environment while planning for the economic development to meet the need and the greed of the people who are in power whether economic or political" (Sharma, 2013). "Development is about realizing resource potential, Sustainable development of renewable natural resources implies respecting limits to the development process, even though these limits are adjustable by technology. The sustainability of technology may be judged by whether it increases production, but retains its other environmental and other limits" (Holdgate, 1993). With half the world's population now living in cities and with development challenges like climate change, health, water supply, and food security having particularly strong impacts on urban populations and infrastructure, the world needs program approaches that are appropriate for responding to the development challenges of a rapidly urbanizing world. This is imperative to think over it and implement the suitable one for the benefit of the planet and the human race.

III. MODERN SUSTAINABILITY CONCEPT IN ARCHITECTURE

The field of architecture also got influenced by the concept of sustainable development and architects started thinking about the practices of energy efficient green buildings. Many international rating systems evolved to

ascertain the energy efficiency of the built environment. This proved to be a great step in ensuring the sustainability at the building level. Theories of vernacularism, regionalism, critical regionalism, cross-cultural difference and heritage conservation are essentially perspectives that greatly influenced the development in the architectural domain in the direction of sustainable habitat and energy efficient building.

Architectural sustainability is the combination of ideas that based on the natural image, the cultural image, and the technical image. In the natural image, the key to architectural sustainability is to work *with*, not *against*, nature; to understand, sensitively exploit and simultaneously avoid damaging natural systems. 'Design with nature' at the building level is a code for recognizing sun paths, breezes, shade trees and rock formations as natural features that can be 'worked with' in making somewhere for people to inhabit, while recognizing significant trees, animal tracks, habitats and natural drainage systems as natural features that must be 'protected'. The 'eco-centric' logic that Guy and Farmer (2001: 142-3) identify in the discourse of architecture embraces this image of sustainability, linking it strongly with a rhetoric of a fragile, delicately balanced earth where straying far from this path will lead to environmental catastrophe. Materials are those of nature with little human modification: straw bale, rammed earth and pressed mud brick, or rough-hewn stone, and 'natural' timber rather than 'manufactured' timber particleboards, all with 'natural' finishes. But new building also symbolizes the continuing vitality of the local culture, so that the new building is expected to rework rather than reproduce the vernacular, to be identifiably contemporary while eminently respectful of the past. The technical image of sustainability portrays technical innovation in the solution of social, economic and environmental problems. The record of accomplishment of architects over the centuries in finding technical solutions to innumerable problems inspires confidence that the same will happen in the future.

Reduced energy consumption, reduced embodied energy in materials, internal temperatures and lighting levels within desired levels, reduced initial and operating costs are benchmarks for building sustainability.

We have seen the emergence of the sustainability concept for building based on nature, culture and technology. We now move to next level i.e., neighbourhood level.

IV. SUSTAINABLE NEIGHBORHOOD

Nowadays, there has been much debate around the need for sustainable neighbourhood. However, what is a sustainable neighbourhood exactly? Why is neighbourhood important and why is sustainability crucial at this scale?

A sustainable neighbourhood is a mixed used area with a feeling of community. It is a social space where people want to live and work, now and in the future. Sustainable neighbourhood meets the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services to all. (Bristol Accord, 6-7 December 2005).

Sustainable neighbourhood planning aims to accomplish long-term socially, environmentally and economically feasible communities by focusing on:

Governance and Management

The inclusive participation, representation of the user of the services and public spaces will ensure minimum expenditure of the municipal authorities and residents will have more concern for the cleanliness of the neighbourhood.

Transport and Mobility

Well-connected places of residence, work and recreation will reduce the dependency on the use of the transportation system. The neighbourhood should have all basic amenities and basic services available at walking distance say not more than 500m to 1000m.

Environment

The preservation and integration of the environment in the development will ensure long-term healthy environment of the neighbourhood. The use of the open space and incidental open spaces will aid to the quality of the environment.

Economy

A flourishing and lively local economy can be promoted through the renting of commercial establishments to residents and providing accommodation for the service people like washerman, ironman, milkman etc. will enhance the sustainability of the local economy.

Services

Availability of public, private, community and voluntary services, which are accessible to all residents, should be ensured so that residents need not unnecessarily travel long distances for basic needs. The waste disposal and recycling should be promoted at the neighbourhood level to reduce the pressure on the municipal authorities.

Equity

All socio-cultural group should have equal access to the community facilities. In recent years, in cities like Delhi, there is tendency of the resident's welfare associations to create gated community of particular class of people or housing society, which is not a good development. This should be wisely addressed and resolved to ensure equity in the development. Public services must be accessible to all irrespective of socio-economic differences.

Mixed used

The mixed-use development ensures that people have easy access to self-employment and this promotes enterprise in the middle and lower class of income based classifications. Many streets in Delhi is getting converted into mixed use over the passing years to meet the growing needs and demands of the residents.

The quest for more sustainable communities and neighbourhood requires that we look at improvement in the qualities of life and living standard of the different sections of the society. The more interactive the neighbourhood communities the more socio-economic exchanges are possible and the increased participation will ensure the enforcement of good public life and amenities.

V. SUSTAINABLE URBAN AND REGIONAL APPROACH

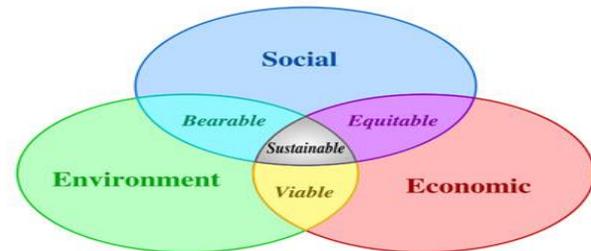


Figure 1: Sustainability Diagram (Photo Courtesy: www.sustainability.umd.edu)

On the surface, sustainable development is a simple concept: Current and future generations must strive to achieve a decent standard of living for all people and live within the limits of natural systems. Despite this simplicity, there is no general agreement on how the concept should be translated into practice. While there is no question that the concept is increasingly being used to guide planning, its implementation is not immediately apparent. Beatley and Manning (1998) argue that within the planning profession, "There is a general sense that sustainability is a good thing, but will ... require definition and elaboration, as do terms such as freedom and quality of life" (p. 3). Campbell (1996) maintains that the "current concept of sustainable development, though a laudable holistic vision, is vulnerable to the same criticism of vague idealism made against comprehensive planning" (p. 296).

Accordingly, planners must foresee and shape the scope and character of future development, identify existing and emerging needs, and fashion plans to assure that those needs will be met and that communities will be able to continuously reproduce and revitalize themselves. By this definition, built environments become more livable; ecosystems become healthier; economic development becomes more responsive to the needs of place rather than furthering the profits of a powerful few; and the benefits of improved environmental and economic conditions become more equitably distributed. A second characteristic is "balance" among environmental, economic, and social values (Kaiser et al., 1995; Neuman, 1999). Kaiser and his colleagues argue that plans should reflect an appropriate balance among these sometimes competing, sometimes complementary values. Achieving balance usually entails coordination, negotiation, and compromise. When all values are not represented, sustainability cannot be promoted by a plan. If environmental values are not accounted for, then the basic life support process upon which a community depends cannot be sustained. If economic development values are not represented, then the fundamental source of community change and improvement is denied. If social values are not reflected in a plan, then places will be created that do not meet

the life and work needs of local people, and do not fairly serve all interest groups.

The integrated development approaches and strategies to integrate the economically productive system of urban areas with the food producing and ecologically viable hinterlands will not only help in resource redistribution and optimal utilization of the resources but also help in maintaining the natural fabric of interdependence of urban and rural systems. Interdependence and sustainability in terms of economy, ecology, social, environmental, infrastructural, institutional and physical subsystems is the need of the hour and our policy planners and development administrators must keep this in mind while thinking about any project and programme of development. This holistic approach of sustainable development and strategies for growth will sustain and perpetuate the system of our survival on the earth.

VI. CONCLUSION

The right attitude, knowledge, skills, and actions in both roles can assist a community in creating the best solution for its cultural and resource conditions. While architects can design and even construct a particular built environment in a community, they can also be involved in sustainable community processes and creation of consensus decision-making with other community members. Focusing on change to the built environment of communities, the degree of architects and planners' participation lies between the opposing poles of expert and user assisted design and decision making (Wulz, 1990). From 'design for communities' (i.e., sustainable design and planning) to 'design with communities' (i.e., participatory design and technical assistance) to 'design by communities' (i.e., taking part as a community member and working with other community members in sustainable community design), the roles of architects will move from being professionals to acting more as citizens. Besides this change to built environment issues, architects and planners can take part in other community activities or sustainable development programmes. From our study of the literature and observations during working as professionals, it can be summarized in the following key findings.

- 1) Energy efficient building and designing building to enhance the functionality, image ability and usability.
- 2) Increasing the accessibility to the basic services and facilities at reasonable distances.
- 3) Developing healthy social and sustainable neighborhood.
- 4) To meet the demands of more economically and socially complex societies, national governments have been increasingly decentralizing and delegating authorities to local levels of government and especially towns and cities.
- 5) Rapid urbanization has resulted in the need for large investments in urban infrastructure including water, sanitation, and urban transport, among others. This places a tremendous burden on municipal governments, especially since an ever growing proportion of the urban population lives in unplanned settlements and slums.
- 6) Climate change poses serious challenges to many towns and cities, exacerbating the vulnerability of many of the urban poor to disaster and dislocation. Cities will play a

major role in climate change adaptation and mitigation, and will provide critical services and infrastructure to support food security.

- 7) Government agencies and NGOs have a tremendous amount of expertise and relevant training and models to offer in the form of partnerships to address climate and food security related challenges.
- 8) While urban women often experience greater opportunities for economic and social freedom and education compared to their rural counterparts, poor urban women are frequently subject to economic and social exploitation and hardship.
- 9) Linkage to initiatives like Feed the Future, Global Health, Climate Change, and other congressional and executive priorities cannot be properly addressed without understanding the demographic realities of an increasingly urbanized world.
- 10) Community-based organizations should be trained to connect resilient urban infrastructure development to improved livelihood opportunities; access to credit for sanitation and household connections to city water supply and sanitation systems; improved, energy efficient building design and construction; resilient building technologies; and transparent urban service, project design, management and implementation.
- 11) Innovative urban services and green building initiatives. Innovative urban development includes green infrastructure approaches and building initiatives to reduce the carbon footprint of urban growth and construction. Areas that could be addressed include energy efficiency, renewable energy options, transport options including bike lanes and mass transit, recycling water and wastewater, renewable energy sources including solar energy, and green building design.
- 12) Development, maintenance, and analysis of a city information base to understand what needs to be done and to serve as the basis for inclusive urban infrastructure planning, and future rational urban growth. This information base should be used through a geographic information system (GIS) to provide important information on vulnerable populations.
- 13) The sharing of information and expertise across various departments engaged in development and planning is now more crucial which will pave the way for collaborative planning and management efforts.

Therefore, in short we can say that time has come when we must plan and develop our resources at global level but manage them at local level to enhance the efficiency and effectiveness of the development measures. The co-ordinated and consolidated efforts of all the developing and developed nations are solicited. The developing nations are using mostly conventional sources of energy while the developed nations are turning towards the renewable energy. Germany promises to replace all its nuclear power plants with solar and other renewable energy resources. In this context, there is need of free and barrier free technology transfer throughout the world is a necessity of time. We must learn to shift out attention from resource development to resource management for the wellbeing of the human race along with the environment, which has no significance place in our policy prioritization.

“Let’s make this earth a better place to live and fit for habitation of future generation through thinking level global and planning at local level (Author, 2013).”

REFERENCES

- [1] Baltimore Commission on Sustainability, (2009), *The Baltimore Sustainability Plan, Baltimore, USA*.
- [2] Beatley, T., & Manning, K. (1998). *The ecology of place: Planning for environment, economy and community*. Washington, DC: Island Press.
- [3] Berke, P., Dixon, & Ericksen, N. (1997). Coercive and cooperative intergovernmental mandates: A comparative analysis of Florida and New Zealand environmental plans. *Environment and Planning & Design*, 24, 451-468.
- [4] Berke, P., & French, S. (1994). The influence of state planning mandates on local plan quality. *Journal of Planning Education and Research*, 13(4), 237-250.
- [5] Berke, Philip R. and Manta Conroy, Maria (2000), Are we planning for sustainable development? *American Planning Association. Journal of the American Planning Association*; Chicago.
- [6] Berke, P., Roenigk, D., Kaiser, E., & Burby, R. (1996). Enhancing plan quality: Evaluating the role of state planning mandates for natural hazard mitigation. *Journal of Environmental Planning and Management*, 39(1), 79-96.
- [7] Burby, R., & May, P., with Berke, P., Dalton, L., French, S., & Kaiser, E. (1997). *Making governments plan: Experiments in managing land use*. Baltimore: Johns Hopkins University Press.
- [8] Collier, J. (2005) “Moral imagination and the practice of architecture”, in Ray, N. (ed.) *Architecture and its ethical dilemmas*. Taylor Francis, London, pp88-100.
- [9] Charleston Department of Planning and Urban Development. (1991). *Charleston 2000*. Charleston, SO Author.
- [10] Connerly, C., & Muller, N. (1993). Evaluating housing elements in growth management comprehensive plans. In J. Stein (Ed.), *Growth management. The planning challenge of the 1990s* (pp. 185-199).
- [11] Duany, A., & Plater-Zyberk, E. (1991). *Towns and townmaking principles*. New York: Rizzoli Press.
- [12] Ferraro, Vincent (2008), Dependency Theory: An Introduction, *The Development Economics Reader*, ed. Giorgio Secondi; London, Routledge, pp. 58-64.
- [13] Harries, K. (1997). *The Ethical Function of Architecture*, Cambridge, Massachusetts: MIT Press.
- [14] Holdgate, M.W., 1993. *The sustainable use of tropical coastal resources- a key conservation issue*. *AMBIO*, 22: 481—482.
- [15] Hungerford, H., & Volk, T. (1990). Changing learner behavior through environmental education, *Journal of Environmental Education*, 21(3), 8-21.
- [16] IUCN/UNEP/WWF (1991), *Caring for the Earth: A Strategy for Sustainable Living*, Gland, Switzerland.
- [17] Jennifer A. Elliott (2006) *An Introduction to Sustainable Development*, Routledge.
- [18] Kaiser, E., Godschalk, D., & Chapin, S. (1995). *Urban land use planning* (4th ed.). Chicago: University of Illinois Press. Kent, T. J. (1990). *The urban general plan*. Chicago: American Planning Association.
- [19] Kollmuss, A., & Agyeman, J. (2002), Mind the gap: Why do people act environmentally and what are the barriers to pro-environment behavior? *Environmental Education Research*, 8(3), 239-260.
- [20] Kuller, R. (2004) “Planning for good indoor lighting”, *Building Issues*, Vol.14, No.1, pp3-20.
- [21] Lincoln City Department of Planning. (1994). *Lincoln City and County comprehensive plan*. Lincoln, NE: Author. Loudoun County Department of Planning. (1991).
- [22] Manta, M., & Berke, P. (1998, Summer). How are we doing? A look at the practice of planning for sustainable development. *Carolina Planning*, 29-40.
- [23] May, P., Burby, R., Ericksen, N., Handmer, J., Dixon, J., Michaels, S., & Smith, I. (1996). *Environmental management and governance: Intergovernmental approaches to hazards and sustainability*. London: Routledge Press.
- [24] McHarg, I. (1969) *Design with Nature*, New York: Doubleday/Natural History Press.
- [25] Maclaren, V. (1996). Urban sustainability reporting. *Journal of the American Planning Association*, 62, 184-202.
- [26] Mega, V. (1996). Our city, our future: Towards sustainable development in European cities. *Environment and Urbanization*, 8(1), 133-154.
- [27] Miles, M., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Newbury Park, CA: Sage. Neuman, M. (1998). Does planning need the plan? *Journal of the American Planning Association*, 64, 208-220.
- [28] Neuman, M. (1999). *The sustainability question: Beyond the compact city fallacy: Planning sustainable urban development*. Berkeley, CA: The Michael Neuman Consultancy.
- [29] Olweny, M.R.O. (2005) *Environmentally Responsible Building Design in Developing Countries: Making it a Reality*, Faculty of Building Technology and Architecture, Uganda Martyrs University.
- [30] Pearce D, Markandya A, Barbier eb, (1989) *Blueprint for a Green Economy*, Earthscan, London.
- [31] Pittsburgh Department of City Planning. (1993). *Comprehensive plan: A guide for public policy in support of a shared vision of Pittsburgh*. Pittsburgh, PA: Author.
- [32] Portland Bureau of Planning. (1995). *Comprehensive plan goals and policies*. Portland, OR: Author.
- [33] Sharma, Shashikant Nishant (2013), *Politics of Development: Common Wealth Games Village*, <http://www.sureshotpost.com/2013/08/politics-of-development-comm-on-wealth.html>, accessed on 31 August 2013.
- [34] World Commission on Environment and Development (WCED) (1987), *Our Common Future*. Oxford: Oxford University Press, London.
- [35] Sharma, Shashikant Nishant (2013), *Sustainable Development Strategies and Approaches*, <http://www.sureshotpost.com/2013/09/sustainable-development-strategies-approaches.html>, accessed on 10 October, 2013.
- [36] Williamson Terry (2003) *Understanding Sustainable Architecture*, Spon Press.
- [37] World Commission on Environment and Development. (1987). *Our common future*. Oxford, UK: Oxford University Press.
- [38] Wulz, F. (1990). The concept of participation. In H. Sanoff (Ed.), *Participatory design: Theory & techniques* (pp. 39-48). Raleigh, NC: North Carolina State University.

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