Conservation of Cultural Heritage As a Tool for Sustainable Development

Shivashish Bose ***maintains that conservation and conversion are common social goals in the Asian region, and he argues for them to become part of the overall planning policy of development.***

In the Asian region, tremendous increment in population and the urgent need for development have resulted in the construction of more high-rise buildings while old historic and ordinary ones are demolished.

The historic built environment is a significant part of a nation's capital resource. Conservation of historic, as well as ordinary old buildings, for continued use is an economic and ecological imperative. An existing building or a fabric is to be interpreted as a specimen of culture, and an existing design component and a potential energy resource, should be preserved for continued use and skillfully integrated as new designs

and development. The objective is to tap non-renewable energy resources as minimum as possible for the same built space. This is the appropriate path of development based on the theory of sustainability.

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Introduction

The Sears Tower in Chicago "uses more energy in 24 hours than an average American city of 150,000 or an Indian city of more than one million inhabitants" (Hahn and Simonis, 1991). This is just an example of the magnitude of concern such a high-rise building creates. There are sky-high buildings built and being built in the developing nations of Asia with enormous support from both governments and the private sectors. The cities of the developing nations have been growing rapidly in population and in size. Tremendous rates of urbanization have taken place within the Asian cities and in their surrounding fringe areas, reclaiming land from agricultural lands, wetlands, water bodies, forests, open spaces; demolishing historic and old existing buildings, quarters and fabrics; using non-renewable energy resources, water and materials; destroying urban agriculture, trees and nutrients; producing large amount of toxic waste; polluting the environment; changing biodiversity, ecology, climate, social structures, traditions and cultures; and as a whole intensifying an adverse environmental impact, particularly on a regional scale. Moreover, many of the cities are exposed or vulnerable to natural disasters, which require major repeated investment of money, material and energy for reconstruction.

Need for Sustainability

The objective of improving the global environment primarily requires cities to work in accordance with the appropriate model of sustainable development. Sustainable development is a desired appropriate path of development, which is to be attained by the intelligent and sympathetic attitudes and contributions of all sectors of the community and stakeholders. Even the smallest of efforts in this regard is to be respected as a genuine contribution towards the common goal.

Sustainable Development - The Objective

Sustainable development can be perceived as a 'Diamond' with its many 'cuts' (factors). There are many definitions of sustainable development, depending upon and emphasizing various factors (cuts) though having a core objective (the 'Diamond' itself). However, the most widely cited definition was formulated by the World Commission on Environment and Development (WCED 1987), also known as the Brundtland Commission, which states as follows:

> "Sustainable Development is development which meets the needs of the present without compromising the ability of future generations to meet their own needs." (Our Common Future)

It has been estimated that buildings consume or are responsible for 40% of the world's total energy, 30% of raw materials, 25% of timber harvest, 35% of the world's CO_2 emissions, 16% of fresh water withdrawal, 40% of municipal solid waste destined for local landfills, and 50% of ozone-depleting CFCs.

As the environmental impact of buildings becomes more recognized and critical, raising global concern, a new field called "Green Building" or "Sustainable Building" is arising to reduce that impact at the source in line with sustainable development philosophy. Green or Sustainable Building follows:

> "The practice of creating healthier and more resource-efficient models of design, construction, use of materials, water and energy, renovation, operation, maintenance, demolition and waste-reduction, which will not compromise the health of the environment or the associated health and well-being of the building's occupants, builders, surrounding people and future generations."

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According to an OECD Project, "Sustainable Building" can be defined as:

"Those buildings that have minimum adverse impacts on the built and natural environment, in terms of the buildings themselves, their immediate surroundings and the broader regional and global setting."

The OECD project has identified five objectives for sustainable buildings:

- Resource efficiency
- Energy efficiency (including Greenhouse Gas emission reduction)
- Pollution prevention (including indoor air quality and noise abatement)
- Harmonisation with environment (including environmental assessment)
- Integrated and systemic approaches (including environmental management system)

Sustainable construction is defined as:

> "The creation and responsible management of a healthy built environment based on resource efficient and ecological principles".

Principles of Sustainable Design in terms of waste management strategies includes:

- Waste prevention
- Recycling construction and demolition materials
- Architectural reuse (including adaptive reuse, conservative disassembly and reusing salvaged materials)
- Design for material recovery (durability, disassembly, adaptive reuse)

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Conservation as a Tool for Sustainable Development

Minimising non-renewable resource consumption is a primary objective in sustainable design and construction. The rational use of natural resources and appropriate management of the existing building stock

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will contribute to saving scarce resources, reducing energy consumption, and improving environmental quality. Conservation and conversion have this basic objective to reduce resource demand while offering attainment of the goal in terms of usable space, environmental quality improvement, and integration into new development without conflict, though retaining the patina of cultural development of a community with all its values.

Conservation

"Conservation is the continuity of useful life in a durable fabric, which may be achieved by various means" (as defined by Prof. Derek Linstrum, ICCROM 1994). The various means (interventions) are maintenance and repair, restoration, rehabilitation, adaptation and/or extension. Conservation can relate to a single building, a group of buildings, a site or more sites together till reaching the scale of a town and of a landscape. This concept of broadening the cultural heritage from works of arts and historic monuments to the built environment and cultural landscape was recommended by UNESCO in Nairobi in 1976.

The historic built environment is a large part of any nation's capital. Apart from their socio-cultural values, the historic buildings represent a lot of materials, engineering and artistic craftsmanship, investment of energy and finance; generate works for the maintenance and utilization of the buildings themselves; and enhance economic growth through usage and cultural tourism. It is possible to identify a great number of financial indicators of interests to conservation programmes, including vacancy rates for residential and commercial tenancies, annual spending on property rehabilitation and repair, and the municipal tax base. Skilful rehabilitation of historic buildings can be economical, often costing only two-thirds of new buildings of the same area, and saving the cost of renewing the infrastructure (Sir Bernard Feilden, ICCROM 1994).

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Many successful approaches have been adopted in historic cities for improvement of existing housing. With the help of technological advancements and applications, problems of rising dampness, rainwater penetration, air-ventilation problem, structural decay and inadequacy, service systems degradation and other physical factors can be properly mitigated. Smaller apartments can be combined to create larger and suitable units without unnecessary sacrifice of the external forms and special characters depicting particular historic image of the locality. Modern facilities can be skillfully inserted in the existing buildings and fabric according to adaptability.

Old ordinary buildings are to be valued equally as important as historic buildings in terms of existing material and energy resources, and use value. Conservation is a development, which causes minimum disturbance to the cultural or natural environment. However, the issue of conservation of existing buildings has transcended the historic, architectural, landmark and sentimental values of architecture, the patina of cultural development and the image of a place, to cover the issue of sustainability through prolonged use value with minimum input of energy, ecological and environmental impact and considerable economic generation as well.

Conversion

Appreciation of old buildings was once limited to historic monuments and properties. Renovation and conversion were seen by architects and planners as non-interesting tasks. Urban planning with a greater focus on preserving and utilizing existing structures was closely linked to the continuous shift in urban development from urban renewal to conservation at the beginning of the 1970s. Conservation, creating a

city image and infrastructural improvements in renewal areas were the goals of those efforts. Since 1990s, conversion was integrated to comprehensive urban planning strategies in developed nations on the basis of economy, ecology and environment.

An existing building or a fabric, irrespective of its heritage value, is now interpreted not as a constraint but as an existing design component and a potential energy resource to be skillfully integrated to the new design. This philosophy is known as "Creative Conversion" in which the old merges with the new or the new fits interestingly into the existing.

Carlo Scarpa's refurbishment of the medieval Castelvecchio in Verona (1956-64) was considered the benchmark for all creative conversions. Scarpa's principle of design intervention was the distinct separation of interventions and existing fabric through constructing materials. Conversion of a historic building for adaptation to a completely new function, apparently disrespecting the historic and cultural value of the old building, is gradually gaining support in the consideration of material, energy and environmental sustainability and economic regeneration. The boundary between old fabric and new completion is becoming increasingly blurred, where architects interpret the old building in a new way and develop it further. The intervention is almost a seamless margin between the old and the new, with minimum details of the completion fitting naturally into the existing structure (Jessen and Schneider 2003). However, it is incorrect to identify definite aesthetic principles in a conversion project.

In Europe, presently, non-historic buildings from the 1960s and 1970s are being adapted, modernized and refurbished for new use. There have been conversions of manor houses into concert halls, churches into community centres, granaries into libraries, factory floors into company headquarters, barracks into hotels, grain silos into apartment buildings, swimming pools into libraries, disused transformer stations into galleries, multiplex cinemas into offices and

planetariums, etc.. In Paris, an unusual initiative of converting office spaces – those that are no longer marketable – into low-cost subsidized housing, has been taken through government sponsorship since 1994, and numerous projects have already been realized. It is assumed that there is almost no building which is unfit for conversion. Conversions and upgrades account for about 40% of construction in central Europe.

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Appropriate Path of Development in Asia

Due to population explosion and the subsequent need for housing and development in Asian mega cities, existing buildings are vulnerable to demolition mainly to give way to high–rise or mega structures. In the cities of many developed nations, such as those in Western Europe, existing buildings are vulnerable to intervention due mainly to population control and/or decline, and surplus of spaces (in buildings) already constructed in excess of actual demand. Since 1990, for example, 600,000 apartments have been built in East Germany alone, although there were 400,000 vacancies at that time. Between 2002 and 2003, the number of vacancies has soared to 1.3 million representing 15.8 percent of the existing structures. At the same time, 1.7 million sqm of office space stood vacant in Germany (Moewes 2003). However, in both cases, adapting existing structures to new requirements as an alternative to demolition, is a sustainable development approach. The technical effort, the materials and energy used, the time and money invested and the environmental impact of first-time construction of a built form, all demand maximum continuation of the existence of the built form to justify the various inputs, as well as sympathy to energy resource tapping. A built form is not a liability but an asset, which in present non-suitable functional or demand state, is to be skillfully converted and/or integrated to the new proposed ensemble. The existing fabric can be interpreted and manipulated at will without any demand for "authenticity".

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Urban development truly means urban expansion, infrastructure intervention, new buildings, conversion, conservation and maintenance, all together being applied separately or conjugally wherever appropriate. "Appropriate Development" should be the goal of any society. Naturally,

public debate in each community shall arise, with the focus on the criteria which determines "appropriate" in its own context. With respect to local, regional and global environmental tolerance, urban development is to be sensitized to its capacity to interact with and alter local and global capacities in coping with environmental disturbances. It is necessary to adopt a holistic approach to environmental impact assessment at policy-making level, requiring area-wise environmental audits, against which the range of policies can be assessed (Haughton and Hunter 1994).

Conclusion

The knowledge and understanding of the need for the sustainable development approach have been widely increased through international conferences, local seminars and workshops and the electronic media in Asia. A new vision of development based on sustainability will likely emerge in this region. This vision will certainly include conservation, conversion and recycling, which are related to skilful management of the existing building stock, optimum use of natural resources, use of solar energy, the possibility of which is realistic in view of the climatic conditions of many Asian cities. This philosophy, incorporated in the social mandate of Asian countries, may be the region's contribution to a future theory of urban planning and design.

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