

Sustainable construction

Reconstruction of North East

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Disasters can provide opportunities for sustainable development. But relief and reconstruction efforts should be integrated into long term development strategies clearly targeting transforming disasters into opportunities for sustainable development. The aim of developing guidelines for sustainable relief and construction and providing a framework for implementation should receive the highest priority of the policy makers.

Changing nature

The changing nature of conflict and diverse and multiple needs of internally displaced persons, conflict affected people and host communities warrants re-visioning of traditional approaches to the relief and reconstruction process. Consequences of man-made disasters are causing emergencies which are increasing in regularity and their adverse impacts on populations and human settlements are rising alarmingly.

These, coupled with cycles of dependency and shortage of resources, point to the need to develop innovative approaches and re-examine traditional policies not only on relief and reconstruction but also on the process of construction. No doubt it is the social, cultural, economic and political setting in the country that will determine and define the approach.

Post conflict reconstruction efforts should be introduced as an integral part of an ongoing development policy and poverty reduction plans to promote a culture of eliminating future conflicts. Integration will undoubtedly reduce or eliminate piecemeal efforts that are not connected with long term development strategy. Piecemeal efforts will only aggravate precarious social and economic conditions.

They are a critical waste of financial and human resources which are invested in emergency relief and reconstruction plans that are often shortsighted, environmentally unfriendly and not sustainable. The concept of sustainability, is an issue that evolves around three key elements - economic growth, environmental protection which means the community is a good, safe and healthy place for its members that provides a solid foundation for a prosperous life with equal opportunities for all, enhancing community sustainability - enhancement of the quality of life of the community stemming from regional economic vitality, social and intergenerational equity, environmental quality enhancement based on consensus building and a participatory approach in the decision making process.

Pre-conflict situation

The potential for individuals to improve on their pre-conflict situation, rather than merely restoring things to the way they had been previously will mean a return to the *status-quo* prior to the conflict - nevertheless in the reconstruction process, there is likely to be a strong tension between elements of the community which sees the disaster as an opportunity for renewal and those who wish to see restoration exactly as it was before the conflict or the disaster occurred.

It is in this context that man-made disasters provide unique opportunities to examine a range of issues such as housing inequities, transport problems, and inadequate infrastructure among many others.

This creates further opportunities for modernization of public facilities, beautification of the landscape, improvements of the built environment, livelihood development and stimulation of the regional economy. No doubt the critical issue is the speed which will be required for restoration. Therefore, the need for a new approach to town planning, built environmental designs and sustainable construction will have to be tempered with the requirement for early restoration and redevelopment.

This is indeed a gigantic task that requires multi disciplinary expertise, dynamism and an effective institutional framework.

We need to identify circumstances subsequent to a man-made disaster that are not confined to fundamental issues only, but those which initiate a rolling series of impacts, as repercussions and conse-



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quences will be felt in different parts of the country on a different scale.

Climatic changes

Physical and or climatic changes, degradation of environment, generation of construction waste, deforestation, over exploitation of natural resources, and mining of minerals, need to be looked at from a different perspective. Action to mitigate such issues will have to be integrated into the relief, rehabilitation and reconstruction process. Rapid action planning must be founded upon a participatory visioning framework that embodies the aspirations of not only the con-

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lict affected communities and politicians but also of multi disciplinary professionals. Sustainable development should be incorporated into the reconstruction process giving highest priority to sustainable construction as construction activity is the key driver of reconstruction, rehabilitation and infrastructure development in a post disaster/conflict situation. It is a challenge that is being thrust upon all those who are involved in the construction industry.

Sustainable construction may be defined as "the creation and responsible management of a healthy built environment based on resource efficient and ecological principles", in terms of the buildings themselves, their immediate surroundings and the regional and national settings.

Environmental impacts

It is concerned primarily with reducing the environmental impacts of new construction and reconstruction and secondly with creating a built environment which positively contributes to a cohesive and inclusive community rendering it economically viable. Particularly in the context of rehabilitation and reconstruction of the Northern and the Eastern region, the way forward is to adopt an approach to achieve continuous improvement in sustaining prosperous, healthy and environmentally friendly development.

The economic and financial growth in the past has brought considerable environmental challenges such as scarcity of habitable land, air and noise pollution, adverse impacts of river sand mining, coastal erosion, and problems of waste disposal among many others. Therefore, there is a need to integrate sustainability considerations into every Governmental policy and practice.

Reconstruction and rehabilitation of an entire region provides an ideal opportunity for the policy-makers to bring in sustainability considerations.

Construction is no doubt one of the major pillars of the national economy with approximately 7.42 percent of the workforce being employed by the industry. The construction industry's contribution to GDP stands at 7.41 percent while its contribution to gross domestic fixed capital formation is Rs. 705,374 million (*Central bank Annual Report 2008*).

We need to acknowledge that there are numerous shortcomings in the industry. Construction activities that are dangerous and pollute the environment. The built products are seldom defect-free. Contractors having to cut their costs tend to adopt a short term view on industry development and competitiveness, often exploiting the informal workforce which does not enjoy social benefits enjoyed by employees in other sectors.

Major culture change

The present scenario calls for a major culture change in the construction industry - that is to adopt a sustainable approach to construction. Ensuring sustainable construction requires the commitment of construction industry policy makers. Implementing sustainable concepts in design and sustainable construction practices on site should receive prioritized attention.

These issues should be promoted by requiring consultants and contractors to follow suite and comply with regulations that ought to be introduced to ensure sustainable design and site practices. Statutory authorities should organize incentive schemes such as the sustainable design award and the green contractor award. The Institute for Construction Training and Development (ICTAD) should act as the advisor to the Government on environmental sustainability in property planning, construction and development.

The procurement process must clearly provide for compensating those who adopt sustainable construction techniques. When the contractors commence construction at site they should be required to implement environmental management to minimize pollution to the environment. The "Pay for Site Cleanliness" and "Pay for Waste Management" Policies must be adopted. The performance of contractors must be monitored in terms of environmental management and assessed on a regular basis to be one of the criteria for grading of contractors.

It is a known fact that the construction industry is directly and indirectly responsible for about half of the total emissions of carbon dioxide (CO₂), 70 to 80 percent of mineral extraction and a large percentage of waste generated which arguably causes the greatest environmental impact.

With people spending most of their time indoors, construction management and use of buildings have a dramatic impact on both the human and wider environment.

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encompasses the following as well.

- * Development of the construction industry / technology to reduce non renewable resource consumption including building materials.
- * Reduce the use of energy and water.
- * Minimize use of toxins and production of waste associated with construction.

Another reason for articulating sustainable construction or sustainable solutions in construction is to minimize adverse impacts on the planet, especially through green house gas emissions that contribute to climate change.

Sustainable construction will ensure that future generations will have an adequate stock of resources, water, minerals etc. (which are already scarce in the North and the East) and improve social and economic options.

A famous quote reads "*Our planet has been loaned to us by our Children*". Use of sustainable design and construction methods will help to provide higher quality buildings that use less water and energy and have wider environmental and health benefits. Good sustainable construction will also deliver developments with lower running costs.

Socially and environmentally responsible approaches will minimize green house gas emissions and assist recycling of materials through the use of renewable energy technology. Use of sustainable produced and local/indigenous material can reduce the environmental impact of natural resource consumption.

Sustainable construction techniques are becoming increasingly important in development with building regulations covering many aspects of sustainable construction resulting in those who do not

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maintain minimum standards being subjected to punitive action. It is regretted that very little has been done by the relevant authorities in Sri Lanka with sustainable construction not even being in their diction.

Promote adoption

In the reconstruction and rehabilitation of the North and the East, it is sincerely hoped that application of sustainable construction techniques will be made mandatory in new developments and in the refurbishment and renewal of existing buildings.

This will undoubtedly minimize the detrimental social and environmental impacts of development and possibly bring about enhancements as

well. Developers, contractors, householders, businessmen, decision makers, investors, local authorities and members of the civil society must in unison promote adoption of policies and best practices of sustainable construction. Information must be disseminated on the benefits of sustainable construction and construction technology to minimize consumption of scarce material, emission of green house gases and generation of waste.

The construction of new townships should;

- * Favour sustainable transport and reduce car dependence by reducing car usage through cost effective and comfortable linkages to public transport.
- * Contribute to the creation of sustainable communities through mixed use development - maximize the mixed housing types and tenures and availability of affordable housing in terms of local needs.
- * Maximize access to community, cultural and lesser facilities.
- * Maximize opportunities for local businesses, local labour and training.
- * Maximize opportunities for local procurement and Micro and SME Sector involvement.

In planning and implementation of projects in the region to be reawakened, highest priority should be given to optimizing efficient use of land and buildings and the supply of sustainable energy, minimizing waste generation while conserving water and other natural resources in addition to protection and enhancement of biodiversity.

New knowledge relating to environmental fields and addressing causes of environmental degradation is developing at a very rapid pace. Continued professional development and training of construction industry personnel thus becomes a necessity.

While the Government should not be held solely responsible for sustainable construction, adoption of best practices and standards and introduction of regulations and a legal framework to facilitate its enforcement are responsibilities of the Government.

Participation of key stakeholders such as clients, developers, contractors, town planners and architects, suppliers and the general public and adoption of an integrated approach are essential to bring about necessary advancements to the construction industry and the living environment.

Sustainable construction encompasses a whole range of issues and techniques, all geared to mitigate or minimize adverse environmental and social aspects while contributing to the creation of a high quality urban environment and enhancement of the quality of life and living standards of a community which has suffered for over three decades.

The construction industry, its multiple stakeholders and more importantly those who determine the national policy have a primary obligation and responsibility to facilitate sustainable construction in reconstruction and rehabilitation of the North and the East.