Sustainability / Trans-disciplinarity: A concern for people and environments between confusing terminology and outdated approaches

Ashraf M. Salama, Ph.D.
Professor of Architecture

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1. Preamble

There is a great deal of discussion in design, architecture, and construction circles on creating sustainable environments, and there are also widely varying opinions as to exactly how sustainability can be introduced and approached. Current debates indicate that the term encompasses more than the physical and economic aspects. It includes social, cultural, and behavioral dimensions. Observing contemporary architectural practices, however, reveals that there are two major missing dimensions. On the one hand, there is an emphasis on the physical aspects of sustainability, while socio-cultural and socio-behavioral dimensions are oversimplified. On the other hand, there is a heavy reliance on top-down policies and strategies with the aim of developing guidelines to be implemented for the betterment of environments. Strikingly, this takes place at the expense of other bottom-up strategies that aim at sensitizing users toward understanding the key issues underlying sustainability. These two missing dimensions — socio-behavioural dimensions, and bottom-up strategies — offer a rationale for the professional community everywhere in the world to use sustainability as a term in their daily discourse. Nevertheless, even while talking about it, they do not yet use sustainability or utilize it in their daily practices. This article presents a critical voice on the current developments and efforts in dealing with sustainability of built environments, by adopting an alternative comprehensive approach that places high value on "trans-disciplinarity". This is achieved by adapting previous efforts developed in the field, and by addressing users as key players in the process of creating sustainable environments.

1. A Critical Voice: The Problem of Terminology.

The development programs of international organizations such as the UN Center for Human Settlements (UNCHS); UN Environment Program (UNEP); International Union for the Conservation of Nature (IUCN); UN Development Program (UNDP), and the efforts of many government agencies around the world exemplify a new way of thinking, aimed at creating sustainable environments. Through the activities of these organizations, ecological consciousness was raised as a reaction to the overall and overwhelming global environmental degradation. During the last decade or so, many conferences, symposia, and colloquia have addressed the environmental issues on the policy-making levels. Law, policy, and decision makers have tailored lengthy regulations and guidance documents in order to maintain a sense of responsibility toward the environment. In this context, architects, designers, and engineers find themselves under the pressure of implementing those regulations. With this

fast pace of action, certain flaws emerge and act as obstacles or blocks towards the full understanding of the way in which sustainable environments can be created. Some of these are outlined below.

Confusion Results from Disagreements on Defining the Subject.

The Brundtland report (1987) emphasized the borad scope of sustainability as it relates to economic, social, and environmental concerns. Recent literature, however, avows that there are disagreements about the precise meaning of sustainability—essentially among architectural writers. Why is that? It is because the term is used in many contexts, including development, cities, agriculture, economy, tourism, technology, environment, architecture, planning, and the building industry. In each of these disciplines, sustainability is defined differently, thereby causing more confusion. Because of this fragmentation, the true essence of sustainable development is always unmet.

Also, the term “Sustainable Development” appears to have some negative connotation because it is overused, and is usually associated with development issues related only to third world countries. Many believe that the word “Development” overemphasizes economic issues and that the term does not necessarily acknowledge the importance of cultural and socio-behavioral issues (Salama 2002b).

The Lack of a Comprehensive Understanding of the Term "Sustainability".

Reviewing the literature on sustainability, one finds two schools of thought. Some definitions place emphasis on environment and economics, while others implicitly integrate social and cultural dimensions. On the one hand, the statements made by Lyle (1985 & 1993) and Davies (1994) exemplify the definitions that focus on environmental criteria. Lyle reports, "The objective of sustainability is to provide intentionally designed and managed ecosystems that represent symbiosis of urban and natural processes". Davies (1994) places emphasis on the same criteria but argues that "The aim is to avoid the shortcomings in our culture in terms of the way we presently build and live, and re-introduce building as a process, which is concerned with the impact it has on the people and the environment involved". On the other hand, incorporating socio-cultural aspects into environmental issues can be envisaged within the statements adopted by international bodies. Derived from the principles developed in the RIO declaration (1992), sustainability is seen as "staying within the capacity of the natural environment while improving the quality of life and offering our children opportunities, at least as good as those available to us". The declaration of the World Congress of Architects (1993) reports, "we are socially, culturally, and environmentally independent. Sustainability in the context of this interdependence requires partnership, equity, and balance among all parties".

The demystification of sustainability as a term corroborates that it is not limited to impacts on natural environments, but on people and communities as well. It involves two domains that should neither be ignored nor simplified, but instead integrated; these two domains are: economic-environmental, and socio-cultural.

Based on the preceding terminology-related concerns I assert that all of this confusion contributes dramatically to how the public values what we do, the

reliability of the knowledge we develop, the credibility of the visions we introduce, and the validity of the methods we employ.

2. Approaches to Sustainability.

When investigating the recent practices addressing sustainability in different disciplines, one can find that there are two major approaches: top-down, and bottom-up. The Top-Down approach aims at developing policies, strategies, and standards. However, it has been heavily accused of being more evaluative than informative, and that it relies on forcing the professional community to be aware of an issue before being able to respond to it. The Bottom-Up approach aims at building public and professional awareness, while providing more automatic feedback mechanisms. The Bottom-Up approach is more informative than evaluative. It relies heavily on developing a common understanding, a common language, and develops a sense of responsibility toward the environment. In recent years, however, emphasis has been placed upon the top-down approach, while ignoring or oversimplifying the bottom-up approach. In essence, it is argued here that both approaches are needed and none of them can replace the other.

The Outdated Top-down Approach.

During the last decade, people have written standards and codes toward the creation of sustainable built environments. A question that can be raised is: Have these policies, strategies, and guidelines been transformed into real practices? Simply, the answer is that very few examples of implementation exist, and many in the professional community agree on that. Again, the question here is: Why we do not find many built examples, in contrast to this accumulation of green knowledge, as developed in the last few years? I am proposing that the problem lies with “Guidelines”, as outlined in the following argument.

Guidelines are always rough, they are “not-illustrated”, and they mainly address quantitative aspects. More importantly, they do not leave enough room, or give enough direction, for the creativity of the architect, the planner, or the facility manager. Guidelines are always generic and do not address specific building type. They also do not deal with building occupants. Some scholars believe that they represent the end of the process, and that by developing guidelines, socially and environmentally responsive built environments can be realized. In this respect, I would argue that no guidelines are ever final; if they are indeed adaptive they will evolve over time according to the changing circumstances. Therefore, they have to be strategically developed to respond to emerging needs and to the nature of the users. In fact, useful guidelines do not provide blueprints on how sustainability can be achieved; only a pretty good picture of what the future might be.

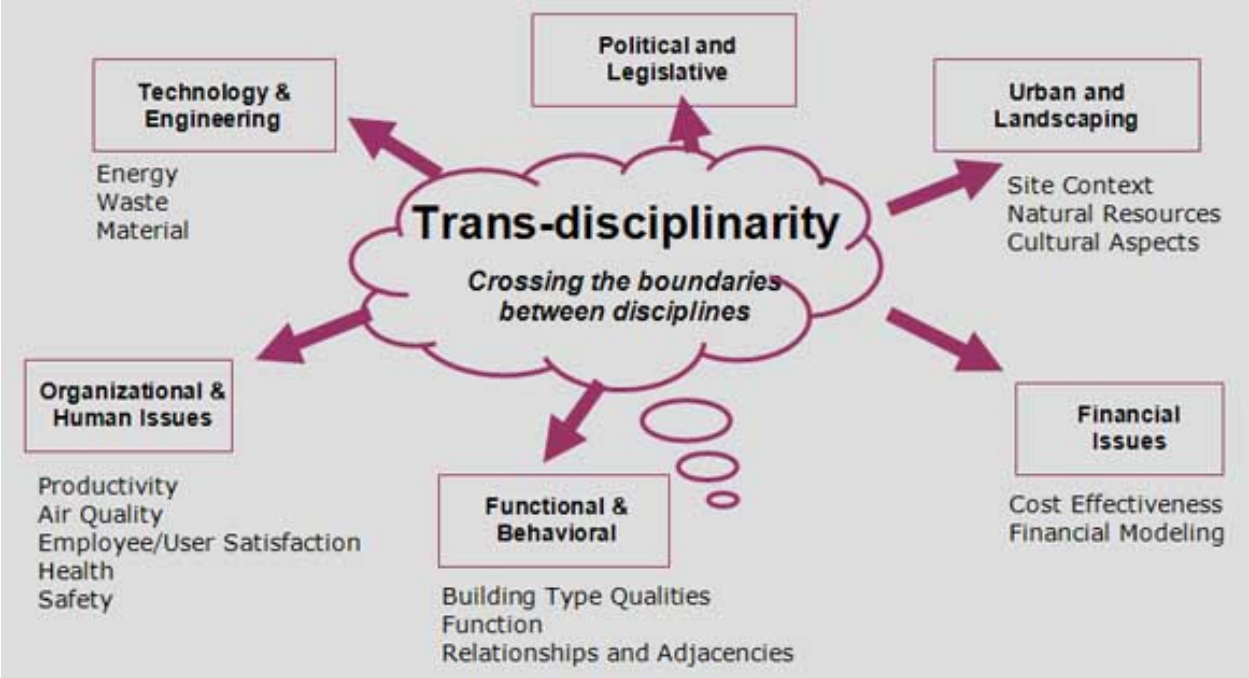
Consumption of Time and the Bottom-up Approach.

There are problems with the bottom-up approach as well. The bottom-up approach has been criticized in terms of its consumption of time. Some argue that the time invested in training programs and awareness campaigns is excessive. Although the results are far-reaching (and positive), the process takes time while developing positive attitudes toward the environment, and reconfiguring the culture of sustainable design, building, management, and operation.

3. Trans-Disciplinarity: A Responsive Approach.

Despite the honest attempts of professionals to tame the development and growth processes, they tend to work on isolated islands, without having enough concern for developing a common language. The proposed approach has three major qualities: 1) it is comprehensive since it addresses different phases of the development process; 2) it is trans-disciplinary since it crosses the boundaries between different fields by utilizing trans-disciplinary knowledge; and 3) it is collaborative since it involves teams of experts throughout the process. It is believed that it will act as a remedy for the problems inherent in the current outdated approaches, ultimately by dealing equally with the top-down and bottom-up strategies.

The proposed approach adopts the view that sustainability cannot be addressed as one subject; it includes different disciplines and issues requiring systemic thinking. A fuller understanding can be achieved by investigating the key issues simultaneously; not dealing with them separately each at a time. It is envisioned that this approach would include technology and engineering issues; organizational, human and management issues; functional, behavioral and cultural issues; financial issues; and urban and landscape issues. It is also believed that these issues should be integrated within a political, legislative, comprehensive process while learning from the past; the vernacular, the traditional, and the development practices that acquired meaning over time.



Trans-disciplinarity as the core/heart of the proposed comprehensive approach to sustainability.

In the proposed approach, it is crucial to define the target audience, the building type, the nature of users, and the activities taking place. This approach overcomes the shortcomings of previous efforts. It accepts the use of guidelines, but views them differently: they should be illustrated and should address professionals and decision makers of different backgrounds, concerns, and agendas. Guidelines should be complemented by aspects of materials and technologies, and by conducting comparative analyses of case examples from places and/or

countries having similar physical and operating environments. In dealing with the bottom-up approach, the approach envisions workshops as learning mechanisms where the essential characteristics of the subject are abstracted for learning purposes. The aim here is to imbibe the enduring values of the concepts underlying sustainability by involving the client, the user, the engineer, and the facility manager in the process.

Sensitizing building occupants toward the key issues underlying sustainability is an integral component of the proposed approach. In essence, walking tour techniques can be utilized where users tour the building, assessing its qualities from a sustainability perspective. (This goes hand-in-hand with an intensive educational talk about the key issues). The objective here is to have them comprehend the existing status of the built environment while recognizing ways in which this environment can be improved. Post Occupancy evaluation from both the users' and the professional's viewpoint is also crucial. The purpose here would be to establish feedback mechanisms for guideline development, and to improve the quality of decision making.

The outcomes of implementing this approach would be several. It will immediately create a set of tools and procedures: best practice manuals, illustrative guidelines, prioritized recommendations, assessment manuals, documented workshops and walking tours, and implementation mechanisms. By adopting this approach together with a continued collaborative interdisciplinary effort, I believe that current unsustainable practices can be stopped. In their place, a process of real sustainable development at all levels (design, planning, and construction) can begin to shape the future of the built environment. By addressing the building's users, sustainability will become a teaching tool for the public, and it will be transformed from being a dream, a utopia, or a romantic gesture to something tangible: something whose value as a professional culture is recognised while raising awareness.

Ashraf M. Salama, Ph.D.

Email: asalama@gmail.com

Dr. Ashraf M. Salama is an architect, scholar, and professor of architecture, currently holds a reader in architecture position at Queen's University Belfast, United Kingdom, the chief editor

of Archnet-IJAR: International Journal of Architectural Research, and collaborating editor of Open House International-OHI.

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The Professional Attitude of Recycling Terminology.

Tracing back the trends on issues related to sustainability, one finds that architects and planners are in a continuous process of recycling terminology. In the fifties, the trend was "Good Design", while in the late sixties and early seventies this term was replaced by "Energy Conscious Design." In the seventies, the oil crisis led to an increased concern for energy, but the attitude of being conscious of energy-related issues was not enough. Thus, the term was replaced, becoming "Energy Efficient Design." In the late eighties and nineties, ecological consciousness was raised as a reaction to the overall environmental depletion, and "Sustainability" was introduced as a new term associated with the fields of design, planning, and building. In the years 2001 and 2002, one notices a new term starting to appear, which replaces sustainability; that is "High Performance Buildings." Those who advocate this term claim that it covers more issues and is more inclusive of a wide variety of concerns (Salama, 2002a).

Although recycling waste, materials, and water are crucial issues in sustainability related realms, I believe that recycling terminology is a professional attitude that has a tremendously negative impact. The reason is that the public does not understand the language we use, and is confused about the terminology we introduce! With this understanding, sustainability or sustainable design is simply a rephrasing of some of the forgotten values of traditional architecture and urbanism.