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Sustainability in a Design Process A Review of Tehran's Major Projects

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Abstract

This research presents a perspective that extends the traditional design framework and proposes to a Sustainable Process of Design, SPD. This view in design and management of the environment is an interdisciplinary approach. The concept of overall sustainability goes beyond novelty, politics, and quick fixes and depends on the nature of the ecosystem and multidisciplinary decision-making. SPD involves many processes and nourishes a wholesome meaning of community and participation in the course of decision-making. Emphasis is given to the conflicting objectives of short-term goals in light of a progression towards sustainability. SPD is connecting, multifaceted, and healing in nature. A long-term approach to development is a fundamental principle of any SPD. Long-term views will cultivate long-term goals and objectives in a design procedure. Examining Tehran's major recent projects reveals the need for an ecological and healing vision in a Sustainable Process of Design. SPD is set with long-term as well as the short-term goals of a community which provides the designer the wisdom to propose settings and designs filled with abundance and opportunities of quality of life for the present and the future generations.

Keywords: sustainable process of design, SPD, short-term approach, long-term approach, ecology, healing, continuum, multidisciplinary.

پایداری در فرایند طراحی - بازنگری پروژه‌های کلان شهر تهران

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چکیده

مقاله در دست حاصل پژوهشی کیفی است که چارچوب طراحی متداول را بررسی نموده و پیشنهاد پایداری در فرایند طراحی را در بر دارد. چنین نگرشی در حیطه طراحی با توجه به مدیریت دانش حاصل رویکردی میان دانشی است. مفاهیم اصلی پایداری فراتر از موضوعات سیاست روز و مسکن‌های موقتی بوده و به سرشت بوم شناسانه محیط مربوط و به تصمیم‌گیری‌های میان دانشی منجر می‌شود. پایداری در فرایند طراحی از فرایندهای مختلفی تشکیل می‌شود و موجب رشد مفاهیم ارزشی جامعه و مشارکت در فرایند تصمیم‌سازی می‌گردد. تاکید این پژوهش بر تضاد بین برخی اهداف کوتاه مدت در مسیر حرکت در جهت نیل به اهداف توسعه پایدار است. پایداری در فرایند طراحی پدیده‌ای چند وجهی است و موجب مربوط شدن عناصر و عوامل بستر طرح شده و سرشتی شفاف‌بخش دارد. رویکرد معمول و نهادینه در توسعه پایدار همواره با نگاهی به اهداف بلند مدت همراه است. این نگرش بلند مدت متضمن توجه به اهداف خرد و کلان بلند مدت در سلسله مراتب طراحی می‌شود. ارزیابی موردی پروژه‌های کلان‌شهر تهران از جمله محوطه برج میلاد در این پژوهش به این بیانیه منجر می‌شود که توجه به چشم اندازی بوم شناسانه و شفاف‌بخش در فرایند پایدار طراحی ضروری است. چنین فرایندی شامل اهداف بلند و کوتاه مدت جامعه می‌شود که خرد ارائه نظریات و پیشنهاداتی که مملو از امکانات ارتقاء کیفیت زندگی برای شرایط کنونی و نسل‌های آینده را به ارمغان می‌آورد.

کلمات کلیدی: پایداری در فرایند طراحی، اهداف کوتاه مدت، اهداف بلند مدت، شفاف‌بخش، تداوم، میان دانشی.

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Introduction

Developers build on every available piece of land at the urban fringe or within the city center. Landowners feel it is their right to seek maximum economic return within a short time from their land no matter what the long-term consequences. This is an epidemic view of development in Tehran today. Once a government agency has the responsibility to develop it should be held to higher standards. The focus of this article is on the procedure with which large scale public places should be designed and built.

A digital board in front of many unfinished buildings in the city of Tehran counts the number of days to the completion of the project. There are mainly buildings or sites that governmental organizations are promising to finish on a certain date. These boards are an indication of shortsightedness in goal setting. Many times the dates pass and the project remains incomplete. How are these dates set? What parameters should be considered before we set a date to complete a large scale project? These dates, in the most cases, reflect political pressure for a political purpose. These issues are at the core of the development of many major projects in the City of Tehran. A short-term view in development harms the quality of the built environment and wastes material, energy and human resources. This short-term view of development is in direct contrast with the principles of sustainable development which entails a long-term approach. In other words, a long-term approach is a fundamental aspect of any sustainable development, long-term approach and long-term goals, versus short-term approach and short-term goals - all within a sustainable process of design.

This concept of sustainability in its modern sense emerged in the early 1970s in response to a dramatic awareness that modern development practices with no regards for natural resources were leading to worldwide environmental and social crisis. (Sustainable America, 1996) The term 'sustainable development' quickly symbolized the alternative development approaches that could be envisioned as continuing far

into the future. The word "sustain" originally comes from the Latin word *sustenare*, meaning to hold up, or support. The definition by Robert Gilman expresses the following: "*Sustainability is equity over time... think of it as the Golden Rule through time.*" (Mendler, 2000) This definition focuses on the element of time. Regardless of the different definitions of sustainability, time is an important aspect of it and limiting the time span would damage the meaning.

In spite of several decades of discussion, no perfect definition of sustainable development has emerged. The one most widely quoted is that of Brundtland Commission which declares: "Development that meets the needs of the present without compromising the ability of future generation to meet their own needs" (Williams, 2007). This definition is anthropocentric for having the concept of hard to define "needs" at its core. Here also short-term and long-term needs come into consideration.

At the heart of this article is an effort to resolve the paradox between the design for development and the need to make it sustainable over time. Future developments should not be "business as usual", but should now begin to evolve into a new paradigm called sustainable process of design, SPD, with a specific definition of development that meets present needs. This process is based on a vision set on the future aspirations of the society at large.

A Sustainable Process

Designs are applicable decisions within the limits of our natural resources and natural laws. Sustainable design is an approach to design based on the functioning of a natural system. That is what Ian McHarg proposed in his iconic book, *Design With Nature* (McHarg, 1967).

Improved design of cities is closely related to challenges for sustainable development. This includes not just the design of public spaces, streets, squares, neighborhoods, and houses, but configuration of parks and greenway systems, regional growth pattern, transportation networks, infrastructures, and even

industrial processes. Designing such systems requires thinking about how they relate to all other elements of a given community. The long-term goals of a community are at the forefront of design and implementation of these projects. A short-term view does not support a sustainable approach.

Sustainable planning must always start with the crucial question of what is the most appropriate thing to do with any particular site. A viable answer in all cases may be “nothing”. But if development is inevitable we should consider a broad set of human and environmental needs. These needs are complex, changing, and an important part of SPD.

Sustainable design is a multi-disciplinary procedure with clear objectives for designing places that increase natural and human capacity. These designs better fit the environment, the local climate, the site, and the specific places people build as their habitat. SPD is achievable if we understand how ecological systems provide sustainable flows and storage of materials and energy. Through SPD, designers could build ecology as an organism might build and live in an ecosystem. The basic message of SPD is to show sensitivity to place. No human intervention into nature should be considered without a thorough analysis of the compatibility between a man-made phenomenon and the ecosystem in question, including the specific topographical and

microclimatic conditions of the site. We should not automatically assume that development should occur everywhere. This is a dangerous view of development.

A sustainable process consists of many processes. Some of these procedures are “healing” like participation of all involved in a community in decision-making to enhance the sense of belonging. It values people’s opinions and seeks long-term solutions which respond to the immediate needs of a community. On the other hand, a quick fix approach looks for short term solutions for economic or political reasons (Hellmud, 2006). In a traditional design process the client and the end users are separate entities but in SPD they are the same. As designers we must increase the presence of healing processes in a larger scope of design. SPD also steps through various stages of design. It is an idea waiting to become (incubating) from inception to implementation. We cannot hasten the process to get to quality results. Like any natural progression it needs its time.

To ensure a sustainable environment, a multi and interdisciplinary approach in design is a prerequisite. The designer or the design team should be educated in an integral approach. Designers must be exposed to and equipped with each of the three major design disciplines; architecture, landscape architecture, and urban planning and design.

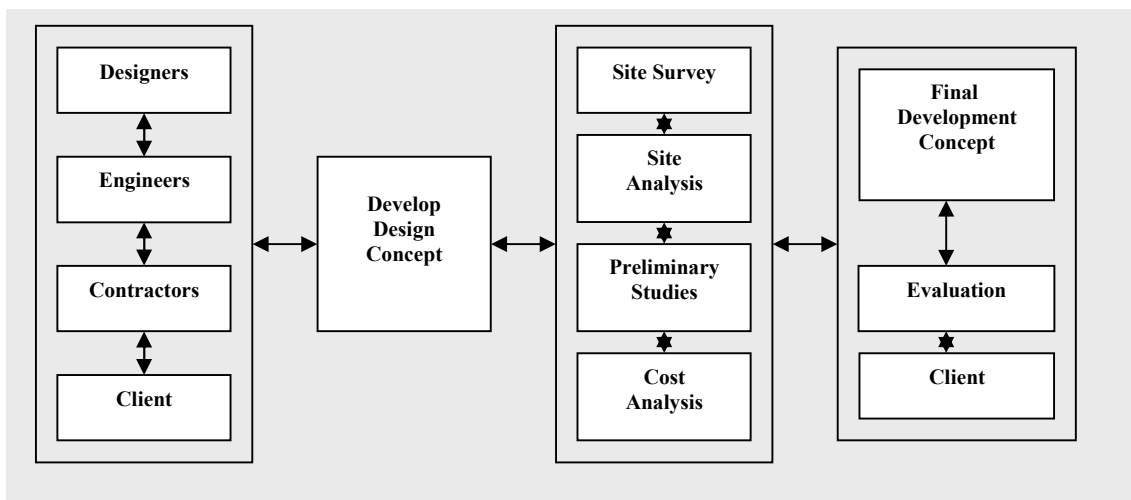


Figure 1. A sustainable process of design is a multidisciplinary approach and client is a key element, Cyrus Sabri 2008.

SPD is also called an integrated approach to design (Williams, 2007). A Sustainable Process of Design needs to be front loaded in the intelligence phase to describe an exact and complete definition of the problem. In this approach not only the constraints are noted and the pressing needs are answered, but SPD also identifies and captures opportunities.

All of the above has to happen in its own time. Rushing the course of action for any reason outside the cycle of proper decision-making from within the system would destroy the balance created in a sustainable system.

Metamorphosis in Design

In moving from a traditional process of design, set in the modern era and only concerned with form-making, to a Sustainable Process of Design dealing with the art and sciences of place-making we understand the description of a transition towards a sustainable development.

The designer as professional is collapsing in the old process of design. Because designers often failed to do good work and would not consider all the crucial issues at hand in a design problem, they did not produce a suitable design. They also did not know or want to know how to take responsibility for their own proposals. Designers took their role lightly. They were not aware that they are proposing a lifestyle for the improvement of the quality of life in a community in its broad context. A metamorphosis in the definition of designer has emerged.

Sustainability is a life enhancing process. To design in harmony with nature we must be aware of the living structure embedded in natural as well as

man-made elements (Alexander, 2002) to ensure continuum which is a key factor in all living phenomena. To design something with a living structure we should understand progression is the key, the process of creating life. This procedure in recent decades has reduced itself to a program of designing, engineering with an outsider, checking and judging the design also by an outside entity. Once the drawings are approved they are the basis for contractors, who are even more removed from the qualities and objectives of design, to bid. The interior, very often is done by yet another person. Thus the assembly process is insensitive to almost any new wholeness which appears during construction. The landscape design is done by a separate designer and contracted to yet another person again contractually removed from the human feeling of the design. This surely is all process, but it is not sufficient.

The trouble is that it is assembly line. Within a mechanistic and deterministic view processes are always seen as aimed at achieving certain results. A time limit is one of these results. This modern mainstream view, goal-oriented and mechanistic, is aimed at the end-results not on the inner good of processes concerned with quality. Why is Sustainable Process of Design view so essential? This is because the ideals of 'design', an image of a future with minimum constraints and many opportunities, control our conception of possible actions (Sabri, 2006). Looking to process as a tool and time as the end result we must realize the process cannot be shortened without the consequence of losing some qualitative aspects of design (Smith, 2007). These qualitative aspects of design are what keep our environment

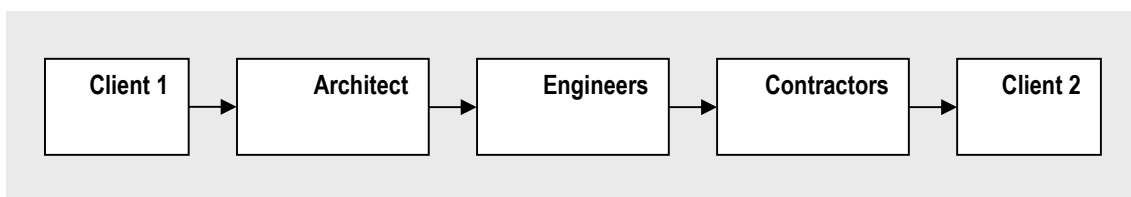


Figure 2. A modern mainstream approach to design involves two different clients, Cyrus Sabri 2008.

sustainable and with hastening the process the risk of overlooking these issues is increased.

The absence of sustainable environments in our built contemporary cities should not surprise us. It follows inevitably from the flaws of the processes we have come to accept as a normal part of our society, and it will change only when the processes we use in our society are changed.

The dominance of a short-term approach in a community is contagious in every aspect of the society. This shortsighted viewpoint is evident in business, planning and development in Iran today. We must understand that in a process of design, we should set our goals at the outset. With short-term views on the phenomenon we can never expect an all inclusive approach to design. A process of design set with short-term goals always looks at the ways to shorten the process and at time as a mighty criterion valued beyond all others. Many of the long-term consequences of a short-term approach are not recognized by the short-sightedness of a short-term view of development.

Towards a Sustainable Tehran

The experience of implementing large projects in the past 15 years in Tehran verifies the main points in the previous section. Political achievements and pressures have always played a role in the implementation of large projects in a metropolitan area. This pattern of development has resurfaced many times in the new era of Tehran's development. The manifestation of this outlook is clear in the development of many civic projects in Tehran of which The Milad Tower site is a case in point. At different times over the past 14 years the site has been rearranged topographically and the design of the site changed with yet another political appointment! Soil depletion and the destruction of nature in this site will have a lasting effect for generations to come with consequences including the absence of healthy soil, deformed topography, and rearranged natural spaces and resources.

A purely cost-based process causes acquisition of

beautiful bits of land for roads and therefore the destruction of their beauty without regard for the damage done to ecology or the health of the land (Sabri, 2006). The example of how to consider the consequences of the roads passing through the Abbas-Abad and Milad sites can be found in an ecological approach, to work in harmony with nature rather than conquer it. The pure cost-based process is therefore implicitly a life-destroying process. Even though it must be argued that cost reduction achieves important social goals and thus indirectly helps to create life in other segments of society but this process does unmistakably damage and destroy life as a direct consequence of its narrow formulation.

Governments have a clear role to play in the maintenance of the cultural heritage and environmental assets alike (Orbasli, 2000). Any design should be in scale with the context and not dominate or overwhelm the natural resources. Also the relationship between man-made and natural features through the protection of topography, trees and other vegetations is fundamental in retaining the natural state of the environment. This issue of scale is an important balancing act to protect our resources with development moves from policy to action.

Adding healing processes of design, such as involving people in the decision-making process is essential (Sabri, 2002). People's participation is a healing process. For example, artists in a community are representatives of a society's values and visions therefore they should participate in the design of public places. In the design of the Milad site artists were asked to submit their proposals, ten of which were chosen to be constructed in the development of the site.

Through the course of understanding Milad Site, it became evident to build a landscape that heals, connects, and empowers; that makes intelligible relationships between humans and the natural world. Designers should make places that welcome as well as embody mystery, a learning landscape which is never void of meaning.

We are nature and all changes to nature and to the habitat have an impact on us (Yudelson, 2007). Exploration of the Milad site, in the context of ecological meaning for the city of Tehran, defines a link to Pardisan park from the West and to Darakeh greenway from the eastern side. H.T. Odum challenges us with much related ecological viewpoint and toward a sustainable design to connect fragmentations and design the connections (Sabri, 2006). This natural connection of the fragmentations for the city of Tehran, a sprawling urban area, with a 12 million population is essential.

Milad site needs a healing touch, repairing its ruptures and reconnecting its parts. Restoring landscape is not about preserving lands and in the process saving what is left. Restoration in the Milad site, if followed, would lead to sustainability and recognizes that once land has been disturbed, meddled with and developed, it requires human intervention and care, in other words, a healing touch.

To ensure this healing procedure there are three contextual issues decision-makers involved in a Sustainable Process of Design must seriously consider. These important subjects are the contexts relative to any development but should be carefully examined in the development of any large projects in Tehran:

1. Interrelationships: Design to reinforce the relationship between the project, the site, the community, and the ecology, make minimal changes to the natural system functioning. Reinforce and support those natural characteristics specific to the place.

- 2. History:** Design with and for what has been resident and sustainable on the site for centuries. Base the meaning in your design from the background and context.
- 3. Flexibility:** Design for the present needs while keeping the vision of the future generations and reflecting the values of the past generations.

Conclusion

Sustainability requires that decision-makers sacrifice short-term interests for long-term gain. Garret Hardin describes the tragedy of commons in an English village which best generalizes the points made in this article (Knox 2000). Imagine a park-like green space to which everyone in the village has access to use and on which they may all gaze their livestock. The continuing viability of the common depends upon the discipline and restraint of each resident. Overgrazing by just one jeopardizes the use of this shared resource for all. There are many instances of human greed lurking behind the tragedy of commons still running rampant at the global as well as local scale.

A long-term vision toward their common goals in a community and not just focusing on their short-term needs is essential in SPD. This connecting viewpoint brings about the necessary healing concept of unity in a society (Steel, 2005).

Sustainable Process of Design is a system design. It helps tackle a variety of issues. These economic, social, and environmental issues are addressed simultaneously and as a single system. That is why our goals cannot be set only on short-term objectives.

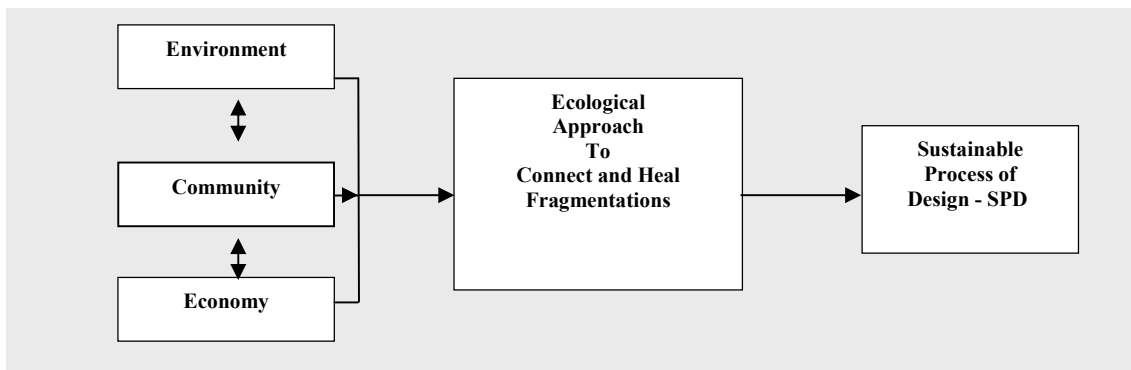


Figure 3. The knowledge of interdependence connects and heals in a sustainable process of design, Cyrus Sabri 2008.

Building knowledge of the interdependence among economic prosperity, environmental protection, and social equity will facilitate understanding for the citizens and allow them to communicate, and participate in the decisions that affect their lives directly.

Sustainable design is a dynamic and living process. Sustainability is not a point that once reached, all is fine. It is better thought of as a continuum. Our planning and design should be approaching sustainability. Sustainability is not static. It is by nature changing based on evolving knowledge that connects science and design.

Principles of sustainable design include efficiency, durability, and respect for the human side of design-aesthetic, history, and culture. This challenge requires that designers expand their reach in knowledge and scope. SPD insists not only providing multiple disciplines at the table but the ability to learn from these areas of knowledge enough to understand and address the long-term challenge facing us.

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