



مجله محیط

علوم محیطی ۱۲، تابستان ۱۳۸۵

ENVIRONMENTAL SCIENCES 12, Summer 2006

49-58

## Rebuilding a Sustainable Image in a Cultural Landscape

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### Abstract

The beautiful and untamed mountains in Iran are a strong source of identity for the residents and the visitors. The view of the Alborz Mountain's peak, Damavand, from Tehran is breathtaking. Yet the same geological processes that have created these magnificent mountains have also made the country very susceptible to devastating earthquakes. While there have been numerous quakes in Iran with many casualties, none have ever overwhelmed international headlines the way the earthquake that struck Bam on December 26, 2003 has. Since that faithful day, there have been many other natural disasters all over the world. The tsunami in the Indian Ocean and the Hurricane Katrina along the gulf coast of the U.S. are two events that have also caused devastating tragedies. There are major lessons to be learned from the Bam experience that can be applied to other similar situations. The relationship between nature and culture adds a significant insight into the complex situation, where reconstruction extends beyond bricks and mortar to the reconstruction of lives and the continuation of a culture. In this regard, the process of people's participation is of vital importance. In Bam a unique approach was used to recover cultural values and reach out to segment of the population that is vital to Bam's future, its children. The Bam experience involved children in a UNICEF workshop<sup>1</sup> and provided a way to involve them in the design of parts of the environment, through their own eyes. This article describes the historic nature/culture relationship in Bam and how the workshops were used to recover them and to find hope in the midst of a disaster.

**Keywords:** sustainable, environmental patterns, cultural landscape.

### بازسازی تصویری پایدار در یک منظر فرهنگی

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### چکیده

سوانح طبیعی چون زلزله و سیل به کرات در دل طبیعت اتفاق می‌افتد. زمانی که این حوادث موجب تخریب وسیع در یک منظر فرهنگی چون شهر بم و ارگ آن می‌شود باید راهکارهایی پایدار را برای بازسازی محیط جست. کشف الگوهای زندگی مردم و شناخت کالبد حاصل از آن در طراحی با مشارکت مردم حاصل می‌آید. این مقاله بر اساس تجربه بم در پروژه شهرهای مناسب کودکان (Child Friendly Cities) پس از زلزله سال ۱۳۸۲ نوشته شده است. پیام اصلی این مقاله در بازسازی سوانح طبیعی نیاز به دستیابی به تصویری است که از کشف و درک الگوهای فرهنگی و طبیعی حاصل آمده است. این آگاهی از شناخت عمیق در رابطه میان فرهنگ و طبیعت ایجاد می‌شود. در این رابطه نقش باغ به عنوان یک عنصر تاریخی، فرهنگی و طبیعی اهمیت خاصی پیدا می‌کند که رابطه‌ای مفهومی در زندگی روزمره مردم ایفا می‌نماید. در شهر بم با استفاده از نظرات کودکان از طریق آشنایی گام به گام آنها با موضوعات طراحی شهری و استفاده از روش‌های تصمیم‌سازی به مفاهیم الگوهایی که متضمن کیفیت‌های زندگی و کالبدی است دست می‌یابیم. نهایتاً در خلق فضاهای آموزشی و شهری عرصه‌های منظر آموزنده از طبیعت به منصفه ظهور رسیدند که در بارور شدن امکانات ذهنی کودکان و تنوع محیط برای سایرین نقش اساسی دارند.

کلید واژه‌ها: پایداری، منظر فرهنگی، الگوهای محیطی.

## Introduction

Traveling to Bam, a historic oasis city was once one of the most desirable destinations for a tourist in Iran. This trip was never complete without a visit to its prominent landmark, Arg-e-Bam or the Citadel. The significance of the Citadel is not only related to its unique architectural features, which have placed it on the World Heritage List<sup>2</sup>, but also the cultural traditions and memories of the place. For instance some local residents, bound to ancient Iranian traditions, used the height of the upper fort to salute the arrival of spring on the occasion of the Iranian New Year. The Citadel, a giant adobe structure, is located on a steep rock surrounded by desert as far as eyes can see. Until recent times, residents inhabited the Citadel and tended to their gardens outside the Citadel on the plain below. The plan of the Citadel reveals its efficiency and self-sufficiency with an array of public spaces, such as: the Bazaar, a small mosque, a theological school, a caravanserai, a water reservoir, the square, a bathhouse, a gymnasium and some older and more elaborate houses of the aristocrats. The Citadel of Bam (Arg-e Bam) is considered "the largest extant mud brick complex of its type in the world which has kept its traditional architecture and town planning undisturbed by alien elements until now."<sup>3</sup> The devastating earthquake, measuring 6.8 on the Richter scale by some estimates, has destroyed up to 60% of the compound<sup>4</sup> (Figure 1). Today after many months the experts at the Iran Cultural Heritage Organization are still painstakingly sifting through the rubble to put pieces of tile and brick back together (Figure 2)<sup>5</sup>.

The Citadel is the place where the entire city comes into the view. The greenest fields amid the sandy desert are some of the most enduring images in the Persian landscape (Mohajeri Baradaran, 2005). And here, on top of the hill, where the ruler used to live, one should not miss the panoramic views over the endless desert to the north, the oasis town of Bam to the east and an impenetrable mountain range to the south. The internal experience of the site is joined with

external qualities of the context, establishing a relationship between the Citadel, the gardens and the entire city. In restoring this valuable landmark it is fitting to use the original techniques and methods from the vernacular lessons of the past. The use of mud or adobe brick making is a case in point (Figure 3).

## Bam: Patterns of Culture and Nature

Built upon historic cultural traditions, the culture of Bam is further tempered by the extremes of the desert environment, extremes that demand both patience and respect. From an historic standpoint Bam, is a symbol of man's ability to survive in a hostile environment, but more importantly Bam represents man's ability to live in harmony with a very fragile and constraining environment. Bam is very unique in this sense. The diverse, tangible and intangible heritage of Bam also reflects values associated with the long and complex history of the city. Bam and its surroundings are a cultural landscape composed of the desert environment; an ingenious water use, management and distribution system; agricultural land use; gardens and built environment. It has not only a complex, underground irrigation system leading to an agricultural land use network that is in harmony with its built area, but also it is a network of gardens mixed into the urban fabric which extend to the outskirts of the town. The hostile environment and the enclosures protecting the city are a common feature that connects the Persian city of Bam with all medieval cities in the world. In all cases massive walls are erected to defend the city from threatening circumstances. Of course similarity of form does not always result from sameness of causes, so the "internality" of Bam, as opposed to the other medieval cities, is not a mere defense against military attacks. It depicts a similarity of process in fending off an unfriendly and harsh environment. However, in the case of Bam, a city surrounded by hot climatic conditions and sand storms, the enclosing fortress and walls create a city of hospitable, simple and beautiful, internal spaces.





Figure 1 – A view of the destruction from the top of the Citadel towards Bam



Figure 2– Reconstructing the courtyards in the Citadel



Figure 3– A mason making bricks using traditional techniques and materials in the Citadel.

The existence of Bam and its gardens are dependent on the presence and ability to distribute water. The Persian Gardens of Bam are an example of a live micro ecosystem that has evolved from within. The gardens owe their liveliness to the internal forces of water coming from the ancient subterranean canals or qanats<sup>6</sup> which make the vast palm groves flourish. This age-old technology was believed to have been devised 2,500 years ago at the time of the founder of the Persian Empire, Cyrus the Great. The route of these underground canals determines the capacity and direction of the growth of the city. The routes can be traced by the pot holes (Figure 4) left from the initial excavations and the subsequent repairs, as well as, the linear grove of willow trees that direct the eye toward the main form of the settlement. The complex irrigation system is a testimony to an extraordinary level of an advanced culture that existed in ancient Persia. The failure or lack of attention to the qanats could have lead to the death of the city of Bam at any time during the past 2500 years. Yet, the city of Bam currently has about 370 active qanats. The system has survived the earthquake and is producing water today. Persian culture is intertwined with the implications and meanings of the Persian Garden. A concept of internal and external worlds, which in the words of Arthur Upham Pope, is mesmerizing: "*Within all is calm. The garden becomes the still point in a turning world, a field of constant and subtle change held in delicate balance by manmade design.*" The garden, as an artifact created by inhabitants inside the urban fabric, establishes a relationship between the *cultural* worlds of its creators and the *natural* environment of its context. Understanding this concept of the garden in Bam is crucial in regenerating the devastated city (Figure 5). In this regard, the palm in the local culture is not a mere tree, but also a member of the family and the sign of life. Measuring units in Farsi are different for a person as compared to a thing, and as for the palm tree, it is counted as a *person*. According to folk tales palms are such sensitive plants that their annual products depend on the constant attention of the

gardener. There are ceremonies in which the gardener pretends to cut the tree because it has been unproductive and the neighbors try to mediate between them; surprisingly the tree will reproduce in the proceeding year. In this sense man and cultivation fit into nature in a dialogue between elements and their surroundings.

Gardens in Bam are also a source of relationship with the outside world. As a leading world producer of dates and their by products resulting in a viable economy, Bam has had a transactional system between inside and outside worlds that has been always dependent on the gardens. The process of making date by products, such as cookies, is depicted in a mural on the walls near the Citadel (Figure 6). From the ancient times Bam has possessed a commercial identity, since it was situated along the ancient Silk Road. Located at the centre of the known world, Bam served as the crossroads of the major trading routes, bringing the treasures of the Far East to Persia and Europe and of course the caravans did not leave the gardens of Bam empty handed. Thus, the symbolism, vivid memories and mental images of the inhabitants can best be retrieved through the restoration of the gardens as living places. As is the case with Tabas<sup>7</sup>, another Persian city in the desert devastated by an earthquake about 25 years earlier, Bam continues to exist as long as the gardens survive (Figure 7). The gardens and the irrigation system, as natural artifacts, in harmony with economy and technology, as the virtual network of relations, create a framework in which hidden patterns come to life. Accordingly, the attained patterns have led to a comprehensive plan for the city in which the physical structures are formed from the natural elements intertwined with the cultural expressions. The inhabitants have vanished in vast areas of the city, but finite patterns of interactions, techniques, customs and beliefs are laid out and ready to be reborn in an eminent culture. The green patches of palm trees all over the city are more discernible since the urban fabric is in ruins. About 80% of the buildings were leveled by the earthquake<sup>8</sup>. The old urban fabric is





Figure 4 – Although Bam is in a hot arid zone it has plenty of water for the gardens that arrive via an ancient water system called, Qanats. This Qanat is in the province of Yazd.



Figure 5 – The earthquake destroyed the buildings, but the gardens are still there.



Figure 6 – A mural in the Citadel showing the traditional family life intertwined with the production of dates and date products.

now imagined through these natural remains. Meanwhile, the irrigation system of qanats is carrying water underneath as a symbol of life to be retraced. One can conclude after observing the city of Bam and all the interrelationships that without man's interference nature will create a large garden there in a few decades of time.

The relationship between nature and culture is at the core of understanding a sustaining and flourishing desert culture with all its manifestations in Iran. Nature as a physical existence together with the mental world of man are valuable entities that have survived the earthquake. Meanings and memories which reside in the minds of the residents and in their way of life start to manifest themselves in the form of a developed culture. Cultivated nature seems to be a way toward uncovering the hidden patterns of the city. Therefore, any attempt at bringing forth these hidden spatial patterns embedded within the people and context of Bam after the earthquake, is a welcome idea in keeping with the traditional character of the city. We were pleasantly surprised to find out through the surveys prepared for the children of Bam that nature plays a vivid role in their minds for any future development.

#### **The Children: A Source of Cultural Values and Patterns**

Before the earthquake Bam was thriving with 40,000 children, representing half of the city's population. At least half of the children are estimated to have died in the earthquake. Among the survivors many are orphans, having lost not just their parents, but their extended families as well. Aid workers fear the majority of these survivors could end up in dreadful institutions. It is important to note that children are always the most vulnerable in any disaster because they are particularly helpless. The children of Bam are no exception. Rebuilding the schools for the children of Bam was a crucial step in the reconstruction process. In designing schools in a manner that might capture cultural values and patterns, it seemed

appropriate that the process include the children of Bam<sup>9</sup>. They are an invaluable resource of human capital, untapped and ready for exploration. Including children in a public participation process for the design of their environment is consistent with the notion that the physical attributes and historical heritage are not Bam's only assets. They were helpful in revealing the existence of specific traditions, skills and local cultural nuances that make up the quality of life and contribute to the overall character and attractiveness of the place. Such human capital cannot be so readily separated into what is or is not, a critical or expendable resource.<sup>10</sup> The participatory planning process used is a pro-active process in which children, teachers, managers, planners, and designers all work together toward a shared vision of their urban future and visualize a common image of what makes good places for learning, living, and leisure. This participatory process not only reveals important values and patterns, but can also help reconstruct a sense of control and hope for child victims of the disaster – a group who are often overlooked in reconstruction projects. The importance of child-friendly and sustainable environments in supporting basic social services like education is not often recognized by local authorities. Urban learning landscapes can have a positive effect on identity and maintenance of the urban environment, lower violent behavior, and increase motivation and academic performance in schools.

The approach used in Bam was a step-by-step introduction to the urban planning process. Various children's environments, such as: "the house," "the neighborhood," "the city," "the school," and "the park and the playground" were introduced and explored by the children. Micro-action design sessions, including: questionnaires, 2D-planning games and 3D-scale model-making were utilized to help the participating children better understand the physical urban environments in which they lived (Figure 8). The children produced a very rich output of what they saw as "child friendly" environments. Key issues on making a friendly environment for the children were



brought out by the facilitators through discussions, drawings, stories and design games with the children. In the case of Bam, there are common factors in the various children's environments. They originate from the local climatic and cultural context and include: micro-climatic, environmental, economic, social and cultural values. For example, the harsh bio-climatic conditions of Bam, basically a dry-hot climatic zone with regular strong, dust-laden winds where temperatures can reach up to 50 degrees Celsius, lead us to develop specific design guidelines for child friendly environments such as: orientation of buildings along the east-west axis; heavy external and internal walls; use of water and plants for producing humidity; utilization of north winds for air circulation and cooling in summers, and use of the veranda, porch, trellis and trees for literally creating comfortable and shaded places for children. Cultural values can also affect the layout and shape of children's environments. A high sense of "privacy" may be the result of religious beliefs or a lifestyle pattern. For example, in girls' schools the view from outside to inside should be blocked. The architecture has an inward character with courtyards for access of light, cross-ventilation, privacy and for sitting outside. Crucial from the point of child friendliness is how the spaces are arranged, how they relate to the courtyards, how the courtyards appear and can be used, and finally how the whole school ensures a high degree of human comfort and is inclusive, while offering multiple opportunities for learning both inside and outside.

Learning spaces are also more effective if they are flexible, providing opportunities for children can read, rest, play and provide opportunities for large/small group activities as well as to work individually. However, flexible spaces may be complex and difficult to manage in the day-to-day use of schools, so they need careful planning. In addition, adequate signage (signs or landmarks) related to the scale of the place can help children in finding their way and provide a feeling of comfort and security. In visualizing child-friendly school environments the

children decided it was important to have clear linkages with nature. They expressed a desire for green spaces, including trees, shrubs, grass, plants, flowers and animals along with water features, like streams, ponds and fountains (Figure 9). They expressed a preference for the use of locally-available and processed natural materials with relaxing and comfortable textures and colours. Green learning spaces or learning landscapes such as these help balance micro-climatic comfort and improve air quality and sound pollution, as well as make the learning environment friendlier to children and to all.

### **The Future of Bam**

The involvement of children and youth in the programme improved the quality of its outcome. The opportunity to participate generated a sense of hope in the disaster victims. Youth appreciated being listened to; and professional facilitators found a renewed sense of purpose in being able to serve the children and the community according to their clearly expressed needs. Local, provincial and central government authorities also appreciated the quality of an output reached with the help of the youngest members of their constituency. UNICEF also appreciated the opportunity to experiment with a holistic and participatory approach to emergency and post-emergency intervention. The mayor of Bam strongly favors a community input approach to community planning efforts. However, the level of community input, in terms of building skills, input of local building materials, transport of labor and materials and the extent to which local peoples are willing to participate in these processes will ultimately determine the success of the rebuilding process. The issue of community participation depends largely on the social mobilization skills of the local authorities to mobilize their community. Basically, Iran does not have a tradition of community participation in the same way we see it in many African, Latin-American and Asian countries. There is an opportunity here for UNICEF to assist the Municipality of Bam in mobilizing their



Figure 7 – Life goes on in Bam as long as the garden exists.



Figure 8 – The children reveal the hidden patterns of life in Bam.



Figure 9 – The children reveal their desire for water and green spaces as major elements in their plans.



community. After, the planning, design, and development of the environmental prototypes, there is an increased likelihood that the children and youth, as well as, the community at large will become involved in the actual implementation of the designs and construction of the sites. For children this will include things like, painting or planting flowers and trees, selecting colors for finishes, or choosing patterns for tiles and games that have to be laid out on the sidewalks, school grounds, and community playgrounds. While the 2003 Bam Earthquake was devastating, it also presents an opportunity to implement a unique paradigm of a holistic, child-friendly and sustainable urban planning in the rebirth of the city. Child friendly interventions and environmental sustainability go hand in hand. With the full participation of children and youth Bam serve as a successful example that is likely to have significant impact on school-and urban planning in Iran as a whole.

#### Lessons for Others

Nonexistence according to ancient Eastern cultures, like Persia, is interpreted as a void full of potentials, waiting to be revealed. Therefore, *existence in absence* is a notion in which the emptiness prepares the ground for bringing forth the hidden dimension of being. From this cultural perspective, every loss is recognized as the beginning of the process of creation. So, the earthquake, as a destructive phenomenon, does not convey a final event or state. Despite the destruction of the physical structures on the surface, it portends a new beginning. It is a time to reconnect with the nature/culture patterns and values that have survived not only the earthquake, but the ravages of time. Therefore, Bam an oasis in the middle of the desert affected by the earthquake can be reborn to its full potentials, but only if the hidden patterns of life in the city are not broken, and if they can be revealed and allowed to assume a dominating role in the regeneration of the city. While disasters such as those in Bam are often seen as just rebuilding the destroyed

bricks and mortar, it is clear from the Bam experience that people, culture and cities are more than that. After emergency needs are met reconstruction efforts must go beyond the simple bricks and mortar to rebuild something that will be sustainable, both naturally and culturally. Such reconstruction must consider the values of the people and their historic relationship to the places in which they live. The sedimentation of meaning and value contained in a people are the bridge upon which devastated peoples can move to a new future, one that is a projection from the past. In Bam children were found to be the vessels that held the past and at the same time were the seeds of the future. While the experience in Bam is a new paradigm for Iran it is important to recognize that it is more than just a new approach. It is an approach that helps one not to lose sight on one's own traditions, which for generations have led to a path for a sustainable and meaningful way of life and still hold potential for the future generations. And in Bam there is so much yet to be saved, most of which is not found in the rubble.

#### Notes

- 1- UNICEF Child Friendly Cities Workshop in Bam, December 2004.
- 2- UNESCO Repot 2004.
- 3- UNESCO Report 2004.
- 4- Iran Cultural Heritage Organization, 2004.
- 5-Trip to the Citadel as the landscape architecture advisor for "Save the Citadel Project", 2004.
- 6-A qanat is an underground canal sometimes more than 100 kilometres in length and between 10 and 30 meters deep. A shaft would be sunk to the permanent subterranean water level at the foot of snow-capped mountains. From there, a tunnel would be dug to carry water to a village, an oasis or even a single house. The tunnels would be lined with stone or tiles. Every 50 meters or so, further shafts were dug to remove spoil and provide air for the underground workers. The shafts are visible on the ground as a line of molehill-like mounds.

- 7- Tabas, Once there was a town called Tabas, Y. Daneshdoost, CHO, 1990.
- 8- Bam's hotel of hope, Robert Tait, 2006.
- 9- Child Friendly Cities project Bam, UNICEF 2004-2005.
- 10-Cultural Heritage in a City Planning Process, Cyrus Sabri, OICC, 1997.

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The Bam Citadel (Arg-e Bam) And its Related Sites  
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