

Sustainable Urban Development Lessons from Historical Asian Cities

[Theoretical elaborations and past parallels¹]

Sustainable Development

Inequitable access to resources, high speed of consumption of natural resources and near depletion of some, the negative fall-outs on environment, ecological imbalance triggered by those as well as waste, poverty and disparities in sharing of gains of development and the like issues have dominated debates on environment and development in recent decades. The approach proposed has been to go for development with the ideology of sustainability applied to both the inputs (natural resources) and the field of development action (natural environment). This paradigm of sustainable development aims, to quote the words of the World Commission on Environment and Development, to meet ‘the needs of the present without compromising the ability of the future generation to meet their own needs’. While we are working towards, and still have not been able to develop and achieve *distributive justice within and between societies in the present generation*, the paradigm of sustainability requires us to aim at distributive justice with *future generations!*

Sustainable Urban Development

‘Sustainable urban development’ has been fashioned by applying similar objectivity into urban context. Here the objective has been to seek sustainability, both in terms of equity of distribution and safety of use, *in all inputs that go into urban development and in all components of urban environment*. As urban systems are characterized by concentration of people and economic activities, inputs to urban systems, whether in terms of material and energy or in the form of society and technology are dense and concentrated too. The urban system is not closed and draws much of its material and energy resources from areas beyond its administrative boundaries and at the bottom, it’s economy is dependent on the hinterland. Without this base, there can be no city and that a city cannot sustain by itself is an axiom.² The application of the ideology of sustainability in urban context thus should not be construed as urban *self-sustainability*. SUD should aim at distributive justice and access safety in a spatially extended area that includes the hinterland and expects the play of action and results in the urban-rural continuum. Urban sustainability demands direct recognition and nurturing of urban-rural continuum.

Such hinterlands were small and clearly demarked to begin with a certain character of richness in material or opportunity. In course of its history, with successive growth of trading, industrial, commercial, communication and information cities, this hinterland has continuously expanded and become a mass of rarified and diffuse footprints. As cities draw energy and materials from such diffuse rural settings, densify them and consume in

¹ This paper expands on the ideas and research findings presented by the author to International Conference on Culture in Sustainability of Cities II, Kanazawa, Japan. Oct. 2000/ International Conference on Culture in Sustainability of Cities III, Chongju, Korea, May 2001(UNU/IAS & IICRC).

² Kano, Katsuhiko. Observations: Proceedings of the International Conference in Sustainability of Cities, Kanazawa, Japan. January 2000 (UNU/IAS & IICRC).

a concentrated setting, threshold capacities get exceeded causing unsustainability. It may bring unsustainability in other ways also. From the pattern of historical urban development, it can be observed that the extension of the hinterland is not just a function of nature of the dominant activity in the city, such as trading, industry, commerce, information etc., but also a result of development of transportation and communication systems and technologies that linked it and other systems around. The more diffuse and extended a hinterland becomes, the city's sustainability could decline with increased demands for inputs of transport and communications between it and its supporting footprint area.

The distancing of the urban area from its hinterland, however, is not limited as a physically quantity. As urbanization is caused by the concentration of secondary, tertiary or higher levels of economic activities, the urban society is also economically and socially distanced from nature and natural systems. Because it is not based on primary economies that interact with nature, at least within its physical boundaries, its development is affected more by the kind of lifestyle and economic activities that spin out of itself and in support of itself, in addition to being a physical entity, urban environment attains other characteristics as it acts as a forum of economic, cultural and social interactions. We need to apply sustainability considerations in all these four planes of urban environment.

In the physical plane of the urban environment, sustainability is sought in basic services and infrastructure as also in the wider life support environment composed of air, water and land. Like in the pattern of consumption, so also in waste generation and exclusion, urban system is concentrative and densifying and operates open-ended beyond its administrative boundaries. If we look at the environment of waste, it is characterized by degeneration in air, water and land sinks. These obviate the fact that decay in urban systems occur as much from the failure of the supporting capacity (a sum total of resources) as from the same of the assimilative capacity (a sum total of waste disposed)³. It is quite unlikely that concepts drawn from diffuse and natural regenerative systems could work in the situation of concentrated and dense consumption and waste.

In the economic plane of the urban environment, we need to seek sustainability not only in the nature of economic activities, which get addressed through resource considerations, but also in the distributive aspect of wealth. There is little doubt that urban poverty and various social degeneration it brings about make it one of the key factors that contribute to urban decay at present. Alleviation of urban poverty and other forms in which economic disparity expresses itself in the society need to be as squarely addressed as we address physical issues.

In the social plane, whereas sustainability requires building a sense of community with the future generation, urban social order is characterized by social fragmentation even within the present society! Urban development of recent centuries has shown increasing loss of community behavior, reduced spatially characterized neighborliness and increasing socially unassimilated heterogeneity in population. Such fragmentation is seen

³ Das, Prasad R. 1997. "The Theory of Urban Decay", Unpublished Paper, SPA, New Delhi.

not just between different cultural groups but also within the same groups. It seems in the nature of urban social environment that as options and capacities for individual communication increase to reach long distances for specialized communication, it faces a reduced spatially characterized or place specific community behavior and even breaks bonds within culturally formed groups. This kind of situation in the social environment not only goes against urban living but also degenerates it. For sustainability, we must address this as directly.

Ultimately, urban sustainability should avert decay and cause equitable distribution of resources and environmental opportunities for development in the urban-rural continuum within the present society and at the present time. Then we should extend the principle of equity and safety across time to reach future generations. In summary, as decay is a function of the failure of either the supporting capacity of resources, or the assimilative capacity for waste, or economic environment or social environment, or some or all of these, sustainable urban systems have to be able to strike an equitable balance between resource utilization and waste and waste absorption as well as economic, social and cultural harmony among societies across space (urban to rural/hinterland areas), across social strata or cultural groups and across time (through several generations).

Urban Systems and Issues in Transformation towards Sustainability

Sustainability in urban systems demands radical changes in basic attitude towards ways, means and ends of living. It will require the urban society to gradually (i) move from its current base of 'economy of surplus' to that of 'economy of sufficiency/need', (ii) move from the 'present period' centered approach to accommodate the rights of the future and (iii) define, institute and regulate commensurate long term rules of behavior. We will also need to learn to plan with indefinite time frame of realization (cf. future generation) and to regulate implementation of such plans.

Since at the very base of urbanization lies the idea of creating and capitalizing on surplus and economy of sufficiency has more of a 'rural' orientation, one can only wonder whether the conceptual departure from surplus to sufficiency⁴ is at all possible while retaining an urban character. Some changes in the nature of economy of both urban and rural systems will occur as we widen the scope of development actions and the field of actions to create a larger 'rural-urban system' in response to creating sustainability of the inputs of resources and transportation from spatial perspectives. The actual linkages of actions in the rural-urban continuum also demand creating compatibility between the two also in terms of economic, social as well as cultural environment.

In contrast to systems in Nature, urban systems have been recent and its physical ecology exhibits characteristics much divorced from natural physical ecology, such as heat-generation and retention, dry sub-surface, supply and waste concentration⁵, etc., and neither the principle of near balance nor how it is to be reached, through a path different from what we see in nature, has yet been understood. Therefore, although some of the

⁴ Cf. Urban Sustainability Indicators (USI) as identified in 'Sustainable Cities' (C. C. Barnett & F. Luloffs).

⁵ Fitch, James Marston. 1992. *Historic Preservation, Curatorial Management of the Built World*, University Press Virginia.

physical processes, such as assimilation of waste may be incorporated into the natural system and circular flow patterns or regenerative track created and equity established through use of renewable energy and basic water service system, this has hardly anything to do with urban ecology. They tend to diffuse urbanism itself so much that a totally regenerative urban system may appear as contradiction in terms.

Nature implements its regulations through such universal agreement that the parts and the participants in the system appear guided by a subconscious will to perform to rule! As urban system operates in the medium of human response, which characterizes the economic, cultural and social environment, expectation of such universal performance to rules is unlikely in the present society. In a manner of speaking, it will require making a religion of development, after all, if human past is any indicator, second to nature, only religion has had its way and societies have used it. But would this be a kindly demand on democratic governance, which is supposed to allow the ruled to make their rules and let the choosers chose their future? How will the regulating mechanism of democracy, where a majority of the choosers elect representatives for a period of about five years, one fourth of a period of a generation, be able to develop and implement rules that would have to be applicable indefinitely to 'future generations'? Will it be democratic for the present to frame rules for the future? Will the present accept a rule seeking good to future but might 'hurt' the present? To attain sustainability, universal rules/ values will need to be framed and applied and this would increasingly take planning into deontological level. That many of such principles are being brought to notice by the United Nations system is telling about the inappropriateness of our national and urban administrative systems for addressing sustainability issues. It is also equally telling that such principles enjoy technical acclaim but languish as rules for 'everybody else but myself' in the books of the national governments.

The heterogeneous and individualized urban society is also at loggerheads with sustainability. How will we act with unison amid increasing heterogeneity of urban population? How are we to construct a compatible social regrouping that would sustain urban living through being spatially identifying and oriented towards community living? How are we to design actions that would bring the sustainability through interaction and mutual support between urban areas and its hinterland? After designing such actions, we will still have to learn to implement a development plan that defuses spatial and administrative boundaries of authority that we are used to today.

For some of these characteristics, concerns and questions, we may have got theoretical or empirical answers already. Others may have led us to revise objectives and make us shift our aims to lesser but attainable goals of limited sustainability. Still others may have remained enigmatic and the search for answers continues.

Learning from Cities in History

Since globalization is a recent phenomenon, the paths of urban development have been varied in the past societies. As a result, history offers a variety of towns developed in response to differing contexts and challenges. Some such contexts, such as those prevailing around towns in Kathmandu valley, had ecological disturbances in such

proportions that they seem to have caused challenges of social, economic or physical unsustainability too. These cities in history, even though they are termed 'historical' also because they lost relevance in course of past time and did not attain fully long term sustainability, may be profitably reviewed for experimentations and successful approaches towards sustainability. These may provide important lessons for the present in outlining paths to urban sustainability and reinforcing moves toward it. We may also try to understand why and how their efforts to extend it further into *their* future failed so that we do not repeat the same mistakes. In the following paragraphs, we try looking for these in the historical cities of Asia in general and Kathmandu valley in particular.

Limiting Urban Sustainability and Culture

As it demands application of deontological logic in planning and seeks actions in economic, social and cultural planes of the environment, the extent to which we may aim and attain urban sustainability depends as much and even more on social agreement, will and foresight of the present than on the possibilities of technical know-how. This becomes clearer as we see urban culture⁶ as a way of life and a summary of interaction or balancing dialogue between nature (resource and waste assimilation), economic pursuits (resource capitalization and waste generation) and social relationships (ordering of competition for resources and waste dissociation). The level of sustainability that can be reached is related to the actual dialogical distance between these fields.

We can relate the level of sustainability attained by the historical cities to their ways of living or cultural practices and their ability in causing appropriate individual and community behavior for economic, ecological and social balance over long period of time. For today, too, instead of just imagining to attain absolute sustainability on technical ground, it should be more pragmatic to aim for limited sustainability, moderated both by the possibilities of our summary knowledge and social foresight, and approach it through actions of cultural nature.

The Target of Future Generation

The objective targeting of actions and results vis-à-vis a future generation appears like treading in philosophical domain particularly as contemporary society we live in a notoriously shortsighted present and also our current development paradigm is too centered on the present man. As a phrase, 'future generation' does not fix 'time span' between present and future generation and planning for sustainability will need to be approached through deontology. We may also approach plans that have an indefinite time frame through process objectivity as such objectivity is more tuned to sustained implementation. The concepts of *karma* and *dharmā*⁷ as well as the philosophy of rebirth brought to bear on the Hindu society by the ancient thinkers appear guided by similar

⁶ The diagram is based on theoretical stance of Paul and Percival Goodman (as of *Communitas – Means of Livelihood and Ways of Life*, Random House, 1960) and recent thoughts on 'Culture in Sustainability of Cities' (IICRC/UNU seminar on the topic, Kanazawa, Japan, 1999).

⁷ *Karma* is not fatalism but a philosophy that enjoins one to act dispassionately and without looking for its reward. This is application of *process objectivity* in all types of human action. Likewise *Dharma* is not religion but a way of living following rules based on larger human principles.

process objectivity. The idea of rebirth is like that of an infinite and circular time and rolls present and future generations into one entity.

In history of Asian social development, we find other instances of application of concepts of ethics much like *dharma*, *karma* and rebirth found in Hindu societies, such as spiritual attainment through material frugality in Buddhism, 'virtuous behavior and observance of social order' as a life-principle in Confucianism, etc., as universal religious / social packages⁸ with a view of obtaining sustainable way of urban living.

For our time too, we will have to discover some such principals/ processes for attaining sustainability and create motives for implementation in the name of well being of humanity and human race. To switch to such processes from our modern state of fixation with the present is not going be easy and may demand as epochal an input as the above historical examples too.

Setting up the new motives and evolving ethical behavior: ritually mediated plan

Almost all historical Asian cities from India to Indonesia and Japan have used doctrinal development and planning approaches based on religious thoughts. It may come as a surprise to observe that the approach and the planning doctrine, which not only remained in use for than 1500 years in the vastly dispersed Asian societies but also developed cities that sustained over several centuries, were remarkably similar in both the religions of Hinduism and Buddhism. The cities, like other man made architectural edifices, were planned and patterned after the perceived image of the cosmos and their use and performance was mediated through rituals. Such a patterning sought to provide a physical framework and conceptual ordering of land use and activity, capable of accommodating growth but remaining complete and balanced at all times as a mental construct. The operation of the city and its activities were mediated by rituals, which, by virtue of their association with the religious faith of the society, were able to demand exacting performance and social behavior from the citizen and the social groups over long period of time. The ritual mediation exploited human ethics, individual faithfulness and emotionally guided *inner discipline*. The cities sustained as long as the faith sustained.

The pattern certainly tell us that sustained implementation of an idea can be achieved only through the mediation of a process that is built around the fondest faiths of the urban society. If we aim for infinite sustainability, we also need to create processes that will eventually become rituals (which we may define as a process seeking pre-defined actions in a pre-defined sequence in an exacting way and followed without question or as naturally required). The thoughts around which a ritual behavior can be developed today would have to be ensconced in the most fondly held principles, trusts and faiths in our own society. If the faiths/principles of today are not helpful in generating urban sustainability, then we need to go through a process of creating social faiths and understanding of the desirable kind.

⁸cf. 'Buddhist way of living' in Sang-Chuel Choe, 'Creating Cultural Identity of Sustainable Chongju', Conference II, IICRC.

Bounded but Interacting Urban and Rural systems

We have discussed above that sustainability of the current urban systems can be improved through creating and nurturing interaction between city and its hinterland. But not only the hinterland of the present city is extensive and diffuse, even doubling up in the role for many cities, the city itself is going through a similarly diffuse suburbanization and expanding out to join up with others forming conglomerations and mega-cities. In effect, in the current state of urban development, both the city and its hinterland are practically unbounded and extend across several administrative and jurisdictional entities. In such a situation creating and implementing interaction between the city and its hinterland brings its own difficulties.

Historical Asian cities were always conceived as bounded entities because the image of the cosmos after which the cities were patterned had a set of perimeter gods and goddesses, whose location spatially defined a physical boundary⁹. Since it would be taboo for the residents to build outside of it, a town's general tendency to expand and break its boundary was stemmed as its religious bearing acted as a deterrent.

It will be observed that the siting of the historical towns of Kathmandu was always on less irrigated higher lands, called *tar*. And the perimeter gods, apparently placed to portray the cosmic image and made sacrosanct by virtue of the same, actually are located such as to keep irrigable agricultural outside the settlement limits. The utility of bounding was so clearly mundane that the town, although based on strictly geometrically patterned *mandala* or *yantra*, actually shows a boundary outline that follows contours of the site rather than the geometry of the pattern. It appears that the bounded town concept of ancient Asia, idealized though it may have been as a picture of the cosmos, helped them avoid its expansion into its hinterland and thence protected its economic base.

The basic principle that a settlement should not expand outwards and engulf its own economic base is as good today as it was then and an appropriately bounded town with a similarly distinct and protected hinterland should go a long way towards sustainability. From an administrative point of view too, bounded areas are more amenable to application of authority and responsibility.

Managing Dependencies

One of the desirable departures in bringing about sustainability in current pattern of urban development is development of urban-rural linkage and nurturing the linkages so that the two inter-dependent systems manage their dependencies. The unsustainability condition here results from possible overexploitation of resources, exclusive exploitation and consequent deprivation of the rural area and lack of commensurate return of the benefits or other inputs back to the hinterland. Similar localized dependencies in historical cities appear to have led them to develop interacting activities that not only sought participation of both the dwellers of the city and the hinterland in preserving and maintaining the

⁹ The earliest patterns are based on *Vastupurusha-mandala* which show *vedic* gods. *Yantra* patterns with later *Hindu* gods came in use in Kathmandu valley towns from 12th century prior to which earlier pattern was in vogue.

resource that supported the city but also to continuously remind the city dweller of the dependency and its demands.

Historical Asian cities are not only ritually mediated in planning and its growth, they also are famed for many festivals that seemingly enact the ritual play of life of gods that are interspersed in the city in the pattern of the cosmos. However, if we look deeper and analyze the component activities, we find that several festivals are played out in annual/seasonal or other cycles, not just inside the town but in a wider region including the town and villages in its hinterland. In the guise of religious activities, these festivals incorporate citizen participated actions more suited at preserving and maintaining the resource and ecology of the region. The festive region shows more as an area with a dispersal of ecological / economic resources rather than a collection of religious spots. These festivals appear designed as a locus of managing and sustaining urban rural dependencies through citizen participation. They are given a garb of religious activity seemingly more to incite the faith of the believers and affect a predetermined pattern of social behavior than to cause religious merit. In effect, they extended sustainability of the urban system. They also succeeded in keeping up, over several generations, citizen awareness about the ecology, actions of renewal, maintenance and upkeep expected from them and the pattern of share of responsibilities between the citizen, social groups and institutions of both the town and the region.

In Kathmandu valley, where problems of sustenance surfaced in ecological and economic contexts fairly early in history because of its size, topography and nature, many festivals were brought to play in the towns and their hinterland that made the citizen participate and get involved, in repeated cycles extending into future time, in acts of maintenance, preservation and reverence of sources and resources of water and agriculture. Safe and effective use of water sources and sheds or agricultural land and the ways of deterring neglect as well as harmful actions on them, have been the theme for these festivals¹⁰ that continue to be staged in the urban-rural continuum even to this day. These seem to have greatly helped in maintaining harmony and cooperation between the city and its hinterland region as well as in sustaining the urban systems through source protection and conservation.

Land Donated in Perpetuity/ Community ownership

An effective tool of building sustainability in the urban social environment is community participation. If activities of importance and meaning to the community as a whole, such as creation, maintenance and operation of elements and processes of providing public good, could be managed by the citizen and the user, it would not only bring them into direct control of their services environment but it will also lead to system of management based on decentralization and spatially-identifying community groups. It may even lead to incremental service systems, which may be more sustainable than large systems managed by large institutions.

¹⁰ The festival of Satyanarayana of Hadigaun, the Rato-matsendra festival of Patan, etc. The Hadigaun festival (dating from eighth century), that links the town to the northern foothills of the valley from where it had its supply of water, ensures through participatory strictures proper social behavior to protect and to keep clean the sources, reservoirs, canals and recharging ponds.

Although we use the tax system to extract private wealth into public coffers to operate the elements of public good¹¹, ancient societies had used appeal to philanthropic instincts to canalize individual wealth into creation, maintenance and operation of elements of services and other community good. As the public goods had to sustain, renew and operate over generations, such individual grants were kept in endowment trusts. Even government made endowments for similar trusts and let the citizen groups manage it. In Asian societies, the property that was held in trust was often kept in the form of land¹². Although this was done primarily because land was the most precious and permanent of properties in agricultural economy, it also helped develop a healthy association of land and community. At the same time, it brought participation of community¹³ in the management of urban services.

Since urban system grows by stretching the elasticity of land usage and also since open spaces are still at premium in our towns, loss of agricultural value of land does not defeat the purpose of common good nor is the economic potentiality of the land in trust lost. Incidentally, this has greatly added to sustainability of old towns by resulting in a lot of prime urban land as community property. Holding of land in perpetuity for community good should be one great way of avoiding the crunch on land so common in the urban system of today.

Social cohesion in Multicultural society and the town

Societal heterogeneity and its consequences on sustainability of urban society have been discussed earlier. It has also been pointed out such heterogeneity is natural to the urban culture because it has little or no homogenizing property. On top of that, globalization of communication and information in recent decades has also seen further erosion of community behavior with increasing individual communication. Therefore, unless this heterogeneity and loss of community spirit is moderated, the urban social environment will remain unsustainable. Andreas van Agt¹⁴ has sketched various possible models for sustainability of cultural diversity within multi-cultural societies expounding on the gradations of cultural tolerances (Michael Walker): segregation, melting pot, rainbow and mosaic scenario. The same approaches can be used in sustaining urban social life amid heterogeneity.

¹¹ In seeking Public Private Partnerships, we may be making moves towards more sustaining new approaches. Cf. Istanbul+5 documents, UNCHS/ Indicators of Sustainable Development (SDI), UNSD

¹² Called *guthi* in Nepal. Similar land held by the community in perpetuity for its common good is also seen in Muslim-Islamic institution of *Wakaf* of Malaysia (M. Nadarajah: Culture and Sustainable Penang, Summary of Findings, IICRC Conference II, November, 2000.)

¹³ The Malaysian Chinese community institution of *Kongsi* is literally “partnership governance” (M. Nadarajah: Culture and Sustainable Penang, Summary of Findings, IICRC Conference II, November, 2000.)

¹⁴ Andreas van Agt: Key Note address, 'Multiculturalism and Social Cohesion', Conference II, Kanazawa, IICRC.

A look at the organization and planning of Malla period¹⁵ towns shows that the town was sectored into 24 *tole*, which were social neighborhoods formed by residents from the same profession. It seems that the idea of such a planning was to reduce an overall heterogeneity into pockets of homogeneity so that interaction of a community nature could happen in each pocket. It is interesting to note that Kathmandu valley towns did not divide them into religious neighborhoods¹⁶ and since there was religious mix within neighborhoods, no *tole* used monuments belonging to either religion as focus, exhibiting conscious effort at religious neutrality. Similar sensitivity towards religion and objective orientation towards community interaction may be seen in the use of wells to supply water within the *tole* and stone water conduits between *tole*.

The patterns of historical towns suggest that through creation of ‘mosaic scenario’, it may be possible to sustain a multi-cultural or heterogeneous urban society and social interactions could be sought within as well as between groups through designated spatial elements allowing gathering of people.

Conclusion

We could continue to look for more of these types of activities; we find that by 13th century, towns were operating actions designed for collection and extraction of raw sewage¹⁷ and recycling them into farming as manure, for collection and composting of waste in towns and their regular cleaning up timed with manuring cycles, for cyclical maintenance of wells, conduits and canals timed to times of agricultural labor surplus, etc. etc. All of them were given a garb of religion to cause the activities to take place as religious duty; while all the time they yielded mundane benefits of healthy and pleasant social life with sustained preservation and nurturing of agricultural resources, the mainstay of the economy. We can see that all the activities ultimately yielded results that made economic sense as well as larger sustainability.

The problems we face today may be larger scale and sizes but do not differ in essence from many of these. The practical approach to sustainable urban development for the present too could not be very different from these. And the choice is only about approaches. In terms of the objectivity/ end goal of sustainability, there is no choice and urban systems also have to fall in line.

¹⁵ 13th century and after when the towns became quite large in size (12000-16000 houses) and the population heterogeneity was also quite extensive.

¹⁶ In contrast, Muslim towns are sectored into *Mohalla*, a neighborhood and religious service unit.

¹⁷ Use of raw sewage as manure is traditional only to a very few ethnic groups including Newars of Kathmandu.