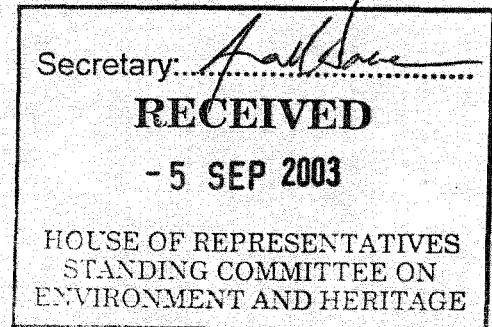


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Dear Sir/Madam

**Subject: Inquiry into Sustainable Cities**

Sustainability of our cities cannot be achieved unless we capture the natural, physical and systemic *constraints* and also the economic and technical *opportunities* each city and its inherent (and also inducible) systems possess. In light of that, I fully appreciate the Inquiry into Sustainable Cities and wish the Standing Committee the best in arriving at sustainable solutions.

In relation to this subject, I would like to bring to the Standing Committee, the concept of 'Carrying Capacity based Planning'. Carrying Capacity in simple terms is defined as the 'capacity of a system to support certain levels of activities and assimilate the effects of those activities'. It is a concept that we adopt in our day to day lives. Let me take the example of a room to illustrate the concept. If a room that is *designed* to accommodate 10 people takes 20 people in then we feel the congestion. There are three ways, as listed below, of addressing such an issue:

1. Reduce the number of people in the room
2. Increase the size of the room
3. Sacrifice the comfort factor

The **Option 1** relates to denying the opportunity for some people to be in that room. Equating it to the urban scenario, the issue is usually addressed by controlling the population growth (birth rate, immigration, inter-state migration, rural to urban migration, etc), redistributing the population (alternative growth centres, satellite cities, etc) or by simply closing the gate (e.g. permit required for residing in an urban area, as in many urban areas in China). As this Option is an issue by itself and is best addressed in association with other policies (such as economic, population, etc), let us concentrate on the other two options.

The **Option 2** essentially suggests that by increasing the size of the room it could accommodate more people. Yes, of course it would, but at what cost? Equating it to the urban scenario, if the cities are able to stay abreast with the population growth and

demands, by providing affordable and easy housing, enhancing the economic and employment opportunities and increasing the capacities of our infrastructure – all without impacting on the natural, physical and social assets of the area, then the issue is solved. But in reality that seldom happens. There are constraints in all areas and at all levels. These constraints include, but not limited to, economic, environmental, social and physical issues.

*Affordability* is a critical factor in determining the Option 2. Can we *afford*, in political and financial terms, to take huge amounts of water from the country to urban areas? Can we *afford*, in financial and physical terms, to increase the capacity of the roads in Sydney to take traffic, say at the levels (number of vehicles per kilometre of road) of 1980? Can we *afford*, in environmental terms, to lose the precious vegetation around us as part of the urban expansion? The affordability factor runs across all spheres.

Even if we are able to increase our affordability (by technical breakthroughs, economic achievements or redirecting funds) there still are *limiting* factors to *increase the capacity*. These limiting factors, as presently understood, largely relate to the intricate environmental and ecological aspects around us. All natural resources are *limited*, in terms of their *quantities* and *capacities*. For example, there are limitations to good quality water to be supplied to an urban populace. Well, the quantity of water available for supply in an urban area can be increased by enhancing the capacity of the reservoirs (and related systems), provided the evapo-transpiration process in the catchment can support that increase, or by *importing* water from another catchment or area. All these options relate to the point that was mentioned earlier, *affordability*. There, however, are certain ecological and environmental capacities that cannot be enhanced even with technical or economic interventions. For example, the assimilative capacity of an air-shed to take air pollution is *limited* (refer to the recent Brown Smog Cover across south-east Asia). The assimilative capacity of an air-shed cannot be easily enhanced as it is limited by locational and meteorological constraints.

Therefore, even if we are able, to a certain extent, to enhance the capacity by means of technical and economic interventions there are certain capacities that cannot be easily increased.

The **Option 3** relates to what level of comfort and convenience the occupants of the room would like to have. In an urban area this factor is defined as the standard of living or quality of life. The community living in an urban area, along with the broad guidelines set by governments at all levels, determines the quality of life it would like to lead. For example, if we are willing to live in an urban area with only 8 hours of drinking water supply a day then we would be able to increase the capacity of the water system in that urban area, which means the same amount of water could now be distributed amongst more people. Similarly, if all the commuters are willing to wait for an hour before a train trip and stand all through that train trip, then the number of total train-trips in that urban area could be reduced resulting in electricity savings (to power more new homes).

One needs to understand the complexities involved in the aforementioned issues, especially the *constraints* and *opportunities* the physical, environmental/ecological, economic, social and political systems provide in an urban setting, even to define

urban sustainability. Carrying Capacity based planning (and studies), from my experience, is a very useful tool in understanding urban sustainability, addressing complex and competing *constraints* and *opportunities* and defining a path towards sustainability. The Carrying Capacity concept can help define the Supportive and Assimilative capacities of the various systems (natural, social, economical, human-made, etc) that operate within an urban area, capture their complex inter-relationships and operationalise the concept of sustainability.

Wish you all the best with the Inquiry.

Yours sincerely

George Koshy