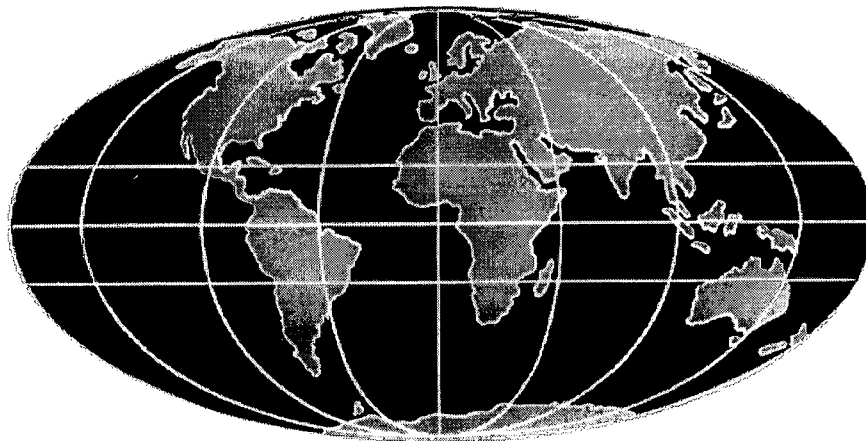


**TITLE: Urban design in developing
countries**

by: G Gardner and R Evans



PA3381/98 GARDNER, G and R EVANS. Urban design in developing countries. *CODATU VIII Conference, Cape Town, September 1998*

ABSTRACT:

Many cities of the developing World have now exceeded the population levels that were originally planned at the time of their development. Cities exist that were planned to accommodate 400,000, but now have populations exceeding six million. This places intolerable strain upon all of the urban infrastructure, not least transportation.

In addition to the problems of congestion, delay, and road accidents, the urban environment is under severe pressure. The lack of will to control traffic results in it having an almost free reign to overwhelm the space available. Traffic management, where it exists, has focussed solely on traffic signal design at junctions. The problem is not a natural consequence of growth. This paper gives some examples of areas in which good urban design can help.

FRENCH ABSTRACT

De nombreuses grandes villes des pays en développement ont maintenant une population plus grande que celle pour laquelle elles étaient destinées. Il y a des grandes villes, conçues pour 400 000 habitants, qui ont actuellement une population qui dépasse les 6 millions. En conséquence cela pénalise l'infrastructure urbaine, en particulier le secteur des transports. En plus des problèmes de la circulation et des accidents de la route, l'environnement est sous une énorme tension. Le manque de volonté de contrôler la circulation se traduit par une saturation de l'espace disponible. La gestion de la circulation, quand elle existe ne s'intéresse qu'à la conception des feux aux carrefours. Le problème n'est pas une conséquence naturelle de la croissance. Cet article donne quelques exemples de situations où un bon projet urbain peut-être très utile.

URBAN DESIGN IN DEVELOPING COUNTRIES

Paper for the CODATU conference by G. Gardner, TRL and R. Evans (Roger Evans Associates)

As traffic levels increase, many cities in the developing world are facing problems of congestion, pollution and road safety. These are extremely important issues. Also important,

however is the preservation of quality of life for a city's residents. Although increased traffic levels may represent a desirable sign of increasing modernity for some, the car should not be allowed to dominate the city. Nor is it necessary for cars and road building to destroy cities as their is increasing evidence that road building does not actually reduce congestion.

This paper looks at the contribution of Urban Design to traffic management and transport planning. Urban Design goes beyond the aesthetics of individual buildings and considers the form and function of urban areas. Good urban design, in reconciling form and function, may well be aesthetically pleasing, but it can also improve urban viability in vitality. Consideration of a mixture of good traffic engineering and urban design issues may be able to prevent the destruction of some of the World's great cities. The examples of good practice reviewed as part of this research come mainly from industrialised nations and are presented here for illustration rather than instruction.

A good solution in any field will be one that meets its objectives. Suitable objectives for urban areas throughout the world are those based upon sustainability, as endorsed by all nations at the Habitat conferences in Rio and Istanbul. How then can Urban Design contribute towards good, sustainable, urban areas?

At the strategic level, two trends of human settlement need to be addressed for sustainability and quality of life. The first is the move towards the suburbs. Across the world, from Melbourne to the home counties of England, those who have the choice are moving out of traditional urban centres. Travel patterns become peripheral rather than radial. This produces a vicious circle in which traditional forms of public transport lose patronage on radial routes, while being delayed by cars on peripheral routes:

In developing countries, meanwhile, the opposite is occurring. Migration to urban areas continues unabated, and the IBRD has forecast that major cities in India, for example, will grow by 60-90 per cent by the year 2015. In the absence of good urban design, this can lead to town cramming with people living at unacceptably high densities in cities where traffic congestion reduces economic efficiency and the quality of life. Where efforts have been made to make alternative provision through the use of new cities, the results have been often

disappointing (for example Abuja in Nigeria).

At the regional level, the urban design approach, as recommended in the new TRL publication *Guiding Good Urban Design* (TRL 1998) is for decentralised concentration. A dispersed network of self-sustaining small communities is clearly preferable to a cramped and impenetrable (in all senses) city. According to research by sociologists an ideal neighbourhood will be around 1-5km in diameter (coincidentally these are comfortable walking and cycling distances, respectively). In a community of 6000 people is ideal in that almost everyone will be either a friend, or at least a 'friend of a friend'.

The need for an urban environment that is responsive is achieved through:
p Permeability - so that people can go where they want
p Legibility - so that people can understand their surroundings.
p Robustness & Richness - the space should be flexible and interesting

Box 1: The Essential Requirements for Good Urban Design

The lengths to which people go to minimise travel time suggests that transport itself is not what is needed, rather it is the *access* to goods and services. A community, of any size, where all major requirements are available within walking or cycling distance will clearly be more sustainable than one in which a traditional master plan approach which has created single use zones that must be driven between. Despite this, many developing cities in the rush to modernise are demolishing traditional streets of mixed use and creating large industrial zones. Although this is necessary for environmental protection from high polluting industries, it will inevitably lead to more motorised transport which can lead to problems at a later date.

In the UK it has been accepted since 1963 that it is not possible to design cities to cater for unrestricted car use.. Indeed a review of recent research by Goodwin et al (1998) points out that the closure of a road, even an important bridge over the River Thames in London, does not instantly lead to road chaos under certain circumstances. This is slightly counter-intuitive and it is clearly difficult for a non-specialist to understand that building more roads does not solve traffic congestion. It must be hoped that visits by developing country decision makers to cities with extensive urban road provision such as Los Angeles and Tokyo will help to convince them that this is not the answer to congestion.

Whatever measures are taken to minimise the need to travel, some form of transport will be required. The transport modes favoured by planners should be selected according to specific criteria. Some criteria can favour efficiency, others safety and environmental impact. Research by Fouracre et al (1989) and Gardner et al (1990, 1993) has shown that in developing countries an approach using mass transit and based upon the movement of people rather than vehicles will always be the most efficient.

The private car is a very attractive mode for essential journeys for which no alternative is available. It is therefore understandable that universal car ownership should be a goal for people throughout the world. It is not the *ownership* of these cars that will destroy the environment, but their *use* which may in future years need to be restricted, by fiscal means if necessary. The countries of Eastern Europe provide a good example of cheap car purchase costs combined with petrol so expensive that these cars are used mainly at weekends, and most weekly commuting is by public transport.

As part of a joint effort with traffic engineers to control the adverse impact of traffic, urban designers can work towards the creation of urban space that is more 'human' in scale. Ground breaking research by Lynch (1960) first defined what it is that people use to understand, and then to enjoy, the urban scene (Box 1). It is then up to an experienced urban designer to analyse these factors in an existing area, and develop methods for improvement. It is highly unlikely that in the improved scheme there will be a place for the tower block, so beloved by modernist architects and speculative developers.

The use of 'perimeter blocks' with buildings arranged around the outside of public space squares around 100 to 500m across results in a network of streets at a human scale. Blocks can accommodate a mixture of uses that can make walking an attractive option. The legibility of a network of streets in a grid-iron or 'lattice pattern' and the availability of a choice of routes also makes these an attractive area to live in.

Within a planned hierarchy, there will always be streets that are for people, not for cars. Social interaction in lattice networks is enhanced by the opportunity to meet others at the many street corners. In many developing countries it is hard to imagine there ever being insufficient

people on the streets to create a social environment. With increasing levels of traffic in many developing cities, however, a combination of high traffic levels and unsympathetic road design has resulted in communities being 'severed' in two by roads that are difficult to cross.

It is at the street corner where urban design and traffic management might appear to disagree, rather than meet. Networks with a lattice pattern are proven to have a higher accident rate than the more modern tree-shaped layouts with their emphasis on culs-de-sac. Although safer, however, the insularity and the lack of 'passers-by' in a cul-de-sac does not foster community spirit at the neighbourhood level. Fortunately there is a compromise, and it is one that works well with the aims of sustainability. The essence of a street corner is that it acts as a node, and a landmark, and as a meeting point and these are much more important for those travelling at a human pace. Therefore, the preferred approach is for different networks for cars and for other modes: the permeability of an area is maintained for sustainable modes whilst closing through routes for car traffic.

Previous attempts to calm traffic to speeds and flows that can accommodate sustainable modes have used horizontal or vertical displacements and these can successfully reduce traffic speeds. However, the uncontrolled spread of speed-humps, particularly those of an ineffective profile, can cause unwanted redistribution of traffic and increase emissions. Other features involving the careful manipulation of deviations and sight lines can be creatively used by a good urban designer to create a street scene that is compatible with the function of a street as social space and not just thoroughfare.

It is also pertinent at this point to warn against the in-discriminant use of alien urban features. Modern street furniture, traffic signals and road signs have been rightly designed to be as visible as possible. In a traditional environment, such as ancient marketplace, however, the imposition of traffic clutter may be far from harmonious (even if the area is already swamped by cigarette and soft drink billboards).

There is a need for the movement of goods and people using motorised transport. A clear distinction should be drawn, however, between essential and non-essential users. The use of the road hierarchy should be managed, with separate arrangements, if necessary, for motorised

and sustainable modes. There is no definitive reason why traffic should be allowed to take control of, and ultimately to destroy the character of, a city even in a rapidly developing country. Traffic networks, and their urban setting can be managed. The joy and pleasure of so many features in nature occur when form follows function. Good urban design, as promoted in the new TRL Guidance Manual, is an example of this in which there is much to gain, and little to lose.

REFERENCES

HALL, Peter, 1990. London, 2001 Unwin Hyman

TRANSPORT RESEARCH LABORATORY. Towards Good Urban Design. TRL/Roger Evans Associates, Crowthorne. 1998

FOURACRE P R, R J ALLPORT and J M THOMSON, 1990. The performance and impact of rail mass transit in developing countries. TRRL Research Report 278. Crowthorne.

GARDNER G, PR CORNWELL AND JA CRACKNELL, The Performance of Busway Transit in Developing Cities, TRRL Research Report No. RR329, TRL Crowthorne, 1991.

GARDNER G, RUTTER JC and F KUHN, The performance and potential of light rail transit in developing cities. TRL Project Report No. PR69, TRL

LYNCH, K (1960) The image of the City. Technological Press/Harvard University Press, Cambridge.