MYTH 10: Large and rapidly growing cities have the worst environmental problems

Large cities rarely have the worst urban environments. In terms of environmental health, they usually have better standards than most other urban centres in their nation (and most rural areas). Well governed cities have among the world's best quality of life. There are obvious reasons for why this is so. By concentrating people, enterprises and their wastes - and increasingly motor vehicles - cities can be (and often are) very hazardous places to live and work. As the World Health Organization recognizes, many of the world's most dangerous and life-threatening environments are in urban areas.[78] It is often assumed that cities' environmental problems are made worse by the number of people and their high concentration. But this same concentration provides many potential opportunities:

■ ECONOMIES OF SCALE AND PROXIMITY FOR INFRASTRUCTURE AND SERVICES: The concentration of population and enterprises in urban areas greatly reduces the unit costs of providing each building with piped water, good sanitation, drains, all-weather roads and footpaths and electricity. This concentration greatly reduces unit costs for many services such as garbage collection, public transport, health care and the provision of schools, pre-school centres and child development centres. It reduces the cost of providing emergency services - for instance fire-fighting and emergency medical services whose rapid response to acute illness or injury can greatly reduce the health burden for the people affected. But even in tenement areas and informal settlements with high population densities, the densities are rarely too high to pose problems for the cost-effective provision of infrastructure and services, especially if provision for these had been made in advance of the settlement's development.[79] What is often more expensive and time consuming is installing infrastructure and services in densely populated illegal or informal settlements, after they have developed. These often grew without sufficient space left for access roads, public space and community facilities and without a site plan which makes it easier and cheaper to install piped water, drains and other infrastructure. But this high cost is not because of high population densities but because provision for infrastructure and services of adequate standard for such population densities was not made prior to the settlement's development. Even so, there are many examples of community-directed programmes that installed good quality infrastructure and services within existing high density settlements at relatively low cost.[80] In addition, many 'informal settlements' are planned by their inhabitants to ensure there is space for infrastructure and to prevent their settlement being seen as a 'shanty town'.

[78] WHO (1999), "Creating healthy cities in the 21st Century", Chapter 6 in David Satterthwaite (editor), *The Earthscan Reader on Sustainable Cities*, Earthscan Publications, London, 472 pages.

[79] Many squatter settlements are densely populated, but in part this is due to the fact that so few of the buildings are more than one storey high. In terms of the number of residents per hectare, they often have a lower density than many high quality residential areas in European cities with 3-5 storey terraced housing. If squatters can obtain legal tenure, it is often possible to develop their shelters into two or three storey dwellings (which can greatly reduce overcrowding within the housing stock) while also making it easier to find the space to improve access roads or paths.

[80] Hardoy, Jorge E., Diana Mitlin and David Satterthwaite (2001), *Environmental Problems in an Urbanizing World: Finding Solutions for Cities in Africa, Asia and Latin America*, Earthscan Publications, London, 470 pages.

Box 4: Environmental economies of urbanization

In general, the costs per household of installing most forms of infrastructure and supplying most kinds of service fall with increasing population density - i.e. economies of proximity. For instance, the cost of installing pipes for water, sewers and drains and for building roads is cheaper because less pipe (and less digging to install it) or less road is needed per house served. For many forms of infrastructure and services, unit costs fall as larger populations are served - for instance, for water treatment plants, schools and many medical services. Providing more specialized medical and educational services, including those for particularly vulnerable or disadvantaged groups, can also become cheaper per person served with larger population concentrations. Higher capital expenditures per person for infrastructure and service provision in urban areas is more a reflection of higher quality provision than higher costs; this only becomes a public expenditure bias towards urban areas if the beneficiaries do not pay the full cost. However, increasing population density can also require that higher standards have to be provided - for instance, well designed and maintained pit latrines can often provide hygienic and convenient forms of sanitation in rural settlements and in urban areas where population densities are not too high - but more expensive systems are usually needed in higher density or larger urban settlements. The costs of infrastructure and services may also rise with city size, if the costs of acquiring land for their provision is a significant part of the total cost. So too will labour costs, if the costs of housing, transport and other necessities rise with city size (which they often do). The need for more complex and sophisticated pollution controls may also rise with increasing population size. For instance, effluents from sewers and storm drains from a small urban centre usually do not need as complex and expensive a treatment system as those from larger cities. There are also the costs to the public authorities of formulating and implementing environmental legislation which may rise with city size.[81]

In discussing the 'economies' of scale, proximity and agglomeration, it is important to be clear in regard to who benefits (and who does not). Private enterprises benefit from many economies of scale, proximity and agglomeration in urban areas; indeed, one major reason why they choose to concentrate in urban areas is because it lowers their production costs (including infrastructure and finance and access to cheaper and more diverse services and labour). But part of this may arise from the fact that they negotiate highly subsidized infrastructure and services or other subsidies. Part of their cost reductions often arise from their capacity to pay below subsistence wages or to externalize costs - to the detriment of their workforce (with sub-standard occupational health and safety standards) or wider populations (through inadequate pollution control and waste management).

■ REDUCING RISKS FROM NATURAL DISASTERS: Economies of scale or proximity exist for many of the measures that reduce risks from most natural disasters - for instance in the per capita cost of measures to lessen the risks (e.g. better watershed management or drainage reducing the scale of floods), reduce the risks when they occur (e.g. buildings better able to withstand floods or earthquakes and early-warning systems to allow special measures to be taken) and respond rapidly and effectively when a disaster is imminent or happens.[82] There is generally a greater capacity among city dwellers to help pay for such measures, if they are made aware of the risks and all efforts are made to keep down costs. However, in the absence of good practice, cities can be particularly hazardous as large (usually low income) settlements develop in hazardous sites (e.g. on flood plains or slopes at risk from landslide) because no other sites are available to them and as the needed prevention, mitigation and response measures are not taken.

■ WATER RE-USE OR RECYCLING: The close proximity of so many water consumers within cities gives greater scope for recycling or directly reusing waste waters. The techniques for greatly reducing the use of freshwater in city homes and

[81] Linn, Johannes F. (1982), "The costs of urbanization in developing countries", *Economic Development and Cultural Change*, Vol 30, No. 3, pp. 625-648.
[82] International Federation of Red Cross and Red Crescent Societies (1998), *World Disasters Report 1998*, Oxford University Press, Oxford.

enterprises are well-known, where freshwater resources are scarce.[83] However, it is agriculture, not cities, that dominates the use of freshwater in most nations.[84] Many nations also have a long urban tradition of making efficient use of rainwater or of storing it for use during dry seasons or periods which contemporary patterns of water management have ignored.[85]

■ LAND: Cities concentrate populations in ways that usually reduce the demand for land relative to population. Although valuable agricultural land is being lost to urban expansion, in most nations, the area taken up by cities and towns is less than one per cent of their total surface area. The world's current urban population of around 3 billion people would fit into an area of 200,000 square kilometres - roughly the size of Senegal or Oman - at densities similar to those of high class, much valued inner city residential areas in European cities (for instance Chelsea in London).[86] Some of the world's most desirable (and expensive) residential areas have high densities - including densities that suburban developers and municipal authorities regard as 'too high' even though many such 'high density' areas also have good provision for parks, a diverse employment structure and good cultural facilities. The fact that cities also concentrate demand for fresh fruit, vegetables, fish and dairy products also provides considerable potential for their production in the area around a city - especially if their promotion is integrated with a city-wide and region-wide plan to protect watersheds, control urban sprawl, encourage urban or peri-urban agriculture and ensure adequate provision for open space.[87] In many cities, this would support existing practices as a significant proportion of the food consumed by city inhabitants is grown within city boundaries or in areas immediately adjacent to the built up areas - often with city wastes also used to fertilize or condition the soil.

■ REDUCED AUTOMOBILE USE: Cities have great potential for limiting the use of motor vehicles, which also means reducing the fossil fuel consumption, greenhouse gas emissions and air pollution that their use implies. This might sound contradictory, since most of the world's largest cities have serious problems with congestion and motor-vehicle generated air pollution. But cities ensure that many more trips can be made through walking or bicycling. They also reduce travel distances - which is one of the reasons why cities developed. They make possible a much greater use of public transport and make a high quality service economically feasible. Thus, although cities tend to be associated with a high level of private automobile use, cities and urban systems also represent the greatest potential for allowing their inhabitants quick and cheap access to a great range of locations, without the need to use private automobiles.

■ POLLUTION CONTROL AND MANAGEMENT: Industrial concentration in cities lowers the cost of enforcing regulations on environmental and occupational health and

[83] The Water Program (1991), *Water Efficiency: A Resource for Utility Managers, Community Planners and other Decision Makers,* Rocky Mountain Institute, Snowmass, 114 pages.
[84] See Table 22.1, pages 330-331 in World Resources Institute (1990), *World Resources 1990-91: a Guide to the Global Environment*, Oxford University Press, Oxford, 383 pages.
[85] See for instance Agarwal, Anil and Sunita Narain (1997), *Dying Wisdom: Rise, Fall and Potential of India's Traditional Water-harvesting Systems*, Centre for Science and Environment, New Delhi, 404 pages.
[86] The example of Chelsea was chosen because it combines very high quality housing, very little of which is in high rises (and most of which is pre-20th century) with a diverse economic base, large amounts of open space and among the best educational and cultural facilities in London. With a population density of around 120 persons per hectare for the whole district (and with three to four times this density in some of its more desirable residential districts), it is an example of how relatively high density need not imply overcrowding or poor quality living environments.
[87] Smit, Jac, Annu Ratta and Joe Nasr (1996), *Urban Agriculture: Food, Jobs and Sustainable Cities*, Publication Series for Habitat II, Volume One, UNDP, New York, 302 pages.

pollution control. It lowers the cost of many specialized services and waste-handling facilities - including those that reduce waste levels or which recover materials from waste streams for re-use or recycling.

■ FUNDING ENVIRONMENTAL MANAGEMENT: The concentration of households and enterprises in cities makes it easier for public authorities to collect taxes and charges for public services while in prosperous cities, there is a larger revenue base, a larger demand and a larger capacity to pay for services.

■ GOVERNANCE: The concentration of people in cities can make easier their full involvement in electing governments at local and city level and in taking an active part in decisions and actions within their own district or neighbourhood.

■ GREENHOUSE GAS EMISSIONS: In most nations, a high (and growing) proportion of their greenhouse gas emissions are released within cities. If the scale of such emissions needs to be reduced to limit climate change and its deleterious consequences, some of the most cost-effective means will be found in its cities.

The lack of effective city and municipal governance explains the serious environmental problems evident in so many cities – serious environmental health problems, serious problems of environmental degradation. These environmental problems are not inherent to cities. Indeed, for most people, cities provide the best possibility of combining high standards of living and quality of life with less resource-intensive, pollution-intensive consumption patterns. There is also considerable potential for employment generation in most of the measures to ensure more healthy, resource-conserving, waste minimizing cities.[88] There is also convincing evidence that robust economies and a high quality of life can be de-linked from growing resource use, pollution and waste.[89]

■ RAPIDLY GROWING CITIES: The environmental problems that often accompany rapid urban growth are not inherent to cities or to rapid urban expansion. Some cities that have grown rapidly in the last 50 years have avoided most of the problems noted above. For instance, Curitiba and Porto Alegre in Brazil are among the world's most rapidly growing cities in recent decades yet have high quality living environments and innovative environmental policies. One of these is Curitiba's much admired public transport system, based on express busways and feeder buses,[90] which has encouraged comparable systems in many other cities. Citizens in Porto Alegre enjoy a life expectancy and many indicators of environmental quality that are comparable to those in West European cities – and also a city government that is well known for its commitment to supporting citizen participation, greater government accountability and good public health and environmental management.[91]

[88] Hardoy, Jorge E., Diana Mitlin and David Satterthwaite (2001), *Environmental Problems in an Urbanizing World: Finding Solutions for Cities in Africa, Asia and Latin America*, Earthscan Publications, London, 470 pages.
[89] Von Weizsäcker, Ernst, Amory B. Lovins and L. Hunter Lovins (1997*), Factor Four:Doubling Wealth, Halving Resource Use*, Earthscan, London, 322 pages.
[90] Rabinovitch, Jonas (1992), "Curitiba: towards sustainable urban development", *Environment and Urbanisation*, Vol. 4, No 2, October, pp. 62-77.
[91] Menegat, Rualdo (2002), "Environmental management in Porto Alegre", *Environment and Urbanisation*, Vol.14, No.2

THE IMPORTANCE OF LOCALLY DETERMINED SOLUTIONS

Considerations of urban problems need to be turned from (often inaccurate) generalizations about the problems to more consideration of local governance structures that can address them and the kinds of national and international conventions or agreements that encourage local action to address not only local problems but contribute to the solution of global problems. It is important from a development perspective and from an ecological perspective that improvements in urban areas are rooted in local realities. Here too, there are some powerful myths about where action is most needed.