

SUSTAINABLE CITIES

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A sustainable city, or eco-city is a city designed with consideration of environmental impact, inhabited by people dedicated to minimization of required inputs of energy, water and food, and waste output of heat, air pollution - CO₂, methane, and water pollution.

There remains no completely agreed upon definition for what a sustainable city should be or completely agreed upon paradigm for what components should be included. Generally, developmental experts agree that a sustainable city should meet the needs of the present without sacrificing the ability of future generations to meet their own needs. The ambiguity within this idea leads to a great deal of variation in terms of how cities carry out their attempts to become sustainable. However, a sustainable city should be able to feed itself with minimal reliance on the surrounding countryside, and power itself with renewable sources of energy. The crux of this is to create the smallest possible ecological footprint, and to produce the lowest quantity of pollution possible, to efficiently use land; compost used materials, recycle it or convert waste-to-energy, and thus the city's overall contribution to climate change will be minimal, if such practices are adhered to.

Environmentally, sustainable transportation is now mainstream. The sustainable cities movement has brought the environmental movement into the city and focused their attention on the myriad of local and regional problems associated with automobile dependence. Globally the attention of the world has been focused on the potential climaxing of oil production and on climate change, the Kyoto agreement now sets all developed nations into a pathway of reducing energy. The biggest single technology causing greenhouse emissions is the automobile and it is the hardest for nations to recognize as the culprit. But as the process of reducing emissions becomes more and more mandated down to local level the need for planners and transportation engineers to find ways of reducing car use will be on the agenda. For many years there has been an implicit assumption amongst transport planners, engineers and economists that there is a close link between mobility and wealth. This leaves very few policy options open to cities for managing growth in car use. However, the data for such assertions tends to be national data and is rather selective.

We will examine the link between mobility and wealth by comparing the per capita use of cars in 37 global cities and see how this compares with their per capita city wealth (called Gross Regional Product or GRP ie, the total goods and services in that city/region, which in the US for example is the full SMSA region). It is found that there is only a weak positive linear correlation between car use and wealth which only explains 18% of the variance and is therefore not particularly significant in terms of policy implications.

As already outlined, North American and Australian cities have considerably higher car use per capita than European and Asian cities. It is higher than would be expected just considering the level of economic activity or wealth, especially in comparison to the European and developed Asian cities in the sample (ie Tokyo, Singapore and Hong Kong).

The large US cities in this sample have: 1.66 times higher car use than the major Australian cities but are only 1.36 times higher in GRP; 2.17 times higher car use than Metropolitan Toronto but are only 1.19 times higher in GRP; 2.41 times higher car use than the average European city but actually have only 0.85 the level of GRP per capita; 7.3 times higher car use than the wealthy Asian cities but have only 1.26 the level of GRP.

Waste reduction such as "Scrap Lumber Collection: The City of Aberdeen, Maryland set up a demonstration project to collect scrap lumber at curbside. In addition to diverting a significant amount of waste from the landfill, the city worked with community volunteers to make birdhouses and backyard composters. Wood was also given to local non-profit organizations for trail building and other purposes. And "Newspaper Deposit Charge: The Post Newspaper in Zambia added a five-cent charge to their daily newspaper price. When residents are finished reading the paper, they can return it to be recycled for a three-cent refund. The deposit income supports a community-run association that operates the collection depot.

Green Builder Program aims at Energy Efficiency and Renewables: The Austin Green Builder Program in Texas provides training in energy-efficient and environmentally-responsible construction techniques. Participants receive guidebooks, product and service source books, and attend workshops and training seminars. Builders and developers can apply the Austin Green Builder rating system, awarding one to four stars to their houses. The program is so popular, it has generated greater participation among builders, architects, engineers, and building-products suppliers.

Energy Policy: In April 1990, the City of Portland, Oregon adopted an energy policy with the goal of 'increasing energy efficiency in all sectors of the City by 10 percent by the year 2000 so as to enhance the livability, economic strength and well-being of the City's residents and businesses and reduce environmental problems, such as air pollution and emissions that contribute to global warming.

"Local Energy Supply Program: Saarbrücken, Germany has an aggressive Local Energy Supply program that requires conservation, district heating, and local energy supplies. Over 40,000 homes are served by district heating, and the homeowners can receive subsidies to install rooftop solar-energy panels.

However, sustainability outcomes in cities do not just depend on technology and design, but on human behavior, market mechanisms, public policy, as well as the natural system. Complex interactions between people, urban infrastructures and the natural environment shape both the environmental sustainability and adaptive capacity of cities.

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