

Cities, Villages and Adaptation to Climate Change

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VILLAGES VS. CITIES

→ In 2008, the world finally reached the point where more people live in cities than in rural areas. The mass migration to urban areas is a global phenomenon, but is particularly strong in Africa and Asia where the rural poor leave their villages and head for the cities in huge numbers in search of a better life. Nearly 430 conurbations now have a million or more people, with Cairo, Calcutta and Karachi among the 20 megacities that now house over 10 million people each. By 2030, it is expected that cities will hold five billion citizens in all, nearly two thirds of the world's projected population.

For many of the rural migrants, city life turns out to be a struggle against poverty in vast chaotic slums. Nevertheless, urban migration is increasingly seen as positive, with cities best placed to absorb the global population explosion. Successful cities, such as Tokyo and New York, support high population densities, provide enormous opportunities and foster thriving communities. From a climate change point of view, many argue that mass urbanization is to be welcomed because cities generally have lower per capita carbon footprints than the countryside that the migrants leave behind.

We should be careful, however, about writing off villages too soon. Not only do we need a thriving country population to grow food for the urban masses, but villages could play an important role as we adapt and respond to global warming. Villages are inherently more resilient and adaptable than cities – a fact that may become increasingly important as the climate shifts. Villages need not be carbon intensive, nor do they need to be social and cultural waste lands that drive young people away. In fact, cities could benefit by becoming more like collections of villages.

And it is essential that we maintain viable rural communities, not least because of the connection they provide us with the natural world upon which city and all human life depends. Lastly, in an increasingly virtual world there is a blurring between cities and collections of villages linked on the Internet. We often know very little about some neighborhoods in our cities and a lot about neighborhoods (read villages) in the cities that we travel to.

CARBON FOOTPRINT OF CITIES

→ A report by the International Institute for Environment and Development (IIED) published in March 2009 found that per capita greenhouse gas emissions for many of the world's leading cities were significantly lower than their national averages. A New Yorker's footprint averaged 7.1 tonnes of carbon, compared with the US average of 23.92 tonnes, while Londoners average 6.2 tonnes compared with 11.19 for the UK. Smaller living spaces and greater use of public

transport are some of the key reasons for the differences.

Figures like these are among the reasons why people such as economist Paul Romer argue for the building of new generation of cities to cope with population growth and reduce poverty. Romer proposes the creation of 'charter cities' on the model of Hong Kong, built on non-arable land and with voluntary migration. Good governance and design are essential, but the pay-off will be immense if we if we get such cities right. "We would dramatically reduce the human footprint on earth if we built more cities that people could move to," says Romer.

While such ideas have much merit, they are in danger of overlooking some important issues. First, the per capita carbon footprints used in arguing for cities are usually measured only on the direct consumption of emission-producing goods and services, such as fuel for heating and cooking or for transport, and do not take into account indirect emissions from the production of goods consumed, such as clothing or electronic appliances. If these were factored in, it would change the equation significantly, and reveal that the gap is not so much between the city and the village dweller, but between the rich and the poor. Cities like Mumbai and Sao Paulo only achieve their low per capita carbon averages because their vast slums balance out the high consumption of their wealthy elite.

TOO SMALL? → City evangelists claim villages as too small and lacking in opportunity to be viable in the modern world. Villages, they say, lack not only jobs, apart from hard unattractive farm work, but many of the other activities and facilities that enrich life – art, entertainment, social organizations, etc. And because of their lower density housing and lack of public transport, the carbon emissions of villagers are inevitably higher.

This is a one-sided view. Just as there are many successful cities, there are also many successful village communities. Europe abounds with them. Where there is mass migration away from villages, part of the answer may be to strengthen the villages and provide the facilities they lack, rather than just building new cities that will entice even more villagers to abandon the land.

Let's look first at why it is important to maintain village populations, then look at the issues that must be addressed in order to do this.

CENTRALIZED V. DISTRIBUTED INGENUITY

→ Cities versus villages is essentially a debate between centralized versus distributed models. Cities offer many of the advantages of the centralized model, chiefly economies of scale and concentration. The centralized model's weaknesses are a lack of flexibility and vulnerability – a city is a potential central point of failure. The distributed village model, on the other hand, while lacking economies of scale, is far more adaptable and resilient. We have seen how these factors play out in many contexts, such as computing, where the fragility of the centralized mainframe eventually gave way to the resilience of the distributed internet. This is not to say that we should abandon cities wholesale in favor of vast village settlements, but that we ignore at our peril the value of resilient distributed village networks at this time of climate change and uncertainty.

Villages have the potential to generate their own energy, by solar, wind, geothermal or other means, or a combination of them. Not only can they become self-sufficient, they can potentially feed any surplus back into the grid. City dwellers might be low carbon, but they are still dependent on external energy sources and vulnerable to interruptions in their supply.

The same applies to food and water. Villages can generally provide at least a proportion of their own food, and are often close to farms and other major producers. Similarly, village water supplies are distributed in wells, streams or rain catchment. All this gives villages the ability to survive crises and adapt to change.

Cities on the other hand, are brittle, and are only a few steps away from chaos. Cut off the electricity supply to a major city and it would immediately grind to a halt. Within days, there would be panic and social unrest as food and water supplies ran out. Sanitation systems would fail. So would heating and air-conditioning, with potentially serious health effects, especially in mid-summer or winter.

Cities have coped with all kinds of crises and upheavals in the past, but we are entering uncharted water with climate change. It is prudent at this time not to rely too heavily on one social model. The first principle of risk management is diversification. Villages offer a resilient alternative to the vulnerable concentrations of cities.

SOCIAL COHESION

→ Villages have a social cohesion that can prove invaluable in the face of challenges such as climate change. The tightly-knit and often long-standing social networks of villagers through their clubs, schools, societies, families and friendships enables them to mobilize quickly and effectively in response to a need or crisis. This is especially important where there is a need for behavioral change, which can be very difficult to achieve by government or other top-down methods.

Garry Charnock who set his village of Ashton Hayes on the path to becoming the first carbon neutral community in England, says: "In cities you hardly know your neighbours, but in a village everybody knows each other's business. City folk see this as a negative, but when you are trying to encourage behavioral change like we are it is fantastic. Neighbours who have lived alongside each other for years tend to believe each other, so when one saves energy and reduces their bills, the others take note and follow suit."

Villages will quickly get behind initiatives that they see are in interest of their communities. For example, local renewable energy generation could produce profits that although modest, could be sufficient to keep vital services, such as a local shop or community centre, alive.

Villages also tend to trust each other, and favor shared home-grown solutions. Ashton-Hayes receives at least three enquiries a week from other villages wanting to reduce their carbon. The sense of community among villages could be strengthened through the use of the internet and social networking tools. These enable villages to share more widely their ideas and experiences, and to encourage and support one another. In this way, networks of villages can become 'countries without borders' where like-minded communities join together to pursue common goals irrespective of geographical boundaries.

Let's look now at some of the problems of villages that might drive people from them, and see how we might strengthen and support our village networks.

VILLAGES WORK

→ The biggest problem with villages is that they offer little in the way of job opportunities beyond farm work, or local crafts, or tourism services in some places. Here, the internet and global telecommunications can provide some solutions. Broadband internet access and mobile phones enable many jobs to be done online regardless of location. Isolation is often cited as a drawback of telecommuting, but shared community offices could overcome this – as well as provide opportunities to share equipment and facilities costs. Many European

villages already have such places where people can work and pursue career opportunities while remaining in their communities with their family and friends.

Villages also lack the museums, galleries, theatres and other arts and entertainment that cities can offer, and which are particularly attractive to the young and the educated. There is no reason why villages acting as countries without borders shouldn't have the budget for things too if they cooperate. Villages could combine forces and support traveling exhibitions and events, and many already do.

In terms of the carbon emissions of villages, the imposition of low carbon building standards, the use of electric vehicles and development of local renewable energy will largely solve this. Transport is one area where villages could learn from cities, by adopting car-share and flexible car and bicycle rental schemes.

CLOSE TO NATURE

→ There is also one tremendously important but intangible benefit of villages: their residents are close to nature. Living in the natural landscape, often surrounded by working farms, villagers cannot but be aware of the cycle of life and the intricate balance of the natural world. We need this awareness and understanding to percolate through our societies if we are to properly respect and protect the ecosystems that provide us with the services – clean water, clean air, moderate climate, etc. – that are essential for our survival. City life makes individuals feel apart from nature and not a part of it.

CONCLUSION

→ Before we pour all our resources into creating a new generation of cities or expanding our existing ones, we need to re-evaluate our villages and recognize their benefits. We should direct at least some of our efforts at supporting and strengthening our village networks using for the resilience and connection with nature they bring. Finally, let's create virtual cities or "Villages Without Borders" (<http://zerofootprint.net/publications/>) by linking villages using the Internet and social networking to offer the amenities of cities (museums, movies, concerts) while still maintaining their advantages in an increasingly challenged world.

ABOUT ZEROFOOTPRINT

→ Zerofootprint is a socially responsible enterprise whose mission is to apply technology, design and risk management to the massive reduction of our environmental footprint. We operate both in the for-profit and charitable domains through two entities, Zerofootprint Software and Zerofootprint Foundation using shared technology.