Sense and Sensor Networks

Sorry, I tried to work that into something like Sense and Sensibilia, especially as I'm an Austin (but not Austen, I like Clueless though) fan. Next time, maybe, and all decent suggestions welcome at the usual address. I'll credit you too, though not in coin of the realm. This is a open workbook, as well as a rantbook, so you can contribute, if you like.

Introduction

There's been a lot of counter-intuitive but sensible talk about how cities are pretty good units of greenicity. I just made that up, but it describes what I'm after, in general. Cities are dense so that there's opportunities for efficient power generation with low transmission losses, short and optimised transport loops and small physical footprint living. We may not want to live in Japanese or Hong Kong sized boxes but if the 'outside' is a pleasant park, that could compensate. All this, actually supports fairly large populations, but probably doesn't feed them, a major outstanding problem.

The transport and travel loops provide an excuse to take an interest in graph theory, the travelling salesman problem and logistics, in general. Hurrah for Hamiltonians, they will help set us free! As usual, I don't intend to provide complete explanations of some of the technical stuff. You can do some work yourself and then claim credit for any ideas (you'll be anxious to do this, if you're a member of a conventional political party anyway) as your own. I don't 'want' them and I've probably got more, they're not scarce, just a quiet day and a scrap of paper will get you started. You may have to read a book or two and talk to a few people first though.

Back to the subject. Although cities are potentially 'good' units in this way, they are 'bad' units in many other ways. They generate sewage, airborne and water-borne pollution, poisoned top soil and concrete and tarmac crusts (due to the inner monologues of the status quo) at an alarming rate. They also generate noise pollution, low level crime, light pollution (linked to the fear of crime) and mental and physical illness. The mental and physical illness is the result of the other factors, though also somewhat self-inflicted. They are currently energy-hogs and heat sinks too.

A footnote, a lot of the actual waste is corporate, PCs powered up, lights left on, illuminated advertising and shop fronts. In spite of this, the government plays at (with the deep bad faith of the existential Sartreian sense) energy savings by nannying the citizen. The government can't turn on the corporates on behalf of the citizens (an act of good faith, probably) because they are part of the (in the situationist sense) show.

Sense and Measure

So the first thing to be done is to measure and show. By measure, I mean measure everything and I also mean 'overmeasure' (that is, not be satisfied with statistically significant samples, because they mask serendipity and extreme events) to do the job properly. Here are some of things that can be measured:

- airborne gas composition, especially the usual suspects
- airborne particulates
- sewage volumes and composition
- canal and river oxygenation and acidity
- aggregate energy usage (interesting since all supplies are in private hands)
- aggregate fossil fuel consumption
- evolving heat maps

There's a lot of soft factors too, such as hospital admissions and low level crime. Traditionally these figures are worthless because they're massaged and used as political footballs. So perhaps we need vow-of-honesty measurement priests in charge of all this too. I'm sure that there's plenty missing and some things may turn out to be infeasible, this is an idea-in-progress. Although, I'm rabidly anti-neoclassical and don't like number fetishes (try silk, try leather there's a good situationist), there's some sense in making two or three fairly simple indexes out of these.

There's a large technology side-project here too. This needs within-reach evolution in sensing technology both in the breadth of what's being sensed, sensor features (all of them need to be networked) and price-point, since there are likely to be thousands of them. Some of this work is happening in universities, though, given the nauseating connection imposed between learning and 'industry' by 'modern' politicians since Thatcher, a great deal of it will be closed by patents, NDAs and unproductive money maggots.

So, I'm assuming that a network of these sensors exists and the inputs can be aggregated, stored and displayed. The raw results, aggregates and trends should be free and available to everyone. This is open data in the style of the US Geographic Survey (but not, of course, our expensive paid-for-twice Ordinance Survey). This provides extra benefits in that enthusiasts will work with the data for free and perhaps discover useful correlations and trends. We didn't try crowd sourcing on green issues, a useful and exciting 'yet'.

We then have a picture of the vitals signs and trends for our city on a rolling, transparent and unmediated basis, a cyber-gaia snapshot. How different this is from 'retail sales', 'consumer confidence' (how about citoyen ras-de-bol, look that up), 'GNP', 'unemployment figures' and other massaged stuff designed to frighten, manipulate and suck out our souls. No wonder that half our yoof spend the weekends getting hammered.

Social Policy via Rewards

The next stage is to reward positive changes in the life-signs of the city by rewarding the inhabitants, Most of this is probably self-financing, since, for example, lower airborne pollution will result in lower hospital admissions and general levels of illness. Hey, people may be at work more and be more productive, the poor fools.

My emphasis in this, as in approaches to other problems in these essays is reward for merit, rather than punishment via taxation. This is an idea borrowed from Professor Apichai and, in general, the Buddhist economists. If people do 'good' things, something should come back to them. The altruists and idealists will do things 'anyway' (the right reason) but the less-enlightened will do things for actual benefit. People see taxes as the 'cost of doing business' usually not as behaviour modifiers.

So, I would plan to issue social policy bonds, Ronnie Horesh's idea, for improvements to some of these indicators and indexes. Social policy bonds have a maturity value greater than issue, if the specific goal is fulfilled. Otherwise, for example, they would expire as worthless. Thus, the price will fall over their lifetime until, we hope, that people buy the specific issue and begin to solve the particular problem. It's important to avoid perverse effects, for example, it may be a little harsh to kill people that are littering, however much they really deserve it. We should be satisfied just with maiming them and tatooing 'ignorant littering oik' on their foreheads, if there was room.

It would be better if certain issues were exclusively community purchased (rather than by organisations or corporates) and therefore become a fields for action within a specific area or community. This is a detail though.

For example, quantities of kitchen waste can be removed at local level and turned into compost. There is already a reward to the council concerned for this, in the form of £40, and rising, per tonne of landfill tax that would not be payable. Thus, local composting can be self financing. However, councils love (other people's) money, so only rarely, and at election time, will they pass on such a saving. I'm currently doing some informal measuring work on my peelings to work out some figures for anaerobic composting for my estate. Currently Maidenhead and Versailles are offering some kind of reward based system. In Maidenhead, the rewards are consumer goods, how stupid!

If there's a bond for car journey levels, people can start to car share or use existing car share infrastructure. Some of them might even want to try walking or cycling too. The bonds have a specific objective not a specific method (bear in mind, perverse effects though).

Invent and Communicate

When approaching solutions, there'll be invention, trial and error, things that work well, things that people dislike and various combinations of all these elements. That's fun! It's exploration of the solution space or trying-things-out.

Since, we have the internet now, we can communicate some of these successes and failures to our cyber-neighbours who may be exploring solutions to the same kind of problems. They may have comments or improvements too. This is open knowledge in action, it doesn't require huge failed government projects or government intervention. Some of the approaches will fail but they will fail on a small scale leaving some good folk wisdom.

And That's It

That's all folks. We're nearly there with some of the initiatives but this is a more general approach. My intuition is that this is a good approach for small scale local initiatives because they are more sensitive to local conditions. I'm somewhat involved in the parish-council devolved democracy movement and this seems like a good approach at 'parish' (2K – 10K people, for example) level.

There's plenty wrong, for example, airborne pollution doesn't respect borough boundaries, though politicians would like to believe that. As Thomas Disch said 'let's sail till we come to the edge'.