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ECO-CITIES: CAN THEY WORK?

Dr Art Molella

Director Emeritus, Lemelson Centre, Smithsonian Institute

molellaa@si.edu

Abstract: While eco-cities were proposed as early as the 1970s, plans for their realisation have only been made over the last decade or so. Hundreds of initiatives are now underway or about to be launched worldwide. But can they really do the job their advocates claim they will? The International Eco-Cities Initiative (IEI) Leverhulme International Network has been collaborating over a new study of eco-city frameworks, indicators and standards; instruments that attempt to put these new cities to the test. This has culminated in the latest Bellagio conference report. In this piece, IEI co-founder Art Molella interviews the report's editor, Simon Joss of the University of Westminster, who shares his thoughts on the following questions: (1) What are eco-cities and why are they important? (2) Where is the major action today in building eco-cities? (3) Why should we care about 'standards' and 'indicators', what are they and what problems are they supposed to address? (4) What is and should be the role of technological and other sorts of innovation in the development of eco-cities?

Eco-cities are an urban innovation touted as one of the solutions to conjoined problems of urban sustainability, environmental degradation, and climate change. While they were proposed as early as the 1970s, they have only become real in the last decade or so, with announcements of the construction of model eco-cities Dongtan, near Shanghai, China, and Masdar, near Abu Dhabi, UAE. Hundreds of related initiatives are now underway or about to be launched worldwide. But can these cities really do the job their advocates claim they will?

Along with Westminster University (UK) and the Johns Hopkins University, the Lemelson Center is co-sponsor of the International Eco-City Initiative. Among the products of the collaboration is a

new study of eco-city frameworks, indicators and standards, which attempt to put these new cities to the test, with the latest publication being the Bellagio conference report. I interviewed the report's editor, Simon Joss of the University of Westminster.

1. What are eco-cities and why are they important?

Ideas and propositions about eco-cities have been around for at least three decades, and the last five years or so have seen a considerable global mushrooming of practical eco-city initiatives. In the recent survey carried out by our research group, we identified at least 178 eco-city projects globally, although this may be a conservative figure: in China alone, there are reportedly over 250 cities embarked on eco-city development!

Wind farm at Caofeidian International Eco-City. Courtesy of SWECO.

That said, defining the eco-city is challenging, for both theoretical and practical reasons. Conceptually, beyond the general idea of eco-cities being more sustainable than current 'conventional' cities, it is quite difficult to settle on specifics. There is no agreed norm or standard of what counts as an eco-city. Even agreeing on the basic balance between environmental, economic, and social goals of sustainability can be tricky. Practically, the fact that eco-city initiatives are applied in often vastly different national, cultural, and economic contexts means that they end up taking diverse forms and shapes: a city generating ten per cent renewable energy may be ambitious in, say, India, while the threshold is typically much higher in European cities, such as Freiburg (Germany) and Stockholm (Sweden), with several decades more experience.

However, there are some general, global trends that I think drive current eco-city innovation, against the background of the dual challenges of global climate change and rapid urbanisation (in 2008, for the first time in human history the majority of people lived in cities), particularly in Asia and Africa. Among these is the policy of 'ecological modernisation' which seeks to decouple economic growth from environmental degradation. An illustrative example here is the World Bank's Eco2Cities initiative which goes by the slogan "environmental city as economic city." Another trend is increasing international knowledge transfer, with international architecture, technology, and engineering firms playing a central role. Furthermore, the 'carbon' discourse has

become a core characteristic of the modern eco-city, as illustrated by terms such as 'low-carbon,' 'zero-carbon,' or 'carbon-neutral' cities. In this sense, the eco-city has become more ubiquitous in comparison to earlier examples from the 1970s and 1980s which were much more locally defined.

2. Where is the major action today in building eco-cities?

If I had to pick one global region, I would choose Asia, where a whole range of new eco-city initiatives have been launched within just the last few years. As mentioned, this is mainly due to the unprecedented urbanisation occurring there—China is said to have to build a new city of the size of New York every year for the next 20 years to accommodate people migrating into urban areas. Similar developments can be observed in India, Indonesia, and Africa. A further factor that I witnessed on visits to China and South Korea is the determination to be at the forefront of technological innovation: one really gets the sense that the new urban age is being shaped in and across Asia.

Of course, innovation in sustainable urbanism is currently also taking place in many European and North as well as South American cities. The recent eco-city initiative of Alexandria (VA), or the eco-districts in Portland (OR) may not be on as large a scale as Masdar (United Arab Emirates) or Sejong (South Korea), but they are just as illustrative of the global attempt to transition to a low-carbon economy.

Artist Impression - Aerial View of Proposed Master plan of Masdar City. Courtesy of Masdar City.

3. Why should we care about 'standards' and 'indicators'? In fact, what are they and what problems are they supposed to address?

History teaches us that once in a while a process of consolidation and standardisation occurs, often as a result of technological innovation: for example, in the late 19th century when the increasingly ubiquitous application of electricity in daily life prompted the need to develop standardised electrical power systems (though we still often have to pack adaptors when traveling abroad!). Similarly, as more and more cities, businesses, and political organisations strive to implement sustainable strategies and practices, at some point the need arises to develop a 'common language.' Otherwise, how can we agree on a bottom line and framework for sustainable cities? It is for this reason that there has been a recent flurry of eco-city indicators, standards, and frameworks. While this is partly driven by efforts by scientists and policy-makers trying to define various aspects of urban sustainability, it is no doubt also driven by business interests aimed at marketing urban sustainability as a 'product.'

Our new research initiative, which involves the Lemelson Center along with several other partners across the world, aims to contribute to this emerging debate. We are interested in mapping the various approaches to eco-city indicators and standards—there are so many schemes that we first need to take stock of what is out there—followed by in-depth analysis of how individual approaches actually work: how they contribute to defining sustainable urbanism, guiding policy implementation, and encouraging practice learning among scientists, policy-makers, planners, business, and citizens.

One of the challenges our project will have to grapple with is at which level indicators and standards are most appropriate. Perhaps expecting standards or frameworks to emerge at the global level is unrealistic, given the vastly different local contexts of cities across the world. Then again, reducing carbon emissions is a global concern, which suggests the need for comparable, international measures.

Apart from generating knowledge, we hope that our research will also directly contribute to policy debate and practice innovation. For example, one of our partners is the Clinton Foundation's Climate Positive Development Program, through which we will have access to, and will be in dialogue with, cities across the world.

4. What is and should be the role of technological and other sorts of innovation in the development of eco-cities?

Engineering and technology firms have increasingly become centrally involved in developing eco-city indicators and frameworks. The reason is obvious: cities are one of the main sources of energy consumption and greenhouse gas emissions. So, attempting to effect a transition to a low-carbon economy, one inevitably has to address urban development. Given this focus on energy, it

is no surprise that technological innovation is to the fore. At the same time, increasingly various 'smart' urban technology solutions, based on information and communication technologies, are applied to manage urban infrastructure and services. Together, these open up huge business opportunities: hence, the current jostling among international technology firms for a market share in urban development. However, as a political scientist, I would add a word of caution: a city is not just a 'system,' and not just made of infrastructure; it is also a center of social, cultural, and political activity. Therefore, we surely also need social and cultural entrepreneurs to get involved in eco-city innovation!

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