

**The complex social, economic and political
dynamics of the sustainable city: more than meets
the eye in East Asia**

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Section 1 Part A

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I hereby confirm that the assignment is the product of my own work and research and has been written by me and further that all sources used therein have been acknowledge.

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1 Introduction

“What can architects, planners and people in the non-western world do to learn from their history, engage with the present and produce an urban synthesis for the future? How can they begin to shape their cities within the framework of their culture, climate and needs and resources while experimenting with new possibilities?”

- Malik 2001 in Pieterse, 2006: 294

While it is true that many of the urban sustainability strategies that have emerged worldwide are the same, we have seen that the context of urban development can vary considerably from country to country and from region to region (Wheeler & Beatley, 2004: 1). Given the variety of contexts that exist this article posits that we should not simply take mainstream ‘Western’ modes of thinking about the environment and strategising as the ‘be all and end all’ of the sustainability debate. Rather, and as the NSFWS (2000: 7) so articulately phrases it, sustainability should “support the possibility of diversity, difference and local contingency rather than the imposition of global homogeneity.” Menegat (2002: 206) concurs, stating that “sustainability is, after all, always ‘ethno sustainability’, as it necessarily respects individuals’ ethnic and cultural traditions.”

By using the word ‘Western’ I do not simply refer to a geographical location (i.e. western Europe or North America) but also a type of society – a society that is urbanised, industrialised, capitalist, secular and modern. A society which in a sense has an identity shaped by its self-comparison with other non-western societies very different in their histories, patterns of development, ecologies and cultures to that of the ‘western’ model (Hall, 1992:277-278). To date, scholars and practitioners from the West have dominated the sustainability discourse. However, with the current urbanisation boom and growing importance of East Asian cities it has become necessary to broaden the literature to promote research on East Asian cities so as to find out more about urban sustainability issues and solutions in these eastern cities (Sorenson, Marcotullio & Grant, 2004: 6). What makes the East Asian study particularly intriguing is that despite this furious pace of urbanisation, a number of these countries have experienced rapid economic success in the past few decades and have more recently begun to emerge as world leaders in the urban sustainability field. Such developmental states include Japan, China, South Korea, Taiwan and Singapore (known collectively as the ‘Pacific Tigers’). This is not to say however that these countries are free of urban problems or are not experiencing ‘growing pains’ in relation to the implementation of sustainability measures. However, it is recognised

that these countries appear to be taking decisive action in the direction of sustainable urban living. Although wary of making generalisations about an area as vast as East Asia, this article nevertheless tries to understand some of the complex social, economic and political dynamics within which principles of the sustainable city are being applied in East Asian cities, in a development context quite different from that experienced by Western countries. In this way an attempt is made to understand the ecological consciousness that has pre-empted this drive towards sustainability.

It is important also to recognise that urban sustainability does not occur in a bubble. Cities form part of much bigger systems - natural and monetary capital flow in and out of cities, decisions made at national levels impact on local levels, urban 'best practices' inform strategies undertaken in other cities – all within the context of societal norms, traditions and practices. Today globalisation is also playing a role bigger than ever before. As Ravetz puts it (2000: 6), "if the sustainable development of a city is like turning round a supertanker, the crew cannot ignore the storm-force gale of the global economy around them, or the disputes over who is captain." Thus while Part A of this paper focuses more broadly on the 'bigger picture', on urbanisation patterns and on the context in which East Asian urban sustainability is taking place in, Part B hones in specifically on the case study of Seoul, the capital of South Korea. Here we examine the different requirements of urban sustainability within the context of Seoul, as well as the varied responses (or lack thereof) made by the city in respect to these requirements and the lessons that can be learnt thereof.

2 Urbanisation in Asia 'takes off' with a bang

In 1950, while only 30% of the world's population was living in urban areas, this figure had reached 45% by 1995 and 50% by 2008 (Swilling, 2004: 222; UNDESA, 2007). Nearly all future population growth is expected to occur in cities and towns, with these areas also likely to account for most economic growth. Although the number of 'urbanites' stands at more than 3.3 billion currently, this number is projected to grow to around 5 billion by 2030 with 80% of all urban growth occurring in Asia and Africa (UN, 2002; Martine, McGranahan, Montgomery, Fernandez-Castilla, 2008: 1). For every 5-6 people added to cities in the developed world, the cities of the developing world increase by about 100 (Sorenson, Marcotullio & Grant, 2004: 5). In fact, rapid urbanisation, now more than ever before associated with developing world countries, represents one of the most significant trend phenomena of the 20th century, second only to the growth in world population itself

(reference). As Swilling (2005: 16) so aptly puts it, “in short, no matter what else happens, the world’s future is an urban one.”

While for many cities represent the hope of expanded opportunities and social advancement, they also tend to concentrate high levels of poverty and ecological degradation. As Ravetz (2000: 7) puts it, “cities are both the ‘engines’ and ‘dustbins’ of economic growth”. Recent findings have even shown that cities represent approximately 75 % of global energy consumption and 80 % of global greenhouse gas emissions (Seoul Resolution, 2009 in Jong-Heon, 2009). In this context production structures and consumption levels within urban areas can be seen as just as important, if not more, than the actual number of people living within a certain urban area (Satterthwaite, 1999: 47).

To some degree the challenges of urbanisation remain the same everywhere. These include increased pollution, transport congestion, the delivery of affordable housing, rising inequities and loss of indigenous ecosystems (Wheeler & Beatley, 2004: 7). But looking closer at the example of Asia several distinct features become apparent. These include the dominance of such population giants as China, India, Bangladesh, Pakistan and Indonesia, as well as the prominence of megacities, cities with population totals of over 10 million (McGee, 2001: 2). Indeed, by 2015 it is estimated that 16 of the world’s 24 megacities will be located in Asia (UN, 2001). Tokyo alone, with its 35 million residents, has more people than all of Canada (Brown, 2008: 192). As the NSFUF explains (2000: 13):

“Cities of twenty million are fundamentally different from the smaller urban agglomerations of the past, not simply in terms of population size but also in their generative processes, the scale of their ecological impacts, the administrative and organizational challenges they pose, the possibilities for internal isolation and peripheralisation, and both the opportunities for and barriers to interaction across vast urban regions.”

Many Asian governments have had to cope with a large volume of urban increase in a very short space of time, adding extra pressures in terms of infrastructure provision and environmental management (what have become known as the ‘brown’ and ‘green’ agendas of sustainable cities respectively). In this sense the time-space compression in relation to the phases of urbanisation has been far more accelerated in Asian countries as opposed to North America and Europe, and has meant that Asian cities have been forced to deal with these problems simultaneously (Marcotullio, 2004: 45). According to UN (2000 in Sorenson, Marcotullio & Grant,

2004: 5) estimates, from 2000 to 2030 Asia will account for about 62% of the share global urbanisation. This amounts to a massive urban increase of 1.3 billion, with 41.7 million new Asian urban residents added annually! To compound the problem, in more developed countries such as Japan and South Korea where population totals are starting to stabilise, young adults are showing a tendency to no longer wish to live with their parents, placing extra strain on the need for housing provision (Satoh, 2004: 239). Thus for better or for worse, Asian urbanisation holds great potential to affect patterns of global sustainability (Sorenson, Marcotullio & Grant, 2004: 5).

Another feature of the Asian urbanisation experience has been that of uneven globalisation (McGee, 2001: 2). While some East Asian countries have been able to surpass the rest of the developing world in terms of their integration into the global economy, the rest appear to be floundering further behind on the development ladder. These 'Pacific Tigers' have managed to successfully position themselves within international manufacturing and assembly chains – some producing high-end products that require higher levels of skill (such as in South Korea, Japan, Taiwan & Singapore), and others low-end product assembly in countries such as China, Indonesia and Thailand (Pieterse, 2008: 22). In any event, urbanisation in these areas can only be discussed in conjunction with the rapid expansion of urban manufacturing that absorbed the inflow of cheap labour from rural areas. Together China, Korea and Japan maintain foreign currency reserves exceeding US \$2.6 trillion, and account for a quarter of the world's output and a third of the world's commerce (Kim, 2007: 2). Thus for developing world cities such as Vientiane, Dhaka and Phnom Penh the challenges of development remain that of poverty alleviation and creating opportunities for economic growth. On the other hand, for cities such as Seoul, Singapore, Taipei and Shanghai, central policy issues stem principally from "managing growth and mitigating the adverse side effects of economic expansion, particularly in the environmental sphere" (McGee, 2001: 4).

So we see that as Asia joins the western world in the great 'urban experiment', it has become more important than ever before to apply the principles of urban sustainability on a worldwide scale (Girardet, 2004: 127). Sustainability advocates typically try to maximise three value-sets all at once – environment, equity and economy – in a way which does not play one off against the other (Wheeler & Beatley, 2004: 1). So sustainability becomes a never-ending quest of 'having one's cake and eating it too' (Ravetz, 2000: 3). As the NSFWUS (2000: 57) puts it however, sustainability is also a 'chaotic concept', poorly theorised and imbued with

so many definitions and contradictions as to make it almost meaningless. Nevertheless, what we do know is that our earth is simply too fragile for development in developing countries to replicate the same environmentally unsustainable economic systems that have emerged in 'the west', and that notions of sustainable cities and sustainable urban development provide a way for us to explore questions of future planning in a way that will meet long-term human and environmental needs. Keeping this in mind it is also important to remember that in this day and age where the Earth's carrying capacity is diminishing at a rate faster than ever before, sustainability can very rarely be said to be 'achieved' unless it in fact increases natural capital and reduces overall resource flows, as opposed to simply just minimising the impact of development on nature (Ravetz, 2000: 5; Birkeland, 2008: xv). This Birkeland refers to as virtuous cycles of 'positive development'. This theme will again be picked up in Part B of this paper when we examine South Korea's reforestation and river rehabilitation programmes as examples of the ways in which the negative ecological impacts of cities can be off-set by efforts geared towards positive development.

3 The Pacific Tigers tackle sustainability with a vengeance

Many of the 'Pacific Tigers' such as China, South Korea, Japan have jumped onto the sustainability 'bandwagon' with vigour. The idea of using government investment to jump-start a more ecologically sustainable 'green economy' is gaining increasing momentum, particularly in this time of economic downturn where the need exists to 'kill two birds with one stone' – to take care of the environment and to boost the economy through job creation and government spending. Singapore has long been viewed as a leader in public transport innovation, while China and South Korea are forging ahead with the creation of model sustainable cities – in Rizhao City in China 99 % of households in the central district use solar water heaters, while newly built Songdo City in South Korea has been designed to serve as a test-base for innovative green building technology (Worldwatch Institute, 2007: 108; New Songdo City Development, 2006). In fact China has emerged as a world leader in wind and solar technology, and the HSBC (2009: 2) estimates that in 2009 alone China will spend 34% of total fiscal stimulus on eco-friendly spending – a whopping 200.8 billion! See Figure 1.

In terms of spending however South Korea has taken the surprise top spot in 2009, with the South Korean government having announced in January a stimulus package

that pledges 81% for a swath of environmental projects (HSBC, 2009: 2). This package the South Korean government calls its 'Green New Deal'. Perhaps this shouldn't come as a big surprise however – already South Korea along with Costa Rica have emerged as the global success stories of reforestation. This percent of 'green growth' spending compares with the USA's estimated 12% and Britain's rather low 7% (HSBC, 2009: 2). In the 'race to the top' Japan, already one of the world's leading developers of green technologies and not to be outdone by South Korea, has also announced plans to expand the number of 'green' jobs to 2.2 million by 2015 by investing in massive renewable energy initiatives and by offering zero-interest loans to environmentally sustainable businesses (Murray, 2009).

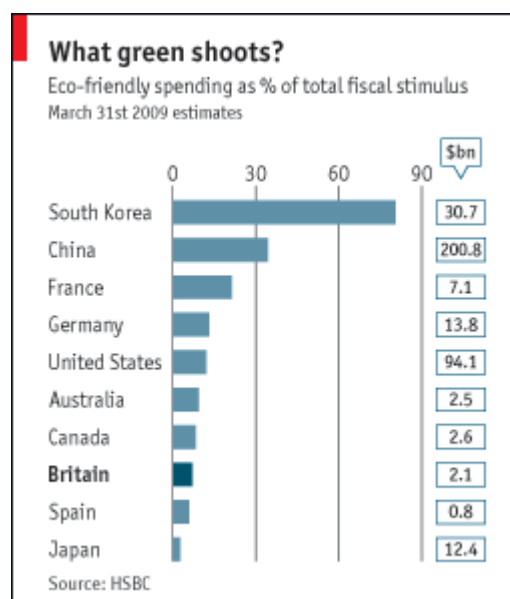


Figure 1 Eco-friendly spending as % of total fiscal stimulus

Although during this time of economic recession government stimulus packages based on infrastructure spending stand to reason in countries such as China, South Korea and Thailand (all of which have yet to exhaust their development potential), the question still remains, why is it that these countries are leading the way in the drive towards sustainable development? Is it really only about economic recovery at a time when world economic systems are at their most fragile, or do these East Asian countries gallantly (yet naively) believe that by means of their contribution towards 'techno fixes', they will be able to 'save' the world? Is it that these countries have been the first to truly grasp the implications of 'positive development', or is it simply that with increased national wealth comes increased concern for the environment?

No, the picture is far more complex than this. The following aspects related to East Asian culture, globalisation, competitiveness, governance, human well-being and conditions specific to Asian cities require deeper understanding in order to better comprehend the context in which urban sustainability is taking place.

3.1 East Asian naturalistic philosophies and values

The term 'Asian values' has frequently been espoused as an alternative to Western values, and has sometimes defined a logic used to explain the rapid economic development in East Asia from the 1970s onwards (Kim, 2007: 4). Certain 'Asian values' (largely originating in China) have also been promulgated as being able to demonstrate the appropriate path to alleviating problems of a global nature. Within this paper we will take a look at three naturalistic philosophies that have shaped East Asian values: Confucianism, Taoism and Zen Buddhism.

In pre-modern times Confucian thought was central to East Asian values, and played an important role in the formation of a binding ideology within the region (Kim, 2007: 3). According to Kwi-Gon and Kweesoon (1999: 163) Confucianism and the Principle of Ying and Yang suggest that change does not take the form of a straight line but rather that of a spiral. Thus because nature and the 'heavenly phenomena' act in regenerative and continuous (and thus predictable) cycles, it allows human affairs to conform and align with the will of nature.

Other naturalistic philosophies cherished in East Asia include Taoism and Zen Buddhism. As Kwi-Gon and Kweesoon (1999: 158) explain, within the framework of Taoism "nature represents heaven who has volition and supervises human beings. Because it stands aloof from mankind one cannot make investigations into it with only human knowledge." Taoism encourages unification with the laws of nature as well an appreciation of the intrinsic integrity of the active landscape - which provide ecological functions and sustenance to both people and wider living communities. In this active landscape there is a kind of self-design or self-organisation at work which must be preserved. Furthermore, Taoism insists that natural elements such as mountains, rivers and animals have their own spirit and must be valued as such (Ch'oe 1990 in Kwi-Gon and Kweesoon, 1999: 159).

Unlike Confucianism and Taoism, Zen Buddhism is not so much focussed on the external world, but rather on the internal attitude of people towards the external

world. “The aim of Buddhism is the completion of Buddhahood through ceaseless efforts against vice and other temptations, and the practice of mercy towards others – including nature – with a view towards attaining the highest goodness” (Kwi-Gon and Kweesoon, 1999: 158). Buddhism teaches that all living or non-living things in the universe are equally valuable, and because the great is found in the small, each humble local act, respecting the whole web of life, can add up to a harmonious way of life. So really, every small act can eventually add up to occurrences of cosmic significance (Kwi-Gon and Kweesoon, 1999: 158).

In total, not only do Confucianism, Taoism and Buddhism encourage us to change the way we think about knowledge and the design of the natural landscape, but they also encourage certain values and ethics. These include self-restraint and self-cultivation, social responsibility, perseverance, preservation of the family, reconciliation amidst conflict and hostilities and the realisation of balance and a more harmonious world (Kwi-Gon & Kweesoon, 1999: 165; Kim, 2007: 3). The ‘dark side’ of these Asian values include conservatism, fatalism and a lack of ‘adventurousness’ (Kwi-Gon & Kweesoon, 1999: 165).

As Kwi-Gon & Kweesoon (1999: 159) explain, these naturalist philosophies are different to Western capitalist beliefs which tend to promote material needs as well as management and domination of the natural world. While Western tradition invites exploitation of nature to the benefit of humans, Eastern tradition lays the foundation for respect and ethical restraint in relation to nature. Such concepts of self-restraint and self-cultivation stand in direct opposition to the modern capitalist order which promotes endless consumption and production as a means to economic growth, and in a sense provide East Asia with ‘indigenous’ ethical principles for a more sustainable way of life. These are ethics similar to those which have more recently become valued within the international sustainability movement (see the ethical principles articulated in the 2000 Earth Charter for instance), and which seek a balance between ecological, economic and equity needs, but which at the same time work ‘against the grain’ of the western development paradigm. Thus it could be said that Eastern traditions and philosophies have promoted a form of ecological awareness that goes deeper than pure ‘explicit knowledge’ – the knowledge of facts, things or states that we are conscious of learning – and which does not encourage the type of cultural and social behaviour associated with unsustainable living (Darby, 2005: 2930). In the pursuit of urban sustainability much scope exists for these ethical principles to be further explored and realised in East Asia.

This is not to say however that most East Asians view themselves as Buddhists or Taoists or even actively practice the Confucian tradition. However to some degree there is a sense of shared value systems within most East Asian societies and a renewal of appreciation for Eastern traditions and for the environment (Kim, 2007: 4). Yet the generation gap is certainly playing a major divisive role – studies have shown that middle-aged Koreans are far more likely to obey collective social norms, whereas the younger generations are emerging as more independent, self-orientated and expressive (Choe, 2006: 398). This becomes particularly apparent in studies of creativity. Whereas the older generations tend to view creative people as loners and as psychosocially deviant, the younger generations seem to have far more positive connotations associated with creativity (Choe, 2006: 398).

3.2 Globalisation and incorporation into the world system

In the process of incorporation into a world system there was initially within the region a desire to resist Western pressures that came with the opening of ports, and to use Asian values as a basis for handling Western practices (Kim, 2007: 4). However, the West's modern concept of development soon came to predominate, and although it was believed that the region experienced rapid economic growth due to traditions inherent in East Asian society, such as self restraint, zeal for education, cooperation, strong leadership and family-orientated relationships, the Asian economic crisis of 1997 soon revealed a disjuncture between so-called East-Asian culture and Western development practices (Kim, 2007: 4). Because Confucian values promote obedience within a strict seniority system, public officials found it hard to protect themselves from corrupt coalitions let alone report such corruption, and thus the Asian crisis brought to light high levels of nepotism, close ties between business and government, favouritism and a lack of transparency within highly authoritative public bureaucracies (Holzer & Kang, 2002: 39; Kim, 2007: 4). On a more positive note however, the Asian financial crisis also forced Asian governments to more seriously consider the role of transnational flows and integration of cities of the region, and to re-evaluate priorities in light of environmental economics, sustainability, and some of the more naturalistic elements of Asian philosophy (Kwon, 2001: 15-16).

Many of the more successful East Asian economies and cities have been particularly adapt at using the “opportunities offered by globalisation, such as communication systems and networks, [reshaping] globalisation objectives into a new agenda that

takes on board issues of social inclusion, environmental sustainability and political accountability as well as economic efficiency” (Allen & You, 2002: 138). While this aspect is further investigated in Part B, it is suffice to say that with globalisation and the loss of a ‘stable state’ due to increased complexity in international and interregional linkages, these East Asian nations have largely responded using perhaps the only realistic alternative – permanent innovation (Carley & Christie, 2000: 157). Incorporated in this ‘permanent innovation’ is a desire not simply to allow globalisation to represent cultural imperialism (usually seen as American) or the universalisation of capitalism, but to utilise the new global economic situation in revisiting or strengthening cultural and contextual development routes (Chadha & Kavoorui, 2000 in Shim, 2006: 27). Hence a form of ‘cultural hybridity’ has emerged as “locals appropriate global goods, conventions and styles, including music, cuisine, cinema, fashion and so on, and inscribe their everyday meaning into them (Bhabha, 1994 in Shim, 2006: 27). Thus as Shim (2006: 25) explains, movements such as the popular culture ‘Chinese wave’, ‘Japanese wave’ and more recently the ‘Korean wave’ are a synthesis of both American pop culture as well as cultural elements specific to these individual countries. In the same way, in Japan a normal room air conditioner will specifically be fitted with a sensor array and swivelling louvers that detect and blow air towards people’s locations in the room, with the traditional Japanese goal of hospitality being to keep guests as comfortable as possible as opposed to heating or cooling empty spaces (Lovins, 2005: 6).

As argued by Kim (2007: 2), globalisation has also helped to increase competition between some of the world’s hottest rivalries – China, Japan, the US, Russia and the two Koreas. More recently this competition is also taking the form of ecological innovations, eco-orientated stimulus packages and other attempts to protect the natural environment. Historically these rivalries can partly be ascribed to deep feeling of victimisation as well as economic dependence – China has historically felt victimised by Western nations and Japan, Vietnam feels victimised by China and Korea in turn feels victimised by Japan. Since the more recent emergence of globalisation economic interdependence has also increased sharply amongst the East Asian countries, with interregional exports increasing from 26% of total exports in 1986, to 46% in 2006 (Kim, 2007: 2). Within East Asia globalisation processes have also more recently sharpened the conflicts between the urban ‘haves’ and ‘have-nots’ in a region not traditionally marked by the high levels of inequality typically found in other parts of the world. It is also true that within cities globalisation has aided in the generation of a rift between those that promote global infrastructure

to increase urban competitiveness, and those more interested in providing jobs for the poor and delivering basic services (Kwon, 2001: 15)

3.3 Rising energy consumption and the impact of climate change

The Fourth Assessment Report (4th AR) of the Intergovernmental Panel on Climate Change (IPCC) published in 2007 confirms that global temperatures are rising, and that this rise is due to an increase in concentrations of greenhouse gases (GHGs) in the atmosphere caused by human interference. It further adds that carbon dioxide is the most important GHG, and that global increases in CO₂ concentrations are due first and foremost to fossil fuel use (IPCC, 2007: 5). Climate change brings with it potentially catastrophic risks, including the melting of ice-sheets in the West Antarctic and Greenland, increased drought and tropical storms, and changes in the course of the Gulf Stream (UNDP, 2007: 3). In order to avoid dangerous climate change of 2.4 degrees Celsius or more (the smallest increase in any of the IPCC scenarios), global emissions need to peak by 2015, with total emissions reduced by 50 to 80% below 2000 levels by 2050 (IPCC, 2007: 5).

However, that the energy demands of the 'Pacific Tigers' will grow to fuel increased economic development is scarcely in doubt. As they become richer, the citizens of these countries are using more energy to buy electrical appliances and cars, and to run factories and offices. Using the example of China, the reference scenario of the International Energy Agency (2007:6) suggests that China's primary energy demand is expected to more than double between 2005 and 2030, and furthermore, that although China's energy resources are extensive, they will in no way meet all the growth in its energy needs.

East Asian governments are well aware of the need to promote energy efficiency as well as the use of 'cleaner' energies, creating added impetus for the imperative to shift to more sustainable ways of living. This is just as well – research has shown that if every person in the world were living the same unsustainable lifestyle as those in the USA, we would require an additional four planets! (Girardet, 2004: 115).

3.4 Human well-being and health

Interdependencies between regional countries and the need to promote eco-friendly technologies, emissions targets and global warming adaptation strategies have been

starkly highlighted by the increase in natural disasters and climate shocks within East Asia. Not only have about 75% of the world's major natural disasters between 1970 and 1997 occurred in the Asia-Pacific region, but the number of reported natural disasters significantly increased to 383 between 1995 and 2005 compared to 207 disasters between 1975 and 1984. Moreover, the combined economic loss of US\$28.3 million in the last decade was ten times greater than that of between 1975 and 1984 (UNESCAP & ADB 2000, in Loh, 2005). Many of East Asia's mega-cities hug the Pacific, making them particularly vulnerable to tsunamis and hurricanes, while earthquakes are known to cause great disruptions in cities situated near moving tectonic plates. Related to changing climate conditions killer diseases such as East Asia's Dengue fever are also expanding their coverage (UNDP, 2007: 19).

Within concrete- and coal-dependent East Asian cities the air is often so polluted that breathing it is equivalent to smoking two packs of cigarettes per day (Brown, 2008: 193). This has resulted in the rampant spread of respiratory illnesses and a lowering of quality of life. The 'heat-island effect' whereby built-up areas and paved road materials result in higher surface temperatures of between 2-5 degrees Celsius can also have severe health impacts in urban areas. In 1994 Seoul recorded the highest summer temperatures in its history, with more than 700 people dying due to heat-related illnesses in the space of two months (Jo, Golden, Shin, 2008: 273). Such negative health impacts encourage the building of cool-roofs and the use of other 'green' building technologies.

3.5 Challenges specific to East Asian cities

Much of the western literature on sustainable cities concerns the need for 'compact cities'. This has come in response to the growing disillusionment with increasing urban sprawl, predominantly in western and developed cities and towns. Notions of the 'compact city' suggest that as urban areas are prevented from encroaching on agricultural land or native vegetation, redirecting investments towards existing urban areas can at the same time contribute towards inner-city revitalisation, make provision for more efficient public transport systems and encourage walkable, pedestrian-orientated cities (Sorenson, Marcotullio & Grant, 2004: 5). However as Sorenson, Marcotullio and Grant (2004: 5) expound, while the 'compact city' may be viewed as a 'grand solution' to problems of urbanisation, the reality is that because urbanisation within Asian cities has followed quite a different pattern to that of Europe and North America, the notion of 'compact cities' should be rethought within East

Asian cities. After all, many East Asian cities are extremely compact already, with density per hectare often around 30 persons (Choe, 2004: 253). On the other hand, because these cities have undergone, or are undergoing such rapid urban expansions in very different socio-political and value systems to that of the west, significant environmental problems have occurred along with lags in adequate infrastructure investment and public participation. In Tokyo, for instance, a major source of conflict has been complaints concerning the shadows cast on other buildings from high-rise construction (Sato, 2004: 243). Thus while the importation of such planning concepts as 'compact city' and 'smart growth' become questionable, central challenges facing planners include the need to develop more integrated and dual-purpose strategies to solve land use and transportation demands, and to formulate more responsive and flexible land use policies that build on the historical urbanisation patterns of East Asian cities (Sorenson, Marcotullio & Grant, 2004: 7).

3.6 Leadership and governance

East Asia is currently experiencing a move towards representative democratisation, with political change having taken place in China, Vietnam and South Korea in the latter half of the 1980s. However as Kim (2007: 2) explains, politically the Asian authoritarian logic still dominates – the logic that individual freedom and human rights should be forfeited for national development and the 'greater good'. Although this logic has been viewed as inherent to the region's cultural system, it cannot be denied that it has also been used as an ideological tool by authoritarian leaders to justify their power. Beyond this concern for the 'greater good', traditionally East Asia saw excessive individualism and political diversity, dissolution of the family, and moral decay as negative destabilising elements arising from Western democracy, and denounced them as unfit for Asia's cultural tradition" (Kim, 2007: 3).

Mainstream and might I add western sustainability literature advocates broad-based community participation, with local stakeholders and municipal government acknowledged as the essential partners in the implementation of the brown and green agendas of urban sustainability (Allen & You, 2002: 32). In this way national government, public policy and legalisation should play only a supportive role to local initiatives. This formulae, in which vibrant politics abound at various levels of influence, where public participation breeds environmental awareness and knowledge, and where conflict allows for a redefinition of norms and identity, has been seen as a vital component of the innovative, responsive and sustainable city

(Pieterse, 2006: 292; Menegat, 2002: 234; Carley & Christie, 2000: 167). Various Latin American countries such as Brazil and Argentina have been particularly progressive in their use of participatory democracy (see for instance Menegat, 2000 or Dagnino, 2005).

Yet countries in East Asia do not necessarily abide by this framework. Civil society in Korea, Indonesia and China has either been smashed or strongly penetrated by government, and while some level of state decentralisation has taken place in most East Asian countries, far greater emphasis is placed on mutually beneficial and export-orientated private sector/government partnerships (Leftwich, 2000: 164; Holzer & Kang, 2002: 38). Strong networks linking public and private sectors in Japan, China and South Korea have helped create something of a common vision within these countries, and so have likely made it easier for big business and government to work together towards a 'green' agenda (Evans, 1995: 47-54).

Strict public regulations and policies as well as public education are used to regulate different aspects of every day life, with some of the most intrusive public policies stemming from the island of Singapore. Here even chewing gum, firecrackers and matchsticks are prohibited on the grounds of safety and social reasons (Jarvis, 2009: 46). Granted, it is also likely true that authoritarian leadership and lack of public participation has allowed for the kind of speed East Asia (and more particularly China) has demonstrated in developing the economy, building new cities and applying innovative sustainability measures.

Despite relatively low levels of public participation within government, sizeable reservoirs of trust, social acceptance and civil obedience do appear to exist between civil society and East Asian governments. This could be due in part to the social acceptance of Asian values as well as an indication of the legitimacy these largely developmental states hold in the eyes of the public. After all, within Japan, Taiwan and South Korea meritocratic recruitment via elite universities ensure that only the 'best and brightest' students are considered for bureaucratic careers, with the tendency being for these civil servants to follow long-term career paths within fairly stable and competent government bureaucracies (Evans, 1995: 47-55). However, with the move towards democratisation calls for greater levels of public participation and citizen control are starting to emerge from students, professionals, managers and the like, especially in relation to ecological degradation and quality of life issues (See Leftwich, 2000: 164; Kwon, 2001 & Satoh, 2004).

Strong leadership (even if in the face of substantial resistance) has been a key feature in a number of high profile ecologically orientated government project. Examples include the mayoral leadership exerted by Li Zhaoqian in transforming Rizhao City in China into a solar-powered city, and the so-called visionary leadership Lee Myung-bank, mayor of Seoul, demonstrated in uncovering Seoul's Cheonggye River, once buried under chunks of concrete and rubble (Worldwatch Institute, 2007: 109; Ooi, 2007: 2).

Research conducted by Haley and Haley (2006) reveals that successful Chinese leadership has generally portrayed eight different characteristics, some of which are some-what different to western leadership styles. These include the intrinsic value of knowledge as a strategic investment, speed in making tactical decisions (which might even involve decisions based on a 'gut feeling'), the importance of action despite limits to data and analysis, and an emphasis on short-term performance results. Equally important is the focus on providing quality services and products, the necessity of building mutually beneficial relationships with all concerned, as well a passionate commitment to one's own and one's organisation's successes. Lastly, all of the most successful leaders interviewed believed in committing themselves to leaving their society and the world a better place than they found it, and to bring something special and lasting into the world. Thus, in contradiction to the western view of government officials as being self-serving and complacent, these leaders wished to take a long-term and future-orientated view, and dedicate themselves to successful strategies that over time will create lasting pay-offs and value for society.

From a sustainability perspective much value can be found in this type of visionary and forward-thinking leadership, despite its authoritarian nature. After all, one of the most oft quoted definitions of sustainable development is "...development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987: 43). This type of leadership also harks back to Zen Buddhism philosophies that suggest that every humble local act can add up to a harmonious way of life, and have significance of cosmic proportions.

4 Conclusion

Thus we have seen that urbanisation patterns in Asia have differed substantially to that of the western world, due largely to a time-space compression of the different

phases of urbanisation. Also, we have seen how some countries, known collectively as the 'Pacific Tigers', are emerging as leaders in the field of urban sustainability. Together these two aspects make for a fascinating exploration of the complexity of urban sustainability within countries such as China, Japan and South Korea, especially considering the way in which non-textbook means are being used to tackle challenges of sustainability. Here I might mention issues pertaining to authoritative leadership, lack of public participation and 'hybridised' globalisation. Also, we reviewed how certain challenges remain specific to East Asian cities due to their unique context, as well as how the context of these countries has affected the consciousness regarding the necessity of sustainable cities. In this regard the dynamics within which principles of the sustainable city are being applied are not straight forward but instead combine the imperative of globalisation, economic growth and competitiveness with a concern for energy security and human well-being, as well as the desire to 'leave a legacy' and to be true to East Asian tradition and values. Part B of this paper further investigates these aspects by means of the case study of Seoul. Here we take a brief look at the history of Seoul before turning our attention to various strategies undertaken by the local government of Seoul in creating a city which is less wasteful of natural resources, which encourages natural eco-system development and which 'works' for the people of Seoul. Challenges, criticisms and 'growing pains' encountered in this shift towards urban sustainability are also discussed.

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Second miracle on the River Han: a case study of sustainability in Seoul

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I hereby confirm that the assignment is the product of my own work and research and has been written by me and further that all sources used therein have been acknowledge.

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1. Introduction

Since the late 1990's the City of Seoul, the capital city of South Korea, has committed itself to a path of fairly radical sustainable urban development. Within this paper we will examine actions undertaken in Seoul aimed at steering “the evolutionary process of ‘urban development’ towards the moving balance of ‘environmental sustainability’” (Ravetz, 2000: 8). Much of what is argued in this paper can be linked to Part A, which forms the backbone of this discussion on sustainability in Seoul. Together it is hoped that Part A and Part B will provide a picture of the complex and sometimes counter-acting dynamics involved in shaping a sustainable city, as well as in the shaping of a sense of consciousness regarding sustainability. With this in mind the first section of this paper looks at the original philosophy upon which Seoul was built, before placing Seoul within the context of South Korea, rapid urbanisation, globalisation and the new South Korean ‘Green New Deal’. We then turn to four aspects of the sustainable cities debate that Seoul has notably excelled in (or at least can be used as a practical example thereof) – resource flows, positive development, creating a city for people, and governance and public participation. Here we note the fact that Seoul is taking a lead in action against climate change and other laudable ‘green’ initiatives. However, the city’s government must also ensure that its various goals and grand projects are more than mere showcases or economically advantageous endeavours, but are geared rather towards capturing some of the ancient Korean ‘P’ungsu’ tradition as well as reflecting a genuine concern for humanity in its relationship with nature.

2. Creating a city in harmony with nature

Although archaeological evidence shows that people have been living in the Seoul basin since at least 3000 to 7000 years ago, Seoul officially became the capital of the Yi dynasty in 1394. Records show that the selection of a site for the capital was a government undertaking of the greatest significance, and that Seoul was chosen not only because it is central and accessible to other parts of the kingdom, but also because the sight conformed almost perfectly with the auspicious geomantic elements of the ancient practice of P’ungsu (Chong-Hyon & Tong-Ok, 1994). Kwi-Gon and Kweesoon (1999: 165) explain that p’ungsu is an “aesthetic science dealing with the positive management of land in accordance with the hidden forces within the earth.” Based on the principles of yin-yang, it suggests that good fortune is closely tied up with the environment of one's place of residence and the direction in one's residence faces (Chong-Hyon & Tong-Ok, 1994). Ideally, according to P’ungsu, a

place of residence should be 'embraced' by a mountain behind it, and should have a river flowing in front of it (Kwi-Gon and Kweesoon, 1999: 165). Central to P'ungsu is the observance of certain ethical norms which abide by the quintessential message of P'ungsu – a life in harmony with nature, in particular with the land (Kwi-Gon and Kweesoon, 1999: 168). Although not based on the principles of P'ungsu, much of literature on the 'sustainable cities', suggests a strong alignment with P'ungsu based decision-making and values. Thus in a sense it might even be suggested that Seoul, as the capital city of South Korea, was originally founded on the principles of sustainability, and that even today in this age of environment degradation and global warming, P'ungsu has much wisdom to offer.

3. Urbanisation in South Korea: an overview

"Nothing average ever stood as a monument to progress. When progress is looking for a partner it doesn't turn to those who believe they are only average. It turns instead to those who are forever searching and striving to become the best they possibly can. If we seek the average level we cannot hope to achieve a high level of success. Our only hope is to avoid being a failure."

- O. Marden (1850-1924), Founder of Success Magazine

The Republic of Korea's recent history has been a rocky one. Colonised by Japan in 1910, Korea was governed by the US military for three years after Japan was defeated in World War II. The Korean War of 1950-1953 created an uneven situation where although South Korea maintained the majority of the population of the Korean Peninsula, it was left with no significant exports or natural resources (Cspace, 2008). In fact, after the Korean War South Korea was left with little else than an abundant supply of educated labour – its urban areas, light industries and infrastructure were in tatters. South Korea's trademark military culture established at the time of World War II was further solidified when Jung-Hee Park took power through a military coup in 1961 (Holzer & Kang, 2002: 36).

Since Park's first Five-year plan of 1962 South Korea has experienced an unprecedented increase in population growth and rate of urbanisation, with cities of more than 50,000 people increasing from 27 in 1962 to a whopping 73 in 1995 (Economic Planning Board, 1996 in Kwon, 2001: 16). What's more, since 1962 urbanisation has skyrocketed from 35.8% to a grand total of 87,6% (Korean Municipal Yearbook of Statistics, 2001 in Choe, 2004: 259). In the same way the land cover of the city planning areas has grown from 1.9 % of the nations total land in

1960 to 15.3 % in 2000 (Korean Municipal Yearbook of Statistics, 2001 in Choe, 2004: 258).

There is no doubt that the government's developmental mandate to modernise and industrialise Korea into an export-orientated economy played a key role in the sudden rise of urbanisation in the 1960s as well as in the economic growth Korea has enjoyed over the past three decades. Indeed, per capita annual income grew from US\$100 in 1963 to over \$16,000 in 2005 (Mc Gee, 2001: 3). More recently South Korea's economy has shifted away from a government-directed and centrally planned investment model towards the more market-orientated one of today, known for its modest inflation, an export surplus, low unemployment, and an even distribution of income (US Department of Commerce, 2007 in Maine International Trade Centre, 2007: 1). According to the UN's Economic and Social Commission for Asia and the Pacific (UNESCAP, 2009), in its heyday of the late 1980s Korea's economy was growing at an average of 12 percent, although this growth has since moderated to about 4-5% between 2001 and 2007, dropping to 5% in 2007 and 2,5% in 2008 with the start of the global financial downturn. Due to slower export growth and deep integration with the financial sectors of the developed economies, this growth is forecast to fall to -1,5% in 2009. Nevertheless, South Korea is still considered the world's 14th largest economy, something most people would never have been able to imagine at the end of the Korean War (World Bank, 2007: 1).

4 Globalisation and the city that never said 'die'

The first 'miracle' on the River Han, although seemingly referring to the River Hangang which winds its way through Seoul, is used to describe Seoul's astonishing rise from hopeless city after the Korean War to highly developed 'world city' and economic hub a mere four decades later (Kane, 2002; Cspace, 2008). Of course relative poverty can still be found in enclaves in Seoul, but unlike 40 years ago this remains the exception and not the norm. While much of this economic growth and incredible rise to prominence and prosperity was achieved by aggressive state planning and intervention, it is nevertheless viewed by many Koreans as a source of national pride and a symbol of the Korean 'can do' or 'never say die' spirit (Holzer & Kang, 2002: 40). However, even here this miracle came with a price. Seoul's population rose rapidly to a staggering 10 million people, and has resulted in a skewed pattern of urban development in South Korea (Kwon, 2001: 17). The situation got so desperate that in 1989 construction began on five new towns located

in the greater Seoul metro region - all constructed for the purpose of providing housing for the many workers employed in the City of Seoul (Kwon, 2001: 28). Seoul, the only mega city in South Korea, is currently home to about 22% of the nation's total population, with this figure rising to 48% if the greater Seoul metro region is taken into account (Jo, Golden & Shin, 2008: 268). South Korea's second and third largest cities, Busan and Daegu, only have populations of about 3.8 million and 2.4 million respectively (Kwon, 2001: 18). Today, as with many other rapidly urbanising regions, although Seoul's population has begun to decline, the greater metropolitan region continues to grow in terms of both geography and population (Jo, Golden et al. 2008: 269).

Seoul truly has taken a central role in South Korea's industrial growth. While this of course helped to attract rural migrants to the region, since the 1970s the South Korean government has attempted to decentralise industries to other parts of the country (Mc Gee, 2001: 3). Negative consequences of such a population concentration have been seen to lie in the major strain it places on the city's infrastructure and management, with severe urban problems including housing shortages, overcrowding, pollution, traffic congestion and land speculation (Kwon, 2001: 20). Another consequence is the interregional inequity that has been created, where high housing rental prices and overcrowded schools in the city are met with vacant houses and underutilised schools within rural communities. A definite worry is also the close proximity of this large conglomeration within range of North Korean artillery, especially considering the recent tensions that have erupted between North and South Korea over North Korea's testing of a nuclear bomb in May 2009 (Chankyong, 2009).

Never-the-less, population decentralisation policies have largely been unsuccessful, and with the shift from the predominance of blue collar to white collar service-sector jobs and the ambitious investment in infrastructure and public housing made before the 1988 Seoul Olympics, transnational and local corporations have continued to base their headquarters in Seoul (Kwon, 2001: 35; Mc Gee, 2001: 3). According to Han (1997 in Kwon, 2001: 35), the key attraction factors for business activities in Seoul are the convenience of telecommunications and transportation and the abundance of high-quality office space. It has also been suggested that the government's strong centralist tradition has enhanced the city's appeal to big business as it has meant easy access to government decision-making (which of course would substantiate the rationale for the systematic devolution of national

government power in Seoul in the interest of industrial and population decentralisation – something that has never been wholeheartedly entered into). Seoul is a prime example of a city which, in light of the country's poor natural resources and limited market size, has optimised globalisation processes as a policy objective for sustaining economic growth. Put another way, Seoul has mastered the 'art' of globalisation. As Kwon (2001: 31) concurs:

“The gateway functions to increase globalisation have undoubtedly been given to Seoul. Accordingly, the globalisation of the Korean economy has been directly related to transformations in Seoul's economy. Seoul has played a central role in servicing and financing international trade, investments and headquarters operations. Nationally, Seoul continues to be the site of concentrated economic power, while provincial cities continue to suffer from stagnant or relatively declining economies.”

In the drive to attract entrepreneurs and international investment nobody has understood the importance of 'image making' combined with various environmental quality factors (such as clean air and water) better than current Seoul mayor Oh Se-hoon and his predecessor Lee Myung-bak (currently the president of South Korea) (Kwon, 2001: 36). Because Seoul has acquired the image of a non-cultural and somewhat 'dull' yet hardworking city, these two have understood the advantages that can be gained by creating the perception of Seoul as a 'hip', sustainable, 21st century 'world city' in the mental image held by visitors (Kwon, 2001: 36). In bringing about such a 'world city' Mayor Se-hoon's particular passion has been to create the image of Seoul as more than simply a place to 'do business'. Reinventing local government under the name 'Creative City Administration' his "selling point is the 'Clean and Attractive Global City' that aims to project Seoul as a capital for tourism, fashion and design, finance and distribution, digital content, research and development and convention" (Ooi, 2007: 1). These new directions for growth could be seen as ways in which Seoul is attempting to diversify its economy as global demand for mainstay items such as cars and technological products wanes - but whatever the reason it is notable that environmental quality is included as a desirable factor, able to enhance Seoul's competitive edge and cultural appeal. In late 2008 Mayor Se-hoon's vision of breathing creative energy into Seoul was given an additional boost when Seoul was voted the World Design Capital for 2010, an award which will surely aid in his ambition of doubling the number of tourists to 12 million by 2010 (ISIC, 2009). However, Se-hoon's administration must also be wary of making 'culture' a mere receptacle of marketing messages, an empty vessel in the relentless pursuit of market shares and profits (Pieterse, 2006: 297).

5 And the second miracle on the River Han?

The second miracle on the River Han is a phrase I use in more directly describing actual ecologically restorative processes and progressive environmentally-friendly steps taking place on the River Han, elsewhere in Seoul, as well as outside the Seoul greater metropolitan region. Although interest in the 'sustainable city' started taking off already in the early 1990s (mostly initiated by the Ministry of the Environment), it was only after the 1997 Asian economic crash that urbanites seemed to really wake up to the fact that the environment may not be able to cope with continued unsustainable urban practices (Choe, 2004: 254). Included, it was during this period that visiting areas of natural beauty once again became fashionable as well as a way of exploring traditional naturalistic customs, creating in many urbanites a burgeoning appreciation of nature and ecology (Chong, 2005). In recent years the metropolitan government of Seoul has adamantly spoken out regarding the extent to which it remains committed to a 'green growth strategy' as well as global campaigns against climate change, with this message further being reinforced during the high-profile C40 Large Cities Climate Summit which met in Seoul in May 2009 to discuss efforts to reduce greenhouse gas emissions (Kwi-Gon & Kwee-soon, 1999: 148; Jong-Heon, 2009).

This has to be seen however within the national government's ambition to establish itself as one of the top five nations for green technology, as well as its competitive desire to use the building of a low-carbon society to help the country step out of recession before any other country in the world (Murray, 2009; Watts, 2009). Thus it was not for nothing that the president of South Korea, Myung-bak announced on the occasion of the 60th anniversary of the founding of the Republic of Korea in August 2008, that the new slogan of South Korea's core vision would be 'Low Carbon, Green Growth' (Office of the President, 2008 in Korea.net, 2008). Here the bumper South Korean 'Green New Deal' stimulus package of US \$38bn unveiled in January 2009 deserves a mention (see Table 1). Beating US President Barack Obama narrowly to the punch in revealing South Korea's 'Green New Deal', Secretary for Future Visions Kim Sang-Hyup, explained that this programme would boost the country's flagging economy as well as help stimulate more than 940,000 green jobs over the next years (Watts, 2009; Murray, 2009). And this programme has come none too soon either - South Korea was listed as the ninth highest emitter of greenhouse gas emissions in 2002, as well as the country with the world's highest rate of increase in emissions levels between 1992 and 2002 (KEEI, 2004 in Han & Youn, 2009: 158). The Seoul

government alone has estimated that the city's energy consumption will rise by 27% in 2020 above 2005 levels (SDI, 2006 in Jo et al. 2008: 272). These high emission levels will very likely spell trouble for South Korea after the current Kyoto Protocol is revised in 2012.

What?	How?	Jobs created?	How much?(US\$)
Environmentally friendly living spaces	- construction of 1m 'green' homes - energy efficiency upgrades for 1m homes	10,789	\$352m
Energy conservation	- energy conservation improvements in villages & schools - installation of LED lighting in public	170,702	\$5,841bn
Cars	- R & D for fuel-efficient vehicles such as Electric & hybrid	14,348	\$1,489bn
Trains & Bikes	- expansion of electrified tracks - new high-speed rail links - construction of more than 3,500 kilometres of bike paths	138,067	\$7,005bn
Water resource management	- small and midsize dams	16,196	\$684m
River restoration	- restoration of 4 rivers including flood mitigation	199,960	\$10,505bn
Forestry	- better forestry management of existing trees - tree planting to improve carbon sinks - new facilities for use of woodchips as Biomass	133,630	\$1,754bn
Recycling	- resource recycling including solid waste incineration that burns methane emissions to generate electricity	16,196	\$675m
National green information for infrastructure development	- use of GIS	3,120	\$270m
Total for the nine major projects		702,944	\$28,573
Total for the Korean Green New Deal		960,000	\$36,280

Table 1 National spending related to South Korea's 'Green New Deal'
Source: Barbier, 2009: 17 (Report prepared for the UNEP)

Although the package contains many of the national actions of the United Nations Environment Programme's Global Green New Deal, and while it has been supported by the UN secretary general, Ban Ki-Moon, various environmentalists and critics fear

that the package will benefit the cement industry more than the environment (Barbier, 2009: 16; Watts, 2009). As Watts (2009) points out, with the plan to create long-distance cement bicycle paths, and more dams with concrete embankments, the actual amount of 'green' spending is likely to fall substantially below \$38bn. President Myung-bak, former head of Hyundai Constructions, one of the world's leading cement pourers, may have a long way to go before he can persuade critics that his intentions are true. After all, as mayor of Seoul, Myung-bak's best-known environmental endeavour was the uncovering of a 6 km stretch of Seoul's River Cheongye and the removal of a highway which ran over it, a river which although now clean and attractive, runs on a concrete bed besides concrete walkways and walls (Watts, 2009). Another criticism concerns the disappointingly low amount of spending geared towards renewable energies – although it would seem as if deals have already been struck concerning the building of 12 new nuclear plants as well as what will become the world's two most biggest tidal power plants (Watts, 2009). Despite these rumblings however, one thing is sure, Seoul will definitely feel the impact of South Korea's 'Green New Deal'. The following section of this article examines four directions the City of Seoul has moved into in its plight to remain committed to a 'green growth' strategy.



Photos of Cheongye River
Source: Panoramio, 2009; Flickr 2009

5.1. Resource flows

So we see that in a mega city such as Seoul a crucial question becomes how to reconcile the status of this city as a global centre of consumption and trade with the needs of the sustainable city (Girardet, 2004: 113). Here it has been suggested that the principles of 'sustainable resource use' be applied. Swilling and de Wit (2008: 5)

define sustainable resource use as “living in a manner which is intrinsically compatible with natural environments, and resource consumption that will not jeopardise the earth’s life-support systems now and in the future.” This requires that cities learn to mimic the essentially circular metabolism of living ecosystems as opposed to the largely linear systems of today – where natural resources are simply sucked in and waste is shoved out (Ravetz, 2000: 10). In many respects this shift from linear to circular systems is congruent with the ethos of P’ungsu as well as the naturalistic philosophies discussed in Part A. Thus it could be said that should Seoul actively attempt to engage with such eco-cycles it will be capturing an aspect of its heritage which during the last century has largely been dismissed. Such cycles might apply to food which is locally grown and then composted, solid waste, effluent, the planting of forests as part of carbon cycles which off-set emissions else where, as well as the recycling of water.

Already South Korea has made much head-way in its reforestation projects (see the section below) as well as solid waste management. Kwon (2001: 2001: 41-42) describes how solid waste management in Seoul includes a flexible combination of source reduction, recycling, composting, waste incineration and land-filling. Four composting plants have been created around the city, and since 1995 a law has been in place requiring ‘Seoulians’ to separate recyclable wastes at the source. Also, a volume-based waste charge at the apartment complex-level has been in force since 1995, helping to aid in the reduction of waste materials at the source. Thus today many apartment complexes have volunteer cooperative societies that manage the collection of waste as well as the resale of recycables to recycling agencies. Money gained in this matter is then spent by the cooperative society on matters pertaining to the apartment complex. A further improvement to this circular system of waste management is expected to come into play when incinerators that burn methane emissions to generate electricity are established as part of the South Korean ‘Green New Deal’. Also, much potential exists to extend these circular systems to the way in which Seoul manages its water, effluent and energy use.

5.2 Positive development (or not?)

Janis Birkeland (2008: xi) uses the phrase ‘positive development’ to refer to “physical development that achieves net positive impacts during its life cycle over pre-development conditions by increasing economic, social *and* ecological capital”. In other words, this type of development not only generates cleaner energy, water and

air, but it also leaves the environment in a better place than it was before. This challenges the traditional view that negative impacts are an inevitable consequence of development, and instead forces us to think more creatively about the true nature of sustainability (Birkeland, 2008: xx). In discussing 'positive development' I would like to review both South Korea's reforestation programme in the light of the carbon sequestration impacts this has for Seoul, as well as the Hangang (Han) River Renaissance Project.

South Korea today is a heavily forested country, with forests comprising 64% of the total land area (Han & Youn, 2009: 157). In fact, almost 60% of Seoul's greenbelt, an area that forms 12.4 % of the total Seoul metropolitan area and acts as the 'lungs' of Seoul, consists of forests that are heavily used for recreation (Jin & Hur, 2001; Bengston & Youn, 2006). But this was not always the case. Korean forests were badly degraded during the first half of the 20th Century due to logging under the Japanese occupation and later as a result of war damage during the Korean conflict and the intense need for fuel wood (Timberhunt.com, 2005; Han & Youn, 2009: 160; Chong, 2005). Since the end of the 1950s the South Korean government has made continuous efforts to improve forest management, and due to staunch government policies and funding, and the active help of many communities across South Korea, Korea has been able to increase its forested areas from 3.3 million hectares in 1955 to 6.5 million hectares in 2005 (Chong, 2005; Timber Hunt, 2005). Part of the success lay in the government's attempts to establish community cooperatives as well as introduce the *Sae-ma-ul* movement, initiatives designed to revitalise traditional Confucian values of cooperation and unity amongst communities involved with the re-greening of forests (Chong, 2005). Today the South Korean government has focussed its attention on programmes aimed at replanting native tree species, increasing forest cover in urban areas, intensive forest management activities on public land and providing subsidies for quality forest management for private forest owners (Han & Youn, 2009: 159; Lee, Kang & Park, 2001: 142). Such efforts are not only vital in the prevention of flooding and soil erosion, but also help improve the ability of 'sinks' to absorb greenhouse gases (Han & Youn, 2009: 158). This in turn can help to partly off-set the high volumes of greenhouse gases emitted in cities through carbon sequestration, and so provides an example of how ecological cycles can transcend both urban and rural borders. In this sense South Korea is emerging as a leader in the creation of greenhouse gas 'sinks' – a fine example of positive development in action.



In South Korea much degraded land has been restored since the 1950s
Source: Chong, 2004

Major rivers in South Korea are largely heavily contaminated from municipal sewage, industrial waste water and agricultural runoff. At the recent C40 Large Cities Climate Summit the Seoul Metropolitan Government was praised for its Hangang Renaissance Project, a project aimed at not only restoring the eco-system of Seoul's largest river, but also regaining the "friendly relationship between humans and nature" and "creating a new brand for the city by exploration of the hidden value of the Hangang" (Seoul Metropolitan Government, 2009a; Seoul Metropolitan Government, 2009b). This project, initiated in 2007, is the first comprehensive plan after completion of the Hangang River Comprehensive Development project of 1986, and aims to improve water quality, eliminate concrete embankments and link riverside parks with 'green' corridors and other historic sites (Seoul Metropolitan Government, 2009b). However, it will likely also involve a fair deal of concrete-based development with the establishment of tourist-attraction waterfront towns and the building of the Gyeongin Canal to expand commercial use of the Han River by linking it with the West Sea (Seoul Metropolitan Government, 2009b; Energy Business Review, 2009). Thus although the project promises much that is positive, it remains to be seen whether these positive factors will out weight the negative side-effects of damage to the environment, and whether it can truly be called 'positive development'. It is important to note as well that although the local government of Seoul is taking responsibility for the restoration of the parts of the river that fall within the jurisdiction of Seoul, national government has incorporated the other parts of the Hangang River within its Four Major Rivers Restoration Project (Korea.net, 2009). This project, a vital component of the South Korean Green New Deal, aims to secure quality water, prevent natural disasters such as flooding and increase the nation's sluggish

economy with a massive injection of public funds (Energy Business Review, 2009; Watts, 2009). However, fears also abound that this project is preparation for the cross-country canal plan that President Lee Myung-bak was forced to set-aside in 2008 in the face of strong opposition. Although the government has denied these speculations, should the canal plan eventually be approved it could involve major ecological damage (Energy Business Review, 2009; Watts, 2009).

5.3 Creating a city for people

In his book *Plan B 3.0* Lester Brown talks about the need to design cities for people not for cars. This sort of thinking is congruent with a new type of urbanism based on a planning philosophy that “seeks to revive the traditional city planning of an era when cities were designed around human beings instead of automobiles” (Lyman, 2005 in Brown, 2008: 193). It is also in line with the literature on sustainable cities which suggests that some of the most blatant features of unsustainable cities are those in which traffic congestion is rampant, and where carbon dioxide fumes are unreservedly pumped into the atmosphere. Although the city of Seoul already largely abides by the principles of the ‘compact city’ (after all, 90% of its residents reside in apartment blocks), in response to the public outcry against the lack of parks and open spaces and the severe levels of air pollution the Seoul local government has instigated much action in light of ecological sustainability and the desire for a better quality of life (Kwon, 2001: 37). And since transportation contributes to about 80% of air pollution in Seoul, this would seem the natural place to start (Kim & Rim, 2000: 31).

There is no doubt that “transportation systems are fundamental in shaping the land use and physical form of urban areas, as well as determining much about the livability of our communities” (Wheeler & Beatley, 2004: 2). Since the early 1990s government has shifted its policy from a focus on building and maintaining roads for the approximately 3 million residents of Seoul who own cars, to a focus on improving public transport efficiency for the 7 million who don’t (Kim & Rim, 2000: 25). Today 70% of all passenger trips in Seoul are made either by bus, subway or light-rail within a system that is increasingly becoming integrated (Kim & Rim, 2000: 27). In order to encourage the use of public transport and cut down on private transport local government instigated a congestion charge in 1996 for all cars with less than three passengers travelling through the two NAMSAN Tunnels, major access routes to

Seoul's CBD (Kwon, 2001: 38). Today drivers are charged extra for travelling at peak time, with plans in the bag to extend congestion charges to the ten most congested departmental stores in Seoul (Seoul Metropolitan Government, 2008a). Further improvements to public transport were made in 1996 when the dedicated bus lane was extended to 226 km and in 2004 when an integrated public transport fare system using smart cards was established (Kim & Rim, 2000: 27; Seoul Metropolitan Government, 2005). Innovative programmes have included the annual 'Leave Your Car at Home Monday' festivities, equipping underground train stations with shower facilities for sweaty cyclists, as well as techno-driven Seoul's own personal contribution to congestion alleviation – the Personal Travel Assistant (PTA) (Seoul Metropolitan Government, 2008b; Tae-Jong, 2008). The PTA is a pioneering service that will allow people with cell phones and other web-based interfaces to find the best green transportation route option depending on the individual's current location and real-time traffic situation (Cisco, 2009). Although today traffic congestion and other transportation problems remain a common feature of Seoul (largely as a result of poor infrastructure planning within a time of rapid city growth), proactive demand-side remedies do appear to be helping, and what's more, Seoul has emerged as a model city for traffic management and innovation (Kim & Rim, 2000: 25). And it seems that in this city with every blink of the eye a new traffic management option is being tried and tested!

Former mayor of Bogota in Columbia, Enrique Penalosa once remarked that "high quality public pedestrian space in general and parks in particular are evidence of a true democracy at work...because they are the only places where people meet as equals...In a city, parks are as essential to the physical and emotional health of a city as the water supply" (in Brown, 2008: 193-194). Increasingly the local Seoul government seems to have an understanding of this, and in recent years a number of major city roads have been turned into green areas or 'plazas'. In fact, in August 2009 a new plaza will be emerging where the central road in Seoul, Sejong Avenue, once stood (Cisco, 2009). However, a problem associated with the rapid development of new 'urban housing renewal projects' within residential areas has been the tendency for developers to plan for parks, schools and other public amenities in a reactive fashion – only once apartment blocks have already been built with little space remaining for anything else (Kwon & Choi, 2003).

Great controversy also surrounds the necessity of Seoul's 10km wide greenbelt system that begins about 15kms from the Seoul CBD. Widely written about, the

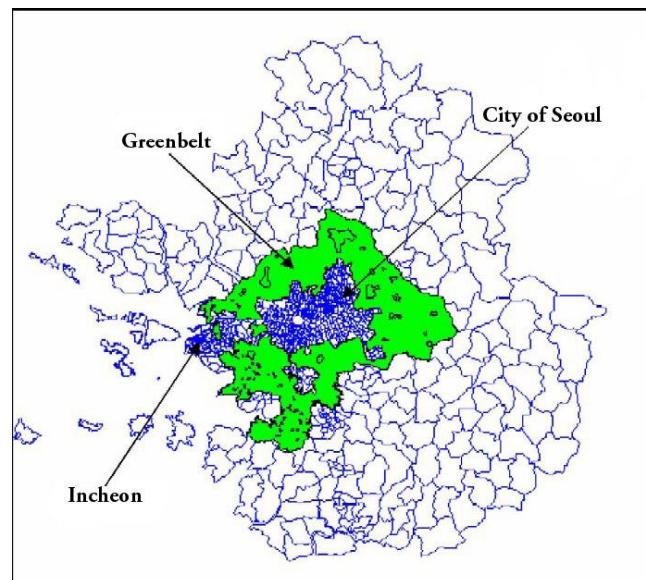
Seoul greenbelt system is something that has tied sustainability activists within a 'catch 22' or what might be called a 'sustainability conundrum'. But perhaps this discussion first requires an understanding of the logic of greenbelt systems.

Greenbelt systems, one of the most restrictive forms of urban containment policy, generate significant social and environmental benefits including the preservation of natural heritage and provision of room for urban farming, recreational activities and essential ecosystem services. Although the notion of surrounding a town or city with open space or agricultural land is an ancient one, the idea was more recently revived in the late 19th Century by Ebenezer Howard and his proposal of the 'garden city' (Bengston & Youn, 2006). World wide the system of greenbelts as a form of urban containment has never been without altercation. As Bengston and Youn (2006) explain:

“Greenbelts have long been a controversial public policy instrument because of their purported negative consequences, including increased land and housing prices in the urban area contained by the greenbelt, decreased greenbelt land prices, loss or restriction of development rights for greenbelt landowners, increased urban congestion, and other undesirable consequences. In some cases, greenbelts have been blamed for increased sprawl and higher commuting costs as development goes beyond the greenbelt.”

All of the above negative consequences certainly hold true for Seoul, particularly in light of the fact that the vast majority of those who stay in cities on the outer edge of the greenbelt work in the City of Seoul, and are thus forced to commute long distances every day to reach their place of work (with accompanying increases in congestion and greenhouse gas emissions!). Here we see the sustainable city's principle of living near one's place of work chafe against the imperative for parks and open areas. This is essentially a 'pickle' relating to the notion of the compact city. Perhaps the question might rightly be asked whether, with very different population growth patterns to that of the west, the greenbelt system should even have been adopted by Seoul in 1971. After all, although the greenbelt system may have met with relative success in London, this is not to say that it would do the same in a context very different to the UK. Given that Seoul's containment policy has hardly stopped development from invading the greater Seoul basin beyond the greenbelt, perhaps this containment policy should have been more flexible and accommodating of growth, as is the case with urban growth boundaries in South Africa? (Bengston & Youn, 2006). In any event, since 1999 the national policy towards South Korean greenbelts has relaxed somewhat, and slithers of the Seoul greenbelt are slowly being released for housing development purposes (Bengston & Youn, 2006).

Counter-acting the misperception that South Koreans lack passion, this move has generated outrage amongst environmentalists and local 'Seoulians' alike. One thing is clear however – if Seoul loses its greenbelt it would have lost much that is of value.



The City of Seoul's Greenbelt
Source: Kwon & Choi, 2003

5.4 Governance and public participation

For a long time government administration in Seoul was characterised by a military culture following Park's military coup of 1961 (Holzer & Kang, 2002: 36). Between 1960 and 1980 central bureaucracies exercised almost unlimited discretionary growth, a system which although effective for economic growth also resulted in much corruption and nepotism (Holzer & Kang, 2002: 36). Since the Asian economic crash of 1998 some measures of public participation have been encouraged, and the public have certainly become more vocal in their needs. The Seoul Metropolitan Government has also been granted far more independence in managing the affairs of the City of Seoul. However, national government continues to monopolise most of the large-scale housing projects, and both national and metropolitan government have remained largely selective in the degree to which public debate and negotiations are allowed. Today the hasty construction and lack of public participation in housing projects has resulted in much unhappiness amongst residents concerning the monotonous appearance and lack of diversity of these high-rise buildings, some of

which have even been called 'inhumane' (Kwon, 2001). On the other hand, in the face of massive influxes of population in Seoul and an enormous demand for housing, perhaps credit should also be given to the government for even being able to provide millions of residents with houses at all.

As a means of appeasing the public of Seoul as well as discouraging corruption the Seoul Metropolitan Government has initiated a concerted effort towards creating a 'culture of transparency' within local government. In 1998 the metropolitan government declared an 'All-out War on Corruption', the centrepiece of which remains e-Seoul (discussed below) as well as the 'Anti-Corruption Index', a pioneering endeavour to produce an integrity index for every organisation and each arm of government in Seoul (Holzer & Kang, 2002). As Holzer and Kang (2002: 42) explain, e-Seoul is a Web-based system which allows "citizens to monitor applications for permits or approvals where corruption is most likely to occur, and to raise questions in the event any irregularities are detected." Cleverly, these measures also help to detract focus from the often unsatisfactory levels of public participation within local governance.

Conclusion

There is no doubt that to some degree the City of Seoul has tackled issues of sustainability with a level of 'gusto', speed and innovation unimaginable in many other developing cities. Given this, it must also be remembered that I have only mentioned aspects of urban sustainability in which Seoul has achieved relative success. In other areas, such as low energy consumption in the built environment and water management, Seoul is lagging behind. In discussing sustainability I have also tried to paint a picture of the context in which these endeavours are occurring – after all, there is always more than meets the eye. There is much of value that can be learnt from the case-study of Seoul. However, should Seoul truly wish to take the lead in the international fight against climate change as well as be taken seriously by its environmental critics - issues pertaining to excessive use of concrete, 'showcase' initiatives, economic imperatives and lack of adequate public participation - will have to be addressed. My hope for Seoul is that, given an understanding of P'ungsu as well as the various dynamics within which principles of the sustainable city are being applied, that sustainability with its evolutionary undercurrent will be used to promote a more "historically attuned approach to people, landscapes and spaces of interaction" in which "ecologically conscious design can provide a culturally resonant

approach to weave the knowledge, pain and heroism of the past into the present as seamless tapestries of the new identities that are being made and remade in the sustainable, cultural and inclusive city” (Pieterse, 2006: 299).

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