T09P04 / Smart Cities in Asia

Topic : T09 / Governance, Policy networks and Multi-level Governance

Chair : Yu-Min Joo (LKYSPP, NUS)

Second Chair : Yee Kuang Heng (Graduate School of Public Policy, University of Tokyo)

GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

The objective of this panel is to bring together analytical and innovative studies on smart cities that have become a rising trend in many Asian countries and cities today. While politicians and policymakers eagerly launch smart city initiatives, exactly what these projects and their relevant policies entail remain ambiguous. What is substantially different about smart city initiatives compared to other urban development policies? What are some of the key social, economic, and even political impacts of smart city projects on urbanizing Asian societies?

Asia comprises diverse countries at different stages of development, which sets the scene for exploring why and how smart city policies are implemented across varying economic, social, and political contexts. For example, there are smart city initiatives by developed Asian countries, such as Singapore's Smart Nation initiatives and South Korea's smart city Songdo, seeking new future development paths or to reinvent their cities with the advancement of science and technology. Such effort to bring high-technology and urban management/development together under the umbrella of smart cities is not limited to the developed economies only. Today's globalization facilitates the flow of policy ideas and technology and knowledge transfer, which provides opportunities for cities to borrow ideas and to connect to each other via various networks, across national borders. Japan's active exporting of smart city development know-how to other Asian cities is a case in point. India recently announced to develop 100 smart cities (in collaboration with Singapore), with an eye to find new solutions for their difficult urban challenges. Despite the numerous projects, the study and comparative analysis (let alone critical analysis) of smart city policies are scant, which this panel seeks to address.

CALL FOR PAPERS

This panel invites papers on smart cities in Asia. We welcome conceptual papers or specific case-based empirical studies that will help us better understand smart city projects and relevant policies. Comparative studies within Asia, or Asia with the West, are also welcomed. In particular, we would appreciate paper submissions that discuss one or more of the following issues:

· What is a smart city? How precisely is it defined and do definitions vary across cities/countries? What are some of the key drivers, processes, and outcomes of smart city initiatives?

· Why is there an increasing trend of smart city projects in Asia? What is particular about these projects?

· How do a wide range of stakeholders- from governments of different levels, private sector, to civil society- interact in smart city projects? What governance issues and challenges arise?

· What kinds of policy interventions are launched as part of the smart city initiative? How are they substantively different from previous urban development policies? What are the social, economic, and political implications of smart city projects?

· What are the conditions and policies that make 'successful' smart cities? How can we define 'successful' smart cities?

We hope to publish selected articles as a special issue of a journal or an edited book.

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Session 1Smart cities in Asia I - East Asian cities and beyond

Wednesday, June 28th 16:15 to 18:15 (Block B 5 - 6)

Can Smart be Green? The Challenge of Being a Smart City in Asia

Tao Jill (Incheon National University)

Manning Michael (Incheon National University)

Jae In Noh (Incheon National University)

South Korea has an intelligence problem. In its rush to become a regional leader in urban technologies, the national government has poured investment into cutting edge technologies underlying urban infrastructure, to develop smart, ubiquitous cities that blend real-time information with a wide range of public services, from transportation networks to garbage disposal and energy provision. Nowhere is this investment more evident than in Songdo International City, sited off the western edge of Incheon Metropolitan City, and at the far reaches of the greater Seoul Metropolitan Area. At its core, it is a real estate gamble, with high rise residential clusters and state-of -the-art schools, intending to attract those who can pay from anywhere and everywhere. But South Korea's famed growth machine has come at a high environmental cost, with air quality at dangerously poor levels in many urban areas throughout the country, leading to a reverse trend in urban growth for the first time in sixty years in 2015. Songdo has been marketed as many things: a smart city; a ubiquitous city; and a green city. But can it really be all of these things, especially with not-so-green neighbors? We present a case study of Songdo focusing on its unique infrastructure and the perceptions of residents as to what constitutes "green". We present the results of an original survey conducted among residents and visitors to Songdo, and we examine some of the contradictions presented in citizen perceptions when cities attempt to "leapfrog" over the environmental challenges presented by traditional industrial approaches to growth. We summarize Songdo's attempts to use technology as a means to promote "cleaner" development, and we offer lessons from Songdo's attempts to marry smart and green. We conclude that smart can be green, but not in isolation, and herein lies the challenge for smart cities in Asia.

Transition Management for Sustainable Cities - the dynamism of local experiments and roles of informal networks in Japan

Hideaki Shiroyama (The University of Tokyo)

Transition management is a governance approach to sustainability transition. It is based on an understanding of transition as processes of multi-level and multi-phase changes in complex systems. The framework of transition management can be operationalized into different instruments such as transition arena for informal network among heterogeneous actors. In Japan, which is required to respond to rapid aging and global warming, transition management is needed to introduce sustainable industry, transport, and welfare system at city level. In this presentation, transition management lens is used for analyzing cases of Eco-Town project in Kitakyushu, Light Rail Transit system in Toyama and Welfare Mall project in Higashi-Ohmi, focusing on the role of informal networks for local experiments.

The city of Kitakyushu gained an international reputation for steel production and industrial pollution. But in the early 1990s, the city began to change its industrial structure and pursue a course of sustainability through bridging environmental conservation and business. The Kitakyushu Eco-Town Project, an initiative aimed at promoting environmental business such as PET bottle recycling was started in 1997 to effectively utilize reclaimed land. The concept for utilizing reclaimed land was discussed within the public sector, while specific contents were conceived by the private sector. The project can be viewed as a catalyst of Kitakyushu’s transition from an industrial city to a green city. The public-private collaborative informal networks and expertise of officials developed through this project have had a long-standing influence.

The city of Toyama has been dependent on automobile for local mobility. But the city began to consider

seriously about the introduction of Light Rail Transit around 2003, which was realized in 2006. One of the purpose of the project was to facilitate movement of elderly people back to the city center in walking distance from the Light Rail Transit stations. The plan was pushed by the mayor and deputy mayor who was seconded from the Ministry of Land, Infrastructure and Transport in the central government. Informal network between the city and the central ministry played key role for realizing the plan. They also coordinated with railway companies and other stakeholders. Furthermore, the collaboration between transport sector and welfare sector was facilitated through the Future City program led by central government since 2011. GIS mapping was used as common picture for locating public transport and residence/ facility for elderly to synchronize transport and welfare policies.

A new healthcare model emerged in the city of Higashi-Ohmi around 2013. The model is called Welfare Mall, combination of elder care facilities, slow food restaurant and energy production facilities including firewood workshop with solar panel, run by community business. The Mall is also a workplace for the old and the handicapped. The introduction of the Welfare Mall was enabled through inter-actions among multiple niches-innovation experiments led by informal network of city official and local NGO using Mandara (Front Runner Map) as an instrument for facilitating informal networks.

Stimulating Innovation on Smart Cities: A Comparative Analysis of Japan and the United States and Implications for Urban Sustainability in Asia

Masaru Yarime (The Hong Kong University of Science and Technology)

A smart city involves an advanced technological system for efficient electricity supply and applications, incorporating all the behavior of the actors involved, including generators, distributors, technology developers, and consumers, through an intelligent information network. A diverse mixture of hardware as well as software are involved in a complex way, a variety of approaches are possible to implementing the concept of smart cities in practice, depending on the economic, social, and environmental conditions. It is not yet examined in details, however, what kinds of factors influence the innovation of smart cities with what kinds of stakeholders involved in different geographical contexts.
In this paper, we examine the innovation system of smart cities in Japan and the United States. Major projects on smart cities are analyzed with regard to the actors involved, the technological areas emphasized, and the processes in which the actors collaborate with each other through information, such as project reports, academic articles, corporate reports, trade journals, and web sites, and interviews with experts from different stakeholder groups, including academia, firms, industry association, and government organizations. Network analysis is conducted to identify key stakeholders involved in innovation.
In Japan the key actors are mainly large conglomerates covering both electronics and infrastructure areas, whereas large electric utilities are not centrally located in the network. The membership in smart city projects remains relatively closed, producing valuable knowledge, which is not shared with other actors. The smart house and appliance sector benefits from the government's efforts on standardization and financial support to consumers for purchasing home energy management systems. The government funding agency is important in facilitating consensus building, with a significant influence on the focus and direction of innovation. While established manufacturing firms are making efforts to tap into new markets, the monopolistic structure of the electricity market and the uncertainty about future policies discouraged entrepreneurship and experimentation. Residential developers, while popularizing smart homes and appliances, only cater to the upper-income groups, who tend to possess residential photovoltaics. Although knowledge about smart cities is not necessarily shared in consumers, energy security has been considered crucial since the planned outages by the electric utilities following the Fukushima accident.
In the U.S. important actors are research institutes, heavy electric manufacturers, and smart meter makers. The smart city discourse has been growing but mostly within the electric power industry, and vendors are mainly marketing equipment to utilities. The idea of smart cities is bringing in many start-up companies, although high uncertainty about investments because of market fragmentation and fickleness of regulators are seen as obstacles. The legitimacy of smart cities is perceived to be high due to strong support from the federal government, coupled with a growing drive for renewable energy. Consumers are not necessarily favoring investments in smart cities, without visible benefits of lower transmission losses and higher reliability of power. The financial resource mobilization of the federal government has been an important innovation driver, which, however, would not create a long-term momentum, with investments by utilities remaining low.

Mirror, Mirror on the Wall, Who's the Smartest of Them All? Cybersecurity Strategies for Asian Smart Cities

Yu-Min Joo (LKYSPP, NUS)

Teck Boon Tan (S. Rajaratnam School of International Studies, Nanyang Technological University)

Governments in Asia are in a race to build smart cities to meet their relentless urbanization and growth objectives. Yet, these high-tech architectures are built without digital security in mind, rendering them dangerously vulnerable to cyberattacks. In other words, there are digital vulnerabilities endemic to smart cities that can be exploited by hackers with potentially catastrophic consequences. To date, there is little understanding of where these cyber weaknesses lie because there are few systematic research projects to identify what these digital gaps are. This paper aims to fill that knowledge gap.

Utilizing cutting-edge technology to monitor, understand, and in cases, control the urban environment, smart cities could well be Asia's answer to its pressing urban challenges such as pollution, diseases, overcrowding and crime. These high-tech architectures promise to, inter alia, spot these problems and implement changes even before they bubble to the surface. Thanks to smart cities, it might now be possible for mankind to thrive, even as the urban environment becomes more challenging to live in amid the rapid and massive growth of cities.

Yet, the proliferation of smart cities around the world has raised alarms among cybersecurity researchers because of their vulnerability to cyberattacks. A central feature of these high-tech architecture is how critical infrastructures, such as the energy grid, water supply, transportation, telecommunications and banking are inter-linked together to facilitate data transfer and sharing. However, the real danger with this inter-connectivity is that a breach in one system can trigger a chain reaction and cripple the entire smart city architecture. To reap the benefits of smart cities, policy-makers in Asia first need to know where the digital vulnerabilities endemic to their smart cities are, and more importantly, how they can be secured digitally.

Using an inter-disciplinary research methodology that leverage on in-depth data-driven analysis and multi-perspectivist concepts that bridge smart city technology and public policy, this paper examines how policy-makers in Asia might be able to secure their smart cities from increasingly sophisticated cyber-attacks. It first identifies the most significant digital vulnerabilities endemic to the high-tech architectures. Based on the finding, the paper then isolates the relevant policy interventions that can be introduced.

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Session 2Smart cities in Asia II - Southeast Asian and South Asian cities

Thursday, June 29th 08:15 to 10:15 (Block B 5 - 6)

Smart City Definitions in Indonesia: Comparing Policy Narrative in 4 Cities

Arif Budy Pratama (Universitas Tidar Magelang)

As a recent phenomenon, smart city diffusion has grown rapidly from advance countries to developing ones. Many cities in South East Asia included Indonesia have become keen on ‘smart city’ recognition and immediately jumped on the bandwagon to applied this concept. Practitioners, politicians, and public managers eagerly used smart cities as a jargon in their day-to-day administration. However, the definition and substances of smart city policy still ambiguous. As a concept emerged in 90’s and originated from developed countries, the terms of smart city may have been adjusted on its application in developing countries. In addition, there are no single agreement to define what smart city is and how it should be implemented. The vague definition of smart city and its conceptual foundation which guide into practical venues may influence the way in which city governments implement their policy as written down in their policy documents or regulations.

This piece aims to understand the definition of smart city in Indonesian smart city awardees based on Smart City Index 2015 (Surabaya City, Yogyakarta City, Magelang City, and Madiun City). The Smart City Index was chosen since it allow to measure the implementation not only from internal source of local government bodies but also from the citizen perspectives whom benefited from smart city initiatives. It also provides more ample themes what they mean by smart city in their policy narratives. To do so, I will compare these cities’ policy document using narrative policy analysis approach. Further, I will analyze themes and issues which dominantly emerge on their smart city policy documents. This study will use content analysis as research methods with the aid of N-Vivo 11 as data management tool. The result will provide clearer picture how various cities in Indonesia engaged with smart city initiative.

Keywords: smart city definition, narrative policy analysis, content analysis

SMART CITY AND CULTURAL DIPLOMACY: TRANSNATIONAL CONNECTIVITY IN INNOVATION SERVICES

Kian Cheng Lee (School of International Affairs, Faculty of Political Science and Public Administration, Chiang Mai University, Thailand)

Panom Gunawong (Faculty of Political Science and Public Administration, Chiang Mai University)

Oraorn Poocharoen (Chiang Mai University School of Public Policy)

This paper argues that the initiatives for developing smart city and cultural diplomacy can converge through innovation services of transnational connectivity in tourism.

Conceptually, this paper seeks to explore the interrelation between smart city, cultural diplomacy and innovative business services. Chiang Mai city is a designated geographical site by the Thai government for development as a smart city. It is the largest and most culturally significant city in Northern Thailand. Over the past decade, Chiang Mai city continues to develop socio-economically and has since become a tourist destination. Statistically, Chiang Mai stood at number 2 on World’s Best Awards survey, Travel and Leisure 2016 list of “Top 15 cities.” The number of tourists from PRC has also witnessed a phenomenal rise especially after the Chinese film “Lost in Thailand,” where more than 80% of the film was shot in Chiang Mai, was screened in PRC in December 2012. Incidentally, tourism has also been listed as one of the key growth engines for Thai economy while PRC has inadvertently been targeted as a mammoth market of tourists in light of their growing affluence. However, there remains a dearth of research that critically examines on digital innovation that can provide comprehensive infrastructural and rich cultural heritage information that can service Thai-Sino cultural diplomacy to attract PRC tourists to Chiang Mai.

Hence, this paper adopts an interventional action-based approach to facilitate cultural diplomacy through smart initiatives. Through a qualitative grounded-theoretical and bottom-up approach, this research actively engages dialogue between both PRC representatives for tourism as well as Thai policy makers. The preliminary findings of this research are enlightening. In terms of IT application, in spite of the phenomenal growth of smart devices used by PRC tourists, there has not been any significant development in Thai IT initiatives in commensurable scale. Hence, there is a need to develop application software to service PRC tourists by the host city, Chiang Mai. Further, the available software applications are too general, which lack focus on specific target of PRC tourists. In mitigation, there is a need to provide customized local knowledge in the areas of people, products and places, which are richly embedded in Lanna culture. These aspects are the primary source of attraction for the PRC tourists. From the cultural diplomacy perspective, this research promotes the understanding of Thai unique strengths that go beyond economic benefits.

Keywords

Smart city, Cultural diplomacy, Innovation services and Tourism

Smart City Initiative in India: A Policy Review

Souvanic Roy (Indian Institute of Engineering Science and Technology (IIEST), Shibpur, West Bengal, India)

Tathagata Chatterji (XIM University, India)

In its effort to transform the cities as engines of economic growth, Government of India launched the Smart City Mission in 2014, which combines the features of a policy document as well as a financial package. The Mission has a target to develop 100 smart cities throughout the country. With the estimated contribution of urban India as 75% to the national GDP during 2030, the smart cities are expected to be global investment destinations and offer world class living experience for the emerging neo-middle class in the country. The focus is on development of high-end infrastructure and ICT enabled governance with the objective of accomplishing competitive, investor friendly and efficient cities. ICT is perceived as the panacea for the plethora of problems confronting the Indian cities by use of sensors, smart grids and data analytics to ensure infrastructure for meeting citizens demands on real time basis. The draft concept note outlines the 3 cardinal principles of the smart cities as competitiveness, quality of life and sustainability and identifies the four pillars of a smart city as institutional infrastructure (including governance), physical infrastructure, social infrastructure and economic infrastructure. The financing of most of the infrastructure in the smart cities is expected to be mobilized by private sector or through public private partnership. The contributions from the state will be primarily in the form of Viability Gap Funding. The concept note puts forward the conditions or benchmarks to be attained by the cities, operational procedures, financial architecture and implementation framework of the programme.

We argue that India’s urbanisation trajectory is characterized by high degree of informality, where large sections of urban population remain deprived of decent shelter, basic services, livelihoods, affordable means of mobility and voice in development. The process has resulted in inequities and sharp social divisions in a contested urban landscape of affluent gated communities and impoverished slums and informal settlements. Urban growth has been traditionally looked at from the perspective of public works missing the economic and social dimensions of the cities and could not factor in the issue of local history and place-specific development characteristics. There is widespread apprehension that smart cities with its emphasis on area based development and ICT enabled infrastructure will exacerbate social polarisation and inequality in selected cities.

The article will address the following research questions:

What are the drivers of smart city initiative in India?

What are the socio-economic, political and environmental implications of the prevailing paradigm of smart city development?

What are the policy imperatives of the emerging issues to ensure inclusiveness and sustainability of the initiative?

The article will be based on extensive literature review, census data, smart city plans, city development plans and infrastructure development reports. Experience of the authors in the formulations of the some of the smart city plans will inform the analysis of prevailing paradigm and emerging contradictions of the initiative.

Understanding the governance implications of smart cities mission

Harsh Mittal (Birla Institute of Technology and Science)

Navdeep Mathur (Indian Institute of Management, Ahmedabad)

Government of India plans to achieve transformation of India's urban scene over the next three years. Under Smart Cities Mission (SCM), each city (now 109 of them) is slated to spend 1000 crores, drawing from various sources including the private sector. While concerned about social and political implications of these projects, in this paper, I plan to write a critical policy ethnography of SCM (Dubois, 2015) in order to bring out the influence, participation and interaction of various stakeholders, and thus examine the democratic nature of decision making over urban issues.

In academic literature, the concept of 'smart city' has built on two strands of literature - one, that of 'New urbanism' consisting of planning ideas targeted at improving urban design and two, that of 'intelligent city' focused on using technology to engineer urban space and hence generate innovation, implement e-governance and promote social learning (Hollands, 2008; Vanolo, 2013). The SCM in India is first instance of holding a competition among cities to garner funds for urban renewal, and is unprecedented in terms of reliance on private consultant organisations and non-state actors to draw plans and proposals. It has been regularly questioned with regards to the need for investing heavily on ICT when most cities lack basic infrastructure (Kalbag, 2015; Rajya Sabha TV, 2016; Varghese, 2016). This critique has been responded by talking about another set of progressive labels for smart city - such as Green City, Clean City, Safe City, Liveable City, and the City of Smart Citizens who participate in decision-making rather than reliance on smart technology (Naidu, 2015). Underlying these arguments, I find that there are certain governance tensions in the articulation of this mission, which are also my research concerns -

- A number of municipalities have interpreted private sector participation in SPV, which is headed by a CEO (approved by MoUD) and a chairperson (decided by the state government), as taking away their autonomy over decision-making in urban affairs.
- The patronising of private consultants and IT majors by the central government for urban planning functions has been questioned for promoting exclusive reliance on data and software for planning while doing away with knowledge and contextual interpretation.
- Lastly, many commentators are sceptical whether the mission would only create real-estate projects in small areas of cities serving the elite, or would bring about city-wide transformation responding to wider issues of urban citizenry.

Methodology

'Critical' 'Policy' ethnography (Dubois, 2015), aligned with the argumentative turn in policy analysis and planning (Fischer and Forester, 1993), departs from ethnography by shifting attention from study of people to that of policy settings, agents, practices and processes. The 'critical' stance denotes rejection of the positivist approach of policy analysis using already defined (dominant) categories. It stands here for adopting practical argument as the unit of analysis. By virtue of not being derived from specific academic disciplines, it allows the researcher to step outside the disciplinary discourse of planning (Fischer & Gottweis, 2012).

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Neo-Urban and the Margins: The Indian State and Urban Domestic Workers

Nikita Audichya (Jawaharlal Nehru University)

Post economic liberalization in 1991, a new city model began to be diffused that was rooted in the changed class relations that had gripped India. As facilitator of private capital, the Indian state has played an instrumental role in the construction of neoliberal urban spaces, thus signifying a shift from the post independent idea of inclusion to the post industrial idea of exclusion. Several cities are now planned as centres of big capital investment that presuppose an inherently antagonistic relationship between the middle class and the poor. These urban landscapes are exclusionary for those who were left behind by the globalisation process. My paper will examine urbanisation in India by focusing on its discriminatory nature. This would include review of the existing literature on “smart cities”. New urban model, smart cities are predicated on the idea of environmentally sustainable urban spaces that bring together information and communication technologies. Built on public private partnerships and corporate interests, smart cities can become enclaves of privilege as well. They constitute the core of the current government’s development policy and will be useful in answering the main research question regarding the manner in which the contemporary Indian state negotiates with the urban poor? For this purpose, I will eventually narrow the category of urban poor to examine the position of domestic workers. I will draw substantially from the qualitative fieldwork that I have conducted in Delhi for my ongoing dissertation research. The transition from the idea of inclusion to the idea of exclusion will be analysed by looking at such state led legislative interventions as The Unorganised Workers' Social Security Act , Smart Cities Mission, Aadhar scheme and the renewed Atal Mission For Rejuvenation and Urban Transformation.