P20 / Sustainable Development, Environment Governance and Urban Policy

Topic : SUSTAINABLE DEVELOPMENT, ENVIRONMENT AND POLICY

Chair : Inderjeet Singh Sodhi (Jamia Millia Islamia University)

Second Chair : Leong Ching (Institute of Water Policy, Lee Kuan Yew School of Public Policy, Singapore)

Third Chair : Manoj Dixit (Maharaja Ganga Singh University, Bikaner)

GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

3.5 billion People, half of the world's population, live in urban areas. In the coming decades, 95 percent of urban expansion will take place in the developing world. By 2050, the urban population is expected to reach 6.5 billion. Cities occupy just 3 percent of the Earth's land but account for 60 to 80 percent of energy consumption and 75 percent of carbon emissions. In 1990, there were 10 cities with 10 million inhabitants or more; by 2014, the number of "mega-cities" had reached 28, home to a total 453 million people. Sustainable development cannot be achieved without significantly transforming the way we build and manage our urban spaces.

According to Brundtland Commission in its 1987 report "Our Common Future", "Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs." Since the Brundtland Report, the concept of sustainable development has developed beyond the initial intergenerational framework to focus more on the goal of "socially inclusive and environmentally sustainable economic growth.

Probably most of the major environmental problems of the next century will result from the continuation and sharpening of existing problems that currently do not receive enough political attention. The most emerging issues are climate changes, freshwater scarcity, deforestation, and fresh water pollution and population growth. These problems are very complex and their interactions are hard to define. It is very important to examine problems through the political, cultural, social-economic and technological system. Even the interconnections between environmental problems are now better known, we still lack exact information on how the issues are linked, on what degree they interact and what are the most effective measures.

Questions in respect to environment, sustainable development and urban policy arising are:

1. How increasing urbanization is affecting environment?

2. Whether expanding urbanization is one of the reasons for climate change?

3. Whether developing countries are formulating effecting policies for urban development to check environment governance?

4. How sustainable development could help in environment governance in cities?

5. How ICT could be applied for environment governance in cities leading to sustainable development?

There is complete eradication of habitats as an outcome of urbanization and native species are pushed out of cities. Activities in cities release a wide range of emissions into the environment including carbon dioxide, carbon monoxide, ozone, sulfur oxides, nitrogen oxides, lead, and many other pollutants. Pollutants are often dispersed across cities. Burying tremendous amounts of waste in the ground at municipal and industrial dumps is posing a threat to human life and health. In respect to environment, sustainable development stands for: to promote development without causing harm to the environment, to make use of environmentally friendly practices, and to minimize the depletion of natural resources. The goal of environmental sustainability in cities is to conserve natural resources and to develop alternate sources of power while reducing pollution and harm to the environment.

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Session 1Environment, Climate Change and Urban Policy

Friday, June 28th 08:00 to 10:00 (MB S1.255)

Discussants

Saurabh Chandra (Assam Don Bosco University)

Public Environmental Concern, Trust in Government, and Urban-Rural Difference: Evidence from China

Xinsheng Liu (Institute for Science, Technology, and Public Policy, Bush School, Texas A&M University)

Liu GuiYing

HongXin Sui

Yinxi Liu (Inner Mongolia University)

Abstract: While a growing body of literature has explored various sources of political trust in China, little attention has been paid to the relationship between Chinese citizens' environmental concern and their trust in government. In this study, we argue that when citizens are worried about the environment, they may blame the government for policy failures in providing environmental protection and develop a cynical view of the government. This leads to our expectation that higher environmental concern will result in lower trust in government. Using recent data from a 2016 national public survey, we conduct empirical analyses to examine this relationship. Controlling for micro-level individual socio-economic-political characteristics and macro-level regional factors (e.g., province's economic development and population density), our regressions with various model specifications provide consistent evidence, revealing that trust in government is significantly and negatively affected by citizens' environmental concern. Moreover, our analyses also reveal some differences in the determinants of trust in government between the rural and urban residents in China. Key implications of our study and suggestions for future research are discussed in the conclusion.

Key Words: environmental concern, trust in government, China, urban and rural residents, survey analysis

Environmental policy in the urban and metropolitan context – proposal of an analytical framework

Klaus Frey (Universidade Federal do ABC)

Starting from Lowi's (1972) assumption that "policies determine politics", or at least from the idea that there are particularities of the political process in accordance with the different policy fields (Heinelt, 2007), this paper will focus initially on the distinctive features of environmental policies. Considering the complexity of the "environmental policy system" (Campbell & Corley, 2012) of cities and the huge variance of the different subfields of urban environmental policies, we propose in this paper an analytical framework based, firstly, on some policy characteristics as defined, basically, by Peters (2015) and Heinelt (2007). What becomes particularly obvious in the field of urban environmental policy, where the local and the global are strongly intertwined, is the prevalence of strong intergovernmental interdependencies, demanding the adoption of a holistic and integrative view of the urban system and corresponding systemic solutions (Campbell & Corley, 2012). For their characteristics as "wicked problems" (Peters, 2015), environmental issues tend to demand

also trans-boundary, trans-scale and intergovernmental governance approaches in order to lead adequately with this complexity.

In our proposed framework we bring together these policy characteristics with the principles and challenges put on the global agenda by the Sustainable Development Goals (SDG) and the respective critical literature in order to arrive at a preliminary critical evaluation of some experiences and dilemmas of environmental policy in Brazilian cities and metropolitan regions, trying to evidence its potential contribution for an action-oriented policy analysis. In the final part, the paper argues in favor of an argumentatively and deliberatively conceived form of policy analysis as essential to come to a more consistent democratic decision-making process, necessary for dealing adequately with the complex issues at stake in the context of urban and metropolitan sustainable governance.

References

CAMPBELL, H. E.; CORLEY, E.A. (2015). Urban environmental policy analysis. New York: Routledge.

HEINELT, H. (2007). Do policies determine politics? In: Fischer, F.; Miller G.J.; Sidney, M.S. (eds.) Handbook of Public Policy Analysis. Theory, Politics, and Methods. CRC Press: Boca Ratan, 109-119.

LOWI, T. J. (1972). Four Systems of Policy, Politics, and Choice. Public Administration Review, XXXII(4), 298-310.

PETERS, B.G. (2015). Advanced Introduction to Public Policy. Edward Elgar: Cheltenham, UK; Northampton, MA, USA.

Climate change and coordination of public policies: challenges for local governments in Brazil

Carlos Eduardo Frickmann Young (Universidade Federal do Rio de Janeiro)

Biancca Castro (Universidade Federal Rural do Rio de Janeiro)

There is a growing gap between scientific knowledge about the consequences of climate change and concrete adaptation measures adopted by governments to address the problem. This trend is global, and also perceived in Brazil. According to the Brazilian Panel on Climate Change (PBMC, 2014), climate change is already occurring. This can be verified through the increasing number of extreme events recorded by the Brazilian Natural Disasters Atlas (CEPED, 2013).

On the other hand, public administrations in Brazil are not prepared to deal with the increasing volume of problems expected as a result of climate change. These problems involve various dimensions of governance: civil defense, health, transport, construction and urban planning, etc. In addition, environmental problems mostly result in costs that will be fully expressed in the future, generating a bias for current governments to postpone adaptation measures.

Most of the increased pressure will occur in sub-national governments, especially in municipalities, because environmental issues are closely linked to local conditions (BIDERMAN, 2012). Floods, landslides, tornadoes and windstorms, droughts, epidemic diseases, and other difficulties arising from climate change generate social demands that are primarily charged in the municipalities. Public policies are necessary to deal with the complex set of problems expected from climate change, and it is also necessary to establish coordination between policies. In order to contribute to this debate, this article aims to discuss the need for coordination of public policies to deal with problems associated to climate change in the context of Brazilian local (municipal) governments.

Resilience to climate disasters is small, and the costs associated with disasters tend to increase over time. In addition, there is an aspect of inequality inherent in the process: vulnerability is inversely proportional to the degree of economic development of the states. Specific public policies are necessary, to be established, in a coordinated way. Environmental resilience policies, such as reordering cities to adapt to climate change, create opportunities for a new pattern of development with social inclusion.

Unfortunately, the reality of Brazilian cities is far from this. Public policies aimed at generating resilience face considerable resistance in their implementation, given that they are generally seen as impediments to economic growth. In this way, realpolitik tries to use the common shortcomings of coordination as an excuse to ignore the growing popular demand for improved management of natural resources. Without planning and long-term vision, even the minimum demands for action, are not met and opportunities are wasted, while tragedies continue to occur repetitively.

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Session 2Urbanization, Sanitation and Urban Energy

Friday, June 28th 10:30 to 12:30 (MB S1.255)

Discussants

Saurabh Chandra (Assam Don Bosco University)

Urbanization and Sanitation: A case study of Solid Waste Management in Ludhiana, India

Hardeep Singh (Panjab University)

Urbanization is a multi-dimensional process which is sociological and geographical in nature. For attaining the balanced regional development, pattern of urbanization needs to be structurally regulated and coordinated. The process of urbanization has been closely linked with the process and pattern of economic development in the country. Cities being the commercial hub allure underprivileged people to migrate into urban settlements causing high density of population which ultimately results in concentration of poor population residing in unhygienic environment. Rapidly increasing urbanization raising severe environmental issues including climate change, global warming, carbon emissions in environment, water pollution, excessive solid waste generation and ineffective sanitation which leads to environment degradation.

It is in this backdrop that present study has been conceived. The specific objective of the study is to analyze the level of sanitation with respect to solid waste management in Ludhiana, India and suggest policy measures for improving the level of sanitation. Ludhiana is the largest municipal corporation in Punjab as well as in northern India having population density of 975 persons per square kilometers.

Research Methodology

The present study is based on both primary and secondary data. For drawing the comparisons between urban and slum areas, 10 wards were selected for primary data collection, out of which 7 wards are from urban area and 3 wards from slums. The perceptions of 500 citizens regarding sanitation level were solicited through structured questionnaire. The opinion of municipal councilors and officials of Municipal Corporation, mayor were also sought through interview. Secondary data has been collected from relevant research books and journals, surveys and government reports of State finance commission, Department of Urban Local Body, Budget, etc.

Major Findings

Municipal Corporation Ludhiana has contracted out service of solid waste management to A2Z waste management limited company in 2011 for 25 years. It installed solid waste treatment plant and started working in year 2012 for 18-20 hours by treating approximately 800 tonnes of solid waste per day. Solid waste management has been taking place by systematic pattern including regular door to door collection, transfer to dumping site, proper processing, scientific disposal of solid waste and finally power generation from waste. The field survey revealed that majority (66.9%) of the citizens from urban wards expressed that there is regular daily collection of solid waste whereas only (20.7%) citizens from slum wards stated that solid waste has been collected on daily basis. Further, the study revealed that majority (82.3%) of the citizens from urban wards and (50%) citizens from slum wards are satisfied with collection of solid waste. By adopting this model of solid waste management, the intensity of harmful gases like methane and carbon monoxide in the air has been reduced and helping to create a greener and cleaner environment for all. Along with this the study also highlighted that the solid waste management process is not able to cope up

with rising population thereby compromising the sanitation process in slum areas more prominently. The seasonal variation also affects the capacity of the solid waste treatment plant. For example during rainfall the waste becomes wet making solid waste treatment plant incapable of treating solid waste. Unscientific disposal of solid waste, burying in land and dumping of solid waste at dumping sites, uncontrolled dumping of solid waste at some vacant places in urban vicinity leads to water pollution, air pollution and health issues.

For strengthening the sanitation level, the study suggests that the skewed solid waste collection between urban and slum wards must be done away. Authorities should regularly undertake garbage collection in slum areas so as to improve the sanitation level in these areas as these areas are susceptible to diseases and poverty burden. The capacity of solid waste treatment plant should be enhanced keeping in view the growing population and garbage disposal rate. Authorities should strengthen upon house hold segregation of waste. Lastly, the capacity of the treatment plant should be enhanced from generating power to compost making so that solid waste treatment plant may remain functional in rainy season.

TOWARDS A POLICY FOR RAINWATER HARVESTING IN THE CITIES OF AFRICA

Emmanuella Onyenechere (Imo State University)

Efforts to solve drinking water crisis in African cities are not yielding the desired results. The paper examines sky water harvesting as a new paradigm of self-provisioning of water. This is based on the water supply revolution which entails making water supply not just the duty of government but that of the people. There is a growing number of rain cities in Africa whose citizens understand the importance of rainwater for domestic use, and make effort to collect rainwater on site. The paper explains that in many cities where public water supply infrastructure is dysfunctional, the city dwellers turn to rainwater harvesting just like their rural counterparts. All stakeholders need to understand the benefits of rainwater harvesting and urge government to make regulations for its collection and use. After reviewing the advantages of rainwater harvesting (RWH) as a tool for climate change adaptation and poverty alleviation, the paper explains that the poor can obtain drinking water through sky water harvesting, as it is a decentralized system that can also complements centralized systems in cities where they exist. Using Owerri city in Nigeria as a case study, the paper illustrates that RWH reduces the money expended on other forms of self-provisioning such as the buying of water from vendors and commercial borehole operators. But the potential for RWH has largely been neglected in the modern era, partly due to policy and institutional barriers among others. The paper concludes that the concern for the sustainability of urban water supply would definitely require an urban policy framework that will incorporate RWH from the planning stages of public and private buildings in cities. It would also require long-sighted water management policies that rely less on the exploitation of surface water and groundwater.

Waste Management and Sustainability in New York City

Congmian Jiao (Kyoto Sangyo University)

New York city has the biggest solid waste disposal among the cities around the world. Certainly solid waste management is a challenge for large urban areas. Waste management is usually a function of local government and is often a city's largest budget item. I will discuss the waste management and sustainability in New York City in this paper.

Problem Definition
There are two waste systems. New York City generates 14 million tons of trash each year. The amount is so large that the city manages it through two separate systems, one public and one private. The public system handles waste from residences and government buildings as well as some non-profits. This "public waste," which accounts for about a quarter of the city's total, is collected by New York's Department of Sanitation (DSNY), the largest waste management agency in the world with a yearly budget of $1.5bn, greater than the annual budget of some countries.

The other three-quarters of New York's garbage is generated by commercial businesses, most of it rubble and debris from construction projects. Collection of this "private waste" does not come out of the city's budget. Instead, business must pay one of the City's 248 licensed waste haulers to take it away. In 2012, New York's public and private waste management systems spent a combined $2.3bn on garbage collection and disposal.

There is no any landfill and incinerator in New York city now. All the garbage will be loaded on to a barge or train and carried as far as 600 miles to its final stop. For most of New York's mixed solid waste, this last stop will be a landfill. The remaining 20% will end up at a waste-to-energy plant, where it will be incinerated and converted into energy. And recyclable waste will be sold to local raw material processors or be exported

overseas, most often 6,000 or 7,000 miles to China or India.

How can New York city be sustainable with this waste problem? In April 2015, Mayor Bill de Blasio announced the One NYC, a plan for a strong and just city that includes strategies for growth, sustainability, resiliency and equity. Under this plan, the city's goal is zero waste by 2030, such that no waste is sent to landfills.

Framework of analysis
Waste Management is a complicated process that involves multiple environmental and socio-economic criteria and it Requires multiple stakeholders such as government, municipalities, businesses, experts, and/or general public to get involved. I will use the model of Multi-criteria Decision Analysis (MCDA) in this paper.

Conclusion
My conclusion is a policy mix recommendation. The first one is environmental education, encourage 3R (reduce, reuse and recycle), change from a "throwaway" society to a sustainable society. The second one is supplying economic incentives, charge residents for their waste with cheaper or free collection for recyclables and organics. The last one is more environmental Regulations.

My paper is about that How sustainable development could help in environment governance in cities, so it fits with the panel's research question.

Does Accountability Matter for Sustainability? Urban Energy Transitions in Southeast Asia

Elena Reshetova (Energy Studies Institute, National University of Singapore)

This paper will explore the role of accountability in achieving sustainable urban energy transitions. Accountability is conceptualized as a type of transaction costs associated with the governance structure of energy transition. Governance structure represents a distribution of property rights providing appropriate incentives to govern relationships, and transaction costs are the costs of establishing and maintaining these property rights.

The project will employ a case study methodology to examine three cities in Southeast Asia – Bangkok, Jakarta, and Manila. These three cities are home to 73 million people, or 11 percent of Southeast Asia's population.[1] They are also vulnerable to climate change with the average number of days at or above 32°C increasing drastically between today and end of the century.[2] Hence, governance of just a few urban energy systems has implications for a significant share of the population.

In 1960 – 2016, the share of world's urban population grew significantly. In OECD countries it doubled to 1 billion; in non-OECD countries it multiplied six times, from 520 million to 3 billion people. At the same time, global share of atmospheric CO2 emissions produced by urban areas is alarmingly high, at over 70%.[3] A large share of these emissions is associated with the energy sector, including electricity produced for household and industrial consumption, and transportation fuels. While CO2 emissions in OECD countries peaked in 2007 and continued to decline, in non-OECD countries both the share of urban population and emissions are growing exponentially. Thus, "cities are emerging as global emissions performers, distributed energy managers and even credit trading entities."[4]

On the one hand, as environmental and climate change awareness is gaining traction around the world, cities are increasingly preoccupied with the sustainability of urban energy supply. On the one hand, they have to ensure accountability in the ongoing energy transition in order to provide affordable and equitable reliable energy supply. Accountability and sustainability objectives can contradict or undermine one another, policy instruments relevant to both can have questionable outcomes and implications. Finally, even the least contradictory measures with the easily observable positive outcomes face challenges when it comes to implementation in specific institutional contexts.

Accountability exists to solve the dilemma of appropriate vs. excessive control leading to inefficiencies, or other transaction costs, in policy implementation. Such inefficiencies include principal-agent failures, information asymmetries, regulatory capture, non-compliance, opportunism, and interpretation ambiguity among others. Accountability mechanisms vary depending on the level of trust and competition in the governance of energy transitions, but have a number of essential components: standard-setting, monitoring, evaluation, and enforcement. Even though transaction costs associated with the energy transition are always positive[5], sustainability is achieved only when benefits exceed the costs.

Thus, this project will explore accountability mechanisms in the governance of urban energy transitions in

Bangkok, Jakarta, and Manila in order to determine their role in achieving sustainable outcomes, and discover ways to further minimize the costs of accountability while maximizing its benefits.

[1] For the purposes of this research project, the boundaries of Southeast Asia are defined by the Association of Southeast Asian Nations (ASEAN). The numbers are based on the data from the ASEAN secretariat (ASEAN Statistical Yearbook 2016/2017, https://www.aseanstats.org/wp-content/uploads/2018/01/ASYB_2017-rev.pdf, p.3) and Demographia World Urban Areas, 14th Ed., http://www.demographia.com/db-worldua.pdf.
[2] from 276 to 344 for Bangkok, 235 to 349 for Jakarta, and 163 to 314 for Manila by the end of the century. Source: The New York Times, How Much Hotter is Your Hometown Than When You Were Born? August 30, 2018, https://www.nytimes.com/interactive/2018/08/30/climate/how-much-hotter-is-your-hometown.html?smid=fb-nytscie
[3] Florian M. Schwandner et al. (2017), “Spaceborne detection of localized carbon dioxide sources,” Science 358, 192.
[4] Peter Droege (2002), “Renewable Energy and the City: Urban Life in an Age of Fossil Fuel Depletion and Climate Change,” (Proceedings of IGES/APN Mega-City Project, 23-25 January) Institute for Global Environmental Strategies.
[5] In the case of energy transitions (governance), economic property rights are neither perfect, nor complete.