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SUSTAINABLE URBAN AND INFRASTRUCTURE DEVELOPMENT IN CHINA: WHY INTERGOVERNMENTAL RELATIONS ARE THE KEY

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Abstract: In the context of rapid industrialisation, growth, urbanisation, and ecological pressures, what efforts have been made to shift towards a cleaner path of urban development in China, and how can we understand the underlying institutions and policy processes? In response to such questions, this paper, reproduced from an inaugural professorial lecture at TU Delft, examines a series of major Chinese policy initiatives, including metro networks, high-speed rail, eco-industrial parks and eco-cities. Finding that outcomes of these have been mixed, it then looks at the unique institutional backdrop that has given rise to them, such as the challenges of horizontal coordination between government departments on projects that cut across sectors. Finally it points to new directions in research that have the potential to provide a more nuanced understanding of public policy and the implementation of eco-initiatives.

Keywords: urban development, eco-city development, policy implementation, China.

1. From economic to ecological miracle

One of the things China has become known for is its incredible economic growth levels in the past three decades. And although it is tapering off a bit now, 7% GDP growth per year is something most countries in the world can only dream about. It has pulled large sections of the Chinese population out of poverty and given optimism and pride in the country a major boost.

But nearly all success comes at a price. The downside of China’s economic success is that industrial production, increase in individual mobility and growing coal-fired energy use have led
to major problems of environmental contamination. It is now dangerous to use water from most rivers, measuring air pollution levels in urban areas with advanced apps is almost daily practice and there is widespread concern about the decreasing health and fertility of the land. Policy-makers realize that the time for action is now. After an economic miracle, China now also needs an ecological miracle.

Luckily there is a recipe that seems to catch two birds with one stone. Its name is urbanization. The Chinese government is actively promoting the growth of urban areas by massively investing in the extension of cities into what was previously suburban and rural land around them. Inhabitant numbers rise, urban districts which previously were lowly developed receive a massive facelift, while rural township and villages are transformed into new urban district with skyscrapers. Not only does urban life create more innovation, economies of scale and faster and better production, if these urban areas are developed in sustainable ways, they can also make their contribution to ecological progress.

In China, the most populous country in the world, this urbanization is taking place everywhere at such a fast pace that it can easily be called unprecedented in world history. That makes it a good testbed for sustainable innovation too. It is open to new experiments in technology application, urbanism, policy arrangements and many more. Demonstration cities of various kinds abound and Chinese authorities are waiting for opportunities to mainstream developments as soon as they appear fruitful.

The consequences of this development are not only crucial for China’s own future, but also to the rest of the world. An increase in China’s growth is a phenomenal boost for the world economy, a decrease in CO2 output levels in China has a large impact on climate change as well. The key question of course is whether China is ready for a second miracle, an ecological miracle.
2. Overview

In the rest of my talk, I will be making a first attempt to answer this question by highlighting a selection of four policy initiatives undertaken by the Chinese government and broadly examine how they have played out so far. These are metro network development in cities, high speed rail development, the establishment and evolution of eco-industrial parks and the development of eco cities. Reviewing these initiatives will lead to a number of surprises which I will explain with the help of Chinese-style institutional patterns that lead policy making in the country to evolve in different ways than most non-Chinese are used to. We will mention intergovernmental relations, the roles of the Communist and the government in policy-making, land ownership structures and planning practices. These will all throw a special light on the viability of policy initiatives in China. After that, I will examine how the field of urban studies, which has played a key-role in mapping the recent developments in China’s urbanization, has tended to explain our phenomenon under study. And then what additional contribution the field that I hail from: public policy can make to understanding and failure of sustainable urban and infrastructure development in China. This will help me in sketching my research agenda.

Finally, I will mention that research partners I have been and am working with on this topic and speak words of gratitude to those who helps to arrive where I am now.
3. Policy initiatives

3.1. Metro networks

Let us address the first the policy initiative now, metro network extension. Realizing how detrimental unfettered growth of car traffic would be to the livability of their cities, municipal governments have undertaken massive investments in the initiation and extension of subway networks. Especially the richer cities in the East with sufficient financial resources to fund many lines at the same time have seen massive extensions of their networks. Some of them, including Beijing, Shanghai, Guangzhou and Shenzhen had various lines opened in the past few years, and the further expansion goes on and on. Other metropolises such as Harbin, Dalian, Chongqing and Chengdu are relative latecomers, but they too have opened one or two lines with more to come. In short, the building activity is impressive and in 10 years, things will look dramatically different.

However, when looking deeper into the decision-making and management underlying this construction, one notices several surprises. The first one is that with some of these projects have been undertaken as Public Private Partnerships, with the municipal government acting as client and developers, constructors and banks as contractors. Although many have the image of State Owned Enterprises in China as being wasteful and outdated, interestingly, our evaluation shows that they did quite well compared to their private rival, because they had easier access to policy-makers, were able to better loans from public banks and had a stronger long-term orientation. They simply completed more projects successfully and turned out to be more reliable. A second surprise comes with the priority-setting among various public values. Many accidents occur in the construction process often leading to fatal consequences. It appeared that the pressure to save time and costs prevailed so strongly over the respect for safety regulations that dangerous situations occurred almost on a routine basis. How is possible that safety and environmental regulations are put aside to such an extent? Finally, we found that during the decision-making process, policy analysts provided advice on which options were viable and profitable and which were not. When these did not coincide with the will of
politicians, the analysts were simply told to do their work better. So far nothing unusual. The surprise came when we found that in certain cases the alternative favored by political leaders turned out to be very successful still, in contradiction with what analysts had predicted. Why? The municipal government ensured that subsequent urban investment decisions were all made in line with that alternative. The power of political leader in municipal governments is such that they can generate self-fulfilling prophecies and prove the analytical experts wrong. How strange!

3.2. High Speed Rail

A second initiative to improve the standards for environmentally sustainable transport is the massive boost given to High Speed Rail. The idea may exist that Japan, France and Germany were the frontrunners in HSR development, but the Chinese network is now the largest in the world by far. The effort put into getting this off the ground, the speed at which it was delivered and the quality and punctuality not offered in railway services are simply astounding.

But there is something weird about the massive station halls that have been delivered. Not only do they seem dramatically oversized, they are also often located 10 kilometers or more out of the city center. Why there, if passengers need those services close to their homes? The key lies in the fact that transport infrastructure development is often based on land development, and land prices are far lower out of town. Moreover, letting infrastructure development coincide with real estate development is often done in purpose to let costly projects be financially compensated for by profitable ones to balance the sheets.

Another aspect that attracts the attention of uninitiated observers is that nearly all those high speed railway lines are concentrated in the Eastern part of the country. Why is the central part of China only minimally covered by railway track and the Western part not at all? In this way, urban and infrastructure development only accentuate regional gaps in wealth generation. Later on, we will find a number of reasons why this can be the case.
And finally, the rates of HSR in China, although perhaps higher than some can afford, are comparatively still quite low. How can the Chinese Railways, which are actually in debt beyond imagination, sustain this situation? Is there no need for them to balance the sheets? A truly remarkable state of things.

3.3. Eco-Industrial Parks

Also promising is the emergence of Eco-Industrial Parks all around the country, again promoted by the central government. While industrial parks as such are simply concentrations of industrial and manufacturing production facilities clustered together in one zone, eco-industrial parks intend to close the loop for the use of materials, water and energy. If one corporation can use the waste output of another one as input of its own production process, there can be major environmental gains. These EIPs can be found all over the country, but the ones in Suzhou, Dalian, Guangzhou and Tianjin rank among the best known ones. The territory and admission process for companies into the EIPs is not controlled by local government, but specific authorities have been established to decide on their development, implementation and various measures to turn them into a success. Unfortunately, in some cases these authorities however strong their position in theory, lack selectiveness in their admission of industrial corporations and these may also be located at less than optimal locations. Although there is enough legislation in place to make a difference, much of this suffers from deficient enforcement. Apparently the pressure to generate economic growth prevails over ecological considerations. In that sense, the reputation of Suzhou Industrial Park, visible here on a photo, is still quite good. The reputation of Tianjin likewise was also good, but there an enormous chemical explosion hit the news a number of months ago. Dangerous materials were stored in huge quantities and irresponsible ways, again not respecting any regulations. A closer look reveals that the location for this accident was just beside, nut not inside the Tianjin EIP. Yet large sections of the EIP have been destroyed and an undeserved negative image remains. The consequence of fragmented land use by different authorities and developers and lack of proper enforcement. The power of quick money is too strong.
3.4. Eco-cities and co.

Possibly the most comprehensive attempt at sustainable urbanization are the various programs aimed at developing sustainable cities promoted by the national government. Different ministries have initiated different programs in which they offer valued official endorsement and financial support for selected demonstration cities in exchange for the application of guidelines or sophisticated indicator systems. The Ministry of Environmental Protection is responsible for eco cities, the National Development and Reform Committee for low carbon cities and the Ministry of Housing and Urban Development for low carbon eco cities. These three are only a small selection of the total, but they already amount to hundreds of selected demonstration cities.

While municipalities are normally expected to embrace the ideals, set up specific projects for new towns they develop and apply the methodologies, in many cases they appear not really to do this, but use the eco city label as part of their city branding strategy to attract investors and highly educated workforce. And even those that hit the international press as being relatively successful such as Tianjin and Shenzhen appear to be so more in social and economic terms and for the level of international involvement and knowledge transfer than for their environmental performance. Many, admitted demanding, Western observers find their ecological standards only moderately ambitious and the presence of fancy gadgets and beautiful green buildings dominating over systems integration that could really lead to quantum leap in ecological achievement. Moreover, one would expect excellent public transport such as subways as presented above, but unfortunately these lines rarely hit the green new towns. In Shenzhen this is scheduled, but in Tianjin the costs were too high. Many other eco city projects showed far more limited progress, have become middle of the road neighborhoods or have gone bankrupt. The record so far is disappointing.

4. Institutional patterns

How can we explain that some initiatives have been so impressively successful, while others tend dramatically to overstate their environmental achievements? And why in general, do policy processes and their outcomes keep surprising us? What underlying institutional patterns in China can we find that help us explain this divergence?
4.1. Intergovernmental relations

The Chinese political and administrative system is often portrayed as highly hierarchical, with orders being sent down from the central through the provincial to the city governments and diligently implemented there. The People’s Republic is certainly a unitary state and lower tiers of government are obliged to implement any law, circular or notice imposed on them from above. There are no constituencies below the national level that have constitutions of their own setting particular competencies apart as being for them and free from being breached. In that sense, China’s intergovernmental relations can be called hierarchical in a formal sense. But there is more. At each governmental level, different departments or ministries operate separate from each other. We saw that at least three ministries are involved in eco city development and their programs are in many ways rivals to each other. And this happens similarly at the provincial, city and district levels. At each level, the same structure is replicated. Horizontal coordination is minimal, and for a regular civil servant to pick up the phone and call a colleague from a different ministry is inconceivable. This makes the implementation of sectoral plans potentially much faster than in for instance the Netherlands, but the realization of programs that require coordination among different policy fields highly problematical unless there is agreement at the very highest levels and top officials all send the same ideas down their own columns.

Furthermore, since 1994 the so-called tax sharing system applies in the financial relations between central and local government. This has a consequence that municipal governments depend for a large share of their revenues on leasing out the land they own, which they have massively decided to do. In other words, developing more and more projects is simply a source of income they need to provide urban services to their population. And although they are not authorized to get deeply indebted themselves in borrowing money for infrastructure construction, they set up independent development corporation that can borrow large amounts of attractive money from public banks. In short, there is a very high premium on maximizing land development, but land is obviously not limitless.
4.2. Dual governance structure

People may wonder what exactly is still communist about the People’s Republic of China since the opening up and reform policies began in 1978. In fact, in administrative terms this is relatively easy to pinpoint. Perhaps it is best to understand this as two mutually connected pillars. There is the official pillar of government organizations where the State Council stands at the apex. And there is a pillar behind that with smaller organizations that represent the party-line. Usually, the party organizations, of which the Politburo and the Standing Committee are best known, provide political guidance and check if the party-line is followed properly in policy-making. The governmental organizations, on the other hand, are responsible for formulating and implementing policies in general. The involvement of the party in policy-making is normally less impactful if policy areas are considered less ideologically sensitive. Not only ministries and departments at various government levels have this arrangement, universities and state enterprises have it too, although there CCP presence may be restricted to having just a party secretary in place.

One might think that the party and the government pillar consist of different people, but actually the overlap is very substantial. Most top officials are party member anyway, and top leaders such as Xi Jinping and Li Keqiang hold several positions at the same time, in both pillars. The same holds at other tiers of governments for the officials operating there. Such double functions are vital for them to push their policies through and give them political clout. It may lead them to be seriously overworked, but it is the only way for them to make a difference.

One crucial way in which the party exerts its influence on officials at all government levels is through deciding on career steps. Municipal officials do not seek to please the electorate by giving them what they think they want but by reporting up positively about the GDP growth and other achievements. In other words, assessment and promotion of officials occurs in a top-down fashion at variance with how non-Communist countries work.
4.3. Land ownership and control

Another key element in helping us analyze the viability of urban sustainability initiatives is ownership of land and the assets located on it. As one can imagine, individual property rights over all land and non-land assets vanished in the period 1949-1978 and bringing them back in systematic ways has proven to be complicated business after 1978. Regarding housing and apartments, for instance, the ownership rights of which have been privatized again, it has often been unclear whether new residents or old owners were entitled to ownership of given houses. Land, on the other hand, is not officially in private hands. Urban land is state-owned and can only be leased out to developers for restricted periods of time, although 70 years has become a normal term. Rural land, however, is not state-owned, but collectively owned by the community living on it, and not be sold or leased at the market. That is, the authority or person controlling the land on behalf of the collectivity has the power to decide what happens with it. This legal status has a number of dramatic consequences when it comes to the conversion of rural to urban land, which has been an integral part of the urbanization process in China. If those township or village chiefs fight hard for the interests of their people in their negotiations with the municipal and district governments, they may be able to squeeze out a good compensation deal for them, but if they sell their soul to the power of money and sacrifice their interests in exchange for personal benefits, the people in the collectivity to be displaced might face a difficult future. Some rural home owners may earn fine compensation money after their expropriation, but many face a serious downfall in their living standards.

Connected with this is their legal entitlement to urban services in the city where they will be living. Official urban residents have access to all relevant public services in the city, such as schools and hospitals, but those whose household books state they are ‘rural’ normally have not. When losing their land which has always been their source of income, they are often offered the entitlements belonging to official urban residency. Will that be enough compensation?
Lastly, urban expansion although still well underway, has become legally constrained by policies issued by another Ministry: that of Land Use and Resources. It aims to protect the amount of agricultural land across the country to secure the future provision of food produce. Any urban inroads into China’s granaries should be compensated with the same amount of urban land given back to those granaries. Truly, a complicated playing field and hard but essential for the non-initiated to understand in order to make sense of urban and infrastructure development in China.

4.4. Planning practices

For the fleshing out of its planning system, China learned a lot from Western countries. It has established a system of plans with more generic instructions for regions and cities at the national and provincial levels, accompanied by large-scale masterplans en detailed implementation plans at the city level. Since these plans are relatively technocratic and detailed without giving much future direction to urban development, more encompassing strategic and visionary documents with long-term spatio-economic development in view have grown increasingly popular. Although the official legal status of these documents is almost nil, they are the most attractive to top-level officials and their influence on the official masterplans is pervasive.

Empirical studies have shown that in Chinese cities, like elsewhere, actual implementation of masterplans and their more detailed versions proves to be problematical. Or, framed differently, physical results often turn out to diverge dramatically from what plans state. This is partly due to the lack of flexibility of adopted plans and changing socio-economic circumstances, but also because land is leased to developers that have other goals than the municipal government has. And since their position is strong enough to avoid intervention or punishment by municipal officials, monitoring and enforcement of official regulations tend to be neglected. Environmental considerations are often the victim of this state of things, since they normally are a financial cost, not a quick benefit.
5. Making sense of urbanisation in China

5.1. Explanations in urban studies

The academic disciplines that have done most work in making sense of urbanization in China are urban geography, sociology, politics and to some extent, urban economics and urban engineering. One could summarize their efforts as belonging to the field of urban studies. When reading their publications and converting them into a dominant story-line the following argument appears.

Since quality of life is distinctly better in cities than in the country side, a migration flood has emerged of people with a rural background but living in the metropolitan areas without holding urban citizenship. To this stream is added a growing group of urban professionals whose salaries have gone up and wishing to relocate within the city to better and larger housing. Also the outwardly expanding municipalities establish new industrial and science parks to accommodate growing industry and employment. This happens through redevelopment within the city core, but also by establishing new towns at the urban fringes. Local government can increase their revenue by developing massive building projects and they do so at almost inconceivable speed and scale. In this process, they expropriate land at low prices, empty it and make it ready for new building activity. Then the lease it out to developers at much higher rates thus earning a very handsome income. But since demand for new construction is high, developers can also still make good money. Thus when these new areas are ready, inhabitants and industries settle in help most of the urbanites further in their race of the peoples towards ever growing wealth. Consequently, local governments, developers and the better-off urban classes clearly win along the way. On the other side stand the losers: ex-residents who have been evacuated to places where they do not want to be and migrants who were already not so well of financially and in terms of legal entitlements to urban services and who now have to shift to less appropriate apartments even further away from their work. The gap between rich and poor widens ever further and urban sprawl proceeds unfettered thus endangering both social and environmental sustainability.

The contribution urban studies has made to understanding urban and infrastructure development is extremely invaluable. It has a strong empirical focus and dug up many relevant insights which can help us explain underlying mechanisms and processes. In their theoretical explanations, they have tended to be left-leaning. They emphasize the impact of globalization as an imperative for urban redevelopment, they describe the influence of the market forces is being part of ‘wider neoliberalism’ and they designate the parties pushing through urban redevelopment as the ‘urban growth coalitions’. Negatively phrased, this is alliance of local government, developers, public banks and investors and sometimes supported by the national government forcing deep socio-spatial change onto the rest of society and generating a process of profound capital accumulation in their favor. The GINI-coefficient, which is a measure of
economic inequality, for China seems to prove them right. And yet, this reasoning is not without its flaws.

Many do not problematize the heterogeneity within government. They see the state essentially as an instrument of the wealthier classes to improve their lot at the expense of the rural and urban underclasses. In that sense, implicit dialectical neo-Marxist undertones can still be found in their reasoning structures. Their description also presents these developments as largely inevitable, which makes their analysis deterministic. One often searches in vain for clues to improve things, however much this seems needed. Urban studies is rich in empirics, but lacks prescriptive potential. Given that there is a desire to change things for the better, where can we begin?

5.2. You-tien Hsing as a stepping stone

Some authors in urban studies pay more attention to the actions of policy actors than others, and thus to agency rather than structure. One such example is You-tien Hsing in her highly readable ‘The Great Urban Transformation; Politics of land and Property in China’. She collected evidence and stories on urban transformation through extensive site visits, interviews and participatory observation at various urbanized and urbanizing locations across the country. Her descriptions are radical and straightforward, but non-judgmental. She applied common lines of reasoning in urban studies, but applies them with great eye for empirical nuance. She observes the existence of one overall national model of urban transformation, but finds that it is differently applies in different regions of the country. For instance, Guangzhou and Shenzhen, cities in the Pearl River Delta evict ex-owners and residents in less tough ways than Beijing and Shanghai, partly due to a stronger bottom-up styles of policy-making. She also finds that interests of home owners and residents may not coincide during expropriation processes, and notices that that state as an owner of urban land is not an unambiguous term. Municipal government may sometimes dream it is the owner and therefore in control of its own land. In reality, there are ‘state land master’, local subsidiaries of national ministries and enterprises that
control parts of its land and enjoy support from Beijing in using the land around it as they please thus potentially thwarting municipal plans. The latter is in fact an intriguing insight for public policy.

In sum, although Hsing is not completely free from dialectical leaning which characterize most of the urban studies authors, her work can be seen as a very useful stepping stone between urban studies and my own field: public policy.

5.3. Public policy’s potential contribution

Public policy has not really distinguished itself much in adding powerful insights on urban and infrastructure decision-making in China, but it does have much potential to contribute to deepening insight in this field and formulating constructive proposals for making urban and infrastructure development more sustainable. Its main strength, I believe, is in providing fine-grained analysis on four main points:

1) It tells us how to identify policy actors, analyze in which networks they are operating when formulating and implementing policies and how formal as well as informal institutional rules impact on their attitude and behavior.

2) It offers tools to identify goals each of the identified policy actors has come to embrace, which types of resources (legal, financial, physical, organizational, informational) are controlled by which actors and how exchanges among actors can lead to packages of policy instruments allowing for policy change.

3) It is sophisticated on how actors develop perceptions of policy problems and their possible/desirable solutions. These perceptions are not carved in stone, but may evolve over time as a result of external events, communications among actors and learning processes.

4) It has gone beyond portraying decision-making processes as moving from problem recognition-analysis-choice-implementation-evaluation-feedback loop and shown the messiness in how real decision-making occurs. In other words, it is sophisticated on mapping and analyzing process dynamics as well as on formulating suggestions to change them in different directions.

When applying the above line of reasoning one will easily find a greater variety of involved, greater subtlety in what their objectives, ideas and attitudes are, how these relate to actions, which resources they control and how they bring them to bear in their exchanges and negotiations with other actors and what decision processes and policy outputs result from these positions and interactions. Moreover, it allows for thinking through what the consequences are of restructuring positions and interactions on policy processes and output. One will see more than just a small number of actors utilizing land and real estate properties to earn cash or the other way around. Whether those few actors and limited set of key resources they control are
true the dominant forces behind urbanization becomes a possibility to consider rather than a certainty the analyst has. That reopens the debate on how elitist or pluralist decision-making is and whether the same groups in society systematically benefit from dominant practices or not. Working out this topic both theoretically and empirically will be a key challenge in my future research work.

6. Track record and research agenda

I have now worked roughly 22 years in academia and been engaged in topics of transport infrastructure development, cross-national institutional comparison, cross-cultural analysis, cross-national institutional transplantation, corporate social responsibility and eco city development. All these lines now come very nicely together in the topic ‘sustainable urban and infrastructure development in China’. More specifically the issues of eco and smart city development, innovative planning, public private partnerships, urban infrastructure challenges of 2nd, 3rd and 4th tier cities in China’s interior and Transit Oriented Development rank high on my current research agenda. In most situations, the potential to transfer of policy solutions from one institutional context to another will be in the back of my mind when doing my work.

On a theoretical level, I will be building on existing insights from urban studies, but then from there developing public policy theory in the area of urban and infrastructure development. I will be using my personal and institutional connections in China for organizing fieldwork, experimentation, analysis and reflection for myself and my PhD students. But hopefully our efforts not be limited to mapping, analyzing, understanding and explaining alone. While prediction is rarely possible for mortals in urban studies and public policy, policy prescription based on solid foundations should at least be a target. Connecting with policy-making at the various tiers of government to provide policy advice and making a difference for the better is
not only useful and laudable, it is also eventful and experientially rich. I wish for the coming 22 years until my retirement to create a context for myself and those around me in which reaching those targets becomes possible.

7. Partners in research

Academics doing their work in solitude have become a rarity these days. Occasionally I cannot resist the temptation to try an article all by myself, but for most of the knowledge and data I have acquired and still acquire, I work with a number of partners. I cannot do justice to all institutes and people, but I hope to cover the most important ones below.

First of all, and working from the inside out, my own faculty’s China Cluster should be mentioned. In it, I work with a number of colleagues including Peter Ho, Wim Ravesteijn, Pieter Vermaas and a great number of postdocs, PhD students and guests. I share much theoretical baggage and personal connections with them and consider them the inner core.

Second, TPM collaborates closely with the faculties of Architecture & the Built Environment and Civil Engineering & Geosciences on the topic of sustainable and urban development. This occurs in two different bodies both of which are valuable to my work. The first is the Joint Research Centre on Urban Systems & Environment (JRC-USE) in which TU-Delft works closely with South China University of Technology (SCUT) in Guangzhou. Vincent Nadin, Guang Ye, Lei Qu and Lily Li need to be mentioned here.
The second is the Delft Initiative for Mobility & Infrastructures (DIMI), where I would like to mention Marcel Hertogh and Hans de Boer in particular.

I am an alumnus of Erasmus University Rotterdam and I have always maintained close relations with various colleagues there. This is certainly true for the faculty of Social Sciences where many of my public policy fellows work, but also for the Faculty of Law for which I will be conducting research on my favorite classical author Montesquieu operating at the interface between law, public policy and cross-national institutional transplantation. It also has a China Law Centre with which parts of our China Cluster has much in common. Suzan Stoter, Helen Stout and Yuwen Li are my valued partners there.

Next are the national and international partners in eco and smart city development I have been working with in recent years. Although the complete group of universities is larger, the most active partnership has developed with Utrecht University, the University of Westminster and King’s College. Here Rob Raven, Frans Sengers, Simon Joss, Federico Caprotti, Rob Cowley and Daan Schraven should be mentioned in particular.

Although a great many data can be collected online these days, the ‘true story’ if there is such a thing, can only be obtained through fieldwork on site. Two professional organizations in particular help me get closer to such vital experience. A Dutch one is Planbureau voor de Leefomgeving (PBL), with which my PhD students and I will be doing a high-profile study on ‘innovative planning’ for the China Council. Ton Dassen and Arjan Harbers, I’m very eager to work on this with you in the coming year.

A Chinese one is the Shenzhen Institute for Building Research (IBR) with which TPM signed an MoU last November and to my team will be providing policy advice on eco city development in a host of Chinese cities, including Shenzhen, Luoyang (Henan province) and Jingmen (Hubei province). Ye Qing, Benny Liu and Li Fen, it is fantastic to participate so directly in planning and policy processes. Whether making a difference to urban sustainability will really be a reality or a mirage, we have to see but the illusion that we might because we deal with powerful decision-makers on the ground is already beautiful enough.

Last but absolutely not least in the list of partners are the Chinese universities TPM is tightly associated with.

I am extremely grateful to dean Chen Zhimin and vice-dean Jing Yijia for putting all the effort and hiring me as a part-time professor at the School of International Relations and Public Affairs of Fudan University and especially in getting me accepted as a 1000-talent program professor at your school. The combination of having an Antoni van Leeuwenhoek position in Delft and a 1000 Talent position in Shanghai is almost too good to be true. What more could I possibly wish for?
Important other TPM partners are South China University of Technology, which was already mentioned above in connection with JRC-USE. I would like to mention Vice-President Zhu Min, David Wang, Jasmine Yao, Sun Yimin and Wu Kechang in particular, as well as Zhao Miaoxi, who is here.

My magnificent journey to China began at Harbin Institute of Technology with which we developed a double degree master program and where I still hold a PhD supervisor position after having been visiting scholar there for several years. Yu Bo, Mi Jianing, Zheng Haitao and Lin Yifu have been long-time friends and will continue to be in the coming years.

And our China Cluster also works closely with Dalian University of Technology, especially on the topics of public policy, philosophy of science and ethics. Xi Bao and his team, with Ma Yongchi present here and a few other good friends following this event online in Dalian, you have always been great partners in research.
8. Words of gratitude

The last few paragraphs dedicated to research partnerships may already have sounded a bit like words of gratitude, but those will actually officially begin only below.

Members of our College van Bestuur, TU-Delft’s Executive Board, Karel Luyben, Dirk-Jan van den Berg and Peter Wieringa, the latter two present here, I am deeply indebted to you for the confidence you put in me for appointing me as an Antoni van Leeuwenhoek research professor. Many scholars see becoming a full professor as their academic fulfilment. I have always promised myself not to grow bitter if I did not make it there and I would like to think that I managed that, but I have to admit that I am thankful that I ended up where I am now.

Hugo Priemus, Theo Toonen and Jeroen van den Hoven, past and present deans at TPM and all of whom are present here, I know you have been putting fantastic efforts into getting me appointed. I am beginning to realize the amount of time it can take to jump through bureaucratic hoops, so I will only value these efforts more as I grow older.

Ernst ten Heuvelhof and Hans de Bruijn, you have been my professors and mentors ever since I can remember. You were both teachers of mine in Rotterdam when I was a student of public policy. Ernst was my PhD promotor and both of you have, in sequence, been department chair for the POLG group for a long time. Your network approach to public policy and your conception of academic freedom combined with a professional output orientation has made it to my intellectual and managerial DNA. It has benefited me for the past 22 years and will continue to do so in the coming 22 years, even if the name of my professor position has a very different ring to it.

TPM colleagues, only a few of you can claim to have been working in the Jaffalaan 5 since late 1993 almost without interruption. I can. Many would see that staying at one place during one’s professional career is not healthy. Perhaps they are right. But this school has largely made me into what I am and I have been going through various levels in the organization and feel that I have far from completed my journey here. Thank you all very much for being around, and sorry for not addressing you personally although I know you deserve it.

The Next Generation Infrastructures Foundation has been a tremendous support in acquiring knowledge in and setting the agenda for, the research program I have just been presenting. Various people deserve credit, but especially Margot Weijnen. You and I have gone through life-changing experiences working for the International Low Carbon City project in Shenzhen. Along with Vice Mayor Tang Jie and close friend professor Wang Dong, we did make a difference there. Who knows if such an opportunity will come our way again.

Good supervision of PhD students requires generating conscious symbiosis. Although I am keen still to be involved in data collection myself, much of what I know comes through their fieldwork
and manuscripts. Nathan Bowden, Monica Altamirano, Mu Rui, Yu Chang, Yu Nannan, Li Yanwei, Li Ying, Zhang Changjie, Lu Haiyan, Ma Xin, Jia Yan, Yang Wei, Harry den Hartog and Song Yun, I owe you more than you may realize.

And then there is a group of colleagues and friends I have shared research projects with. Willem Salet, Halina Brown, Harry Geerlings, Joop Koppenjan, Ellen van Bueren, Igor Mayer, Zhou Qiqi, Wim Ravesteijn and most recently Simon Joss, Sun Li and Chen Yawei. It has been and is a real pleasure working with you.

Almost at the end, I would like to mention China and the many friends and colleagues I have there. There is almost no city I go to without having a personal guide. Sometimes I truly need it, sometimes I do not. Either way, it definitely adds to my enjoyment of being there. Believe me, there have been moments when I felt emotional because I realized how much the country has done for me. There is no doubt, if I criticize you more, it simply means I love you more.

Father, mother, sister, brother-in-law, and other relatives, you have always been unwavering support in my career progress. I do not think you were ever surprised that I became an academic. I never played outside enough when I was small to become a healthy child. You also knew that I always dreamed of going abroad and that deep at heart you were concerned about me leaving the Netherlands. Indeed I did, but each time I went and came back. Delft is not far from Vlaardingen. We will always stay close.

Gabrielle, Jade and Benjamin, experiencing this hour at different levels of awareness, having children is the best balance against becoming a workaholic one can find. I always worry that I am not giving you enough real attention and I should strive hard to give more. I only want to say I am proud of and happy with all three of you, and with the fact that you are proud of and happy with each other. That is wonderful.

Lucy, or should I say Shaoqing? About two weeks ago, you showed a video on the web with two small Chinese children singing the song ‘You raise me up’. They did a great job and they are popular all over China now. It moved me and I turned my head away. I do not know if I succeeded in hiding my tears well, but in case I did: I can now reveal that it was because of you.

The paper should be referenced as follows: