

DFAT-TAF PARTNERSHIP
WORKING PAPER SERIES #1

STRATEGIC USES OF DATA FOR URBAN DEVELOPMENT IN ASIAN CITIES

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August 2014



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The knowledge developed prior to, but used in the creation of this publication, was obtained through the financial support of the Australian Government to The Asia Foundation under the DFAT-TAF Partnership arrangement.

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Preface

The DFAT-TAF Partnership represents a new form of collaboration between the Australian Department of Foreign Affairs and Trade (DFAT) and The Asia Foundation (TAF) aimed at supporting program and policy innovation that can improve aid effectiveness in Asia Pacific Region. This objective, alongside our focus on inclusive economic growth, effective governance, women's empowerment and conflict, are consistent with the Australian Government's new development policy *Australian aid: promoting prosperity, reducing poverty, enhancing stability*. The main premise underlying the Partnership is that investment in knowledge exchange and joint learning at the strategic and program levels can improve both impact and value for money in the assistance provided by both organisations. Its primary purpose is to develop, test, and promote cost-effective innovations that can increase the impact of development assistance and respond to the dynamic and evolving needs of the region. Key areas of innovation include efforts to advance entrepreneurial and politically-informed approaches to reform at both local and national levels; improving results through more effective and dynamic integration of research with action on-the-ground; efforts to accelerate country level reform and development through cross-border and regional solutions; and exploration of very quick response assistance to local needs and initiatives as these emerge. In all of these areas, the intent is to tap the creativity, ideas, and insights of our partners and staff to achieve greater impact on tough development problems in fast and cost effective ways. This work is made possible through investment in creative new ideas combined with rigorous assessment of results and is enabled by a high degree of funding flexibility.

As part of its broader efforts to promote organisational learning within DFAT and the Asia Foundation, the Partnership is pleased to launch a **Working Paper Series**. This series will draw out some of the rich lessons being learned through country and regional level program initiatives implemented under the Partnership. In many cases, these initiatives are taking on some of the most difficult and intractable problems in the region, often building skills, knowledge, and relationships in one part of the region that can be refined and brought to similar contexts in other countries. Ultimately, this analytical work will open new insights and opportunities for collaboration, and enhance the knowledge base on which DFAT and the Asia Foundation can draw in efforts to improve development program and policy going forward. The series will also be of interest to the broader international community, helping to better ground debates in empirical evidence, advance theory, and ultimately improve development policy and practice across a variety of subject areas.

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Foreword

Asia is urbanizing rapidly, with half of the region's population projected to reside in urban areas by 2020.¹ Asian countries face a number of challenges related to rapid urbanization, including congestion, pollution, rising urban poverty,² and squatter settlements. In the Asia-Pacific region, roughly 30.6 percent of the urban population lives in slums, with the percentage of urban slum dwellers slightly higher in South Asia (35 percent) and Southeast Asia (31 percent).³ The urban poor face challenges with access to basic infrastructure such as transportation, drinking water and sewerage, a situation that is compounded by a lack of political representation in areas where settlements are informal or where registration is linked to migrants' rural sending regions.⁴

In this evolving context, a wide variety of challenges are being faced by urban governments and residents alike, including: the need to provide services given strained or inadequate infrastructure and financing; obstacles to access to information; and fairness in the distribution of limited city resources. These challenges can be compounded by corruption, which remains a significant obstacle to development across Asia.⁵ While the challenges are significant, the dynamism and interaction of diverse interests in Asia's cities also create significant opportunities for generating innovative solutions to intractable problems. This report offers a framework to help better understand different ways that flows of information in cities can have positive impacts on urban governance issues. The study also considers how increasing access to data and information can affect the interests and decision-making process of key stakeholders within the government, and explores whether greater public access to information changes the nature of pressuring government for better outcomes.

A special thank you to the following people for their invaluable support and generous feedback:

Ellen Boccuzzi, Senior Program Officer, Governance and Law; Michelle Chang, ICT Program Manager, Digital Media and Technology; Nabihah Chowdhury, Program Assistant, Governance and Law; Michael R. DiGregorio, Country Representative, Vietnam; Dianna James, Consultant, Governance and Law; Sagar Prasai, Country Representative, India; Dinesha de Silva, Country Representative, Sri Lanka; and George Varughese, Country Representative, Nepal.

Funding for this report came from the Foundation's Partnership with the Australian Department of Foreign Affairs and Trade (DFAT). The research informing this report was conducted by John Taylor, urban planner and founder of the local Indonesian NGO Yayasan Kota Kita, and Mark Koenig, Assistant Director for Program Strategy, Innovation and Learning (PSIL) at the Asia Foundation.



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1 United Nations Department of Economic and Social Affairs, *World Urbanization Prospects: The 2011 Revision*, (New York: 2012),

2 *The State of Asian Cities 2010/11*, 111.

3 *Ibid.*, 124.

4 *Ibid.*, 120.

5 No middle income country in Asia ranked in the top 50 (out of 174) in Transparency International's 2012 Corruption Perception Index, *Transparency International, Corruption Perceptions Index, 2012*, http://issuu.com/transparencyminternational/docs/cpi_2012_report/1?e=0 (accessed June 25, 2013).

Glossary of Terms

ANDROID TABLET: A handheld computer device

ARCGIS: A computer program

CIVIL SOCIETY: Aggregate of non-governmental organizations and institutions that manifest interests and will of citizens

CROWD-SOURCING: Process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people

GIS: Geographic Information System; a computer system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data

GPS: Global Positioning System

KHOROO: Neighborhood

KICKSTARTER: Digital platform to crowd sourced funding for social projects

MUSRENBANG: City participatory budgeting forum in Indonesian cities

NGO: Non governmental organization

OPEN DATA MOVEMENT: Civil society efforts to support the idea that data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control

RT: Rukun Tetangga, a group of 20-30 houses that forms the smallest territorial unit of Indonesian cities

SHAPEFILE: File format for GIS

SMS: Short Message Service, a messaging system for cellphones

SMS GATEWAY: A device that allows you to send and receive SMS messages from a computer

Executive Summary

Transforming information channels

Two trends affecting Asia’s development are rapid urbanization, and the spread of technology, especially information and communications technology. In 2010 it was estimated that 45.5% of the population of Asia was living in cities, and this figure continues to rise. (“Urbanization Trends in Asia and the Pacific,” UNESCAP, 2013) In addition, Asia accounts for 46% of the world’s Internet users and half of the world’s mobile phone subscribers. (GSM Association Report, 2014.)

For actors supporting projects to improve the quality of urban lives, a key nexus between these trends is the increasing number of development projects that use data generation, sharing and analysis to improve urban governance and service delivery.

The data produced is enhancing our understanding of social, economic, geographic, political and ecological patterns in cities, and in the best cases having a positive impact on the lives of urban residents. The effective use of urban data can transform governance by creating new information channels, increasing opportunities for meaningful public participation, providing new analysis to inform decision making and planning, and creating opportunities for new partnerships.

Recognizing the great potential of data to transform cities does not, however, mean that development actors can assume that data generation or increasing access to data alone will necessarily translate into positive impact. Impact refers to the linkage between the strategies and technologies that connect urban data to a specific audience and achieve desired project outcomes.

This report is a resource for thinking through how to craft effective strategies for achieving impact in cities using data. A framework for considering various strategies being applied by data projects is presented, and variables that make such efforts successful are explored.

Four lenses for analyzing data projects

The report offers four lenses through which to analyze

the choices development practitioners make in data driven projects. The lenses frame the decisions made in the cases presented, and help the authors note strategic differences.

TRANSPARENCY refers to accessibility and openness of information;

INTERESTS refers to the different expectations, motivations and capacities of the actors involved;

PARTNERSHIP refers to the agreements and coordination between actors;

TECHNOLOGY refers to what tools are used to help facilitate this process.



Team members of Urban Launchpad display a draft of the First Bus Map of Dhaka

Four impact strategies for using urban data

The report introduces four strategies used in data driven projects to achieve impact. These impact strategies are not mutually exclusive, but the selection of one or another as a core program approach has significant implications for how data is collected, shared and presented. The report uses five cases from four countries (Mongolia, Indonesia, India and Bangladesh) to analyze how the strategies have been applied in the field.

Four Analytical Lenses



The four analytical lenses frame the decisions made in the cases presented, and note strategic differences

ADVOCACY AND OVERSIGHT THROUGH URBAN DATA

Two cases in the study from Ulaanbaatar, Mongolia and Solo, Indonesia detail how community mapping empowered residents to engage with government authorities by gathering spatial data that visualized local service needs on maps. These became tools to help communities articulate their needs during participatory discussions about local development, and advocate for budget priorities. Projects applying this strategy gather and use data to equip residents or communities with tools to pressure decision-makers and service providers for improvements. Projects sometimes introduce pathways to provide feedback directly from citizens to decision-makers circumventing underperforming bureaucracies and service providers.

Data for advocacy also helps residents sharpen their arguments and requests for improvements, reveal previously unrecognized problems, or make processes more transparent for oversight. These processes can build the capacities of local communities to address urban issues through planning and democratic governance. Observations from the relevant cases include:

- New tools and technology can facilitate the engagement of new stakeholders, organize and display data in more user friendly ways, and reduce costs and time needed for accurate data collection.
- Effective advocacy requires data to offer practical conclusions for those who receive it. This requires careful consideration of factors including format and presentation.
- It is necessary to analyze interests that shape the problematic status quo in order to understand the kinds of pressure and targeting strategies that can lead to positive change.

- A focus on transparency is key for initiatives seeking to improve advocacy and oversight.

INCREASING EFFICIENT ENGAGEMENT WITH URBAN SYSTEMS

Data can sometimes be used to create greater efficiency in existing urban systems without fundamental reform. In many cities, especially when gaps in services are filled by informal providers, urban systems are poorly coordinated, managed, and non-transparent to users and the government. Where information can be made available and shared, it can sometimes improve the ability of users to adjust behaviors to engage more efficiently and effectively with existing urban systems.

PROJECTS CAN INTRODUCE PATHWAYS TO PROVIDE FEEDBACK DIRECTLY FROM CITIZENS TO DECISION MAKERS, CIRCUMVENTING UNDERPERFORMING BUREAUCRACIES.

The creation of Dhaka's first bus map was carried out by an NGO using technology to map informal bus routes and create a guide for riders.

By providing a map including the entire range of bus lines, commuters can make better choices and navigate the system more efficiently. This can lead to savings in time and cost for users who improve their planning for routes and transfers. Promoting autonomous responses and improvements without direct government engagement

can be of particular importance when there are major obstacles to systemic reform. Observations from the relevant cases include:

- Civil society can use data effectively without government when solutions increase efficient engagement with existing systems.
- The effectiveness of intermediary organizations seeking behavioral changes among users depends on data sharing processes and outreach activities as much as data collection.
- New technology can decrease costs of data collection, but are not always most effective for helping information reach all audiences depending on the availability of technology, profile of the user group being targeted and other variables.

PROJECT DATA CAN ADJUST INFORMATION IMBALANCES IN WAYS THAT BENEFIT REFORM-MINDED ACTORS.

FILLING GAPS IN KNOWLEDGE AMONG SERVICE PROVIDERS

Poor management, corruption, and bureaucratic intransigence all cause poor service delivery, but urbanization also means that service providers and governments face budgetary constraints, technical challenges and rapidly changing contexts. There are often difficulties identifying service gaps and system inefficiencies, and prioritizing investments to fix problems. Data can fill these gaps. Improving government or service provider capacity to collect and analyze data is one possible approach to make improvement, but collecting data through residents or civil society to fill gaps quickly and cheaply is a viable alternative.

Filling knowledge gaps as a core impact strategy works best if there are already existing incentives leading towards improvement coming from leadership, a culture of improvement, pressure from elected officials, or financial benefits to reform. In the SMS Water case in Malang, Indonesia, the private service provider accepted increased oversight and transparency because the system also helped them quickly identify and fix leaks

that had been raising their costs. Observations from the relevant cases include:

- Filling information gaps with 'open data' can create

a multiplier effect that allows information to be used by a variety of initiatives.

- In systems that require buy-in from multiple stakeholders to function, perceived benefits need to be considered for all actors for the tools to be sustainable, and remain in use long term.
- Understanding how the data can be used as well as the capability of service providers to use it is critical to success, especially when data needs to be complemented by analysis and planning capacities to be effective.

IMPROVED COORDINATION AND CAPACITY IN LOCAL GOVERNMENT

Urban governments are not monolithic, and many are fraught with competing interests, politics and corruption as well as poor coordination and information sharing. Data can improve coordination or adjust information imbalances in ways that benefit reform-minded actors.

Accurate data and new pathways for sharing it within a city can also limit the extent to which planning and decision-making are based on political trade-offs and influence, if it forces clarification of the rationale and motivations behind policies. In Ulaanbaatar, Mongolia, maps of urban conditions were used for the first time in budget discussions at the request of the Mayor as he pushed for government to focus on evidence rather than political alliances for budget recommendations. In Solo, Indonesia, the city government uses maps to gain access to information on citizen priorities directly from community members rather than filtered by influential elites. Observations from the relevant cases include:

- Being strategic about the potential trade offs between public transparency and building trust with partners in government is important for reform that requires government partners to lead the process.
- New information pathways can empower reformers or decisions-makers looking to improve services, but effective strategy development requires an understanding of their influence and capacity to use information and lead reform.
- Ownership of data is political unless full transparency and equal access is achieved, so the pathways through which data is collected, shared and used can shape and be shaped by power and influence.

CONCLUSIONS AND RECOMMENDATIONS

The frameworks presented in this report provide a basis for actors implementing development projects using data to enhance urban governance to think through specifically how the data they generate can contribute to changes in cities that improve the quality of life for residents, especially those who might be marginalized or disadvantaged. From the formation of the framework and review of the case studies, the authors make the following recommendations:

- **EMBRACE THE DYNAMISM AND DIVERSITY OF URBAN SETTINGS:** The power of cities is in the concentration of diverse people. Data is a catalyst for bringing groups together, adjusting power imbalances, and fueling creativity.
- **UNDERSTAND THE CONTEXT:** Understanding the key dynamics shaping governance and service delivery in a specific city requires grounded analysis of current conditions and problem solving as much as in the design of tools and methodologies.
- **ARTICULATE IMPACT STRATEGIES CLEARLY:** Clearly identifying the impact strategy that seems most likely to be effective in the project context and for the identified problem is critical. Understanding the core strategy will shape key program decisions and help produce data that is actionable and useful.
- **THINK ABOUT HOW STRATEGY CHOICE RELATES TO THE FOUR LENSES:** There is no one-size-fits all solution, so strategic choices and context analysis will affect how different interest groups are engaged, select the most effective technology for data collection, generate the right partnerships and push for the appropriate approach to transparency.
- **BE FLEXIBLE AND PROCESS NEW INFORMATION:** As relationships, politics, and analysis evolve, so should strategy. Selecting data formats or collection methodologies that allow for changes of direction, design and analysis can be critical to the project's ability to adapt to new information received during implementation, as well as changes in context over time.
- **INFORMATION IS POLITICAL AND INTERESTS MATTER:** Close attention needs be paid to what different actors look for from urban data and how it can empower their agendas. Who controls data, and through what paths can shift power dynamics, and change levels of influence among actors competing for control of resources, influence and political power in the city.
- **LONG TERM GOALS REQUIRE LONG TERM INVESTMENTS:** Increased data availability and transparency are important long-term goals that do not always result in short term impact on specific problems. Lining up short term impact strategies with long term development goals may require separate but connected strategies.

Chapter 1:

Introduction to Urban Data

Urban information and data are essential to understanding Asia’s increasingly complex cities, and finding effective ways to address the challenges that come with rapid urbanization. In 2010 the urban population of Asia amounted to 754 million inhabitants, almost half (45.5%) of the continent’s total population. At the same time this population is becoming more connected to information as 46% of the world’s Internet users, and half of the world’s mobile phone subscribers, live in Asia. (“Urbanization Trends in Asia and the Pacific,” UNESCAP, 2013) Both of these figures are forecast to rise by 2020.

Urban information and urban data are two terms used interchangeably to refer to data, often spatial, that is used to analyze and understand social, economic, geographic, political, and ecological patterns in cities. For example, urban data can illustrate how population densities are distributed, where water and sanitation services are developed or lacking, and rates of construction across the city. Both governments and civil society organizations utilize data to support allocation of public resources, provide critical infrastructure, and improve service delivery.

The use of urban data holds incredible promise to transform the governance of urban areas by opening new opportunities for public participation and oversight that can improve targeting of resources and identify priority problems for improvement; generating new analysis that contributes to improved decision-making and planning; offering new tools that encourage collaboration between government, residents, civil society groups and at times the private sector; and providing residents and government reformers with information that can help them generate ideas and build support for changes to improve their urban environments.

Data is already being used around the world, especially in the global South, to improve targeting and implementation of service and infrastructure improvements for poor communities. As a result of this trend, in many countries across Asia a mood of excitement is growing among development practitioners about the potential of putting data to good use as well as making information transparent and open.

As data use in development projects becomes more widespread those planning and implementing projects

need to become more adept at making the most of the possibilities to use data to enhance project impact, but also understanding potential pitfalls. It first has to be acknowledged that in most cases increasing access to information alone is not enough, bringing about positive governance and urban development outcomes requires more than just data availability.

**URBAN DATA IS ALSO NOT
NEUTRAL – IT REFLECTS
AGENDAS, WORLDVIEWS, AND
EVEN ASPIRATIONS BOTH IN
TERMS OF WHAT DATA GETS
COLLECTED AND HOW AND WITH
WHOM IT IS SHARED.**

Linking urban data to impact requires strategies to succeed. Strategies need to guide a number of key decisions including: developing effective partnerships between local government, the private sector and civil society; understanding the interests and capacities of these different stakeholders; and identifying and targeting critical reform issues or inefficiencies in service delivery so that data can be deployed in a focused and strategic manner.

In addition, in order for data to help generate solutions to urban challenges it should be made legible, meaning it can be accessed and understood by the target audience, and actionable, meaning it leads to clear conclusions on how behaviors or systems can be changed in ways that address the specific problems projects are seeking to solve.

This report aims to serve as a resource to those planning and implementing urban development projects as they think through how to craft effective strategies for achieving impact using urban data in cities. The report discusses ways that urban data can successfully influence governance issues, and offers perspectives on how and when data can make an impact. Impact refers

to the linkage between the strategies and technologies that are used to bring urban data to a specific audience and achieve desired project outcomes.

The value of urban information is realized when urban policies and programs are changed through processes that involve the consideration and analysis of data, and when capacities of project partners are strengthened in ways that enable them to implement changes that positively impact the lives of urban dwellers. A more long-term view of impact also must recognize the power of information to increase the level of inclusion of residents in decision-making processes through a growing culture of transparency and meaningful participation.

Impact will be felt if residents will not only be able to access information about their cities, but also be able to use it express themselves and affect change. Development practitioners can work at many scales and across many contexts to support improved urban data use. Already cities and communities across Asia are mobilizing themselves and working with others to collect data and advocate for improved services and infrastructure.

There is currently ample opportunity for development practitioners to both facilitate and technically support governments and communities who are engaging with the challenges and opportunities of urban data. While citywide initiatives are common, there are also smaller-scale, community-based projects that are filling information gaps and identifying solutions for urban issues. On a global scale the Open Data Movement is promoting broad discussion on how data, when made freely available to anyone in formats that can easily be used and adapted by a variety of actors, often in unexpected ways. This report is focused less on the rationale for opening data, but rather elaborates on how data can be used to achieve specific and targeted development impacts in urban settings.

Despite urban data's significant potential, there are also many limitations. For example, in rapidly growing cities, data quickly becomes outdated, and datasets often have significant gaps. City officials and sometimes donor agencies as well are often protective of urban data given political sensitivities to data potentially suggesting problems or poor performance.

Urban data is also not neutral – it reflects agendas, worldviews, and even aspirations both in terms of what data gets collected and how and with whom it is shared. A final challenge is also the significant digital divide in Asian urban societies that prevents many residents from taking advantage of the potential of information

technology. Consideration of these challenges, as well as the power and potential of data to improve the lives of urban residents, is key to successful data driven development efforts.

Four Impact Strategies Illustrated Through Case Studies



A Transparent Chennai community meeting

Looking across programs using the generation, analysis and channeling of information to improve urban governance and service delivery, four broad categories of impact strategies can be identified. The four strategies are:

1. Advocacy and oversight;
2. Efficient engagement with urban systems;
3. Filling gaps in knowledge; and,
4. Improved coordination and capacity of local government.

These strategies are not mutually exclusive, but the selection of one or another as the core of a project will have significant implications for how different interests, technology, programming approaches and partnerships should be engaged to use urban data to achieve results. To explore these strategies further, the report has dedicated a chapter to each of them, and uses five cases of urban development projects that illustrate how these strategies can be put into action. The five case studies – from Mongolia, Indonesia, India and Bangladesh – offer instructive experiences about implementing urban data projects and how information has made a difference in

improving urban governance in each context.

Four Lenses for Analyzing Data Use

The report also uses four lenses through which to view the processes of urban data use: transparency, interests, technology and partnerships. These lenses help guide our understanding of the decisions made in the cases presented, and note differences in the ways that data is used, as well as the variables that affect program success.

Transparency refers to accessibility and openness of information;



Interests refers to the different expectations and capacities of the actors involve;



Partnerships refers to the agreements and hcoordination between actors;



Technology refers to what tools are used to help facilitate this process.



Both the lenses and the case studies are explained in greater detail in Chapter 2.

Chapter 2:

Description of Cases

This Chapter provides an overview of the five cases that are referenced throughout this report, and the four study lenses through which each is examined. These cases were chosen due to the authors' familiarity with the cases and represent a diverse range of examples of innovative approaches from throughout Asia.

Case 1: Manaikhoroo: Community Mapping in Ulaanbaatar, Mongolia

Over half of the city of Ulaanbaatar is made up of unplanned settlements called ger areas – the ger areas are home to over 700,000 inhabitants out of citywide population of approximately 1.3 million.

Rapid urbanization and years of government neglect meant that no accurate census was available, and the areas remained chronically underserved. In 2012, a newly elected mayor chose to focus on the social issues facing ger residents. Initially he was frustrated in his attempts to understand the scale of the issues, identify areas for investments and go about filling public service gaps.

The Manaikhoroo – or My Khoroo – community mapping project documented just how large the needs of the Ulaanbaatar ger areas were by working together with the government and community leaders from each administrative area known as a khoroo. In each khoroo, city and civil society facilitators drew on local documentation and knowledge to record the number of residents and map social services and other key indicators in each of the 87 ger-area khoros of the city.

In practice this meant mapping more than 60% of the city's territory, which is home to more than 700,000 residents. The information was used to create maps in ArcGIS that were printed, put online, and used for analysis as well as shared with the local community in local planning meetings. This data collection approach produced a population estimate 40% larger than the official statistics from the 2010 census, and is widely accepted by the city government. The neighborhood

maps, showing public services and social indicators, contributed to improving local community advocacy, setting service delivery standards, evaluating capital investments, and providing analysis for the city's budgeting process.

- Participation in the initiative gave neighborhood leaders a tool to better advocate for infrastructure improvements.



Social facilitators plan a mapping activity in Ulaanbaatar, Mongolia

- The comparison of maps of population distribution together with location of public infrastructure identified gaps that can guide the allocation of the investment budget.
- Service standards (for example water kiosks per capita, or average frequency of household waste collection) were developed from the maps. This is an effective tool to highlight disparities between different areas of the city, and has been used by the Mayor's office to start discussing and setting targets, such as twice monthly household garbage collection for all ger area residents.
- The involvement of community members in the data collection and access to spatial analysis during

budget discussions de-politicized some decision-making on budget allocations and focused it instead on improvements in areas of need.

Case 2: Solo Kota Kita: Neighborhood Atlases and Participatory Budgeting in Solo, Indonesia

The city of Solo, Indonesia has an annual participatory budgeting policy called the musrenbang, which allocates neighborhood grants to each of the city's 51 neighborhoods. But lack of available data and outreach to residents meant that resident participation in the process has been limited and often dominated by local elites.

A visionary leader, Mayor Joko Widodo – elected the President of Indonesia in July 2014 – aspired to make the budgeting process more inclusive by providing information to residents about local conditions to support their involvement in discussions on priorities and needs.

Solo Kota Kita is a community mapping initiative that supported the musrenbang participatory budgeting and planning in the city of Solo. The process was initiated by a local NGO called Yayasan Kota Kita in collaboration with Mayor Joko Widodo and his government administration.

A citywide mapping exercise was undertaken to document demographic and socio-economic data for the city. The data collection process was completed through a crowd-sourcing approach. NGO facilitators asked each of the city's 2,700 RT leaders, who are neighborhood managers with extensive local knowledge of their immediate surroundings, to respond to a questionnaire sent through SMS messages.

The data was compiled on neighborhood poster-sized profiles called "mini atlases" that provide this information in a legible and easy to understand format. The atlases informed community discussions about local needs and priorities and were made available in public places such as the community center and health posts, and were given to local community organizations.

In addition, all data was made available on a user-friendly website, which is regularly updated with the maps and where visitors can download geographic information systems (GIS) shapefiles of the data.

- Making information visible and accessible allows a greater number of people and institutions to become

aware of local issues and can empower community groups.

- The local budgeting process creates a consistent forum for community engagement in the discussion of neighborhood priorities.



"Mini atlases" provide statistical information on population and social conditions in neighborhoods in Solo, Indonesia

Case 3: Urban Launchpad: First Bus Map of Dhaka: Mapping Informal Bus Systems in Dhaka, Bangladesh

Dhaka, like many Asian cities, is very congested and faces the challenge of transporting millions of people to work everyday. Commuters rely on a number of private and informally operated bus routes to complement the city's formal transit system. But since the bus system is not centrally organized, it is confusing and difficult for users to navigate what routes are available and for transportation planners to analyze and improve upon the existing, uncoordinated network.

Urban Launchpad's First Bus Map of Dhaka project created a map to help users navigate the numerous and confusing bus line options. The project was initiated by a civil-society organization that brought together local volunteers and urban planners. They mapped the different informal bus routes using Android tablets equipped with GPS to track the path of each of the city's buses. A geographic information systems (GIS) map was then created to show where the lines began and ended and connection points across the city.

The findings were compiled in a well-designed map that has the appearance and style of the sorts of subway and

bus maps found in cities around the world. The initiative resulted in the visualization of mobility options for urban residents that helps them understand and make better use of the existing system. The maps have become a publicly accessible resource for users of informal buses.

In addition these maps might, over time, inform broader improvements to a system that serves millions of commuters who travel by bus daily.

- Maps made accessible in print and online gave residents a way to broaden their mobility options and use that information to more efficiently use the transportation system.
- Volunteers and civil society organizations can support improvements to urban systems by gathering and organizing information in a way that serves many people.
- By improving peoples' ability to use the existing system more smoothly, the existing service becomes more efficient without extensive reform.

Case 4: Transparent Chennai: Supporting Greater Access to Information in Chennai, India

The vast Indian city of Chennai struggles to offer its residents public services, and many poor areas of the city suffer from inadequate access to trash collection, water supply and broken or inadequately public toilets. Without clear and organized information about issues, it is difficult for residents to effectively advocate to their local ward representatives for improvements.

Transparent Chennai is a local non-governmental organization that has worked with communities, ward-level government, and city managers to improve service delivery using participatory mapping and data collection methods. A number of their initiatives have shown how accurate maps, often created with community inputs, have informed and facilitated discussion with government officials. Transparent Chennai serves as an intermediary between community residents, local NGOs, and government officials.

By helping urban poor community groups to map and document their issues, Transparent Chennai provides tools such as illustrative maps that facilitate problem solving with ward councilors. Working together with residents, Transparent Chennai then helps transfer local knowledge onto the maps that promote discussion with

government officials about improving service.

These efforts have influenced improvements to trash collection, slum upgrading, the location of public toilets, and the construction of homeless shelters.

- Presenting clear analysis and solutions developed with communities to the government created opportunities for politicians trying to demonstrate their effectiveness, as well as put pressure on those who are not similarly motivated.
- Transparent Chennai makes use of the extensive Right to Information laws in India, which require the government to divulge public data.



The Transparent Chennai team maps public toilets in Chennai, India

Case 5: Water SMS: Monitoring Water Services in Malang and Makassar, Indonesia

In cities across Asia, access to water is a critical issue – millions of people rely on public water supply systems and their regular maintenance. But municipal water companies are challenged to collect adequate data to monitor service quality and identify systemic issues such as leakages and faulty standpipes.

In two Indonesian cities, Makassar and Malang, the Water SMS project used a crowd-sourcing SMS platform for users of the city's municipal water delivery service to submit comments about the system's performance. The SMS messages were sorted by an SMS gateway, which allows a computer to send and receive SMS messages, and visualized on an online and openly accessible dashboard.

THERE IS NO OFF-THE-SHELF SOLUTION TO THE COMPLICATED PROBLEMS FACING CITIES, ATTENTION NEEDS TO BE PAID TO WHAT IS APPROPRIATE GIVEN THE CIRCUMSTANCES. HIGH-TECH DOES NOT NECESSARILY TRANSLATE DIRECTLY INTO HIGH IMPACT.

The dashboard was able to display the status of the water supply network and where problems were occurring at any moment in time. Residents wishing to register complaints or report issues like pipe leakage or faulty standpipes did so by sending messages on the problem and their location.

This has helped the municipal utility provider respond to leaks. In addition, customers received updates about the system, such as notifications and pricing information.

- The success of the project relied on a multi-stakeholder steering committee in which representatives from NGOs, the water utility company, community leaders and government agencies worked together to guide the process and served the information needs of each stakeholder.
- Service provider was willing to accept the increased oversight of its performance as more knowledge about leaks was critical to increasing overall efficiency.
- This crowd-sourced approach demonstrates how resident participation directly with the private sector can incrementally improve service.

Four Study Lenses

Broad lessons with regional applicability can be drawn from considering individual projects through four lenses: transparency, partnership, technology and interests.

Rapidly developing cities in Asia differ greatly, and for this reason data-gathering projects take on unique goals and approaches depending on their local context.

These four lenses help differentiate key decisions or considerations that determine how data is collected, shared and used, and ultimately how effective urban data use will be in achieving impact.

TECHNOLOGY

The selection of technology for data collection and sharing is influenced by the tools and capacities locally available, as well as considerations such as budget and project timelines. Increasingly mobile phones, global positioning systems (GPS), and mapping applications such as those provided by Google are becoming more accessible and widespread throughout Asia.

Technology offer ways to harness information and make it more efficient and accurate. But data gathering and sharing tools need to match the problems being solved. As there is no off-the-shelf solution to the complicated problems facing cities, attention needs to be paid to what is appropriate given the circumstances. High-tech does not necessarily translate directly into high impact.



Technology choices are diverse so this lens focuses on how to differentiate between options according to the context for which they are used and the issues being addressed.

PARTNERSHIP

Local government, private sector and civil society organizations are all actors in cities who can harness data. Each actor provides different opportunities to make the most of data's use. Partnerships between different actors can enable and determine the ways in which data is collected, analyzed, communicated and shared.

The partnership lens considers how different combinations of actors and roles informs how to match data with appropriate users, with multiple pathways to impact possible.



Cases in the report include the active involvement of NGOs as intermediary organizations as well as more unlikely partnerships such as the collaboration of private sector organizations with residents. Understanding the range of possible partnerships reveals not only how multiple parties can use data in numerous effective ways, but also how data can be a catalyst to forming new partnerships for addressing the challenges of urban development.

TRANSPARENCY

Transparency refers to ways in which urban information is accessible to different people and institutions. This means both availability, and accuracy in the sense that urban data comes from credible sources.

Transparency is a necessary condition to support urban data use more widely, but it is not an absolute. There are

various levels of and approaches to achieving sufficient transparency for impact on the specific problems a program seeks to address.



The transparency lens looks at how data can be made available in many alternative ways. The manner in which it is disseminated often determines its usefulness for various groups. There may be range of different questions about who owns the data and how often it is made available that are also relevant.

INTERESTS

Interests of the key stakeholders refer to the perceptions of how the use or availability of the urban data will affect them, and their motivation for supporting its development. Recognizing that the level of commitment in data driven tools will correlate directly with perceptions of its relevance to issues of importance to key stakeholders, it is critical to understand their interests.

The interests lens recognizes that local governments, civil society organizations and the private sector view the



availability and use of urban data very differently. How issues are framed and presented strongly influences how actors choose to support or obstruct the generation and use of data.

Crafting a successful strategy to optimize data use requires understanding and sometimes reconciling their different interests.

Chapter 3: Advocacy through Data and Oversight

The poster-sized “mini atlas” sits on the floor of a community center in Solo, Indonesia as local residents gather to discuss their most urgent local infrastructure needs. In Ulaanbaatar, Mongolia, residents review maps which visualize the areas of their community in the city’s foothills where water is difficult to access. They are working with local officials to prioritize additional water supply as a needed project for the coming year.

These two initiatives in Indonesia and Mongolia empowered residents to engage with government authorities by providing mapped data relevant to the specific context and issues faced by their community. In both these cases, urban data, collected through community efforts and visualized in maps, is assisting residents to articulate their needs and support participatory discussions about local development.

Data for advocacy and oversight means gathering and using information to equip community members with tools to effectively pressure decision-makers and service providers to better serve them. In Ulaanbaatar, the Manaikhoroo initiative enabled community leaders to gather information about where people live in relation to critical services such as water kiosks and trash collection. The maps showed how densely populated areas were under-served by public services through a gap analysis approach, clearly indicating where improvements needed to be made. Data supports the formulation of advocacy arguments, making the case that local problems are real, and providing tools for creating transparency in the management and oversight of local issues. Data also strengthens advocacy efforts around specific requests and targeted reforms by clearly communicating the vision of actors about what their needs and priorities are.

Advocacy and Oversight



Advocacy [and oversight] efforts ultimately rely on using information to build, target and exert pressure on decision-makers, service providers, and government officials. The success of efforts to empower residents to use data in this way will ultimately depend on the interests of relevant actors who need to respond for that pressure to result in positive change. In particular the incentives of those that may



Residents in Solo, Indonesia discussing community issues with a Solo Kota Kita “mini atlas”

oppose desired changes can be significant. Incentive structures that drive decision-makers should be carefully considered to understand how they may respond to pressure generated from advocacy and oversight. A democratically elected leader might respond to pressure if it comes from a key voting constituency in their area, just as a corrupt bureaucrat might fight solutions that require more investment from service providers trying to cut corners to increase profits. For advocacy to work the incentives leading actors to push for change have to outweigh those incentives lined up to oppose it. Data is a useful tool to tip this balance.

Advocacy efforts often target elected officials who have an incentive to be viewed as responsive to the public. In the community mapping cases in Ulaanbaatar and Solo, it was elected mayors who saw increasing participation both as mechanisms for introducing reform and as means to increase their own political popularity that helped add political weight to advocacy efforts. In many cases, it will be incentives beyond direct elections that make programs effective, but these can vary significantly depending on the specific context, so that in each situation interests need to be analyzed and factored into advocacy strategies.

Community data collection



Technology can play an important role in collecting large data-sets quickly and efficiently.

In Solo, the team of NGO facilitators was able to gather essential information from every neighborhood in the city using a SMS gateway that harnesses cellphones to survey local leaders and organize the information in a database. In a context where fine-grain information about neighborhood conditions was not available, the initiative gathered information and made it available to assist community discussions. The information could then be easily shared and interpreted by the public and local government.

Technology use should be practical and appropriate

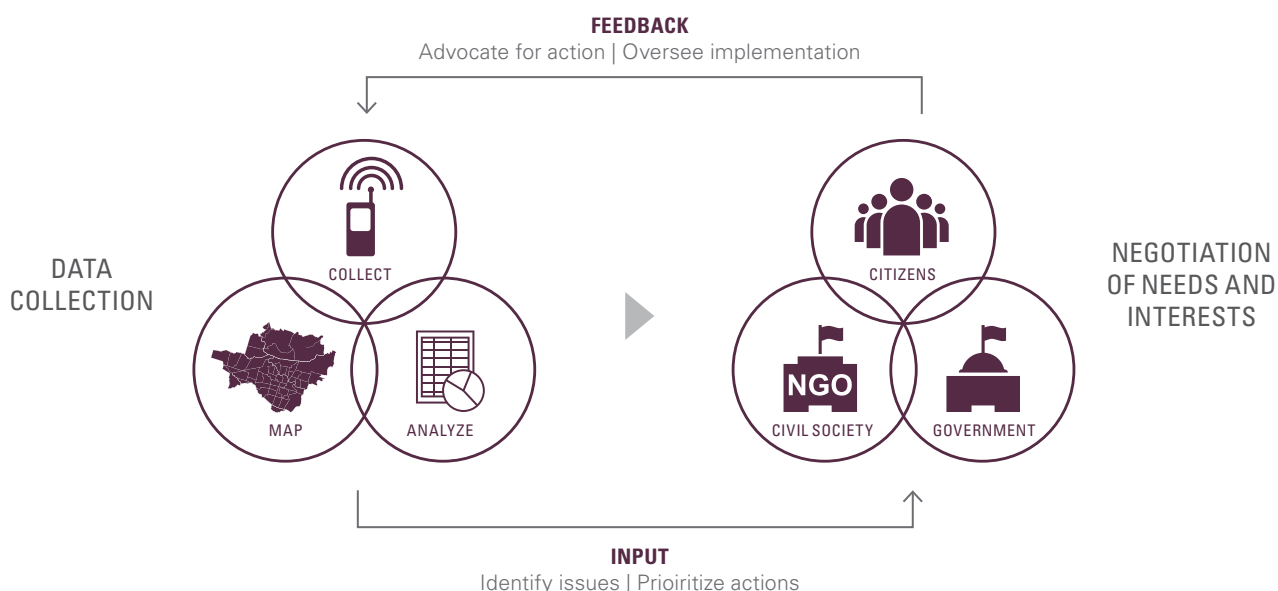
to the capacity and needs of the audience it is aimed at. While in some cases it is easier to create maps with computers, when interacting with community residents it is often easier to use paper maps. In Chennai facilitators guided residents to transfer their ideas onto paper maps, which are easier to read, correct and point out specific features with. Later the spatial information can be transferred to digital maps by intermediaries with some technical knowledge. Digital maps provide greater potential for analysis, tracking trends over time, and creating wider access for the data. In this case the format in which information was shared was appropriate to the level of familiarity and use of technology for the people its directed towards. In Solo, despite information being available online, the more practical “mini atlas” offers a low-tech and off-line format that can be easily folded up and brought to community meetings to support discussions.

Community partners and facilitators



One of the problems of using government data for planning is that it can lack credibility and become outdated. Working with residents often captures more accurate data than government estimates because they know their communities intimately. It can also be cheaper to collect and update information than methods used for official data-collection, making efforts to maintain up-to-date datasets more financially

Strategy 1 Concept Diagram



Data collection, mapping, and statistical analysis of urban information support a cycle of planning and implementation involving citizen, NGO, and government actors

sustainable. Making an effort to gather inputs from residents also captures local knowledge that is useful in giving a clear picture to the government of community realities on the ground.

**BY BEING ABLE TO COUNT
ON HAVING THE SAME
INFORMATION AS OTHER PEOPLE,
HELPS TO EMPOWER PEOPLE AT
THE MARGINS.**

An important element that helps stimulate this process is the role of community facilitators who play an intermediary, catalyzing role. Facilitators translate different concepts so that everyone can comprehend them and use the data equally. They also mobilize residents and community groups and raise awareness about the significance and meaning of the information so that people can make use of it. Thus the role of facilitator is essential – as moderator, translator, and mobilizer. In Chennai, the NGO Transparent Chennai was able to translate local knowledge that identified trash piles on to paper maps, and then digitized those maps so that the government engineers were able to interpret them in a format more familiar to them. In Solo, Kota Kita helps to translate urban issues, such as public service gaps, to residents unfamiliar with planning, through the use of simple maps and data graphics. Recognizing the role of facilitators is important, especially considering the resources needed to sustain and take initiatives to large scale impact.

Communicating actionable information

The format in which information is presented determines who can use it, and how effective it will be. Thus it is important that legibility is considered when thinking about information accessibility. Some data-sharing



initiatives ultimately are unable to reach a wide audience because they may present urban information in a technical language that is illegible, or in a format that is inaccessible.

In addition, some data projects are limited by their emphasis on public legibility, decreasing the perceived utility of the data among professionals. Considering that many of Asia's poor have yet to consistently access the Internet, online data sharing may have limited relevance. The "mini atlases" in Solo avoid this issue by presenting information in an off-line format in a way that serves as a basis for reflection and discussion amongst residents.

In order to create an actionable advocacy tool it is important to clearly demonstrate what subsequent actions need be taken, to whom you are advocating, and who should be advocating. Such guidance not only indicates to different actors what data means and how to respond to it, but also how to direct advocacy requests to those that have the power to bring about change. In Solo, for example, the maps revealed the extent of water and sanitation service delivery, thereby indicating where gaps in public services exist. Representation of information is an important element to bring about impact. In addition, facilitation support needs to indicate to residents how to direct their advocacy to the government to seek change.

Spaces of exchange and dialogue

Open access to data allows partners who access the information to engage on an equal footing, and challenge existing planning approaches that are limited to officials and planners at the exclusion of residents and civil society groups. Making a standard set of information available can empower all interested parties to engage on issues and opens up discussion to wider groups, which can lead to additional information, and more ideas for solutions. In many cases, residents feel they lack information, or are unqualified to comment on issues, and these feelings limit them from participating even when space for dialogue is provided by the government. Being able to count on having the same access to information as others helps to empower people at the margins, leading to more inclusiveness in discussions about shared issues.

BOX: KEY TAKE-AWAYS

- The possibilities for public advocacy and oversight are being increased by new tools, that can facilitate the engagement of new stakeholders to gather and use data to create pressure on government and service providers. These tools help to reduce the cost, and improve the efficiency and accuracy of data collection.
- For data to contribute to successful advocacy, it should offer practical and clearly understood use for those who receive it. This requires careful consideration of various factors including its format and presentation, which affects how people think about and use the information.
- Community-based data collection and advocacy is best designed to support targeted approaches to generating solutions on specific issues. Understanding the interests that have shaped the status quo, will also help understand the kinds of information and targeting strategies that are most likely to lead to positive change.

Chapter 4: Increasing Efficient Engagement with Urban Systems

In some cases information can be used to spur non-government actors to create solutions to urban challenges and create greater efficiency in existing systems without fundamental reform to those systems. In many cities in Asia, especially given how many residents access services through informal providers, be it transportation or water, urban systems are poorly coordinated, managed, and non-transparent.

Where information can be made available and shared within civil society, it sometimes will improve the ability of non-government actors to engage effectively with existing urban systems. This can lead to changes in user behavior that allow them to get better results from the existing system without requiring government-led reform. An example of this was the creation of Dhaka's first bus map, which mapped informal bus routes in the city and visualized them as a guide for riders.

By providing a map that helped visualize the entire range of bus lines, commuters were empowered to make better sense of their options and navigate their way more easily.

Data can be used to promote autonomous responses to address the needs of users, or commuters, outside of government engagement. This strategy is most appropriate for environments in which there are major obstacles to bringing about systemic reform, such as difficulties coordinating between government agencies, or the scale of the issue being too great. In Dhaka, the sheer number of service providers and a disinterested government were clear hurdles to wider reform.

Information used in this way can either be self-generated or adapted from existing sources to empower community initiatives, and allow non-governmental actors to intervene. While the previous chapter focused on advocacy to promote reform, this chapter considers ways to make improvements to urban systems without systemic reform.

Working smart – building strategic partnerships



Commuters in Dhaka had experienced confusion with the transportation system for a long time; but supporting improvements for commuters was largely off the radar of government for investment. The Urban Launchpad group, made up of urban planners, volunteers and a local NGO, recognized space for making improvements on this issue themselves by directly mobilizing community-level volunteers, in this case the users of the bus service.



Members of the Urban Launchpad team collect data on bus routes in Dhaka, Bangladesh

Initially their focus was limited to providing information that allowed users to better understand the transportation network. This approach initially means that the strategy for achieving impact clearly states that change at first would come from adjustments to user behaviors, which result in savings on time and cost for those users. Only later did they focus on demonstrating results to government to advocate for wider use of transportation maps and potentially system improvements. This initiative

was funded through small donations solicited online at the Kickstarter website, so it lacked a single significant donor, but it overcame limited budget with resourceful planning, working with volunteers, harnessing the potential of new smartphone technology, and applying it creatively. They needed the vision and local knowledge to understand the problem and to decide how to use the data, as well as the skills to collect their own data and use technology to engineer solutions.

Choosing initially not to engage with government they instead found ways to improve the system independently. This path was chosen due to the complications of a reform agenda that was not a high priority for government, and the challenge of potentially working with many different independent companies, each with their own interests that would present complications and potential resistance.

While major reform of the system through government would potentially yield even greater impact, the strategy in Dhaka aimed to make more modest improvements based in improved user knowledge of the system that could be introduced while sidestepping government. In the long-term the government might be encouraged to embrace or build on the changes they put forward.

In Dhaka, there have been encouraging signs, the government's own bus fleet is currently being equipped with geo-tracking devices and real time tracking systems to provide more information to customers.

Information can help informal services transition to more formal ones



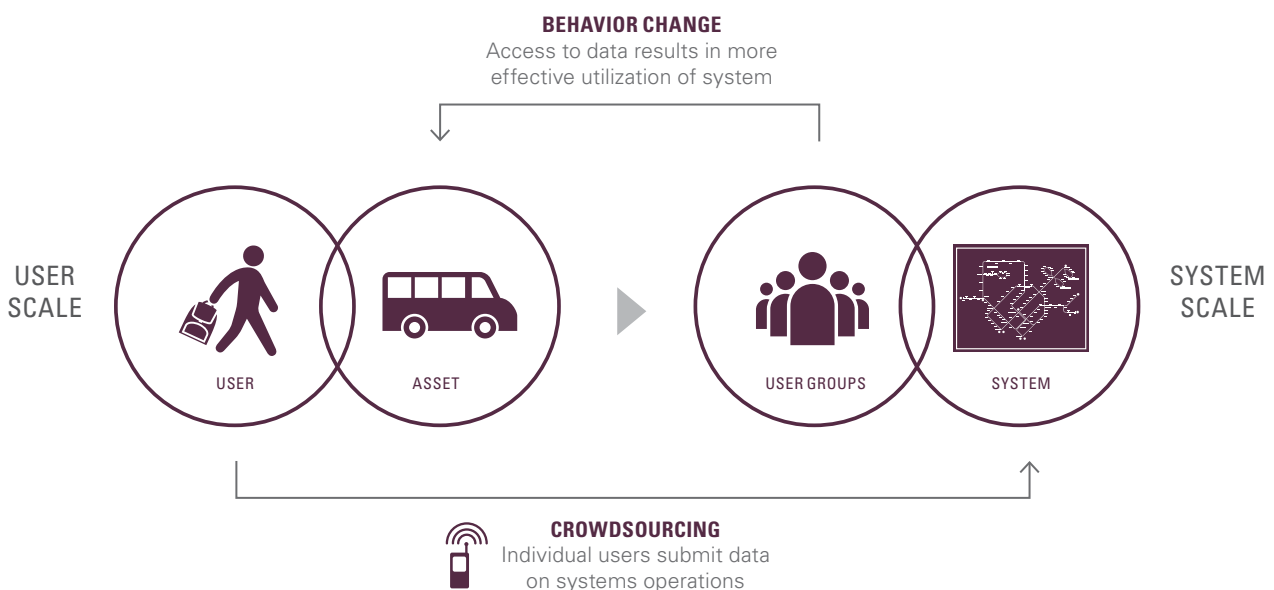
Urbanization has created pressures on services that governments are struggling to respond to, this has left gaps that are often filled by informal and often unregulated or planned networks in many places, like the many informal buses serving Dhaka for example.

Generating information about the ways that informal sectors are filling needs can serve as a first step to more systemic improvements. Visibility on issues, in this case through the mapping of the bus system map, can help quantify and define the gaps in formal services, and be a first step towards planning significant change in that system.

What starts as actions outside of government may later influence government to consider either improving public systems to reduce the demand for informal systems, or work towards formalization or regulation of informal solutions over time.

The potential formalization of informal systems can often start with efforts to first improve linkages between informal and formal networks. For this to happen information, such as that on service routes, first needs to be collected on informal networks. That information can then be used to understand the needs of users, see how informal and formal service provision intersect, and

Strategy 2 Concept Diagram



Where information can be made available and shared within civil society it sometimes will improve the ability of non-government actors to engage effectively with existing urban systems

BOX: KEY TAKE-AWAYS

- Civil society organizations can identify critical issues and develop responses to them without necessarily engaging government, if those solutions increase efficient engagement of users with existing systems.
- The effectiveness of intermediary organizations depends on data sharing processes and outreach activities as much as data collection strategies. Especially when impact relies on changes in user behavior rather than system reform.
- New technology can often decrease costs of data collection, but are not always the most effective for helping information reach all audiences.

potentially find areas of mutual interests and partnership where informal and formal providers may increase system efficiency by working or planning together.

This is only the first step of a formalization process, but it a different and more constructive approach than choosing to, like many governments, simply ignore the presence of informal providers, or in some cases actively trying to reduce their presence which can have negative impacts for the quality of services available to residents.

Technology that is accessible



The Urban Launchpad group was able to identify technology tools that made this effort cost-effective, and generated accurate GPS data.

Technology enabled and empowered the volunteers to gather and use information relevant to bus users. Using Android devices equipped with GPS to track the bus lines meant applying open-source, low-cost technology that volunteers already owned in some cases.

These tools also produced data sets with significant flexibility (benefits taken advantage of by other organizations like Transparent Chennai and Solo Kota Kita). Technical knowledge allowed them to take advantage of low-cost technology, which they used to gather information from community members as well as disseminate findings back to them, using low-tech maps and questionnaires. This allowed information to be better understood without requiring any technical skills. For those residents that were more used to technology, the project teams also used smart phone applications and SMS messages for data collection and sharing. Thus they used different kinds of technology as appropriate to their tasks and audiences.

Chapter 5:

Filling Gaps in Knowledge Among Service Providers

All across Asian cities, problems in water networks, uncollected trash, and areas with low to non-existent services indicate that there are gaps in public services. Poor management, corruption, and bureaucratic intransigence are often cited as causes for poor service delivery, but rates of urbanization also mean that service providers and governments are facing significant budgetary constraints, technical challenges and rapidly changing contexts.

Service providers often face difficulties identifying where service gaps occur, how to identify system inefficiencies, and understanding where to prioritize fixing system problems. Data has an immense potential to play a role in developing strategies to improve services.

While improving government or service provider capacity to collect and analyze data is one approach, information can also often be gathered by residents who, if creatively engaged, can fill gaps in information quickly and cheaply so that service providers can undertake more effective planning and service delivery.

This use of data works best where there is a recognizable incentive on behalf of service providers to fill these gaps. With the public sector this comes from strong leadership and cultures of improvement that are presented in some of the best managed cities, or it can be the result of pressure from elected officials or decision-makers responding to perceived needs and priorities of the electorate.

In contexts with private sector providers there can also be a financial benefit to reform that can motivate increased responsiveness, such as with the Malang case. Creative and collaborative partnerships between service providers and customers have clear potential to increase the coverage and quality of service networks.

Crowd-sourcing brings information together quickly



In Malang, Indonesia the Water SMS case shows how the public voluntarily submits information through a crowd-sourced SMS gateway system. This system categorizes messages and then visualizes issues on a dashboard accessible to the water utility providers and the public.




An Android application enables the Urban Launchpad team to geo-reference transportation routes when they ride buses in Dhaka, Bangladesh

“Crowd-sourcing” refers to the method of bringing together information from a broad group of contributors by having them submit responses individually, but aggregating all response to harness the individual knowledge submitted into a data set that can be analyzed. In Malang this helped the water provider identify and address issues in the system in real time, thereby improving service. So for providers this approach helped quickly and efficiently identify problems at limited costs by engaging the public.

For the public the opportunity to receive information about service outages, price fluctuations and receive more responsive service can incentivize their participation.

Openness and disclosure support improving service

 For a system to generate real time information on service issues from the public to work, the public utility company first had to engage with civil society organizations, residents and relevant government actors to generate interest in the system and a willingness to collaborate. This willingness to engage is not insignificant considering that companies are taking some risks supporting a platform that generates information on their system’s weaknesses that might be used to criticize their performance.

Open dialogue also allowed the service provider to better understand what additional information would be useful to users, allowing them to plan broadcast messaging around issues of importance. In Malang those issues have been announcing service changes or shortages, or information about upcoming meter readings.


This initial engagement can determine project success, especially for cases like in Malang where the utility of the system depend on the number of contributions received and amount of data submitted. Initial conversations helped articulate the potential benefits for all actors

involved. This expression of interests is discussed further below.

When information collected to fill gaps in government knowledge is made open and transparent, a ‘multiplier effect’ can be created. Opening up the information on the system to other people provides additional opportunities for improvements as other initiatives can build upon current data sets.

Thus if government, or another entity creates a foundational or base layer of information that other initiatives can access, variations in skills, interests and perspectives can lead to different activists, NGOs or private sector actors using the same data in unexpected and creative ways.

Aligning Incentives is the Key to Improving Public Service Delivery

 Collaboration between communities, government agencies and service providers was possible because incentives were aligned to enable each stakeholder see their benefit in participating in the system. A balance of interests allowed the Malang municipal water provider to accept the need to become more transparent, and receive added scrutiny, because the ability to fix leaks meant that they would be able to save money by addressing problems faster.

Strategy 3 Concept Diagram



While improving government or service provider capacity to collect and analyze data is one approach, data can also often be gathered by residents who if creatively engaged, can fill gaps in information quickly

BOX: KEY TAKE-AWAYS

- When gaps in government information are filled by new data that is openly shared a “multiplier effect” can be created. If government, or another entity creates a foundation or base layer of information multiple initiatives can build on it, often in unexpected ways.
- In systems that require buy-in from multiple stakeholders to function, i.e. government, civil society and the private sector, the perceived benefits of all actors will need to be clearly understood for sustainability.
- Understanding how the data can be used, as well as the capability of service providers to use it is critical to success. Understanding when data can be shared and immediately reacted to, or when it needs to be complemented by analysis and planning capacities is an important consideration.

For government agencies, they were willing to work closely on Water SMS to be seen as responding to one of the most critical needs of the electorate. Finally for civil society, who ultimately had to take the initiative to submit data to the system, making real time information on service outages, pricing and other useful issues helped them see a benefit in taking the time to participate.

The initial engagement between all stakeholders helped them collectively identify what information the system would collect, what it would be used for, and how it would be shared. Often these are the most contentious issues that fuel disagreements between both sides over access to information and the corresponding responsibilities of each stakeholder.

A flexible system design process that is given sufficient time to work through these issues and build trust through engagement is generally most effective. In Malang partners worked together to understand needs and capacity, to ensure that there was benefit for different stakeholders and ultimately this led to a collaborative relationship that all sides could recognize the value of.

In addition to generating initial engagement, a critical consideration is maintaining interest and attention over a long period of time, especially when there is nothing tangible that each resident submitting information personally and immediately gain from contributing to the system. This momentum is essential as most information-sharing initiatives require a critical mass of data flow to be useful, and changing habits to make submitting information on service issues natural takes time.

Investment in outreach, monitoring and encouragement to generate consistency in data flows is required to keep the system working, give people time to have habits evolve towards use of the system, and take on enough new information to enable service providers to actually be perceived as improving their behaviors because of the system.

Chapter 6: Improved Coordination and Capacity in Local Government

Urban governance reform programs are rarely effective if they make the mistake of viewing city governments as monolithic. In reality of course, many governments are fraught with competing interests, politics and corruption, poor coordination and information sharing, as well as simple mismanagement. Information has a role to play in reducing some of these governance challenges.

If well deployed, good data and analysis improves coordination amongst government agencies and civil society organizations, or at times adjusts information imbalances more towards reform-minded actors. Accurate data and new pathways for sharing it within the city in some situations allows for the de-politicization of planning and decision-making as it forces clarification of the rationale and motivations behind decisions or opinions.

In the cases presented several used data to significantly change the amount and type of information and analysis available to government decision makers. In Ulaanbaatar, maps of urban conditions were used for the first time in budget discussions, allowing government to take decisions about resource allocation with more focus on evidence than political alliances as had been done in the past. In Solo, the city government was able to consider resident priorities through direct information on community needs from the ground rather than interpreted through elites.

Across the cases, information sources have helped governments improve their internal coordination, introducing new pathways for sharing information, and empowering reformers to apply more evidenced-based decision-making.

Political leadership is essential



Using information for changing government processes requires political leadership that is interested in instituting a different way of making decisions. In Ulaanbaatar, the Mayor wanted to cut through the politics of local demands, limit the power of a mid-tier bureaucracy, by reducing their ability to manipulate information, and understand the actual needs of the city. Data derived more or less directly from the community was useful to accomplish those aims. In Solo the Mayor had a somewhat similar interest in reducing elite capture of planning processes, both for altruistic and ideological reasons, as well as part of a political strategy.




Social facilitators in Ulaanbaatar, Mongolia review mapping data

In these cases both leaders saw generating public information as a way to build pressure for reform that would strengthen their position pushing for changes within government, and viewed their support for public engagement in decision as part of their long-term strategies for building support for their political careers.

This kind of engaged leadership is vital for implementing bureaucratic management changes and improving coordination. Bureaucracies are traditionally conservative and reluctant to embrace changes without pressure, as was the case in both Solo and Ulaanbaatar.

Selecting tools that work for government

 Using data to support government actors to work more effectively and efficiently requires consideration for both the technical capacity of partners, as well as sensitivities to the level of public scrutiny that will be acceptable. On the capacity side, the level of problem-solving and resourcefulness of government partners who can actually use data collected needs to be evaluated. If capacity is limited in ways that prevent effective data collection, management or analysis, a project will have to either invest in partner skills or consider the use of less complicated tools and methodologies.

At times city governments need help identifying their own capacity that is being underutilized, and helping the reformers or decision-makers better take advantage of it. In Ulaanbaatar, basic ArcGIS (a software package commonly used in mapping projects) capabilities existed in a number of city departments, but they were not being used for planning and decision making at the political level of the Mayor and General Manager, who were the key drivers of the mapping process. Helping identify those human resources, and then providing additional training was part of the project.

After understanding the value of the mapping process, the city decided to shift some human resources as well as hire additional staff capable of mapping to work directly for the General Manager.

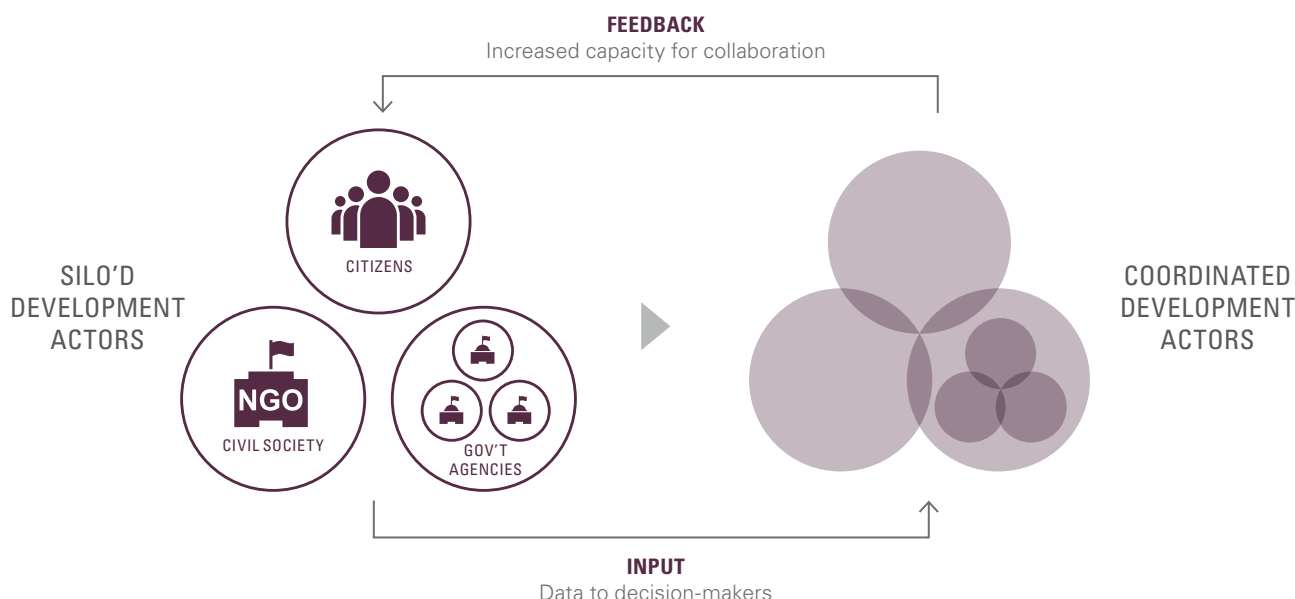
Partnership with government also needs careful consideration of the level of transparency needed to achieve reform. For advocacy driven projects, effectiveness will directly be linked to the levels of public transparency achieved. With projects attempting to work with government on reform processes it is still ideal for data to be shared publicly and made transparent, but especially in contentious political contexts, or reform programs that threaten economic or political interests of influential stakeholders, full openness may not initially be possible.

Identifying at least how to make data transparent within government structures is crucial, as well as developing a clear understanding of how transparent is 'transparent enough' to accomplish a project's specific reform goals.

Improving policies and de-politicizing decision-making

In Ulaanbaatar, the mapping process was driven by a Mayor who wanted to generate political support among residents of the city's unplanned settlements. Part of his strategy included efforts to improve capital planning processes. That interest combined with the mapping tool has led to significant changes in the way the city evaluates its investments for local budgeting.

Strategy 4 Concept Diagram



Good data and analysis improves coordination amongst government agencies and civil society organizations or at times adjusts information imbalances more towards reform-minded actors

BOX: KEY TAKE-AWAYS

- Understanding and being strategic about the potential trade-offs between pushing for public transparency and building trust with partners in government is important for reform work.
- New information pathways can empower reformers or decisions makers looking to improve services, but to be successful it requires understanding their influence and capacity to use that information.
- Governments are not monolithic, they are full of competition, poor coordination and disparate interests, new data can realign them in positive ways.

In the past, neighborhood leaders and local officials proposed “wish lists,” shaped by political interests and influence more than needs in many cases. This was an inefficient way to allocate resources that led to unequal access to services, and also made decisions biased against the urban poor as wealthier communities had more influence over local politicians. Following successful completion of the first round of community mapping, and reviewing the analysis produced, the city leadership revised both its budgeting process and capital planning approval process to require reference to the spatial analysis provided by the community maps.

By moving to a more evidenced-based system, city officials now have to demonstrate why infrastructure is needed and the expected impact with reference to the maps. Having access to maps and analysis of gaps in service demonstrates community needs clearly and provides for a more accountable budgeting process. These changes have meant that government agencies are required to collect more meaningful information and analyze it, in order to justify proposed investments to decision-makers.

In this Ulaanbaatar case decision-makers benefitted from the introduction of an information pathway that went around a middle level of politicians who had been manipulating the system. The skewed incentives of those handling data can be a major inhibiting factor for those in decision-making positions.

Often service providers are responsible for collecting the data that is actually used to then evaluate their performance, or sometimes set their compensation levels. Finding new paths for data that circumvents those with conflicts of interest or perverse incentives to misreport performance has significant impactful potential in contexts where decision-makers are prepared to act on information received. This fact underscores the reality that information is political, and who controls information can have distinct advantages in forwarding their goals and interests. This reality affects how information and information pathways will impact reform processes.

Chapter 7:

Concluding Thoughts and Recommendations

Urban data holds potential to shape the inclusive development of Asian cities and is already making cities more efficient and effective.

The frameworks presented in this report provide a basis for development actors to think through the problems and contexts they work within and how data might contribute to efforts to achieve desired project outcomes that improve the lives of urban residents and increase the efficiency and effectiveness of urban systems.

From the formation of the framework and review of the case studies, the authors recommend the following:

Embrace the Dynamism and Diversity of Urban Settings

The great power of cities lies in the concentration of people with diverse interests, skills, backgrounds and outlooks that intersect, collide and produce immense energy. Potential for new partnerships and alliances, unexpected tensions, and creative destruction provide opportunities for creativity, reform and positive change.

Data is a powerful catalyst for bringing groups together, adjusting power imbalances, and fueling creativity. Across the cases the diversity of political, social economic contexts provided a reminder that urban settings need to be approached with this diversity in mind. It is not always effective to assume similar cultural and social frameworks exist as in rural or town settings even within the same country, let alone across different country contexts.

Understand the Context

Recognizing the unique environments in cities is one step, but understanding the key dynamics shaping governance

and service delivery in a specific city requires significant thought and effort. Impact strategies for using urban data require careful analysis of interests and capacities, existing and potential information pathways, informal and formal networks, social and cultural dynamics among many other factors.



Transparent Chennai often facilitates community activities using physical models of streets and public spaces

Effective strategies will be grounded in analysis of the status quo issues that create inefficient, ineffective or unfair policies and service delivery systems; combined with problem solving that generates solutions that respond to the unique local constraints and draws on the particular opportunities of the context. This is important as the design of tools and methodologies.

Articulate Impact Strategies Clearly

The four strategies presented in this report are not mutually exclusive, and in fact can be most effective when being deployed simultaneously. It is critical to identify the impact strategy that seems most likely to achieve the goals of the project in that particular context.

Hypothesizing how data will change the incentives and interests for actors in urban settings, and ultimately affect behaviors of all stakeholders, as well as articulating clear strategies will lead to more effective programming than concepts that overly rely on assertions about the power of information and transparency.

Understanding the strategy will shape key program decisions and set appropriate sequencing. It will also help in the identification of the most critical information pathways that link the right actors to the right data, and generally to present data and analysis in ways that respond directly to the recognized issues.

Think About How Strategy Choice Affects Four Lenses

There is no one-size-fits all solution, so tools and methodologies for data gathering, sharing and analysis need to match the context, problems being solved, and impact strategy. Considering the interests that will shape behaviors, technology available, partnerships that might be struck and appropriate approach to transparency all will depend on the context and strategy. Choosing the right kind of data collection and sharing method requires attention to the capacity, the scale of the activity and the kind of audience being targeted.

Hi-tech methods are not necessarily better than low-tech ones – often the reverse is true. It is important to remember that it is less critical to generate perfect data than to deliver information with clear implications for behaviors or actions to the right stakeholders at the right time. Focus on the strategy for getting key audiences to engage with and react to the data generated, and evaluating how the data can best be presented to intended users. These factors should determine the amount of investment in the quality or level of detail needed for the data.

Be Flexible and Process New Information

Choosing a strategy for how data will most likely achieve impact does not mean ignoring opportunities to process more information and revisit assumptions and impact strategies. As relationships, politics, and analysis evolve so should strategy.

When using urban data, recognizing that an initial plan for its use might need to be adjusted, selecting data formats or collection methodologies that allow for changes of direction. Design and analysis can be critical to a project's ability to adapt to evolving circumstances and information.

Information is Political and Interests Matter

Close attention needs be paid to what different actors look for from urban data and how it can empower their agendas. The politics and interests of stakeholders can shape the level of engagement with data, commitment to the project, interpretation of findings, opinions on transparency and many other critical factors.

Who controls data and through what paths can shift power dynamics, and change levels of influence. Recognizing these dynamics is critical both to guarding against unintended consequences, and generating strategies for achieving the desired positive impact.

Long-Term Goals Require Long-Term Investments

Increased data availability and transparency are important long-term goals, but making more information publicly accessible alone does not automatically resolve immediate problems. Encouraging city governments to create data sharing platforms, using activities to sensitize officials to how it can help them achieve their goals and objectives, and creating a culture of openness

in an urban environment are critical actions for long term impact.

If that culture can be created, city governments can be instrumental in facilitating data collection and use. Open data can create a 'multiplier effect' that allows residents, community organizations, academics and think tanks to participate in generating solutions to keep up with the pace of urbanization.

However, these are long-term cultural changes in a city that require commitments beyond the scope of a single project. Lining up short-term impact strategies while contributing to long-term development goals can both be done, but this transition may require a two-tiered strategy that maximizes the utility of projects, while building towards steady changes in the culture of data generation, use and sharing.



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