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**An Assessment of How Cities Create and Transfer Knowledge:
A Landscape Study**

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White Paper

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Abstract:

This paper is a scoping exercise exploring the present-day landscape of how cities transfer knowledge regarding best practices in sustainable urban development. Based on a one-year review of literature and practice, Section 1 of the paper introduces the current academic and professional thinking on “horizontal learning” and best practice dissemination. In Section 2, a broad survey of actors who constitute sustainable urban development “knowledge sources” is presented, with a particular focus on urbanization in the Global South. Drawing attention to the multi-scalar and multi-sectoral challenges presented by the emergence of the ‘urban century,’ the knowledge sources are grouped under five basic types: Multilateral, Governmental/Bilateral, Practitioner, Private Sector/Philanthropic, and Academic, with their contributions to best practices in sustainable urban development as well as dissemination methods outlined. Finally, Section 3 undertakes a broader comparative assessment of the methods of knowledge transfer observed, grouped along the spectrum of Internet/Database, Peer to Peer, Traditional Academic, and Intermediary driven dissemination models, in order to examine current trajectory and efficacy of knowledge transfer focused on issues of urban planning, finance and health. Ultimately, three emerging themes; the shifting focus towards South-South knowledge transfer which is reorganizing the interactions between knowledge sources from the Global North and South, the growing role of private sector actors, corporate and philanthropic, and the repositioning of urban development as a driver of economic, ecological, and social sustainability are underlined. As a result, three core research gaps are identified: 1) the future of North-South and public-private partnerships surrounding the creation and dissemination of best practices in sustainable urban development, 2) the lack of best practice knowledge focused on the comprehensive nature of sustainable urban development -- accounting for ecological, economic, and social outcomes, and 3) the existing dearth of information on the incentives and barriers to the adoption of best practices in the urban public sector -- specifically regarding effective structures to support multi-sectoral and multi-disciplinary dialogue.

Table of Contents

Introduction.....	5
Overview.....	10
Section 1: Horizontal Learning and Best Practice Dissemination.....	12
History.....	12
Appeal	14
Definition.....	15
Metric 1: Critical Success Factors.....	17
Metric 2: Performance Indicators.....	19
Knowledge Sharing Techniques: An Overview.....	20
Section 2: Sustainable Urban Development Knowledge Sources: The Present-day Landscape of Actors and Dissemination Methods.....	25
Dissemination Methods, Tools, and Techniques: Emerging Trends.....	32
Theme 1: The Shifting Focus of Knowledge Transfer.....	33
Theme 2: The Growing Role of Private Sector Actors.....	35
Theme 3: Emerging Trends in Economic and Urban Development Policy and Best Practice..	37
Section 3: Assessing Dissemination Methods:.....	39
Critical Challenges by Dissemination Method.....	41
Research Gaps and Next Steps.....	45
References.....	49
Appendices.....	58
Figures:	
Figure 1: Mapping the Knowledge Dissemination Landscape.....	11
Figure 2: Timeline of Global Knowledge Networks.....	14
Figure 3: Program, Scope, Scale Table.....	26
Figure 4: Emerging Themes.....	32
Figure 5: Objectives, Audience, Instruments Table.....	46

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Introduction

With the support of the Rockefeller Foundation, the Penn Institute for Urban Research is currently conducting a landscape study of how cities transfer knowledge in areas of sustainable urban development. As the “Best Practice” model continues to solidify its place at the center of an increasing number of disciplines, from private sector technology development to governance and civic participation, there has been a simultaneous increase in the attention of urban specialists -- practitioners and academics alike -- to how knowledge is developed and disseminated throughout the world’s metropolises. While interest in the form and functionality of “city-to-city” (C2C) exchanges dates back to the 1970s and before (Hewitt, 1999, p. 29), the recent spike in attention can be attributed to the fact that urban areas now house the majority of the world’s population (Keiner, M. & Kim, A., 2007), placing them at the center of a growing number of acute global challenges (increasing poverty, climate change, and the proliferation of slum housing, among others), while simultaneously positioning them as the only settlement patterns likely to provide the efficiencies of scale, low-carbon footprints, and economic development opportunities necessary to address these challenges (Kharas et al., 2010, p. 1). Indeed, as global population trajectories continue to become increasingly urbanized, ensuring that the world’s new and existing cities grow and develop in a sustainable manner will stand as a litmus test of the present generation’s ability to

adapt to emerging environmental, political, and social circumstances.

Why focus on knowledge transfer between cities? As the past decades have brought significant technological and structural improvements to aspects of infrastructure, finance, and sustainability to many cities, it is clear that these gains have been unevenly experienced throughout the world. One need look no further than the implementation of highly lauded storm and waste water policies and infrastructures in Philadelphia and Seattle, or the adoption of successful Bus Rapid Transit (BRT) models in cities such as Bogotá and Lagos, while the vast majority of the world's cities, facing similar obstacles, continue to struggle with inefficient and detrimental infrastructures (Campbell, 2009: 195; OECD, 2008). It is this failure of replication and scaling of successful interventions that has now captured the attention of development agenda, as reflected in Annez and Linn's recent work, "An Agenda for Research on Urbanization in Developing Countries" (2010: 12).¹

Simultaneously, the rise of 'global' and 'entrepreneurial' cities literature (e.g. Chu, 2008; Xu and Yeh, 2005; Sassen, 2000) has situated analysis of urban development strategies within a framework of globalized, inter-city competition. Indeed, though structures of urban planning and finance take markedly different forms in many world cities, most obviously noted in the heightened attention to the divergence of China's urban development model,² the vast majority of analysis accepts the increasingly important role of site-specific, urban-level policies as cities jockey attract "footlose" sources of capital and private investment at the regional and global level (Xu and Yeh, 2005, p. 303). This trend has been further reinforced by the recent move towards fiscal and political decentralization, now pervasive in low and middle income countries alike (See Ingram and Hong, 2007; Smoke, 2001; 2010). While it remains to be seen to what extent cities will be able to adopt the more innovative practices more traditionally associated with independent firms, and decentralization measures continue to present significant structural challenges (Annez and Linn, 2010), this competitive city model is likely to have an increasingly wide-ranging impact on the behavior of city level administrations, as well as the bodies responsible for urban finance

1 See also, Baker and McClain, 2009; Martine et al, 2008

2 Internationally, it is also important to note recent academic and policy attention to the emergence of the 'Beijing Consensus,' as opposed to the Washington Consensus, particularly relevant to development outcomes and infrastructure in Sub-Saharan Africa (see Foster et al, 2009; Halper, 2010)

and infrastructure development. Its inclusion as a core pillar in both the World Bank's 2000 and 2010 Urban Development Strategy Updates (World Bank, 2010) and a host of other high level strategy documents (e.g. Kamal-Chaoui, et al, 2009/1) signals that 'competitiveness' will remain a priority in urban development strategies around the world in the coming years.³ It is critical here to acknowledge that there remains a significant absence of effective 'adoption mechanisms' for best practices in the public sector. Indeed, regardless of the popularity of the competitive city model, there can be no doubt that, unlike in the private sector where failure to adopt best practices will generally result in an inability to compete and significant revenue losses (Ticha and Havlíček, 2008), city administrations experience very little comparable pressure when it comes to actively adopting best practices. While competition for national and multilateral funding does support policy convergence (citation to be provided), this alone has not proved sufficient to motivate high levels of best practice adoption, and the lack of universal goals and benchmarks continue to present a challenge to progress on this front.

Perhaps most pressing, however, is the growing body of research (Campbell, 2009; De Villiers, 2009; Macario and Marques, 2008) underlining the fact that where effective knowledge exchange does occur, it is almost expressly transferred amongst individuals and departments within the same disciplines and sectors, and rarely ever involving representatives from the various fields which will in fact be responsible for working together to implement holistic sustainable development strategies. This lack of coordinated knowledge creation and transfer, as further sections of this paper outlines, stands as a major impediment to urban development strategies which are able to integrate best and good practices from critical fields such as urban governance, planning, finance, and health.

This White Paper's particular interest in the current landscape of information transfer among global cities is thus situated within the context of uneven urban development, as well as an increasing acceptance that cities, with their unique position among global economies and networks, must not rely solely on top-down, state driven development, but act as entrepreneurs, reaching out to one

³ As Linn (2009) points out, this focus on competitive cities and investment incentives is not new, but rather can be seen as a resurgence of a similar focus by the World Bank and other development institutions in the 1970s-80s.

another to share the best practices and knowledge necessary to foster positive innovation, competition, and development. Best practice knowledge transfer between cities ought to be recognized as a unique and opportune mechanism with which to address challenges such as climate change adaptation and equitable development. In this sense, regardless of the techniques through which information is exchanged, the city of New Orleans can engage as an equal with Brisbane and Dhaka over issues of sustainable urban hydrology and post-disaster reconstruction more readily than the US, Australian, and Bangladeshi governments are able to partner on issues of global climate change. The urgency of this agenda is further underlined as contemporary research continues to call attention to the close relationship between the successes and failures of urban areas, and social and economic development outcomes at the nation and state level (Romer, 2010; McKinsey Global Institute, 2011).

Finally, though “Best Practices” are now *the* major method of knowledge dissemination in fields such as public management (Loffler, 2001) and contemporary urban and regional planning -- with an estimated 70% of the world’s cities involved in some form of city to city information exchange (UCLG, 2006) -- there has been little academic assessment of this method of sharing knowledge within the field of sustainable urban development. The issue is further complicated by the multi-scalar and multi-sectoral nature of the actors involved with urban finance, development, and public health, as well as the increasing reliance on public-private partnerships to bring not only coordination and capital to urban sector projects, but also the level of innovation which is so often seen as lacking in the public sector (Botella, et al, 2010). This paper sets out to address this gap in the literature, outlining the current landscape of best practice knowledge transfer and highlighting key actors and organizations who create and disseminate best practices with regard to urban planning, finance, and health, with a particular focus on the fields of shelter, transport, and water infrastructure.⁴

It should be acknowledged here that this work engages with many broad and hard-to-define topics. While Section 1 advances a particular definition of best practice knowledge dissemination, it is

⁴ While the assessment of knowledge transfer presented here covers a broad field of knowledge type, these fields have been selected as the primary focus of further research and are prioritized where possible.

beyond the scope of this endeavor to provide an authoritative definition of “sustainable development,” one of the most commonly disputed terms among urban planning and international development specialists. Advances in analytical tools, as well as a growing interest in sustainability as a cornerstone of future development have encouraged new and increasingly specific understandings of ecological, social, and economic sustainability, often at odds with one another. The focus of this work, however, aligns itself with the increasingly popular concept that a social, economic, and environmental sustainability must be viewed as mutually reinforcing and intertwined phenomena. For that reason, it is critical that assessments of best practices in sustainable urban development recognize that ecological, economic, and social development are not inherently in conflict, and that policies aimed at improving any one of these issues can serve to simultaneously advance the agenda of the others, increasing the overall social equity and quality of urban life needed to attract the agglomeration of highly qualified, creative individuals that power a competitive post-industrial economy (Peirce, 2008: 205). Subsequently, when the term sustainable urban development is used in this work, it is meant to encompass the Three Es: Environmental, Economic, and Equitable (Social) development outcomes.

Though numerous individual best practice programs and policies can be highlighted at the micro-level, there exists a clear gap in existing knowledge production and dissemination surrounding coordinated, holistic, metro and regional level development strategies that take into consideration the interrelated nature of the Three Es mentioned above, as well as the sub-fields of shelter, transport, and water. This is despite a clear policy and academic focus on the issue (see World Bank Urban Strategy, 2010; McKinsey Global, 2008, “Preparing for China’s urban billion” and 2010, “India’s urban awakening: Building inclusive cities, sustaining economic growth”), and the emerging tendency towards regional, or ‘city systems’ development taking place in China, the world’s most rapidly urbanizing nation. This is particularly critical considering that cities are being built at a rapid rate in countries throughout the world with very little information as to how these processes relate to perceived ‘best practices’ in urban development. The lack of well articulated and **transferable** knowledge in this area is particularly distressing considering the fact that there remains a high level of uncertainty as to whether countries in Africa and South Asia will be able to

attain similar levels of success utilizing general policy prescriptions based on the experience of now middle income countries and emerging economic superpowers (i.e. China, Brazil, South Korea). Indeed, as the “urban age” progresses, more customized and adaptable policies will be necessary to assist countries and regions to attain sustainable and positive urbanization, limiting increases in rural and urban poverty, as well as unplanned settlement patterns.

Overview:

This paper is presented in three distinct sections reflecting varying stages of research (see Figure 1). Section 1 is a historical overview and review of the contemporary literature on information sharing and best practice methodology. It examines the origins, structures, and trajectories of the field, focusing on issues of efficacy of knowledge transfer between three principal groups, identified by Stone (2003) as, ‘Producers,’ ‘Disseminators,’ and ‘Consumers’ of best practice knowledge. In addition, four primary categories of dissemination methods are identified, namely Internet/Database, Peer-to-Peer, Traditional Academic/Institutional, and Intermediary-facilitated knowledge transfer.

Section 2 introduces a landscape survey of central actors in the production and dissemination of best practice knowledge regarding sustainable urban development. While the creation of a complete list was not possible, nor could it be considering the ever-expanding universe of actors involved in this field at multiple scales, the section does present a framework and typology through which a sample of actors from five key groupings: Multilateral, Governmental/Bilateral, Practitioner, Private Sector/Philanthropic, and Academic can be viewed. For each “type” of actor or agency included, an outline is presented of the scope and scale of the knowledge produced, as well as the primary dissemination methods employed. Finally, Section 3 presents a review of the themes, commonalities, and trajectories of knowledge transfer across these groupings, laying out the strengths and weaknesses of dissemination techniques as well as future research directions with regard to knowledge transfer.

Figure 1: Mapping the Knowledge Dissemination Landscape

Knowledge Transfer and Best Practice Dissemination Context: Sustainable Urban Development

All "Practices" and dissemination methods are considered under the umbrella of:
Economic * Environmental * Equitable Development at the **URBAN** Scale

1

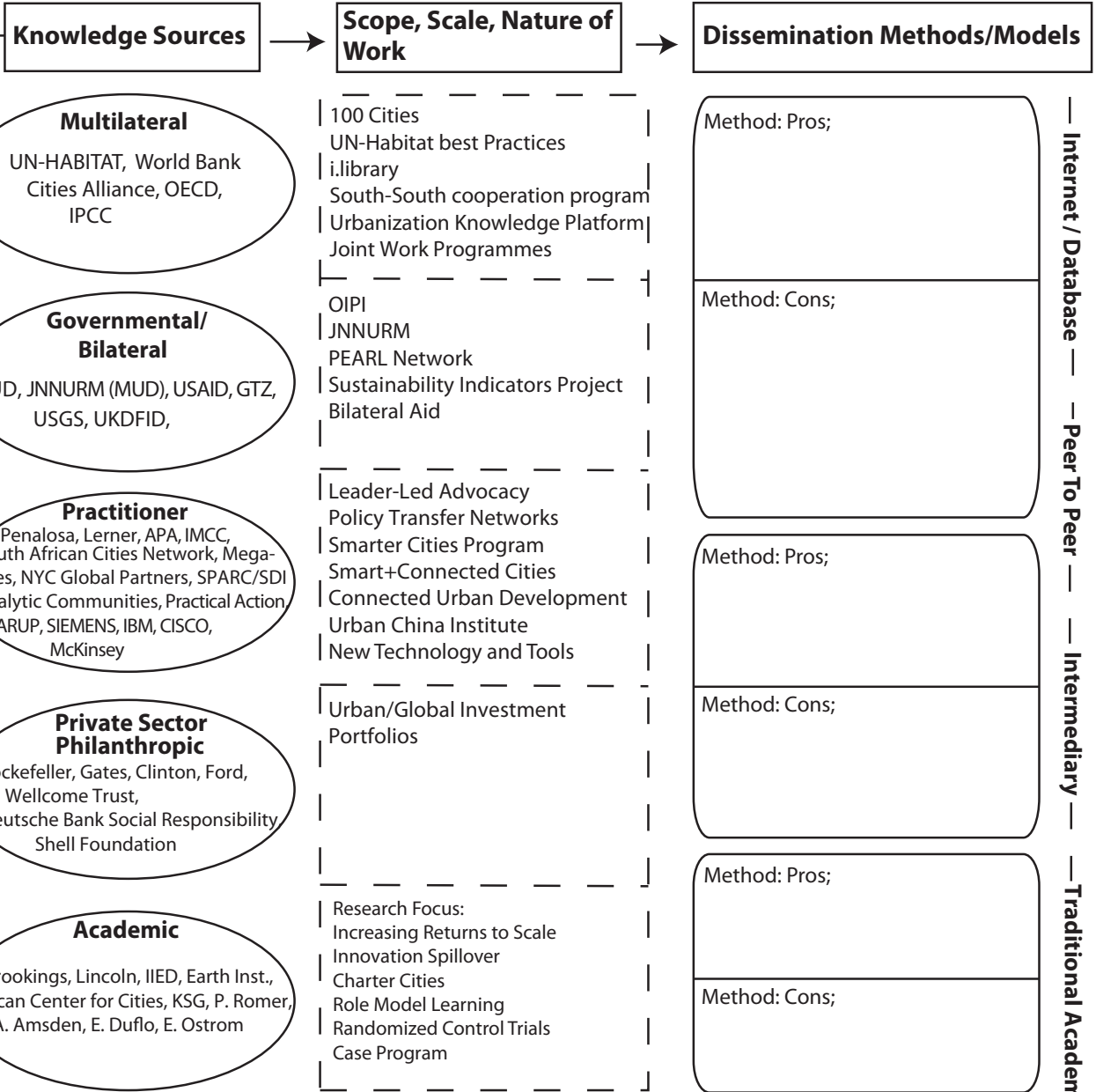
Core Issues:
PLANNING FINANCE HEALTH
 (Shelter * Transport * Water)

— as it relates to infrastructure/urban level issues

☆ Context and Lit. Review of "Horizontal Learning" / Dissemination.

2

Paper Sections



— Internet / Database — — Peer To Peer — — Intermediary — — Traditional Academic

3

Preliminary Comparative Assessment:

☆ Understanding the relationships between scope and scale of work, dissemination methods, and emerging trends in Best Practice Dissemination. Trajectory of best practice dissemination with regard to coordinated "3Es" approach.

Gaps / Moving Forward

Section 1: Horizontal Learning and Best Practice Dissemination

The collection and dissemination of best practices and case studies has a long history in many fields, both domestic and international (see Figure 2). Within the field of Urban Planning and sustainable development the methods are increasingly ubiquitous. Ranging from independent domestic conferences with titles such as “Innovative Cities: Best Practices in Urban Development,”⁵ to a myriad of new and growing international internet databases, most notably UN-HABITAT’s existing “Best Practice Database,” and emerging, dynamic web-based platforms (see World Bank UrbKP and UN HABITAT Urban Gateway) the best practice model is now pervasive.

History:

The best practice concept originated in the late 19th and early 20th century agricultural industry,⁶ when that field was the driving force of the U.S. economy, evolving into the professional milieu with the development of the medical and law occupations where exercising ‘best practices’ became synonymous with a sterling reputation (McKeon, 1998). In those fields, along with business, ‘best practices’ were linked to the similar, parallel concept of ‘case studies’ and teaching through the ‘case methodology,’ where cases were a means to offer practical knowledge through a particular legal argument, business strategy, or medical problem. The Harvard Law School first used case-based methodology in 1870; Johns Hopkins Medical School began requiring two years of hands-on patient treatment in 1893; and the Graduate School of Business Administration at Harvard (now the Harvard Business School) adopted case studies in 1908 (McNerney, Ducharme and Ducharme, 1999).

In the planning field, the earliest domestic implementation of the best practice concept came with the establishment of the Planning Advisory Service (PAS) in 1949. The impetus for the PAS was twofold. First, the American Society of Planning Officials, which joined with the American Institute of Planners to form the American Planning Association in 1978, was seeking a new source of revenue (Birch, 1980; Lewis, 1998). Second, by serving municipal agencies rather than individuals, the PAS would be able to look at planning in a comprehensive way across North America (Lewis,

5 Innovative Cities Conference, “Best Practices in Urban Development, Lowell, MA, June 17-19, 2010.

6 The Land-Grant University project, launched in 1862 in the US, marked the introduction of specific teaching of the science, agriculture and engineering in response to the changes brought by the industrial revolution

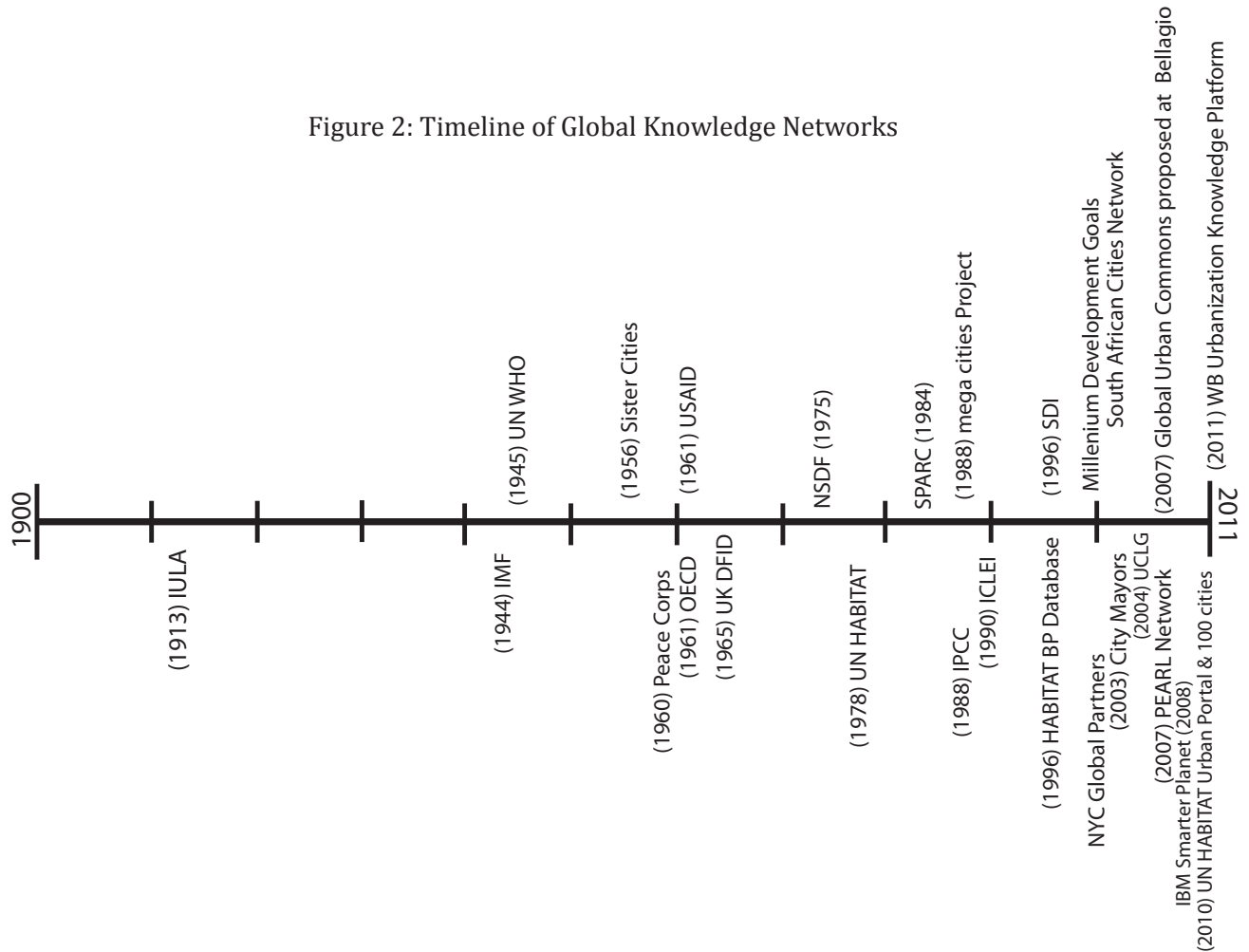
1998). Today, the PAS continues under the guidance of the APA, providing technical assistance to planners across the country for a sliding-scale subscription fee based on population.⁷ These various programs are the progenitors of today's proliferation of best practice, case study theory, and praxis across the professional world.

At the international level, best practices in urban finance, public health, and local governance also have a long history. Dating back to 1913 with the formation of the International Union of Local Authorities (IULA), the first body specifically designed to advance democratic self-governance throughout world cities, and continuing with the formation of seminal institutions such as the World Bank Group, the International Monetary Fund, and the World Health Organization in the 1940s, as well as a wide range of United Nations agencies such as the UNICEF (est. 1946) UNDP (est. 1965), UNEP (est. 1972) and UN-HABITAT (est. 1978) -- the 20th century saw the raise of global norms and standards across the fields of finance, public health provision, and urban planning. Indeed, included as a one of the five core functions of the World Health Organization is "shaping the research agenda, and stimulating the generation, dissemination and application of knowledge" (WHO, 2008). In the financial sector, the World Bank Group and the IMF shared this impetus, directing a considerable amount of their resources into improving the quality of data collection, dissemination, and the establishment of internationally recognized standards. As Kapur (2006: 159) aptly points out, if the World Bank were purely a lending institution and not concerned with knowledge production and dissemination it would likely need only one tenth of its current staff.⁸ While these early institutions relied largely on national level agreements and treaties, a static system of research and report publication, and the provision of funding and support for innovative projects to disseminate best practices and establish global standards, they lay the groundwork for a proliferation of international actors with more focused and flexible mandates in the 21st Century. For example, notable global non-governmental organizations, think tanks, and networks such as the UCLG, heir to the IULA on issues of decentralization and local-level governance, the ICLEI, the Cities Alliance, and City Mayors were all established in the 21st century for the purpose of data collection, benchmarking, policy advocacy, and the dissemination of best practices at the urban level.

⁷ Other examples of relevant fee-based research and information services include the Economist Intelligence Unit

⁸ Kapur's statement is based on a comparison with the loan portfolio to staff size ratio of the World Bank versus that of the European Investment Bank.

Figure 2: Timeline of Global Knowledge Networks



Appeal:

Research indicates that best practices offer the city and regional planning field robust and unique benefits. In a great array of applications across many sub-fields of planning, the advantages reported by practitioners of building and sharing best practices fall into two categories: 1) knowledge sharing leading to better informed decision-making, and 2) improvements in organizational and fiscal efficiency. Broadly speaking, learning from a best practice allows practitioners to avoid reinventing the wheel when addressing a problem that another city or town has already faced (Wolman and Page, 2000).

With regard to learning and decision-making, experts laud best practices for their positive, prescriptive nature. In focusing on possibility rather than negative analysis and distilling ‘lessons learned’ into simple, accessible events (Bretschneider, Marc-Aurele, and Wu, 2005) the best practice methodology has earned a reputation for being pragmatic, practice driven, user-friendly, and innovative (Overman and Boyd, 1994). It is also widely viewed as an effective way to bridge

disparate fields engaged in highly complex planning issues, for example between technical advisors and political decision-makers (InfraGuide, 2003). By accessing the existing knowledge and experience of others who have engaged in similar problem-solving, planners can streamline actions and avoid mistakes; and by systematizing all-to-often vague decision making processes through the use of indicators and benchmarks, decision-makers have access to more complete information on likely outcomes and consequences of policy decisions ahead of time (InfraGuide, 2003).

Definition:

Common usage of the term ‘best practice’ has not lead to a common definition. In order to address this lack of clarity, the ideal definition of a best practice is reviewed here, and an operational definition is presented, drawn from the variety of definitions found in the existing literature. Further, two metrics central to successfully conveying best practices are suggested: critical success factors and performance indicators. It is hoped that this common baseline definition and the introduction of clear metrics will help bring clarity to the larger discussion of knowledge transfer.

Experts and scholars work within wide-ranging definitions of best practices. This spectrum of definitions may express the concept in terms concerned with broad outcomes, for example as, “initiatives that have a tangible impact on improving people’s quality of life and living environment...and [have] proven to be sustainable in their social, economic, environmental, and cultural components” (Gandelsonas and Jones, 2002). Others land on the more technical end of the spectrum, defining best practices as “[s]tate-of-the-art methodologies and technologies for... planning, design, construction, management, assessment, maintenance and rehabilitation that consider local economic, environmental and social factors” (InfraGuide, 2003). Many also highlight the goals of institutional performance and efficiency (see, e.g. GAO, 1995), while some are more process-oriented (e.g. Bretschneider et al, 2005). Within the health sector, the WHO has defined a best practice as meeting three basic criteria listed below:

1. Effectiveness: The practice must work and achieve results that are measurable.
2. Efficiency: The proposed practice must produce results with a reasonable level of resources and time.
3. Relevance: The proposed practice must address the priority health problems in the WHO Region

(WHO, Regional Office for Africa, 2008).⁹

While less is offered by way of defining best practices with regard to urban finance, micro-finance programs have emerged as a heavily replicated and transferred practice in the past 30 years (Linn, 2010) and there has been a considerable amount of work conducted examining benchmarks and indicator sets for measuring individual practices such as fiscal decentralization (see OECD Fiscal Decentralization Database; Smoke, 2001).

Generally, however, experts agree that the “best practice” concept holds profound logical appeal, particularly when individuals and organizations operate in competitive environments (Bretschneider et al, 2005). Therefore, a more earnest attempt towards definition and consistent application in the planning field is warranted. Toward that end, this work synthesizes the academic and practitioner variations into a normative working definition that a ‘best practice,’ as it applies in planning, is a method, technique, or process gathered from analyzed, comparable, successful cases with defined criteria that has proven to be transferable and/or scalable. This formulation serves as a baseline; with its components and application to certain sub-fields of planning outlined below.

Experience demonstrates that the perfect expression of a best practice is virtually unattainable due to the impossibility of defining ‘best,’ incomplete case history information, the difficulty of accurately determining causality, and reporting bias by parties directly involved in the practice leading to the over-reporting of success (You, personal interview, Jan. 7, 2010). As a result of these barriers to implementation of the normative best practice ideal, experts have operationalized the concept into several more achievable concepts. For example, some have offered a ‘promising practice’ as “an action, program, or process that leads to an effective and productive result in a situation” with the caveat that it “must have measurable results that demonstrate success over time” (Fels, 2009, 3). Similarly, UN-HABITAT’s World Urban Campaign, launched in March 2010, promotes the comparatively flexible, experimental, ‘living practices’ approach, which emphasizes real-time information-sharing among a network of participants. Both promising and living practices loosen the noose of requirements surrounding qualification as a best practice, and render excellence in

⁹ The document also specifies that a Best Practice should meet one or more of a subsequent seven criteria including Ethical Soundness, Possibility of Duplication, Involvement of Partnerships, Community Involvement, and Political Commitment.

practice somewhat more achievable.

Any effort to synthesize these various understandings of best practice and translate them into planning parlance will benefit from distinguishing among several levels, by which practitioners and scholars can categorize and assess best practices in the planning context.

- Level 1: Promising Practice – A method, technique, or process that has been successful in a case or cases.
- Level 2: Good Practice – A method, technique, or process gathered from analyzed, comparable, successful cases with defined criteria.
- Level 3: Best Practice – A method, technique, or process gathered from analyzed, comparable, successful cases with defined criteria that has been proven to be transferable.
- Level 4: Scalable Best Practice – A method, technique, or process gathered from analyzed, comparable, and successful cases with defined criteria that has been proven to be transferable and scalable.

The levels represent a spectrum of trade-offs between ease of identification and robustness of findings. The most appropriate best-practice design, then, will be context-dependent and strongly correlated to available resources and stakeholder objectives.

Metric 1: Critical Success Factors:

Two related metrics warrant mention in the context of defining best practice methodology. First is an idea implicitly underlying all types of model practices: the critical success factor (CSF). The CSF represents the fundamental element that must be present in order for the policy or program to succeed. The concept originated in the data analysis industry, filtered into business operations analysis, and presents intriguing potential for application in planning and sustainable development. Some researchers focus on operational CSFs, whereby the CSF is a feature that continuously operates throughout the life of the project; in this case the CSF serves as a prerequisite of efficient and effective work processes, and requires day-to-day attention (Jefferies, 2006). More common is a circumstantial perspective, viewing a CSF as a certain facet or a specific context that must exist in order for the program to meet its goals. Accurate and complete identification of critical success factors is one the major distinguishing factors of a best practice, in comparison to a good or promising practice (as defined above).

Two recent articles together suggest that the identification of critical success factors may be highly specific to the area of planning addressed by the practice, such as housing, conservation, sanitation or transportation. In “What Makes Transfer of Development Rights Work?” Pruetz and Standridge (2009) advance the understanding of the transfer of development rights (TDR), commonly considered to be a best practice for preserving land while encouraging density in appropriate locations. Prior to this article, there was no comprehensive assessment of what variables led to the success of these types of programs, in terms of volume of land preserved through TDR. Pruetz and Standridge utilize academic literature to identify ten factors most often cited as necessary for a successful TDR program and then compare these variables to the 20 programs in the United States that have preserved the greatest number of acres. Two variables—demand for bonus development and customized development receiving areas—appear in every successful program; other variables appear to be important but not critical. This clear assessment of what variables are tied to conservation success could certainly benefit a municipality attempting to spur land conservation through the transfer of the TDR concept, but these success factors are highly specific, implying that such a thorough identification could be necessary for each field of planning as well as individual practices within these fields.

In “Transferability of Sustainable Urban Mobility Measures,” Macário and Marques (2008) focus on the CIVITAS program in the EU and provide a second example of identifying critical success factors through a systematic and objective process. The CIVITAS program involved 36 European cities with the goal of transferring sustainable urban mobility measures among them. To the definition of variables leading to success, the authors add the idea that a ‘package’ of related measures may be required to solve a given problem, such as the introduction of clean vehicles and zero emission trams coupled with new service stations and a public information campaign on clean vehicles. They also stress the importance of understanding such conditions specific to transportation, such as topography and sprawling development in the cities where the practice is located (Macário and Marques). While physical variables may not be important to best practices in other fields, this detailed consideration of drivers of successes and limiting variables distinguishes this article from most best practice literature. Macário and Marques’ recommendation to seek potential practices only in cities with similar limiting factors highlights a major challenge of attempting to transfer a

practice using existing case studies of best practices: most written descriptions of best practices do not delineate these limitations.

Metric 2: Performance Indicators:

A second metric related to the formulation of the best practice is the performance indicator, which assesses how a project's outcomes compare to its objectives. This measure may be a concrete and countable result, or it may center on the effectiveness of an ongoing process. These types of performance indicators can be now found at every level of urban public health, development, and finance project and are core attributes within the Millennium Development Goals (which include over 60 official indicators) and a continuously evolving endeavor across the World Bank's portfolio of projects and programs (see World Bank, 1996; World Bank, 2008). Researchers distinguish among different types of performance indicators. For example, the Canadian Government has undertaken an extensive research initiative in best practice development and dissemination called *InfraGuide* (2003), which provides several distinctions among the set of performance metrics.

First, at the most basic level, *InfraGuide* defines an 'indicator' as data that identify the condition or state of something being measured. The more fine-grained 'operational indicators' are data that come from 'the field' and often are recorded as survey results or 'scorecards'. Next, 'functional indicators' result from analyzing different but related operational indicators to obtain an overview of the project's condition, for example, by compiling different measurement types into a performance index. Finally, 'strategic indicators' are the highest and most abstract type: a kind of bird's-eye-view for use by high-level decision-makers, such as municipal officials assessing the quality of life in their city. It should be noted that these indicators themselves can describe a variety of measures relating to any given phenomena, specifically 'pressure,' (describing the process causing a change in a variable) 'state,' (describing the state of the variable) or 'response' (describing actions taken to address the given variable) indicators.¹⁰ These distinctions are clearly noted in the UN's proposed indicator system that following the 1992 Rio Earth Summit (see Bell and Morse, 2008: 28-29). Benchmarking is a related, generic term for measuring performance against some

¹⁰ See Appendix B for the OECD diagram explaining the relationship between types of indicators with regard to environmental/ecological sustainability.

professionally-accepted standard of quality, and a process central to many efforts to increase city-to-city sustainability and performance comparisons.

Consistent performance indicators across best practices addressing the same planning issue allow direct comparison of practices and a more accurate differentiation between good and truly exemplary. Consistency is again an idealized goal and not every area of planning lends itself to easy measurement. For example, in land preservation, acres preserved is a fairly standard benchmark and some case studies provide a more comprehensive picture of success through data on share of acres lost to development or the level of connectivity to nearby undeveloped land. In watershed planning, data-documenting success is not so easily attained. Data collection can be prohibitively expensive and there is often no way to directly compare water quality before and after watershed interventions (Lubell, 2005). By extension, with no before and after data, there is no way to compare the relative impact on water quality of interventions addressing the same issue, such as homeowner education on excessive lawn fertilization versus creating vegetated buffers along streams. Both of these techniques could be considered best practices in watershed restoration, but without consistent benchmarks they are difficult to compare.

Knowledge Sharing Techniques: A Brief Overview:

The most fundamental, though easily overlooked, step in a successful best practice transfer is the specific knowledge sharing technique employed. While best practice knowledge is presented in numerous mediums and by many names (i.e. conferences, guidebooks, informal peer networks), the four major routes along which the vast majority of best practice information travels are: **Internet databases, peer-to-peer exchange** through visits to gain firsthand knowledge of best practices on the ground, **traditional academic scholarship and publication**, and finally, **knowledge transfer facilitated by intermediaries**.

For example, in the CIVITAS program cited earlier information was often passed from one city to another indirectly via observation, site visits and/or information exchange by telephone and email (Macário and Marques). These types of site visits and city-to-city exchanges arguably constitute the primary source of direct knowledge dissemination between urban leaders and city officials.

As Loffler (2000) reiterates, the preference for these methods can be attributed to a high value being placed on ‘anecdotal exchanges’ and interpersonal relationships by practitioners within the public policy field. Though ‘peer-to-peer’ exchanges can take multiple forms, the United Nations Department of Economic and Social Affairs defines peer-to-peer exchange as “exchange of knowledge, know-how, expertise and experience between people and organizations with similar roles and responsibilities, facing similar issues and problems” (UN, 2009, 21). While the existing UN guide provides detailed advice on the process, Tim Campbell’s recent research on how cities learn sheds light on the importance of peer-to-peer exchange in transferring practices around the world, as well as the sheer volume of these exchanges that occur on an annual basis. Through case studies of Portland, Turin, Charlotte and Barcelona and a web-based survey of 45 additional cities, Campbell has identified peer-to-peer exchange through city visits as the major method of transferring detailed information on best practices between municipalities, both domestically and internationally. Campbell’s research demonstrates that city officials have realized it is cheaper to learn from each other rather than to reinvent the wheel, underscored by the number of city-to-city peer exchanges completed annually worldwide. The responses to the web-based survey extrapolated globally indicate that thousands of city visits occur each year, **with individual respondents to the web survey spending from 4 to 12% of their time learning from other contexts and locations in order to solve the problems of their own city** (Campbell 2009, 2010a and b).

In this context, challenges to successful best practice dissemination include lack of trust between senders and receivers of knowledge, as well as a lack of respect for the importance of local knowledge which can lead to a rigid and often ineffective top-down approach to identifying appropriate best practices for transfer, especially in developing nations (Gandelsonas and Jones, 2002). However, across-tier interpersonal information exchanges of best practices in developed nations face challenges as well. Without guidance from analytical frameworks that are sensitive to critical success factors and sociopolitical contexts in particular, such as the Fels Institute’s “Promising Practices: A Quick and Effective Way to Figure out What Works for Your Community” (2009) or the UN “Guide for the Transfer and Adaptation of Innovations in Governance: Practical Tools and Steps” (2009), practitioners engaging in these exchanges are likely to overlook critical

variables tied to the success (as outlined by the above metrics) of the practice and therefore increase the chances that their attempted transfer will fail.

While Campbell's work focuses on peer-to-peer transfer facilitated by city staff, there is also a growing body of literature focused on the role of intermediary-assisted dissemination, whereby a third party coordinates the exchange of information and transfer of the practice between actors and institutions in cities. Examples of this process can be found in the developing world where NGOs such as Fundación Hábitat Colombia work directly with community members to identify problems and facilitates two-way exchanges between communities to transfer solutions to common challenges. Fundación Hábitat Colombia has completed 20 transfers since 2004 and has 25 more underway at the time of writing. Facilitated transfer also takes place in Europe through organizations such as the Vienna Best Practices Hub, which both collects examples of best practices from Eastern Europe and then facilitates transfers within this region. Perhaps the purest example of intermediary driven dissemination techniques can be seen in the mandates of network agencies such as the Mega-Cities Project, which exist purely for the purpose of identifying 'best' urban practices and supporting their adaptation and application to other, similar urban contexts.

Beyond networking and intermediary knowledge brokers, urban leaders and policy makers have long relied on more traditional academic and institutional input into best practices. Not only do academic institutions play a central role in hosting academics, practitioners, and policy makers from world cities through symposiums, conferences, and study tours, but many universities also offer international fellowships and certificates in areas of urban finance, planning and health. For example, the Massachusetts Institute of Technology's SPURS Fellow program is specifically designed as a one year degree for planning professionals from developing countries within the Department of Urban Studies and Planning. Other examples of the international reach of these institutions with regard to urban policy, planning and finance include the Wharton School of Business' International Housing Finance Program, which has providing technical assistance tailored to specific developing economies as well as international workshops since 1985, and the New School's India China Fellowship Program, which convenes leading experts on issues of cultural, economic, and social development in the world's most rapidly urbanizing countries. New actors and voices are also being

included within the traditional conference and symposium model, stressing a more inclusive role that the format can play in convening practitioners, academics, and policy makers around issues of shared interest. The Rockefeller Foundation's emphasis on building a 'multi-sectoral community' through the use of its Bellagio Center exemplifies this trend.

In addition to providing space for the development of knowledge networks, leading experts from academic institutions have long played a role in addressing challenges of urban planning, finance, and health on the ground in countries throughout the Global South -- from the MIT/Harvard joint Center for Urban Studies role in planning Ciudad Guayana in the 1960s, to the more recent (2004, 2006) collaborations between UPenn and the Ministry of Health in Botswana to provide support and training in the Princess Marina Hospital in Gaborone, as well as a student exchange. Finally, academic institutions continue to provide critical research and findings (often via peer-review publication) which are well proven to have spillover effects, spurring private and public sector innovation, particularly within the health, science, and technology fields (Becker, 2003). In the fields of planning, finance, and health, university-based research and development has contributed greatly to the application of new tools and technology such as remote sensing, and spatial analytics, epidemiology, maternal health, among others.

More recently, the internet has been looked to as a possible solution to the challenges of providing a wider group of actors and voices the opportunity to create, catalogue, and access best practice knowledge because information can be submitted by individuals working with a best practice on a daily basis but structured and reviewed by third parties around the world. Though the ubiquity of the internet has made the best practice clearinghouse a common website feature of many planning and development oriented organizations, a number of questions remain as to how effective web-based networks and dissemination methods will prove in facilitating the actual adaptation, implementation, and transfer of sustainable urban development practices from city to city. The UN-HABITAT Best Practices in Improving the Living Environment database is an example of both the potential and limitations of internet-based dissemination of urban development best practices; despite having made available a staggering amount of easily accessible information—2,200 best practices by 2006 drawing 200,000 site visitors per month (You 2006, p. 115)— it remains unclear

whether this repository of knowledge can promote the actual transfer of practices from one location to another (Wakely, You and Meijer, 2001). While the HABITAT Best Practice Database represents the largest existing database for purely urban best practices, new web-based platforms are quickly emerging in order to take advantage of new technologies and a growing recognition of the power of social media and global networking capabilities.

To this point, a key recommendation which emerged from the 2007 Rockefeller Foundation funded Global Urban Summit in Bellagio was the development of more dynamic, web-based, platforms for communication, communal learning, and knowledge creation -- proposed as a "Global Urban Commons." Two high-profile examples of these types of emerging internet platforms are the recently debuted the soon-to-be launched UN HABITAT's Urban Gateway (www.urbangateway.org/) and the World Bank's Urbanization Knowledge Platform (Urbanization KP). The Urbanization KP, for instance, has been designed to take a more active role than the traditional database model in the 'co-creation' of living practices by harnessing the global reach of the internet to build new networks of academics, urban leaders, practitioners, and members of 'global civil society'. The platform will undertake an ambitious goal of connecting numerous networks of knowledge sources, practitioners, and interested parties in the creation of best practice knowledge on sustainable urban development based around its four pillars of economic development, social inclusion, environmental sustainability, and good governance. Once officially launched the World Bank's Urbanization Knowledge Platform will represent a unique space to convene knowledge sources around the world, connect existing networks and practitioners, create new knowledge and policy recommendations, and customize existing practices to local contexts (World Bank, Knowledge Platform: Urbanization, unpub).

As will be further discussed in the following section, this move towards new, innovative web-based platforms and portals is common among the vast majority of knowledge sources on sustainable development, regardless of their institutional type or the scope of their work, as demonstrated through the University of Pennsylvania School of Nursing's online "Urban Women's Health Collaborative," a partnership with the Rockefeller Foundation,¹¹ as well as grassroots examples such

11 A product of the 2010 "18th Congress on Women's Health Issues: Cities and Women's Health: Global Perspectives." April 7-10, 2010.

as the 'South-South Opportunity' internet platform (www.southsouth.info), and the blog features and best practice information provided by Shack/Slum Dwellers International via their website.

Section 2: Sustainable Urban Development Knowledge Sources:

The Present-Day Landscape of Actors and Dissemination Methods

One of the major challenges to assessing how best practice knowledge on sustainable urban development is transferred, especially throughout the Global South, is the myriad of actors through, and scales at which information and practices are shared. This section provides a framework for grouping various sources of knowledge acting as 'Producers' and 'Disseminators' of best practice knowledge, as well as placing their general dissemination methods along the spectrum of Internet/Database, Peer-to-Peer, and Intermediary-driven dissemination.¹² As laid out in Figure 1, the basic groupings of knowledge sources utilized are: Multilateral, Governmental/Bilateral, Practitioner, Private Sector Philanthropic, and Academic. These groupings are further defined by subgroup in order to develop a rough typology of 'like' actors and institutions (see Appendix 1, "Typology").

The format selected underlines the wide range of multi-scalar influences driving urbanization and development outcomes; from macro level economic policy, to local and urban level investment in infrastructure, housing, and public health, from the policies and practices of mayors and city officials to grassroots social movements. This is particularly relevant when considering an integrated approach to social, economic, and environmental sustainability at the urban level. Given the propensity of these actors and issues to be highly siloed in theory and practice, understanding how emerging approaches to best practices in comprehensive sustainable urban development bridge these divides rather than reinforce them ought to be of the utmost importance to future research. The central endeavor here, however, is simply to provide an outline that can assist in the identification of the trends emerging from the various actors and institutions with regard to the best practice methodology and sustainable urban development knowledge production. As a quick reference tool, figure 3 lays out each actor, program, scope, and the primary dissemination methods employed.

¹² It is critical here to also acknowledge that the vast majority of actors and institutions involved with best practice dissemination do so through a variety of roles, acting simultaneously as producers, disseminators and recipients of best practice knowledge in many instances (Wolman and Page, 2002, p. 483).

Figure 3: Program, Scope, Scale Table

Actor /Organization	Program/Product Name	Grouping	Program Scope, Scale, and Primary Dissemination Method/Type
UN-HABITAT	<ul style="list-style-type: none"> * Best Practice Database / Award * Urban Portal * 100 Cities Initiative *GLTN 	Multilateral	<ul style="list-style-type: none"> * Best Practices in Improving the Living Environment Award and Database (1996) make available 3,800 practices from 140 countries in 24 thematic categories. Urban Portal and 100 Cities initiative represent a new “living practice model” centered on its use of social media and real-time updating of project progress by the participants. * GLTN is included to represent the many technical assistance and knowledge generation projects that the HABITAT supports and organizes. GLTN promotes the up-scaling of successful land management tools globally.
WORLD BANK	<ul style="list-style-type: none"> * PPP Network * Urbanization KP * Urban Strategy Update * WBI South-South Learning 	Multilateral	<ul style="list-style-type: none"> * The World Bank Institute’s website features three functions aimed specifically at disseminating best practices in the realm of slum upgrading, urban land development, and “south-to-south learning.” * The WBI’s involvement with best practice dissemination outside of the internet / database format includes the Task Team for South-South Cooperation (TTSSC), as well as specialist events and trainings that it holds on peer learning networks
OECD	<ul style="list-style-type: none"> * Competitive Cities and Climate Change * National Urban Policy Reviews * “iLibrary” 	Multilateral	<ul style="list-style-type: none"> * OECD has positioned itself at the center of the current competitive cities literature and policy arena with publications including “Competitive Cities in the Global Economy” (2006) and “Complete Cities and Climate Change” (2008). This model espouses the interconnected nature of economic development, environmental sustainability, and socially just urban environments. * iLibrary constitutes OECD’s web-based dissemination, most of its work is in the form or publications and conferences, and network gatherings of urban leaders.
CITIES ALLIANCE	<ul style="list-style-type: none"> * Annual Report 2010 * Eco2 Joint work Programme 	Multilateral	<ul style="list-style-type: none"> * Annual report (2010) heralds a transition to a more focused ‘country program’ format, overhauling its funding mechanism (now the Catalytic Fund) and demonstrating a clear move towards the further support of local and governmental partners. * Primary supporter of network learning by local level practitioner networks (PEARL, etc.) * Joint work programmes (JWP’s) as primary mechanism through which the CA, its partners, and its members share and disseminate best practice knowledge on sustainable urban development.
HUD	<ul style="list-style-type: none"> * OIPI Working Group on Sustainability Indicators * HUD/DOT/EPA Partnership for Sustainable Communities. 	Governmental/ Bilateral	<ul style="list-style-type: none"> * Current focus on measuring and benchmarking urban sustainability domestically and internationally (via its OIPI), in conjunction with the HUD/DOT/EPA Partnership for Sustainable Communities. * The Partnership for Sustainable Communities program is providing \$8million in funding to sustainable communities programming throughout the united states, representing a new model in coordinated funding across the three central agencies.

Actor/Organization	Program/Product Name	Grouping	Program Scope, Scale, and Primary Dissemination Method/Type
Ministry of Urban Development (India)	<ul style="list-style-type: none"> * InNURM * PEARL Network 	Governmental/ Bilateral	<ul style="list-style-type: none"> * The InNURM represents one of the largest coordinated national urban development initiatives in the world to include a formal knowledge transfer and horizontal learning component (PEARL Network). The project has developed its own "India Urban Portal" to share practices and support professional networks. * \$22 billion JNNURM also includes strong focus on creating common urban development indications amongst participating Indian cities.
USAID	<ul style="list-style-type: none"> * Urban Programs Team/Making Cities Work" * International Development portfolio 	Governmental/ Bilateral	<ul style="list-style-type: none"> * In the past years USAID's interest in urbanization throughout the Global South has increased, led by its Urban Program's Team – including a web-based working group community with a closed forum for USAID employees, as well as an extended public forum. The site also includes links to partner agencies' documents and best practice information. * USAID's urban portfolio embraces the multi-sectoral nature of urban development, categorized under nine themes: Urban Finance, Urban Security, Local Economic Development, Urban Health and Environment, City Management and Governance, Food Security, Housing Infrastructure and Services, Cities and Climate Change, and Urban Youth.
SIDA (Swedish Development Agency)	<ul style="list-style-type: none"> * Urban Development Portfolio * HABITAT Partnership Training Programs 	Governmental/ Bilateral	<ul style="list-style-type: none"> * The Swedish government administers the majority of its aid money through SIDA, with a strong focus on urban development issues, particularly in Sub-Saharan Africa. * Was been in the top six UN HABITAT funders every year from 02-07, including the top donor in 06, including the sponsor of HABITAT's new Urban Portal site.. * SIDA trainings and technical support programs cover topics such as rural and peri-urban land management (in partnership with the Southern African Development Community (SADC) – displaying the agencies understanding of the interconnected relationship between urban development and peri-urban/rural outcomes.
Political Leader-Led: Penalosa, Lerner	<ul style="list-style-type: none"> * Policy Advocacy - Inclusive city/Public space, BRT 	Practitioner (Public Sector)	<ul style="list-style-type: none"> * Focused on role of successful ex-mayors in the championing of high profile urban infrastructure projects, most notably BRT models and public space investments emanating from Columbia and successfully transferred to South Africa, Nigeria, and others.
South African Cities Network	<ul style="list-style-type: none"> *Website review, *Development Strategy *Knowledge and Resource Center 	Practitioner (Public Sector)	<ul style="list-style-type: none"> * Primarily utilizes site visits and study tours by city officials within South Africa. * Development Strategy based around four component themes: Inclusive cities, Well-governed cities, Sustainable cities, and Productive cities. * The organization produces case studies of best practices from its member cities. * Evaluators from network cities to conduct peer reviews of development strategies and implementation
Mega Cities Project	<ul style="list-style-type: none"> * Mega Cities Project - Website review, - External reviews 	Practitioner (Public Sector)	<ul style="list-style-type: none"> * Has successfully transferred roughly forty urban practices from one city to another, serving as the methodological model on which the UN-HABITAT Best Practice Database and Dubai Awards were based * Operates primarily as a closed network, relying on participants in member cities; though its main website does feature some best practice guides to the various projects for public consumption. (One of the earliest best urban practice networks, funded in 1988).

Actor/Organization	Program/Product Name	Grouping	Program Scope, Scale, and Primary Dissemination Method/Type
NYC Global Partners	<ul style="list-style-type: none"> * Best Practice Case study reports * Website review 	Practitioner (Grassroots/NGO)	<ul style="list-style-type: none"> * Founded by the Bloomberg administration during his first term as NYC Mayor - now consists of a network of approximately 55 major cities from around the world. * Website hosts more than 100 freely downloadable reports via its Innovation Exchange section covering 21 policy areas. Each report is four pages, organized under headings: Best Practice, Issue, Goals and Objectives, Implementation, Cost, Results and Evaluation, Time line, Legislation, Lessons Learned, Transferability, Contacts.
SPARC/SDI	<ul style="list-style-type: none"> * Best practices and “rituals” on organizations website * Website review * UPFI 	Practitioner (Grassroots/NGO)	<ul style="list-style-type: none"> * The collaboration of SPARC and SDI represent one of the largest networks of grassroots activists and low-income residents in the world. * Specific focus on a “poor people’s pedagogy” which supplants “expert” knowledge and North-South best practice dissemination with South-South exchanges amongst peers. * Wide scope of work, though primarily focused on shelter, slum upgrading and land tenure, economic development, and gender issues.
Catalytic Communities	<ul style="list-style-type: none"> * Best practices publications * Website review 	Practitioner (Grassroots/NGO)	<ul style="list-style-type: none"> * Community Solutions Database’ hosts best practice information from their own work, but recently, consolidated its over 200 solutions from 20 countries with Wiser Earth, a directory of over 110,000 NGOs. * Concerned mainly with slum up-grading programs in and around Rio de Janeiro, Catalytic Communities supplements its online library of best practice information with its Technology Hub in downtown Rio, where physical meeting space is provided in order to encourage community leaders to meet and exchange ideas in person, as well as utilize on-site internet access.
Practical Action	<ul style="list-style-type: none"> * Best practices publications * Website review 	Practitioner (Grassroots/NGO)	<ul style="list-style-type: none"> * Provides free access to information and best practice case information that would be pertinent to commonly disenfranchised groups, such as urban poor and women, categorized by themes - including water and sanitation, shelter and urban poverty, transport, and climate change * Works directly with communities to implement projects and spread best practices
ARUP	<ul style="list-style-type: none"> * International Development Group * Global Planning * Technical Support 	Practitioner (Private/Corporate)	<ul style="list-style-type: none"> * ARUP’s technical expertise in ecologically sustainable master planning and infrastructure development is shared on a client-by-client basis with cities throughout the Global South. * Technical assistance and management projects include leadership on the Rockefeller Foundation funded Asian Cities Climate Change Resilience Network (ACCCRN), as well as considerable work on post-tsunami reconstruction in Aceh.
Siemens	<ul style="list-style-type: none"> * Urban Mobility Program * Website review * Best Practice reports * Partnership with HABITAT WUC 	Practitioner (Private/Corporate)	<ul style="list-style-type: none"> * Providing innovation in the realm of energy efficiency and carbon reduction through its Urban Mobility program. * Case studies on transportation and sustainable infrastructure available on website, though primary role is practitioner / intermediary, working with cities and projects on a case-by-case basis. * Best practice knowledge creation likely to increase with the 2012 opening of the Siemens Sustainability Center in London * Increase in attention to urban sustainability is evident in Siemens’ sponsorship and keynote address at the RPA 2011 “Innovation and the Global City” Conference.

Actor/Organization	Program/Product Name	Grouping	Program Scope, Scale, and Primary Dissemination Method/Type
IBM	<ul style="list-style-type: none"> * Smarter Cities program 	Practitioner (Private/Corporate)	<ul style="list-style-type: none"> * Addresses innovative practices across a wide variety of ‘urban’ sectors, including water, transportation, infrastructure, energy, food, and health. * Organized by “Ideas,” “Case Studies,” and “Solutions” on their website. * Program relies mainly on acting as an intermediary disseminator of best practices through contracts.
CISCO	<ul style="list-style-type: none"> * Smart + Connected Cities * Connected Urban Development (CUD) 	Practitioner (Private/Corporate)	<ul style="list-style-type: none"> * CUD born out of partnership with Clinton Foundation to contribute to the global reduction of carbon emissions. Current partner cities: San Francisco, Amsterdam, Seoul, Birmingham, Hamburg, Lisbon, and Madrid. * Smart + Connected Cities aimed at efficient energy use in urban areas, produces new technology available to cities. * CISCO has recently partnered with the World Bank in the development of the web-based UrbKP – contributing technology for video conferencing and the broadcasting of knowledge leader reports.
McKinsey Global	<ul style="list-style-type: none"> * McKinsey Global Institute * India and China research * Urban China Institute 	Practitioner (Private/Corporate)	<ul style="list-style-type: none"> * High profile research and reports such as, “India’s urban awakening: Building inclusive cities, sustaining economic growth,” and “Preparing for China’s urban billion” stored on the MGI website outline policy priorities for, and data on the challenges and opportunities presented by urbanization. * One of three collaborators launching the Urban China Institute - an institute dedicated to serving as a source for innovative, best practice solutions to China’s urban development challenges
Economist Intelligence Unit	<ul style="list-style-type: none"> * Global intelligence and analysis program 	Practitioner (Private/Corporate)	<ul style="list-style-type: none"> * The Global intelligence and analysis program offers pay-as-you-go access to research on a wide range of economic development and sustainability issues covering 185 countries, including some urban development topics focused on the global south.
Rockefeller Foundation	<ul style="list-style-type: none"> * Network support: Urban Women’s Health, SDI. * Research support * Urban Portfolio 	Private Sector Philanthropic	<ul style="list-style-type: none"> * Grants and support to 7 transnational grassroots network groups: SDI, SPARC, Asian Coalition for Housing Rights, Pamoja Trust, Jamii Bora, CORC, WSUP. * Bellagio conferences to build multi-sectoral relationships * Urban policy advocacy (Century of the City, etc.) – has played a major role as a leader in raising the profile of urban development issues as central to global development outcomes.
Clinton Foundation	<ul style="list-style-type: none"> * Climate + Program * Website/Literature review 	Private Sector Philanthropic	<ul style="list-style-type: none"> * Climate+: 16 pilot projects in cities around the world which will demonstrate how cities can grow in a carbon neutral and “climate positive” way. * Climate Initiative includes a focus on a wide variety of urban challenges, including: Waste Management, Outdoor Lighting, Low Carbon Transportation, Building Retrofit, and Clean Energy. * Sustainability investment includes the C40 Cities Climate Leadership Group, which hosts a database of best practices in a wide variety of urban development fields.

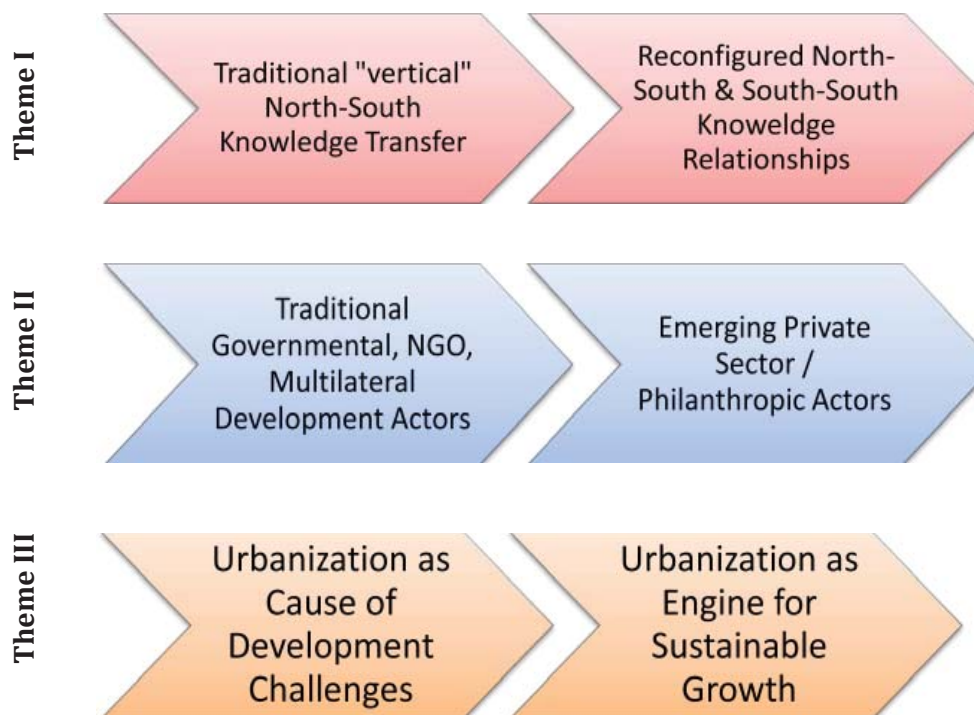
Actor / Organization	Program / Product Name	Grouping	Program Scope, Scale, and Primary Dissemination Method / Type
Gates Foundation	<ul style="list-style-type: none"> * Public Health funding * Global Development Program 	Private Sector Philanthropic	<ul style="list-style-type: none"> * Partnership with SDI (\$10 million in 2007) * Largest philanthropic investor in international Public Health issues, including focus on Water, Sanitation & Hygiene * Investment portfolio includes a special initiative on urban poverty, partnering with CHF International, IIED, the Small Enterprise Education and Promotion Network, and the Affordable Housing Institute.
Ford Foundation	<ul style="list-style-type: none"> * Knowledge Management Strategies * Urban Portfolio * HUD indicators partner 	Private Sector Philanthropic	<ul style="list-style-type: none"> * Leading internal efforts to refine knowledge management procedures * Core member of HUD working group on international sustainability measures * Metropolitan Opportunity and Sustainable Development among the core areas of focus and funding. * Metropolitan Opportunity focuses on innovative practices in affordable housing provision, Metropolitan Land use, and Access to economic opportunity in the US.
Brookings Institute	* Funded Urban Sector Research	Academic (Think Tank)	<ul style="list-style-type: none"> * The Brookings Institute's Global Economy and Development, and Metropolitan Policy Program combine to address domestic and global urban policy. Recent scoping studies on both the landscape of international urban development policy (Linn, 2010) and external assistance for urban development (Kharas, 2010), calling attention not only to the increasing importance of sustainable urban development within international development policy more broadly, but also to the need for scalability and replication of effective urban policies and programs.
Lincoln Institute of Land Policy	* Proceedings of 2008 and 2009 Land Policy Conferences	Academic (Think Tank)	<ul style="list-style-type: none"> * Leader in research and publication on Land Policies regarding property rights, fiscal decentralization, regional/spatial planning, ecostructure, and the regulation and taxation of land. * Recently sponsored research includes Making Room for a Planet of Cities (S. Angel, 2011) advocating land use and planning policies which will account for the rapid growth (physical and population) that cities throughout the Global South will experience in the coming years.
IIED	<ul style="list-style-type: none"> *Website review, *Development Strategy *Knowledge and Resource Center 	Academic (Research Inst.)	<ul style="list-style-type: none"> * Research and publications cover areas of water, poverty alleviation, slum upgrading, climate change, and public health. The knowledge produced through the organizations research is made public on its website, where they are easily searchable by category and publication type. * Work in partnership with local communities to implement best practice projects
Earth Institute	<ul style="list-style-type: none"> * Faculty & Institute Publications *MDG support and reviews 	Academic (Research Inst.)	<ul style="list-style-type: none"> * Includes Urbanization among core research areas, where projects such as the Millennium Cities Initiative and the partnership with the Millennium Villages Project are focused on supporting the MDG 2015 deadline. * Publish on a wide variety of sustainable development themes including through its Center for Sustainable Urban Development (CSUD), which is supported by Volvo Research and Education Foundations, as well as the Rockefeller Foundation. Specific focus on land use and transportation planning in Nairobi, Kenya.

Actor/Organization	Program/Product Name	Grouping	Program Scope, Scale, and Primary Dissemination Method/Type
African Center for Cities	* Annual reports and Strategy papers	Academic (Research Inst.)	* Provides research leadership on African Urbanism and Food Security in African Cities, as well as applied research work supporting a practitioner network, urban level data collection and banking for practitioner and academic use through State of the Cities in African reports. * 2011 hosting of African, Brazilian, and Indian urban development leaders and university/observatories as part of IIHS/ACC Knowledge Network collaboration.
Kennedy School of Government	* Case Program	Academic (Research Inst.)	* Cases cover a wide variety of issues and serve as an opportunity to better understand the nuances of political context, program development, and implementation with regard to each individual topic covered. * Rigor and format could likely benefit the best practice methodology more broadly by contributing to the case specific evaluation of knowledge transfer projects.
Alice Amsden	* Role Model Development	Academic (Individual)	* Focused on use of "role model" learning in national level economic development. * Role Model learning provide a source of knowledge that does not rely solely on an abstract theory or a single example of practice. * Theory also supports the wider shift away from North-South exchanges and towards South-South knowledge exchanges, where circumstances and experiences will be more consistently similar.
Esther Dufo	* Randomized control trials	Academic (Individual)	* Randomized control trials within development economics ought to play a direct part in establishing new best practices on many fronts, based simply on its potential to explain which policies work, which do not, and why. * While strong evidence is presented on how the method can deliver clear best practices on the roll-out of mosquito nets in Sub-Saharan Africa, questions remain of scaling up method to test more comprehensive and multifaceted urban development phenomena
Elinor Ostrom	* Common Pool Resource Case Analysis	Academic (Individual)	* Continues to develop the case study method for evaluating common-pool resource management, making analysis and lessons learned more accessible and comparisons more transferable.
Paul Romer	* Innovation Spillover, increasing returns to scale * Charter Cities	Academic (Individual)	* Argues for the establishment of foreign run, green-field cities within the political boundaries of less developed countries, similar to the Special Economic Zones already in existence. * Charter cities are meant to provide a blank slate where the 'rules' which dictate economic, social, and environmental policy can be rewritten without waiting on larger, state-level technocratic shifts, themselves creating innovation spillovers into surrounding cities.

Dissemination Methods, Tools, and Techniques: Emerging Trends

In examining the various actors included in Figure 3 and their interaction with the best practice methodology, three major themes with regard to emerging trends, tools, and dissemination techniques emerge: **(Theme I)** First is the shift away from expressly North-South knowledge transfer on issues of sustainable urban development and towards South-South knowledge transfer, subsequently reconfiguring North-South knowledge relationships, and an increase in global city-to-city facilitated networks designed to engage metropolises in knowledge sharing beyond their national contexts. **(Theme II)** Second is the growing role of private sector actors, corporate and philanthropic, as intermediaries in best practice production and dissemination -- often in partnership with public sector and supra-national actors. **(Theme III)** Third, and finally, are the emerging trends in economic and urban development policy focusing on urban development as a positive force and a catalyst for innovation spill-over and increasing returns to scale in development outcomes, along with the explicit interest in best practice reproduction and the scaling up of successful programs among academics and policy makers.

Figure 4: "Emerging Themes"



Theme I: The Shifting Focus of Knowledge Transfer:

It is no surprise, given the wider trends within international development and planning towards decentralization (Smoke, 2001; Bontenbal, 2009, p. 131), aid coordination (see e.g. Paris Declaration on Aid Effectiveness; Accra Agenda for Action) and the inclusion of traditionally marginalized groups, that both knowledge creation regarding issues of sustainable development, as well as the dissemination methods utilized in best practice transfer prioritize increased collaboration between a diverse set of actors and institutions, and the utilization of web-based platforms which allow for grassroots and nongovernmental actors to share local practice and create global networks. Organizations such as Practical Action and Catalytic Communities, for example, inherently look to the use of “technical enquiry services [which supply], free of charge, technical and developmental information to development workers, community-based organizations, NGOs and other agencies...” outside of the traditional urban power structure (Practical Action, 2010). It is important to note that Practical Action, and organizations like it, represent a model of explicitly pro-poor and pro-women approaches to the general best practice concept, foreshadowing the prominence of these topics in 21st century discussions of global urbanization.

Multilateral lending and policy institutions such as the United Nations (HABITAT, in particular), the World Bank, The Cities Alliance, and the OECD share this impetus to broaden the range of actors and voices participating in the creation and dissemination of best practice knowledge. While these institutions have historically taken a lead in policy development, funding, and technical assistance for the implementation of best practices in sustainable urban development around the world -- similar to the traditional role played by federal and national governments within their own political boundaries (Welch and Thompson, 1980) -- as this review illuminates, the present shift in focus away from Multilateral-led, North-South knowledge dissemination and towards South-South, “Horizontal Learning” is challenging the capacity and format of the existing knowledge dissemination models utilized by these agencies.

While the general move towards the involvement of local partners and loan recipients in the Global South playing a role as producers of knowledge in shared learning processes has been evident in

a wide variety of World Bank publications dating back more than a decade (See i.e. Indigenous Knowledge for Development: A framework for action, World Bank, 1998), this sentiment has not been easily translated into the practice of knowledge dissemination. For example, a 2005 survey conducted by the Knowledge and Learning Group of the Bank's Africa Region found client groups perceived the Bank as weak in its ability to incorporate local knowledge and experts into program design, and weaker still in the areas of "disseminating the results of Bank studies to those who need them most" (World Bank Africa Region 2005: 10). More important, while the clients surveyed rated the Bank highly with regard to "knowledge about international best practices," it was again rated poorly in its ability to adapt best practice knowledge to client countries' needs (ibid: 13).

This perceived weakness of multilateral actors in effectively disseminating their own work, as well as the recognition of the critical role that networks of cities and local actors must play in shaping this century's economic, social, and environmental development policies and outcomes at national and global levels (See World Bank Urban Development Strategy 2010; Cities Alliance Annual Report, 2010; OECD, 2008; Peirce, 2008) have led to further attempts by multilateral actors to broaden the scope of knowledge production and transfer. This trend is evident in UN-HABITAT's various web-based best practice sites (e.g. the Best Practice Database and 100 Cities Initiative) now consolidated under the Urban Gateway, as well as the World Bank Institute's involvement with supporting multiple national, regional, and international knowledge transfer networks such as the PEARL Network in India and the global Public Private Partnership Network program (PPP), as well as its Urban Anchor's forthcoming Urbanization Knowledge Platform. In addition, these bodies continue to incentivize the formal documentation and dissemination of domestic and urban best practices through the introduction of public sector quality and innovation awards such as those organized and given out in many OECD member countries as well as through HABITAT's Dubai Award (Loffler, 2000, 191-2).¹³

These efforts are also evident in the increased coordination with existing grassroots practitioner

13 More recently, the diminishing role of Multilateral agencies in providing official development assistance (ODA) -- accounting for only 16% of total global monetary assistance, and with a clear preference towards bilateral development aid, visible in US spending trends particularly (Kharas, 2010b, p. 56) -- further underlines the importance of the non-monetary role that these agencies play in producing and establishing global standards, benchmarking systems, and best practice frameworks.

networks, such those facilitated by Shack / Slum Dwellers International, by multilateral actors and philanthropic organizations such as the Rockefeller Foundation, as well as a proliferation of international and domestic practitioner networks including NYC Global Partners, the Mega Cities Project, the South African Cities Network, and City Mayors to name just a few.

Theme II: The Growing Role of Private Sector Actors:

Another critical trend in the past decade has been the massive increase in the interest, investment, and coordinated engagement of private sector Philanthropic and Corporate actors in the realm of urban sustainability, evident through projects and programs such as IBM's Smart Cities and CISCO's Connected Urban Development (CUD) Program, as well as the continuously increasing level of investment by independent foundations (e.g. Gates, Clinton, Rockefeller) in areas of urban sustainability (See Hudson Institute, Index of Global Philanthropy and Remittances 2010). While these groups' emphasis on public private partnerships is certainly not a new phenomena within the fields of international development, urban finance, and health, the trend of private sector actors playing a critical role in providing capital and technical assistance on issues of comprehensive urban sustainability more generally, increasingly in partnership with multilateral, public sector, academic, and grassroots organizations, is certainly worth attention in future research (See Sagalyn, 2010).

With regard to the role of private sector corporations in sustainable urban development knowledge creation and dissemination, the programs and initiatives of high-profile companies such as CISCO, Siemens, Veolia, GE, IBM, ARUP, and McKinsey Global were reviewed in this work, with their activities falling into two categories: 1) Support and Partnership, and 2) Technology and Tools. First, while global technology companies are dedicating well-publicized, and significant levels of funds and attention to issues of urban sustainability (IBM's Smarter Cities initiative and CISCO's Smart+Connected Cities program, for example) it is the emergence of coordinated partnerships between private sector companies and multi and bilateral agencies which represent a significant research gap in the present day context of sustainable urban development knowledge sources. With CISCO's proposed partnership in the development of the World Bank's Knowledge Platform and Siemens already a member of UN HABITAT's World Urban Campaign, not to mention a growing

number of technical support projects carried out by private urban planning and engineering companies such as ARUP, little evaluation has been done to determine the efficacy and impact that these private sector powerhouses are having on the creation, dissemination, and implementation of best practice knowledge for sustainable urban development.¹⁴ In addition, the companies themselves are bringing increasingly sophisticated technologies to bear in measuring and benchmarking urban sustainability on a project-by-project basis with city administrations around the world, providing crucial data for evidence-based policy making, especially within the areas of mobility, energy efficiency, and urban water management.

The other emerging influence in the creation and transfer of best practices are philanthropic institutions and foundations. While foundations have always played a role in local and international development (see for example the Lawry's (2008) case study of the Ford Foundation's early loan guarantee fund of \$800,000 to the Grameen Bank in 1981), the recognition of the growing role of private sector philanthropic organizations within the architecture of international and urban development represents a recent and poorly understood phenomena (Hudson Institute, Index of Global Philanthropy and Remittances 2010).¹⁵ For example, the Bill and Melinda Gates Foundation alone invested \$1.7 billion in its international development portfolio in 2007, more than the amount that 7 of the 22 OECD countries on the Development Assistance Committee (DAC) spent in official bilateral development aid in the same year (Marten and Witte, 2008).

Beyond the actual monetary investment being leveraged by philanthropic organizations, the focus on the nexus of sustainability and urban development has become a high priority for many foundations, with initiatives such as the Clinton Foundation's Climate Positive Development Program (Climate+) focusing specifically on the rollout of 16 pilot projects in cities around the world which will demonstrate how cities can grow in a carbon neutral and "climate positive" way (Climate+ Press release, 2009). This commitment to urban sustainability is also evident in the Clinton Climate Initiative's recent (April 2011) merger with the high profile C40 Cities program

14 This issues is further complicated by the proprietary nature of much of the knowledge produced by these actors.

15 This general dearth of information on the role and level of influence by philanthropic actors in international development is also underlined by recently commissioned studies by UK, French, and German development agencies: See MacArthur, 2006; Chervelier and Zimet, 2006; Witte and Martin, 2008.

(chaired by NYC Mayor Michael Bloomberg) to form the C40-Clinton Climate Initiative. Additionally, urban health has become primary focus of investment from the sector, with roughly 50% of private philanthropic investment globally going to the health sector, much of it with a focus on urban public health initiatives (Martin and Witte, 2008: 9). Finally, the Rockefeller Foundation has contributed considerable resources towards efforts to strengthen existing, as well as build new, transnational networks dedicated to improving conditions in cities throughout the Global South (As noted in Table 2, Rockefeller has supported at least 7 transnational knowledge networking groups to date).

As in the case of private sector corporate knowledge creation, there are significant questions remaining as to how well philanthropic organizations are able to contribute to coordinated efforts with national and international agencies, especially given their traditionally perceived mandate to work outside of these structures and fill gaps in the development field. Finally, as philanthropic organizations continue to establish a foothold within the architecture of international urban development and sustainability, a significantly higher amount of resources will need to be dedicated to internal knowledge management in order to ensure that the outcomes and lessons learned from their investments are adequately cataloged and disseminated -- an area of perceived weakness throughout the sector (Don Chen, HUD City Indicators Working Group Meeting Presentation).

Theme III: Emerging Trends in Economic and Urban Development Policy and Best Practice:

The final theme observed through the survey of sustainable urban development knowledge sources is the recent emergence of literature, advocacy, and policy measures which reflect an understanding that urban development ought to be viewed as a 'battery' for economic growth and a primary tool in efforts to combat climate change. This trend stands in sharp contrast to the more traditional, and still prevalent, view that urbanization is a phenomena that must be mitigated and contained (for an in-depth account of this policy transition see Spence, Annez, and Buckely 2009). This shift has had a profound impact on the production of best practice knowledge and policy aimed at facilitating sustainable and positive urban development rather than simply dealing with the negative impacts of slum housing, urban health challenges, and inefficient settlement patterns.

A recent focus within these emerging policy prescriptions has been the reiteration of ‘new’ economic growth theories from the 1980s which stress the importance of knowledge spillovers among individuals and firms and the phenomenon of increasing returns to scale in facilitating growth (Lucas, 1988; Romer, 1986). An example of the application of these concepts to the realm of best practice is the controversial, but high-profile, proposition of ‘charter cities.’ This approach, still in its conceptual phase, would provide the opportunity to facilitate urban population growth while simultaneously creating new cities where ‘best practices’ in urban governance, sustainability, and social equity are codified in a founding charter (Romer, 2010). While no on-the-ground projects have been produced to test the theory, its crucial assertion is that sustainable urban development is possible, but the existing rules and regulations operating in cities throughout the world are inhibiting its achievement and that once implemented. Charter cities will thus create a chance to rewrite these ‘rules’ and through demonstrated success create a spillover effect of policies and practices to other surrounding cities (Romer, 2010).¹⁶

Less controversial are the increasing efforts to create a global system of benchmarks, indicators, and standards for best practices in sustainable urban development. Recognized as a prerequisite for the creation of evidence-based policy and measurable and comparable best practices (Torres, 2008), the search for accurate data and a common set of indicators has become a high priority for the majority of actors surveyed in this work. At the multilateral level, the OECD is currently undertaking a series of case studies on “benchmark cities” for sustainable urban development and ‘green growth’ (OECD, 2008: 3) and the World Bank continues to support the work of the Toronto-based Global City Indicators Facility as well as producing its own “Cost of Doing Business” indicators which are increasingly available at the urban level, despite a traditional focus on the national scale (Annez and Linn, 2010). Bilateral and domestic agencies are also working on this issue, with HUD, in partnership with the Ford Foundation, currently convening its own Task Force on Sustainable Communities, to explore the possible US contribution to international urban sustainability indicators. In India the Ministry of Urban Development’s JNNURM also focuses heavily on the development of common indicators of urban development at the domestic level.¹⁷

¹⁶ Romer’s use of controversial examples such as Hong Kong’s role in influencing urban and economic development in mainland China, and the concept of more developed foreign countries leasing and operating charter cities in the Global South, has drawn some public criticism (see Mallaby, 2010).

¹⁷ See tool kits and performance measurement sections of JNNURM website -- <http://jnnurm.nic.in/>

Finally, while there is a strong emphasis placed on data collection and benchmarking, there has been a simultaneous interest in alternative methods of cataloging best practice, namely through comprehensive and qualitative models such as those utilized by the Case Program at Harvard's Kennedy School of Governance (Loffler, 2000: 191-2), as well as more recent interest in the benefits of randomized control trials within the realm of social policy (see Duflo 2008a, 2008b). These control trials have so far proven valuable in supporting evidence based best practice policy on issues of increasing primary school attendance in developing countries as well as pricing mosquito nets in an effort to combat the spread of malaria. The ongoing work of Elinor Ostrom examining institutions arrangements and the management of common-pool resources also relies heavily on the case study method, underlining its applicability to the field of urban economics.

Section 3: Assessing Dissemination Methods:

Focusing on the themes and trends observed in the survey of global knowledge sources in the previous section, this section returns to an evaluation of the critical challenges to the internet-based dissemination methods increasingly popular among global actors, as well as the types of intermediary dissemination, and peer-to-peer networks that were observed. Before examining the specific dissemination methods, however, it is important to reiterate the cross-cutting challenges of best practice evaluation, monitoring, and institutional capacity which apply to all attempts at effective knowledge dissemination. These numerous barriers to successful best practice learning and transmission are evident in all forms and phases of knowledge transfer, from the institutional structure and capacity of city departments and development agencies, to the actual format, content, and standards employed to document urban development practices. Of particular note, as covered throughout this work, is the heavy reliance on individual, trust-based relationships in many of the planning fields responsible for urban development throughout the Global South, which not only limits the amount and variety of actors involved in knowledge dissemination, but also hinders less personal, web-based and traditionally published best practice data from taking hold. The following sub-sections outline some of these critical barriers.

1) Measurable Metrics of Success:

It is clear that for future transfer and scalability, best practice case studies must document benchmarks for success, such that practices can be compared to gauge the degree of success. For example, a practice addressing slum upgrading may mention an improved speed of construction without discussing the rate of construction in past governmental efforts or the percentage of need that this practice meets. By partnering those institutions involved in honing best practices with universities or third-party evaluators, metrics for success that are applicable to each best practice can more easily be determined. This will help to determine if projects are meeting their anticipated goals by making the goals measurable. Returning to the case-study based work of the Harvard Kennedy School of Governance and Elinor Ostrom, these same principles reinforce the importance of standardized case development, so that individual practices and conditions can be more easily compared, evaluated, and their lessons transferred.

2) Continued Monitoring for Critical Success Factors:

After a transfer is complete, the literature discusses continued monitoring as a critical element to improving the practice in the future. A best practice narrative is typically a single case at a snapshot in time; it offers neither an amassed nor a comparative analysis of different applications, does not provide information on failures (Bardach, 2003), fails to accumulate long term wisdom, and tests no theory, relying only on practice-and-observation (Overman and Boyd, 1994). Returning to Macário and Marques' work on sustainable urban mobility, it can be seen that establishing clear objectives before implementation of the transferred practice begins is critical to gauging success. For their purpose, an objective of a five percent reduction in fleet fuel consumption through the transfer of flexible parking policies and environmentally linked parking charges was selected. Simply transferring these best practices and the singular objective of a reduction in fuel consumption would make it difficult to identify broader success or failure. They stress that "the definition of the data to be collected in order to provide the necessary information on outputs, results, impacts, and corresponding indicators" must be considered while the transfer process is being designed (2008, 150). Macário and Marques further stress the importance of determining how the measurement of these goals will take place *before* the transfer begins, as the organization may lack the technical

skills for this measurement. In this case, any training or outside assistance that may be necessary should be included in the project design from the beginning, rather than added in after the fact (2008). Furthermore, the representatives from the University of Pennsylvania participating with HUD's previously mentioned Task Force on Sustainable Communities have identified the importance of paring down indicator sets to ensure that those selected are sufficiently SMART (Specific, Measurable, Achievable, Relevant, Time Related).¹⁸

3) Institutional Capacity

As Wolman and Page (2002: 478) aptly point out, effective knowledge transfer requires not only exposure to a specific knowledge set or best practice, but also utilization of that knowledge or practice in the local setting. While the level to which best practice knowledge is 'utilized' may vary from full-scale reproduction of a program or policy, to the recipient simply taking into account certain lessons learned elsewhere when formulating new policies or programs, there is nonetheless a serious issue of capacity within public sector organizations to adequately evaluate best practice knowledge and adapt it to their local settings or circumstances. Especially as best practice information is increasingly stored and disseminated by way of internet clearinghouses, a significant level of responsibility is shifted onto local level actors to seek out, vet, and adapt programs for reproduction or scaling -- a process which is more often than not a tall order for underfunded and overworked city departments (Mossberger and Wolman 2000). This reality is exhibited clearly in the fact that in a study conducted in of local authorities concerned with urban regeneration in the UK there was strong correlation between high levels of capacity, as defined by funding and technical support, and an agencies' tendency to look to best practices for innovation (Brannan, et al 2008: 32.)

Critical Challenges By Dissemination Method:

Internet Database:

Though analysis of the dissemination techniques being utilized by the surveyed knowledge sources pointed to a continuing increase in the use of web-based platforms, these uniquely accessible and grassroots dissemination methods are not, however, without their drawbacks. Goodman et al.

¹⁸ From UPenn Global Urban Commons Working Group Presentation at HUD, February 2010.

(1996) discuss the challenges to disseminating information on best practices through the internet in “Exchanging Best Practices Through Computer Aided Systems.” Although written early in the global shift to the internet for information dissemination, this article accurately identifies several major challenges posed by this method of sharing information that remain relevant today: limited motivation for taking the time to share a practice, competition between alternate venues for sharing information, and a difficulty in determining the effectiveness of this type of information sharing in terms of actual practices transferred. Goodman et al.’s research suggests that generally, many more individuals and organizations intend to transfer a practice than actually complete the process. Studying the transfer of practices within a corporate setting, the research team interviewed middle managers, salespeople, and service technicians regarding best practices they had adopted over the past three months. While 69 individuals had adopted a best practice from somewhere else in the company, in many cases the practice had not actually been implemented due to the need to respond to ongoing demands of their jobs. These findings imply that the mere availability of web-based best practices data, no matter how extensive, may not suffice to produce fruitful transfer or adoption. Furthermore, preliminary results from a Penn Global Urban Commons Working Group review of the UN-HABITAT Best Practice Database award winners, a pinnacle in web-based best practice, echo many of the issues identified in the literature review as typically lacking from a best practice case study.¹⁹ The Best Practices reviewed thus far were seen to generally lack:

- Objective third-party evaluation by an individual who will not benefit from winning the award.
- Consistent benchmarks for success, resulting in difficulty comparing related practices or assessing the level of success within an individual practice.
- Sufficient information to assess the potential for transfer, such as the necessary level of organizational leadership or political support.
- It is much easier to offer a compendium of practices and ideas and leave it up to the recipient to decide which is the most appealing than to offer an evaluation of what works best, let alone what works best for highly differentiated audiences.

¹⁹ From Penn Global Urban Commons Working Group presentation, UN HABITAT World Urban Forum 5, Rio de Janeiro, 2010.

While emerging platforms (World Bank Urbanization KP and UN HABITAT Urban Gateway) may present more interactive and real-time networking capabilities, the evaluation of on-the-ground impacts facilitated by these projects is yet to be adequately conducted. Furthermore, as many of these emerging portals rely on creating social networks made up of individuals around the world working on issues of urbanization, the actual effectiveness of the portals themselves to inspire regular visits and content contributions from individual users will largely dictate the success and failure of the projects.²⁰

Peer-to-peer Knowledge Exchange:

Certainly the most studied of the best practice dissemination methods reviewed, peer-to-peer exchanges have maintained a consistent presence within the field of urban and regional planning for decades (Hewitt, 1999). That said, Tim Campbell's work, as well as that of the World Bank Institute's Sheila Jagannathan (2010), clearly underline the many inherent challenges to sustained and efficient network learning. Among these challenges is the "1-9-90 rule" which dictates that, generally, within sustained peer-learning networks only 1% of participants will be truly active (creating content), while 9% contribute occasionally, and 90% of those interacting with the network are simply readers or "lurkers." Part and parcel in this system is a reliance on a highly motivated and talented core group to move the network along and ensure successful knowledge exchange (Jagannathan 2010). These realities are reflected in recent, bleak evaluations of city-to-city partnerships.

"In a study in South Africa, for instance, only 13% were rated as highly successful (De Villiers, 2005). A follow-up study indicated that an estimated 51% of partnerships identified in 2004 had been abandoned by 2006, and of the 50 that were investigated only 7 were found to be worthy of emulation. It was further found that the costs of these relationships probably far outweigh the benefits." (DPLG, 2006) - From, De Villiers, 2009, p. 150

Finally, this work also highlights the fact that the very concept of peer-to-peer learning is evolving

²⁰ This issue is commonly discussed as how "sticky" -- i.e. able to attract multiple, repeat visits from individual users -- a social media or advertising site is. The challenge is that considerably less is known about how to create a "sticky" professional network site.

with the continued evolution of e-communication, requiring less and less physical site visits and meetings, a fact easily overlooked when the method is held in contrast with internet / database dissemination techniques. It is precisely this move away from simple “twinning” of cities and toward more “complex webs of relationships including multiple linkages and networks of relationships” around the world and with “different geographical orientations, for instance, North-North, North-South, South-South...” (De Villiers, 2009, p. 149) which must be explored in future research and evaluation of knowledge transfer.

Intermediary Driven Dissemination:

As Section 2 of this work outlined, the past decade has seen a rise in the number of private sector actors and inter-city networks dedicated to disseminating best practices in sustainable urban development, creating a space for the development of new tools and technologies, as well as increasingly large and sophisticated global networks. With regard to private sector actors such as IBM and CISCO, who play a major role in not only research and development of best practices, but are also hired to implement the strategies across the globe, this is particularly true. That said, the emergence of these actors, as well as private sector philanthropic organizations within the architecture of international development has raised questions of coordination and knowledge management which have yet to be explored thoroughly.

In addition, while high profile intermediary groups such as the Mega-Cities Project have successfully facilitated best practice transfers, experience shows that these programs can be vulnerable to the same obstacles as peer-to-peer exchanges where Critical Success Factors, Indicator Systems, and political contexts are overlooked or not adequately identified. The Mega Cities Project, for example facilitated a best practice transfer from Cairo to Manila and Bombay addressing recyclable waste collection and improve the economic conditions of waste pickers. In Manila, Mega Cities worked directly with the waste picker community and had success both improving sanitation in the city and starting several guilds through which residents created recycled, value-added products. In Bombay, Mega Cities was not able to complete the transfer because structural circumstances forced them to work with political staff rather than residents. Ultimately, they were able to establish trash separation, but failed in addressing conditions for those living near dumps as the efforts

coincided with a local election which drew the attention of city staff away from completing the project (Badshah and Perlman, 1996). In this case, political support was a critical success factor and incorrectly gauging the depth of local political support led to a potentially avoidable transfer failure.

Dissemination Methods and Transfer Objectives:

While it is clear that all of the general methods of best practice knowledge dissemination reviewed have their strengths and weaknesses, it may be helpful in closing to reconsider the varying circumstances in which the methods are employed. This might be best understood within Nicholas You's image of the "knowledge pyramid," roughly sketched out in Figure 5. This type of differentiation between objectives and appropriate tools for knowledge transfer should serve as a template with which to further explore the modes of dissemination that can be matched with the tiered definition of best practice in order to assure that pragmatic and realistic evaluations are conducted.

Research Gaps and Next Steps:

While best practices has evolved significantly in both the planning and other fields over the last century, and there are many new, exciting developments in the realm of multi-scalar network building, tools and technology for data collection and benchmarking, as well as web-based dissemination platforms; like other professions, sustainable urban development practice will benefit from a knowledge transfer approach that assumes and relies on an increasingly rigorous, uniformly documented, and holistic best practices. The current professional lag in defining a uniform case documentation method leaves room for great inefficiency in even the most well-meaning documentation of best practices and a lack of rigorous follow up on the potentials and impacts of emerging dissemination methods, especially those utilizing web-based platforms, is a cause for concern. Thus, while it is clear that emerging intermediary, peer-to-peer, academic, and computerized best practice documentation each offer unique advantages in permanence of documentation, systematized format, widespread distribution, and peer review, the existing research gap regarding the efficacy of these formats actually facilitating successful best practice transfers must be addressed. While computer-aided learning many never entirely substitute for personal interactions between city officials, it is also important that these newer formats include

information on critical success factors, defined metrics of success, and continued monitoring which were highlighted above as the linchpin to successful transfer. Additionally, modern best practice methods must include sufficient information to assess the potential for transfer, such as the necessary levels of organizational leadership or political support, which can be utilized to inform

Figure 5: Objectives, Audience, Instruments Table

Objectives/Activities	Target Audience / User Groups	Instruments
Awareness-building	<ul style="list-style-type: none"> + Informed public + Media + Media professionals + Decision-makers 	<ul style="list-style-type: none"> + Awards and recognition systems + Investigative journalism reports
Networking & Information Sharing	<ul style="list-style-type: none"> + Decision and policy-makers + Practicing professionals + Training and Leadership development institutions 	<ul style="list-style-type: none"> + Living practices and best practices databases + Publications/Articles + Web-pages, Newsletters + List-serves
Learning tools and capacity-building	<ul style="list-style-type: none"> + Training and Leadership development institutions + Local authority associations + Professional associations 	<ul style="list-style-type: none"> + Living and best practices Case studies + Living and best practices Casebooks + Issue briefs & articles + Training manuals
Peer learning and C2C	<ul style="list-style-type: none"> + Local authority associations + Networks of NGOs/CBOs + International organisations + Multi- & bi-lateral assistance + Chambers of Commerce 	<ul style="list-style-type: none"> + Transfer guides, methods and tools + Match supply/demand for expertise + Conferences & seminars + Advisory services
Policy Development	<ul style="list-style-type: none"> + Decision-makers at all levels + Policy advocacy groups + National governments + International & inter-governmental organizations 	<ul style="list-style-type: none"> + Database on urban policies and enabling legislation + Policy trends and responses + Normative guidelines + State of the World's Cities Report

ideal dissemination techniques and mediums.

At the heart of these challenges, however, remains the fact that best practice dissemination, and particularly adaptation/adoption, requires a significant amount of resources and capacity often absent within city administrations. This is further compounded by the fact the best practice model itself originates from private-sector innovation and that similar pressures or ‘adoption mechanisms’ are less prevalent, or at least poorly understood, within the urban public sector. While, as the information in figure 3 demonstrates, the majority of agencies concerned with urban development now recognize the importance of taking a holistic approach to issues of urban systems, ecological sustainability, governance, peri-urban and rural development, public health, and poverty reduction programming, this acknowledgement has been slow to translate into best practice information regarding comprehensive urban development methods and there remains a gap in understanding of how representatives from these fields can more effectively work together to create, disseminate, and implement best practice knowledge. The major research gaps identified within this work can thus be summed up as:

1. A lack of consistent indicator systems and uniform data on sustainable development outcomes
2. The dearth of research on the impact of emerging private sector actors on best practice knowledge production and dissemination.
3. The lack of evaluation of web-based dissemination and networking platforms with regard to on-the-ground best practice transfer and adaptation.
4. A lag between a policy and practice interest in comprehensive sustainability (Ecological, Economic, and Social) and best practices which account for the interconnected nature of all three aspects.
5. Lack of understanding of incentives and barriers to the adoption of best practices in the urban public sector, especially regarding effective methods for cooperations between various fields in the creation and implementation of best practice models at the urban scale.

As best practice knowledge on sustainable urban development continues to be produced, at scales varying from individual water management programs, to large-scale Eco-cities and even possible

variations of the types of best-practice-driven “charter-cities” proposed by Paul Romer (2010), better understanding these gaps in knowledge on how and by whom best practices are documented, uniform benchmarks established, and through what steps proven policies for sustainable urban development can be more efficiently accessed *and implemented* by cities throughout the world will prove critical. In particular the lack of more comprehensive best practice models must be addressed. As this work has shown, there is considerable evidence that new partnerships are now emerging between multi-sectoral knowledge sources on an unprecedented scale, and a better understanding of how to evaluate and support these networks -- the role of private corporate and philanthropic actors particularly -- in providing coordinated urban development assistance will be central to ensuring that emerging cities in the Global South are able to effectively transform the process of urbanization into the driver of sustainable development.

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Appendix A: Typology of Knowledge Sources

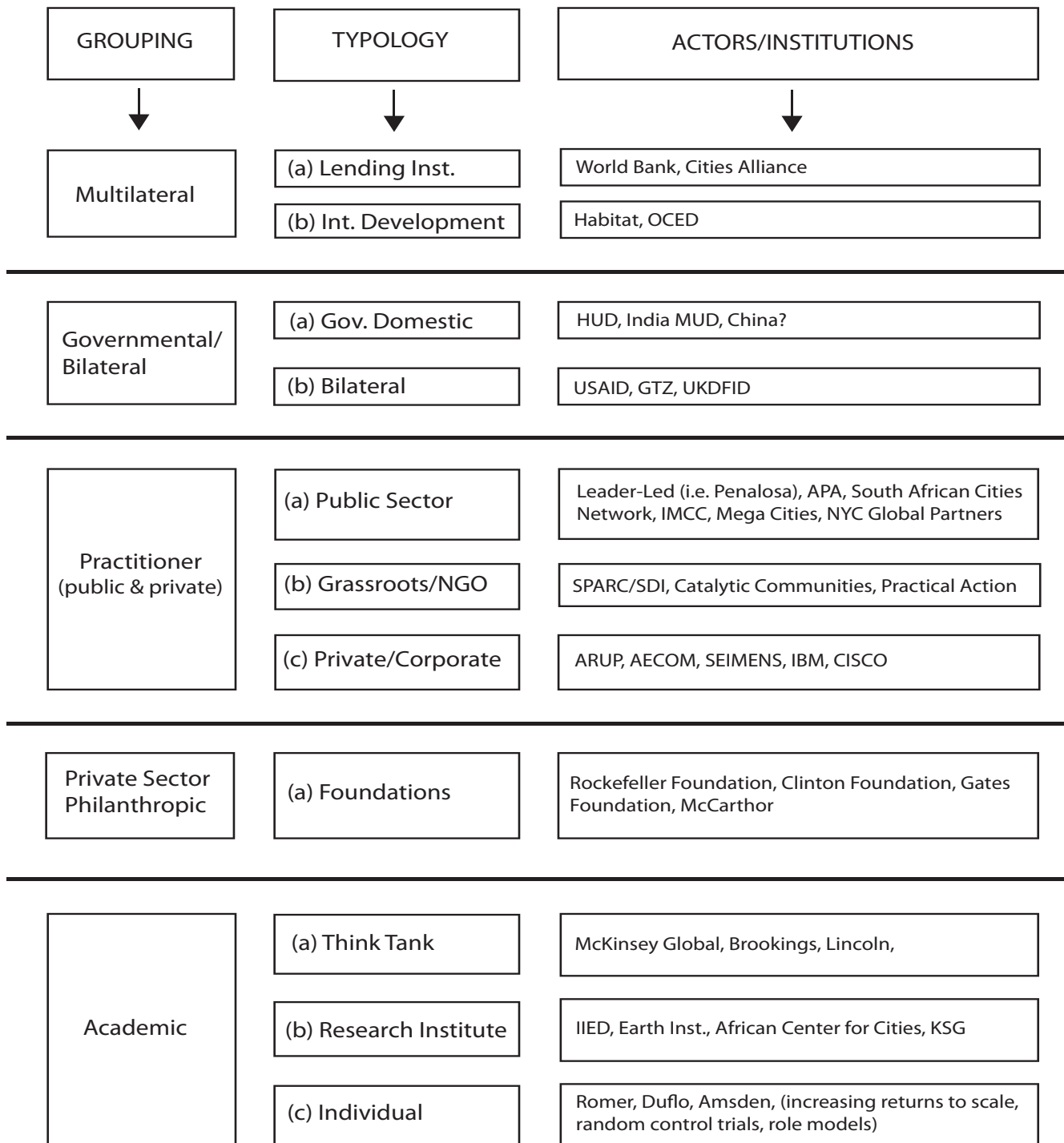


DIAGRAM 2: Typology Breakdown

Appendix B: OECD Pressure State Response Indicator Framework

From: OECD (1993) "OECD core set of indicators for environmental performance reviews". OECD Environment Monographs No. 83. OECD. Paris.

Pressure - State - Response Framework

