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Emerging cities are finding new ways to deliver basic services, inventing fresh techniques and institutional arrangements. Before long, their wide variety of experiences may generate new service and financing standards, determining how public and private actors divide responsibilities and tasks, particularly for water supply, sanitation and solid waste management. This possibility inspires a review of government’s role in supplying such services, and of ways to adapt urban development policy makers’ analytical tools.

**WHEN EMERGING CITIES SET STANDARDS**

Analysts often describe urban services infrastructure in developing countries in crisis terms: the lack of resources and public funding drives management crises and foils the paradigm of general service access. Everyone comes to the same conclusion: service levels are inadequate, service extensions lag behind urbanization, and financing is impossible. Meanwhile, innovative service delivery arrangements emerge throughout developing countries. Countless services operators – working in neighbourhoods, cities or even at the national level – propose pragmatic, ready solutions for the varied strata of urban society. Differentiated services arise according to customers’ ability to pay: these are local and limited, but often fill lucrative service gaps. Harnessing this dispersed purchasing power allows systems to develop at the same rate as the city grows. Urban services management has long belonged to the public sphere in emerging countries (understood here as economies modernized enough to boast technical and managerial expertise, well-distributed beyond government organizations). This previously exclusive domain has now opened to a coalition of private actors. Compared to developing economies, emerging countries have a special ability to industrialize new systems rapidly and independently of the government – and to reproduce them on a large scale, thus lowering production and operating costs.

These differentiated services distinguish themselves from classic, centralized public management more by their nature than by their quantitative service standards. Basic services’ technical systems diversify as the minimum size required for their financial viability is reduced (Ruet et al. 2009). Once the pilot phase is over, the levels of coordination with more centralized public systems multiply. Given their
operational (but not necessarily enduring) character, the evolution of such systems prompts a rethinking of the government’s role: less central to service supply, more responsible for regulation. The proliferation of new systems brings new challenges: technical integration between permanent centralized systems; new, decentralized systems with a potentially large scope of service; and social inclusion of all urban residents. But to think of these dispersed changes merely as answers to a (so-called) “crisis” only obscures their potential for urban planning and development.

What if the crisis actually lies in analysis of the problems? Emerging societies invent solutions incessantly. The very definition of emergence rests on these models’ ability to “create a system” in tandem with opportunities for development aid. To bypass one paradox of classic urban services management, we propose that development professionals use the concept of “club goods” – i.e. economic goods that are “non-rivalrous” e.g. whose users do not compete with each other because several individuals can use them without diminishing their value; yet exclusive or “excludable” because certain individuals or groups can be prevented from using them (Buchanan 1965). Development theory primarily rests on the idea of economic public goods, or goods that are non-rivalrous and non-excludable. In practice, however, such goods are often managed through organized shortages and exclusionary discrimination. The effectiveness of club goods-based systems could help create real public goods without the pitfalls of deficient public services – if regulation could compensate for their exclusive aspect. Understanding the logic of club goods could thus reformulate crucial questions about urban social and spatial cohesion in developing and emerging countries.

EMERGING COUNTRIES HAVE MANY INNOVATIVE SOLUTIONS

In 2005, the growing urban population of China, India and Brazil – the main emerging countries – was equivalent to that of Europe and North America combined (UN Habitat 2007). Their share of urban citizens continues to increase. The urban issues they face are quite new to us; understanding them requires attention to two major characteristics – powerful, structural social inequality, and the preponderance of “informal” or unofficial settlements, services and activities. Urbanization tends to accentuate already-large income disparities, because certain sectors of activity develop with different levels of profitability, as large agglomerations in developing countries attract greater numbers of disadvantaged migrants. Once integrated into the urban economy, these new residents earn higher incomes than the rural average, but remain relatively poor. The spread of a massive, urban middle-class is a fiction in the medium-term: the masses in question are too large, and the integration of emerging economies into the world market depends on a differential in internal salaries. Differences in living standards become visible in the urban landscape, where
highly differentiated urban areas are often spatially – and always economically – embedded within one another.

The term “informality” itself evidences a blinkered vision of emerging countries. Rather, one should speak of forms of housing and economies developing outside the state’s purview. The urban fabric of emerging cities consists mostly of working-class neighbourhoods, an enduring feature: by 2025, the number of people living in these districts will be double that of 2005 (Giraud et al. 2006). In terms of economic activity, “formal” or official activity is only the tip of the iceberg: in India, only 9% of workers hold official jobs (Kundu et al. 2009). The economic emergence of countries with hundreds of millions of urban residents rests on innovation and technology, but also on poor urban workers. Furnishing them with essential services will require development tools and systems adapted to their ability to pay and to each city’s governance structure.

The socio-economic development model in which the state played the dominant role has exhausted itself, after producing many results and showing no fewer limitations. Emerging countries’ long-term modernization now accommodates a variety of private actors. Several major agents intervene in basic urban services supply: public or para-public enterprises that de facto no longer have a de facto monopoly on supply and infrastructure; real estate developers and large international or transnational services firms, trying to replicate uniform interventions; small firms that grow out of the working economy, their status characterized by a large variety of official and unofficial titles; civil society, which includes some non-governmental organizations concerned with global issues and many local community not-for-profit associations (Ruet et al. 2004); international financing agencies (multi- and bi-lateral development banks) now diversifying their beneficiaries, as seen in the rise of “non-sovereign” loans made without backing by the host government. With the diversification of stakeholders in urban management, new models of services provision proliferate.

Supply systems adapted to these new urban challenges, characterized by smaller, more elementary techniques and arrangements, have emerged in different forms almost everywhere. Operators of neighbourhood water mini-networks (now gaining recognition) contribute at three levels. First, they sometimes give an alternative or complementary means of increasing home water access, without extending the official network; they are especially efficient where water is recycled locally. Second, they supply water to many low-income households, particularly in urban areas that conventional networks find hard to serve, thus improving living conditions for underprivileged districts. Finally, their services manage to rival those offered (or not offered) by the principal operator, in terms of pressure, continuity and cost. For waste management services, small private operators have a wider range of interventions – collecting, sorting, recovering, re-using, reselling, recycling, and so on – and represent an equally large sector of activity, in terms of the number of people
involved and tonnes of material. Here again, informal and local operators make collection routes and waste treatment more economically efficient by recycling and sorting waste at its source.

Community-based, decentralized systems for water, sanitation and waste management are appearing simultaneously. These supply and recovery systems function on the “short-loop” principle: instead of going through slow and extensive systems, they focus on providing services more or less autonomously in their communities, as seen in Box 1. Can these community-sized systems become a model? Yes, if seen through another prism. Urban development agencies tend to favour implementing only those systems they can control entirely (see Maria 2006). The alternative systems now developing are far more complex than conventional systems. Urban entrepreneurs, are no longer content to simply purchase: they join with technology providers for innovations and investments, defining specifications for modular systems. This makes it imperative that governments recognize these entrepreneurs and new systems before attempting large-scale changes. In emerging countries, intervention models have yet to stabilize unit development costs, management, technical terms, and so forth, but their abundance makes comparisons possible and increases potential market size. Thus their initiatives help structure and consolidate the operating methods of urban operators-in-training, allowing comparisons amongst themselves.

EMERGING COUNTRIES MAY SET FUTURE STANDARDS

In our view, emerging economies differ from developing ones in three ways (Ruet 2009). First, they exceed certain human, institutional and technical resource thresholds. Second, they have a diversity of actors who have acquired and can distribute

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**BOX 1**

**DECENTRALIZED WATER MANAGEMENT SYSTEMS IN DWARKA, INDIA**

Dwarka is a residential area under development outside New Delhi, India, expected to accommodate more than a million middle- and upper-middle-class residents. Two agents of urban entrepreneurship have buildings constructed there: the Delhi Development Authority (DDA) and the Cooperative Group-Housing Societies (CGHS). In both cases, a co-operative company comprising ninety to 200 members allocates land to build co-op residences. Even though Dwarka is an official urban development project for well-off people, its public service infrastructure is deficient and does not provide sufficient water. Few solutions have been found for the DDA buildings that have individual water network connections. Although the Resident Welfare Associations may lobby for assistance, they lack the clout and developed base of the wealthier co-operative societies created a dozen years before building even began. Consequently, the CGHS uses a collective water network connection, and collective strategies have emerged responding to the municipality’s insufficient supply: simultaneous use of network water and underground water, as well as rainwater recovery; using collective storage capacity to variably manage flows according to use (potable or non-potable) through a double piping system; installing small water treatment units for the residential complex’s grey water; and using wastewater to recharge groundwater, after treatment.

Source: Authors (See Maria 2006: 216-250)
technical and institutional know-how. Third, they possess a national reach large enough to permit economies of scale, allowing them to replicate their best business and technical models. The first and third characteristics are classic dynamics in development. The combination of institutional resilience with a diversity of urban operators creates a “development laboratory” effect, which is the true indicator of emergence. The characteristic low production costs of emerging economies also hold true for concepts and innovation: emerging countries are their own economic laboratories for adaptations to even the most specific markets. The agglomeration economies found in metropolitan areas provide another crucial dimension, stimulating actors’ innovation potential with ideas, tools, networks, working environments and so forth. Agglomeration economies function with density: the simultaneous presence of diverse and complementary actors in the same territory has a catalysing effect on information sharing, system interconnections and expertise. Normally unconnected operators, designers, artisans and other professionals can develop their ability to work together and optimize their aptitude for inventing new, ready-to-use solutions. Above all, these conditions encourage the articulation of new technical solutions with organizational arrangements, making it possible to answer real needs and desires. Once innovations have been sufficiently aggregated, tested, and have proven useful and realistic, anyone can appropriate them.

In the examples presented in Box 1, the adoption of new technology by stakeholders at various institutional levels allowed residents to address insufficient public water supply. In Dwarka, the availability of new technological solutions allowed the CGHS to include technical systems that could compensate for the problem in the building-design phase. Many inexpensive technologies, such as reverse osmosis to reduce water salinity, have grown popular in India. Technical systems come from private initiatives. Various residents’ associations turn to different types of urban entrepreneurs, for relatively large technical and/or management modifications, as well as for pure sub-contracting. The technical and economic profitability of such solutions, as well as their relative dependence on a centralized system, results in a wide range of water costs. The water sector’s consolidation is underway, but remains incomplete.

Eventually, the technical, social and economic systems springing up in emerging countries could replicate and spread according to their relative efficiency. Three criteria determine the social and technical efficiency of a system: (1) technical, i.e. does the system satisfy a need, and at what cost?; (2) professionals’ perceptions, i.e. does the system seem possible?; (3) the pilot project’s degree of aggregation, i.e. did it sufficiently test the concept with a wide enough audience (professionals, consumers and administrators) to guarantee interest in its adoption? The Dwarka case suggests that many small technical businesses may grow very quickly once pilot projects have multiplied: prospective buyers will be able to compare offers and developers to systematize implementations, creating “off-the-shelf” technology.
Services and assembly companies will become marketers and services solutions designers, eventually creating a brand-new sector of activity. A normative dimension arises when this type of innovative social and technical system spreads within an emerging country, or in other countries. When the well-off can afford new, decentralized technologies, new standards emerge. Size matters: such social groups – representing hundreds of millions of Indians – remain a minority and more of an elite than a middle class. However, collectively they have considerable purchasing power, enough to allow new systems to spread and make possible a rapid “industrialization” of today’s embryonic models. Replication becomes even more systematic when based on an automatic and substantial cost reduction.

Without treating a fluid typology as a settled matter, we can discern several promising patterns in what might be called new systems “experiments:” services founded on communities and financed by multilateral development agencies are essentially well-controlled, whether implemented by sector-driven associations or municipalities; the development of collective resource capture (water, electricity) leads to public-private arrangements as long as there are participating governance structures (for instance, Bhagidari program for residents’ associations in Delhi); the most advanced experiments also promote progress in urban governance of infrastructure. The challenge is for an accumulation of micro-projects to become truly macro-economic and systematic. We must first look for the most effective sustainable and environmental urban investments where opportunities are strongest, and where new infrastructures will serve the most people: over the long term, these infrastructures will determine demand and thus humanity’s ecological footprint. In coming decades, most growth and physical capital accumulation will occur in emerging countries.

Such systems possess strong potential to become standards in well-to-do neighbourhoods with working residents, but replicating them in less opulent districts appears more problematic. Consequently, the question arises: how can infrastructure in emerging countries (themselves a product and a limit of development: Maria 2006; Ruet 2008; Ruet and Zérah 2004) continue its contribution to emergence, as defined above? Does the proliferation of decentralized services technologies lead to spatial fragmentation, on the scale of the entire agglomeration? One answer may lie in co-ordination concerns, between club goods developed privately and the necessary recognition of common resources, such as groundwater, municipal-scale solid waste flows, and so forth.

A WINDOW OF OPPORTUNITY FOR CO-OPERATION?
The evolution of supply modes for essential urban services raises thorny questions. The notion of club goods may prove useful heuristically and prescriptively; the notion calls for careful framing, but denying its real-world impact would be counterproductive. It is a classic idea drawn from economic theory, the same as public good, private good or common good, the characteristics of which are summarized in Figure 1.

The economic character of a good largely depends on its production mode and on
broader social and institutional choices. For the past two centuries and until recently, bridges and roads were canonical examples of public goods: this is no longer the case, as production means and socio-political agreements have changed. While club goods appear more rarely, especially in urban services, their analytical and operational relevance may see a revival. An increasing number of services are managed as club goods, due to new, flexible, modular technologies with lower critical-mass thresholds; certain social classes may deploy them, excluding other potential users. In most cities across the world, interventions to distribute public goods are no longer effective; they tend to create shortages rather than equality. A public good is defined as a good or service whose consumers are “non-rivalrous”, e.g. in how a well-run network benefits from extension because of reduced shared costs. A public good is also “non-excludable:” there is no way to exclude anybody from consuming them.

In practice, public services in developing countries turn this theory on its head. Official, centralized services in developing countries tolerate, or even de facto promote, recourse to club-good arrangements. As Erik Swyngedouw (2004: 126) explains, “the highly unequal access to water provides a strong argument to those commanding water production and supply to perpetuate and strengthen a system that is fraught with actually producing the very exclusionary practices it set itself to solve in the first place.” In other words, the insistence on only one technical solution authorizes, de facto, the proliferation of unregulated, alternative solutions where price does not guarantee quality. In emerging economies, “semi-decentralized” systems’ financing and implementing capacity transforms this potential proliferation of club services into a reality.

The race between public sector reform and private developments in urban residential areas favours the latter. In a public system founded on geographical infrastructure sharing, even rich people – long term “captives” of their poorer neighbours – have an interest in extending the network to everyone, because that will lower all unit costs, including their own. On the other hand, for new technical and organizational systems, cost reductions entail series effects external to a given geographic area. The model’s development starts by serving rich people in other cities, rather than other districts in the same city. The objective interest in mutualizing services at the city scale appears lost. The authorities’ persistence (and patent failure) in striving for a public good bolsters these exclusionary management arrangements.

**INSISTENCE ON ONLY ONE TECHNICAL SOLUTION AUTHORIZES, DE FACTO, THE PROLIFERATION OF UNREGULATED, ALTERNATIVE SOLUTIONS**

<table>
<thead>
<tr>
<th>Type of Good or service</th>
<th>Excludable</th>
<th>Non-excludable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivalrous</td>
<td>Private Good</td>
<td>Common Good (or Impure Public Good)</td>
</tr>
<tr>
<td></td>
<td>Examples: car, house</td>
<td>Examples: groundwater, oil fields, hunting game</td>
</tr>
<tr>
<td>Non-rivalrous</td>
<td>Club Good</td>
<td>Public Good</td>
</tr>
<tr>
<td></td>
<td>Example: toll-road, cable TV</td>
<td>Example: air, national defence</td>
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Geographically, the emerging city tends to devolve into gated communities: in technical and economic terms, they are “clubs.”

The technical disaggregation potential of these arrangements could strike at social cohesiveness. Entire sections of society already have no access to these services. Furthermore, the proliferation of club arrangements may cut off local governments from part of the revenues they use to subsidize service for all. If the higher-income classes gain autonomy through such systems, they may stop paying for the municipal service. There is a real risk that the rich in emerging societies will opt for a sort of “urban secession,” limiting the municipality’s ability to subsidize services for the poor. That said, are “clubs” intrinsically harmful? Since they help improve services to parts of the city where the government is financially and operationally absent, could they support a complementary relationship between private and public systems? Can local governments capitalize on this situation for social purposes, building on these structures to strengthen social ties? Even if the development of club services has arrived via the back door, so to speak, it is foolish to fight or ignore it. One cannot build dams against the Pacific Ocean. We should see the risks and sketch out regulatory solutions: if club goods create real economic value, this can supplement resources for other users, either directly (by taking less from centralized networks) or indirectly (through taxes and fees, or by refining systems scaled to “industrial” sales).

A closer reading of these systems, and their social cost savings, may provide answers. These community-based systems are not self-sufficient: they need efficient circulation loops into resources, ensuring the quality and quantity of their supply. For instance, a decentralized water distribution system can establish a club good logic and exclude serving citizens living outside the district. But for the system to endure, its groundwater must not be polluted upstream. And yet groundwater is not a club good but a limited renewable resource, a common good. Its management for the good of the group requires collective regulation. Thus water could become an effective public good because it brings forth social inclusion. At the scale of a city, reconstructing public goods in this way is critical for local governments, but for club systems as well. The new challenge for governments and for public development aid is to better draw the limits between club goods and public good – possibly re-allocating the property rights to common goods – and helping both centralized and decentralized operators create taxes or fees, but with differentiated tools.

INNOVATIONS FOR SOCIAL AND SPATIAL COHESIVENESS
The many questions these developments raise also serve as pretexts for action. If we put to one side the aim of filling gaps - accepting that powerful social inequalities and low incomes will endure for most people in emerging countries – new room for action opens up. Emerging societies face two particular challenges: first, they must promote technical decentralization through the effective technical and economic integration of urban services. Viewed through this prism, governments in emerging countries will likely finance fewer facilities programmes and see their role in co-ordinating
governance increase. The other challenge lies in modernizing public authority and regulations, to make the general interest prevail and not leave behind entire sections of urban society.

In other words, it might not be necessary to intervene in club goods management on the pretext that they promote inequality; is there no worth in their functioning, their very existence? Is not the pure centralized system also inegalitarian? Current “reforms” only replace obvious club goods with insidious ones. What matters most is avoiding the proliferation of “dead zones.” In the long term, the public sector must ensure consideration for poor people, while proving its ability to integrate these new islands of technical organization. This calls for restructuring collective action, opening club goods systems to resolve the weaknesses of conventional public management, and reconstructing effective public goods in the process. Nations and cities have seen developments along these lines, but the dominant public and private actors slow down the process. Public development aid could play a complementary role, by monitoring and incentivizing the process.

With their diverse agents and the spread of expertise, emerging countries could invent a regulated combination of centralized and decentralized systems, moving toward a “semi-decentralized” model. This would require renewing the debate on service standards and financing modes, thus raising strong challenges for social cohesion; how, for example, can solidarity be organized in fragmented cities? Public development aid could help renew the models, because appropriation is not synonymous with collective authority. In sum, it begins with individual or collective entrepreneurs who appropriate technical and economic systems – a central step for systems to evolve past pilot projects. The logic here is strictly that of private goods. At this point, the service is not yet standardized: informed consumers and interested social groups must test it. These users will move the system towards the field of either club or common goods. Finally, appropriation by the government becomes necessary, introducing regulatory policy and reconstructing a public good at (probably) a different scale. Regulations are not simple and thinking about them has only just begun. However, new assumptions and progress towards a new system – looking beyond the former system’s failures – should identify and guide the financial and human engines of change.

CONCLUSION: LABORATORIES OF CONTEMPORARY URBAN LIFE

Emerging cities restructure themselves as decentralized – or semi-decentralized – technologies become available. They could surpass the urban systems of Western capitals developed in the nineteenth century. The growth to come, and with it the power of standards, rests with developing nations. In emerging countries, basic services systems will inevitably change. So will their effect on social cohesion and spatial fragmentation, along with the need for collective action. The concept of
public development aid must be rethought with a more collaborative, more symmetrical meaning. The increasing challenge is to *co-produce* truly sustainable development.

Developing countries have a window of opportunity to emerge and set new standards. Rather than importing models, they can use “home-grown” innovations to give value to and catalyze their development. However, these emerging solutions often prove incomplete: focused on the most well-off club targets, they risk abandoning a large share of urban citizens. This is where public aid can play a role. Acknowledging the “club good” nature of real urban services in emerging economies would remove the implicit hypocrisy: these new services are not the only ones that are intrinsically exclusionary. It would also recognize that these new techniques and entrepreneurs – many of whom structure and “industrialize” their offers – offer many ways to capture financing needed for basic urban services. Controlling such systems calls for regulations geared to diminishing the rivalry of goods. Recognizing the club good nature of real services could rework the balance between rich and poor at the municipal level, and promote solidarity on the regional or national level, by drawing on the value received from ambitious regulation. These issues carry even greater weight in light of sustainability criteria: when the time comes for rich countries to renew all their networks, they too may turn to these types of system – centralized or decentralized.


WORKS CITED


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