POLICY BRIEF 2
JULY 2011

CHANCE 2 SUSTAIN

Knowledge Production in Urban Local Governance Systems

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In current policy-making processes, governments are working more closely with citizens, civil society organisations, and private sector companies than previously. To a large extent, this is due to the complexity of issues to be taken into account, chain effects and multiple consequences of single actions, and growing number of stakeholders affected by decisions. In order to make such 'network' governance and decision-making processes more effective, a common understanding of issues is necessary. Including different types of knowledge from various groups is a crucial resource for such inclusive decision-making. Urban local governance offers opportunities for more inclusive management and planning, incorporating existing practitioner knowledge from the private sector and citizen preferences, as the interface between local government and citizens is fairly direct. Therefore, it is strategic to examine how existing knowledge from government, citizens, civic organisations and the private sector can be linked to the geographic areas for which decisions have to be made. Development of new instruments and tools using digital information and communication technology and its increasingly affordable access to larger groups has the potential to stimulate and improve local governance. Urban planners and managers could benefit from such instruments and tools enabling better production of knowledge, improved display and presentation of data, and enhanced communication and dialogue with various stakeholders and audiences.

New instruments for urban knowledge production

New instruments for urban knowledge production and visual presentation are being developed using information systems, based on digital information and communication technology. When location is relevant or if there is a need for an improved view of a geographic region, these approaches can use geographic information systems (GIS) to link various types of data to geographic locations. What kind of information does this spatial representation of urban knowledge, commonly referred to as mapping, add? It can indicate, for instance, uneven patterns of urban development such as well-established neighborhoods versus precarious settlements, identify areas of particular interest (hotspots) for public intervention, or display changes and trends over time in regards to land occupation. Remote sensing images such as the ones accessible through Web tools like Google Earth can provide up-to-date information on local differences, and community preferences can be captured through participatory data-building such as community mapping locating existing facilities in the neighborhood. All these various types of information for one particular location can be put together, linked, and displayed through graphical interfaces. The main advantage of such tools and system formed by these tools is that different sources and types of knowledge can be visualized in maps, maps can be compared, and contrasting views displayed by those maps can better inform decision-making processes.

Putting together such types of information/system into an information system infrastructure for strategic urban planning and management is not an easy task. It should be considered a process of medium- to long-term commitment and investment by local

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governments. In an "ideal scenario" or best practices environment, some important steps or requirements are needed. First, we need to understand local work practices and the installed base. This involves assessing what type of information is being collected, produced, organized, and stored, how it is used and exchanged within the facility and with other organizations. Second, local government needs to have appropriate equipment, such as computers, printers, scanners, broadband connectivity, and software programmes. Since technology evolves very rapidly, it is always a challenge to keep equipment up-to-date. On the other hand, development of new technologies has dropped prices significantly, allowing broader access to equipment and stimulating more free-share software. Third, professionals need to be trained to use digitized information systems. This step is often taken for granted as a "natural consequence" of acquiring computers but this is not the case. Specific and continuous training of professionals is required not only in using such digitized technologies, but also in building skills in bringing non-digital information into this new environment. Fourth, information system infrastructure expertise built up within the organisation needs to be maintained; frequent changes in personnel put a particular strain on the sustainability of such an infrastructure. Fifth, a policy promoting information system infrastructure needs to be in place at local, state, and national levels. This includes, for instance, providing local governments with basic digitized maps of their own administrative boundaries and infrastructure. Sixth, and almost an extension of the previous step, there needs to be a policy at local, state, and national level to promote programme and content compatibility. This means using the same classifications across cities, municipalities, and states, so that information remains comparable. Related issues would be setting standards for data collection, quality check, organizing, and storing, and providing the means to make data accessible for various audiences and purposes through user-friendly interfaces. Because of the complexity and challenges involved in putting in place such policies, national governments or the public sector tend to play a key role in this area.

In India, programmes such as the Information System Infrastructure Promotion under the Jawaharlal Nehru National Urban Renewal Mission (http://jnnurm.nic.in/ JNNURM) and the National Urban Information System (NUIS; http://www.urbanindia.nic.in/programme/lsg/nuis.htm;) promoting the creation and use of digital spatial databases at the local level, need to incorporate such requirements to be most effective. In Peru, the National Geographic Institute (IGN) is the platform for national geographic databases. It plans, directs, and implements all activities related to geo-information. The national government provides public access to various databases through the Spatial Database Infrastructure of Peru (IDEP), in order that base mapping and thematic information can be displayed[1]. In Brazil, the Brazilian Institute for Geography and Statistics (IBGE www.ibge.gov.br) is the federal organization in charge of producing and publishing official maps for the entire country at various scales (municipal, state, federal). With the digital era, IBGE has moved to digitizing its map collections as well as producing maps entirely digitized. One example is the map used for collecting data for the 2010 Brazilian Demographic Census. Although IBGE plays an important role in producing maps and digitizing information for the country, in Brazil so far the information system infrastructure has not become an orchestrated endeavor. There are many initiatives for urban data production underway in the public sector at the federal level (Institutes and Ministries), state level (Institutes, Foundations, and Departments), and also in larger municipalities or cities better structured. Protocols, standards, time span, and quality of data may very significantly between source and systems. South Africa's national mapping organisation (NGI) launched the Spatial Data Infrastructure Act in 2003 to facilitate the capture, management, maintenance, integration, distribution and use of spatial information. There are also several interactive GIS-applications to display data collected by the Statistical office of South Africa (see e.g. http://www.statssa.gov.za and http://www.s4.brown.edu/southafrica/homepage.htm).

1 The national government also has more specialized initiatives such as the Ministry of Environment Geoserver, which offers information related to environmental issues, which are useful for regional and local governments.

Spatial knowledge systems at work

Once urban knowledge production including location or spatial variables is integrated into an information system, it forms a resource that can be used for various purposes at the local level. Among the more common or traditional purposes, we highlight the following: 1) monitor performance of governmental projects; 2) provide more effective coverage of public services such as water provision or transportation; 3) increase efficiency in taxation and revenue collection, reducing corruption opportunities; and 4) improve interface with citizens, by providing them with e-based access to local information, administrative documents and grievance redressal systems.

However, GIS-based data from spatial databases incorporating various types of knowledge, including community knowledge, can be used for much more strategic planning and monitoring in urban areas. Examples where such information can be useful is in preparing City Development Plans which are now a requirement in India under the JNNURM programme or Master Plans required in most cities and also enforced by law in Brazil for mid-size cities and larger. In municipalities where participatory planning is mandatory within cities, spatial community mapping can contribute to setting priorities in spending local budgets. In Peru, different levels of government are using GIS-based data for development purposes, including: 1) Risk Management Plans at national level; 2) Ecological Economic Zoning Plans at regional government level; and 3) Urban Development Plans by local governments. In Lima, some district municipalities have developed urban development plans using GIS and have local information such as land use and zoning that can be viewed online. The Metropolitan Region of Lima will develop by 2013 the Metropolitan Urban Development Plan using GIS-based data. In addition, basic cartographic and thematic information updated through the 2007 Census with population and housing, water and sewer services, and risk maps are already available[2].

From a community point of view, GIS-based data built up through community mapping is a strategic resource in negotiating with governments and private sector developers. It provides an alternative source of knowledge, which – if reflecting actual situations within local communities – can be much more realistic than the estimates provided through outsiders. This point is illustrated by community mapping done in slums in Pune (India) which was done to better assess the situation on the ground. Using a GIS database developed by local community members, local dwellers were able to show many more households in slums than the ones included in the city government estimates. These government estimates were to be used for relocation purposes. In Durban, South Africa, a community-based GIS system analyzed by experts which graphically displayed the spatial distribution of community complaints, sources of air pollution, pollution incidents overlain over the residential landscape of the South Durban valley of air pollution, provided better information than estimates given by officials. This was used to counterbalance the information on impacts and to assess the potential for future changes in the area.

Using participatory-based data gathering in more standardized ways can lead to more community action and improve decision-making processes. An exciting experience with participatory/community GIS has been implemented by two NGOs in Sao Paulo, Brazil: *Instituto Lidas* and *Associacao Casa dos Meninos*. These two organizations have a common commitment in terms of social promotion and inclusiveness at the neighbourhood level. To put forward their broader goals, the two organizations have developed a partnership to collect and digitize spatial information concerning their neighbourhood and make this information available to larger audiences. The envisioned goal of this process is to educate and inform individuals so community members can act and make a difference in their neighbourhood. One specific project mapping public daycares and public schools and the status of these

2 Examples can be found on: http://www.miraflores.gob.pe/tramites_catastro/default.html; http://www.icl.munlima.gob.pe/index.asp; http://sitr.regioncallao.gob.pe/webzee/; http://sitr.regioncallao.gob.pe/sitr/gis.aspx; http://www.munisurco.gob.pe:8008/mapguide2010/gis/zonificacion/GISFrmZonificacionPrincipal.aspx; http://sinpad.indeci.gob.pe/sinpadweb/

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Chance2Sustain examines how governments and citizens in cities with differing patterns of economic growth and socio-spatial inequality make use of participatory (or integrated) spatial knowledge management to direct urban governance towards more sustainable development.

Consortium partners: European Association of Development Research and Training Institutes (EADI, Germany), Governance for Inclusive Development (GID) at the Amsterdam Institute for Social Science Research (AISSR-UvA, Netherlands), Centre National de la Recherche Scientifique (CNRS, France), Centro Brasileiro de Análise e Planejamento (CEBRAP, Brazil), Cities for Life Forum (FORO, Peru), Norwegian Institute for Urban and Regional Research (NIBR, Norway), School of Planning and Architecture (SPA, India), University of KwaZulu-Natal (UKZN, South Africa)

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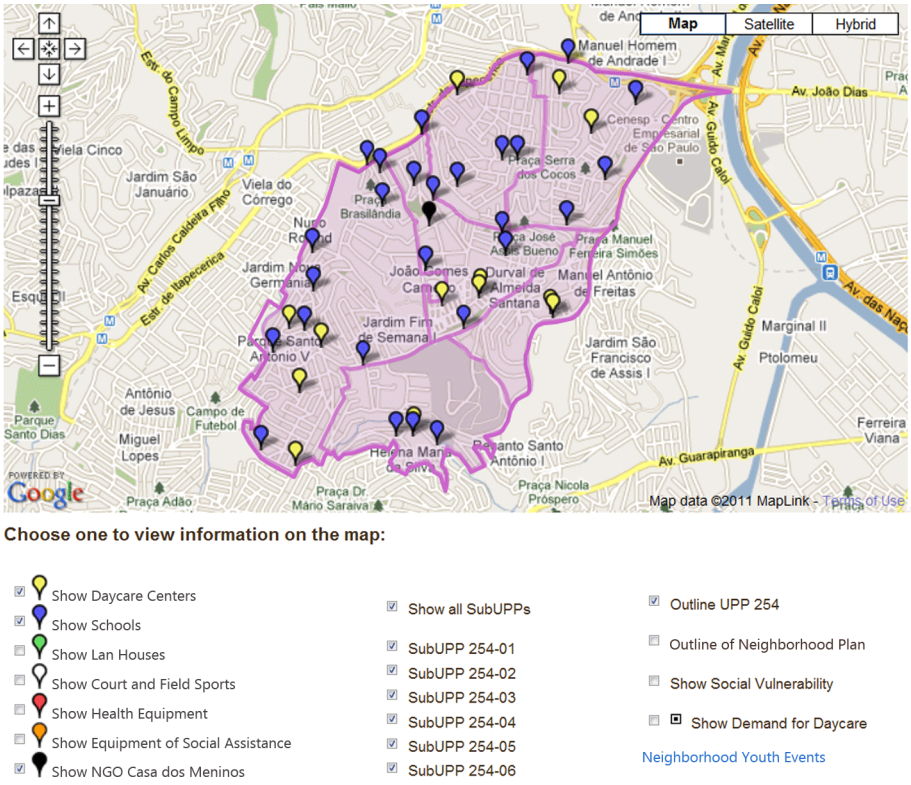
Funded under Socio-economic Sciences & Humanities
EUROPEAN COMMISSION European Research Area

facilities in the neighbourhood mobilized the community to pressure public officials and re-open one of the daycares and improve services. Figure 1 is one of the outcomes of this project.

Figure: Map of Jardim Sao Luis; Source: http://encontrodajuventude.org.br



Among their broader goals, they focus on mapping social equipment, basic infrastructure, and services for specific poor neighbourhoods as well as education and cultural activities for juveniles.

Conclusions

Local governance processes provide opportunities for more inclusive urban management and planning, as the interface between local government and citizens is fairly direct. Recent developments in digital (geo)information and communication technology and data collection tools have extended the opportunities for spatial knowledge production, use and exchange. Generating, utilizing and exchanging such knowledge require appropriate infrastructure, sufficient training in information systems, connectivity in terms of computer access and programmes, among government officials, community members, and private sector. At a higher level, content and workflow of information ought to be framed within a more general policy promoting information system infrastructure needs and programme and content compatibility. Taking advantage of these developments and wisely orienting their use to address local needs and stakeholders demands has the potential to greatly improve urban local governance systems and better inform urban policies.

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