Editorial: Documenting by the undocumented

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To be counted in city surveys and to have documents to prove that you have been counted and have an address implies that you (and often your neighbourhood) are considered part of the legal city. To have no official document to prove your identity or your address often means being denied access to public services and entitlements in urban areas – for instance, connections to piped water supplies and sewers, household waste collection, and even schools, health care services and the rule of law. It often means having no possibility of opening a bank account, of obtaining insurance or of getting on the voter's register.[1] A legal address can provide some protection against your house being bulldozed or, should it be, of getting some compensation as opposed to none. Perhaps as many as one billion people live in informal settlements in urban areas where most lack identity documents and official documents confirming their right to live there.

There is also a lack of data about informal settlements – their scale, boundaries, populations, buildings, enterprises – and the needs of their inhabitants. This also implies their exclusion from government policies and public investments. All informal settlements exhibit some aspects of illegality, but they cannot be considered marginal or exceptional when they house between one-third and two-thirds of the population of so many cities. This also means that they provide a very large proportion of these cities' workforce. They represent important and persistent forms of urbanism that have multiple and complex links with the rest of the city. Many also have long histories. A lack of documentation about these informal settlements contributes to a lack of understanding about their importance to city economies. It serves as an excuse for public sector agencies not to provide infrastructure and services. It also means that there is no evidence to counter the inaccurate claims by politicians or civil servants that those living in informal settlements are law breakers or unemployed migrants who should go back to rural areas.

This issue of *Environment and Urbanization* has 11 papers on the mapping and documentation of informal settlements. All but one relates to the engagement of the residents of these settlements and their own organizations in this mapping and documentation, and most include one or more authors who were engaged in the process the papers describe. This focus on community-led documentation might seem unusual. Why should the inhabitants of informal settlements, who almost always have difficult relations with local governments, document themselves? For what purpose? Since all informal settlements show some aspects of illegality, might not this documentation be used against them? And surely such documentation is the responsibility of government bodies? Shouldn't household surveys be designed and implemented by professionals in order to be accurate, objective and implemented across the whole city? There have been some papers on community-driven mapping and documentation in previous issues

1. See Szreter, Simon (2007), "The right of registration; development, identity registration and social security – a historical perspective", *World Development* Vol 35, No 1, pages 67–86.

of *Environment and Urbanization*,[2] but don't these reflect unusual circumstances?

The fact that there are papers on community-led mapping and documentation from India, Uganda, Ghana, South Africa, Namibia, Tanzania, Thailand and Zimbabwe shows that it is not uncommon. These papers include examples of citywide documentation and mapping. The similarities between these different examples are also no coincidence, as all the experiences were undertaken by federations of shack/slum dwellers who are members of Shack/Slum Dwellers International (SDI). As the paper by Sheela Patel, Carrie Baptist and Celine d'Cruz describes, these federations and the local NGOs that work with them formed SDI in 1996, in part to help support and learn from each other, including learning about community-led documentation. Most of the papers include details of how the particular local mapping and documentation described included visits from other federations, often timed to help support the local process. The fact that there are so many papers on community-driven mapping and documentation of informal settlements illustrates how this has become a core practice of the federations – along with peer exchanges and support for daily savings in community-managed savings groups.

The paper by Diane Archer, Chawanad Luansang and Supawut Boonmahathanakorn provides examples of community and citywide mapping in several other nations, including Sri Lanka, Nepal and Fiji. This paper examines the contribution that community architects and other professionals can make to helping urban poor communities survey and map their neighbourhoods and their living conditions and to draw up comprehensive site plans. It draws on the experience of the Asian Coalition for Community Action Programme, which supports more than 700 community-driven upgrading programmes in 150 cities in 19 different Asian nations.[3] The

residents' engagement in mapping their settlement helps them identify and analyze pressing issues and gives them a deeper understanding of their community context. It often encourages dialogue and understanding between community residents about their neighbourhood and its linkages to the wider city. It also means that they are no longer an invisible part of the city, ignored in city plans and overruled by commercial developers.

The paper also describes the support for citywide mapping, so that all the low-income communities within a city are brought into the mapping process and discussions. When the low-income communities within a city gather together to organize surveys, they can form a network of people facing common issues and can negotiate collectively with local government through their strength in numbers. Citywide mapping also highlights the different types of tenure and the different landowners, as well as the common problems facing communities; and it identifies areas of vacant land that might be leased or purchased by those communities needing to relocate for upgrading.

The paper by Griselda Benítez, Arturo Pérez-Vázquez, Martha Nava-Tablada, Miguel Equihua and José Luis Álvarez-Palacios is on the mapping of informal settlements in Xalapa (Mexico) and their expansion (they cover around half the municipality's total land area). The paper documents how the lack of legally available land for building and the low incomes of much of the population underpin the occupation of land unsuitable for housing including sites at high risk of landslides and flooding.

THE PURPOSE OF COMMUNITY-DRIVEN DOCUMENTATION AND MAPPING

The papers in this issue show how community-driven documentation and mapping proved useful in strengthening the federations and supporting their voice. They also show how this documentation responded to different local contexts. In some cases it was used to help avoid eviction, for example in Accra, as described by Braimah R Farouk and Mensah Owusu, also in the examples described in the paper by Jockin Arputham. Elsewhere, it responded to supportive local and sometimes national governments who wanted to work with the federations to improve housing and living conditions – as in the papers on initiatives in Zimbabwe (see the paper by Beth

2. Patel, Sheela, Celine d'Cruz and Sundar Burra (2002), "Beyond evictions in a global city; people-managed resettlement in Mumbai", *Environment and Urbanization* Vol 14, No 1, April, pages 159–172; also Weru, Jane (2004), "Community federations and city upgrading: the work of Pamoja Trust and Muungano in Kenya", *Environment and Urbanization* Vol 16, No 1, April, pages 47–62; and Karanja, Irene (2010), "An enumeration and mapping of informal settlements in Kisumu, Kenya implemented by their inhabitants", *Environment and Urbanization* Vol 22, No 1, April, pages 217–239.

3. For more details, see ACHR (2010), *107 Cities in Asia; Second Yearly Report of the Asian Coalition for Community Action Programme*, Asian Coalition for Housing Rights, Bangkok, 48 pages, available in print or accessible at http://achr.net/.

Chitekwe-Biti, Patience Mudimu, George Masimba Nyama and Takudzwa Jera); in Namibia (the paper by Anna Muller and Edith Mbanga); in India (the paper by Avery Livengood and Keya Kunte); and in South Africa (the paper by Carrie Baptist and Joel Bolnick). These four examples are also important in supporting in situ upgrading; although the upgrading of informal settlements has been part of standard government practice in many nations for many decades, it has proved difficult to get this approach accepted in these nations.[4] In some cases where in situ upgrading was not possible, community-led mapping and documentation provided the information base that allowed a better deal to be negotiated with regard to re-housing and to the management of this resettlement – as in the enumeration of households in Mumbai that were living on land owned by the railways just next to the railway tracks.[5]

The paper by Diane Archer, Chawanad Luansang and Supawut Boonmahathanakorn also discusses how the process of community mapping is different when the community is relocating to a new site – and how the residents need to develop an understanding of their new location while retaining the values that matter to them from their old one. A mapping process in their current community can help identify household clusters and common problems that could be addressed in the relocation. The new site may house families from a number of different communities and therefore community network meetings should take place regularly; and possible relocation sites can be chosen from the previously completed citywide map.

But in all these experiences, the organizations formed by residents of informal settlements judged the information gathering to be worthwhile. Very large numbers of residents chose to take part – to be trained as enumerators, to undertake the data gathering, its compilation and analysis, and then to present it back to their neighbours (with all the discussions that this also generated). This involved a very considerable commitment of time – for which there was usually no monetary return

or only small payments to cover transport and food costs.

Not all surveys undertaken by these federations begin with cooperation and collaboration between city authorities and communities. But community-led documentation is intended from the outset to be useful to local governments, and the federations often have to demonstrate its value before the collaboration starts. Perhaps too little attention has been paid to how useful this documentation is to local government and how it provides them with documentation that would have been very expensive to produce had they used professionals. Furthermore, the data provided are also checked for accuracy and certified by the communities themselves. Consider how expensive it would be to contract a company to undertake interviews with the inhabitants of 200 informal settlements from all over Namibia, or to produce the profiles and mapping of 330 informal settlements in Cuttack (India) – or even the household survey covering the 7,000 inhabitants of Magada in Epworth (Zimbabwe). The professionals would have to develop the documentation about each settlement probably with no maps, no lists of buildings, often no street names or details of where the settlement's boundaries were located. There would be pressure on the interviewers to work quickly, to limit the time spent interviewing each person or household. Furthermore, the interviewers may not speak the language of those they interview, in which case translators would be needed, which adds to the costs and to the difficulties of getting accurate responses. There are also those who do not want to be interviewed by outsiders. In most informal settlements there are people who feel threatened by any outsider asking questions – for instance, those who fear eviction, those engaged in illegal activities, illegal immigrants…. There is also uncertainty about how the data will be used, and in most informal settlements the added complication of having tenants and landlords. If the survey is seen to be part of a process to legalize tenure, landlords will fear that their tenure of the plots and the houses they rent out might be compromised, and tenants will fear eviction. In many circumstances, there are the uncertainties over plot tenure – whether the household members interviewed consider that they are owners of the land on which the structure is located, or are owners of the structure, or are tenants or sub-tenants. There is the complication that many of those claiming to be landowners

4. See also Bradlow, Benjamin, Joel Bolnick and Clifford Shearing (2011), "Housing, institutions, money: the failures and promise of human settlements policy and practice in South Africa", *Environment and Urbanization* Vol 23, No 1, pages 267–275; also see the paper by Mark Hunter and Dorrit Posel in this issue of the Journal.

5. See reference 2, Patel, d'Cruz and Burra (2002).

or structure owners do not live in the structure, or live in another settlement. If the survey is to legalize tenure, residents may also want to get plots for family members who live elsewhere, or for adult children who live with them. Tenants who have lived in a structure for many years may have invested more in the structure than the actual owner, and feel that they have an equal claim to land tenure. These are complications that any externally managed survey will have difficulties identifying and few possibilities of resolving within the time frame of the survey. There are also obvious difficulties for any externally managed survey in knowing how to verify the data collected.

These are also difficulties facing community-driven surveys. For instance, the paper by Jack Makau, Skye Dobson and Edith Samia explains how a community-driven enumeration of Kisenyi in Kampala (Uganda) in 2003 highlighted the complexity of land tenure arrangements with a mix of customary ownership rights, informal structure owners and tenants. A community-driven enumeration in Kisumu (Kenya) faced similar complications.[6] The paper by Michael Hooper and Leonard Ortolano on community-driven documentation in an informal settlement in Dar es Salaam noted how residents initially suspected that the enumerators worked for government, developers or land speculators. But community-driven enumerations have managed to overcome these issues by having a strong local organizational base that includes many residents. Before any enumeration, there are many community meetings and discussions with residents and community leaders. Local residents and leaders are also involved in planning for the enumeration and in validating the data collected, by returning it to each household and to community organizations for local review and discussion. Resident associations behave differently when they are clear that they own the data that the city will also verify and are confident that they will finally have the same information as the city, on the basis of which negotiations for various entitlements can begin.

Community-driven documentation has also demonstrated a capacity to contribute much to the mapping of risk and vulnerability in relation to extreme weather. The fact that many informal settlements are on sites at high risk of flooding or landslides has been documented for more than 30 years. But there is often very little documentation of these risks and who is most at risk – or of their impacts. The residents of informal settlements often see these risks as "acts of god" or part of their poverty, and rarely see that these can be much reduced or removed through various development measures. Some of the federations have included questions about these risks in their settlement profiles or enumerations – for instance, the Homeless People's Federation of the Philippines[7] and Mahila Milan in Cuttack (see the paper by Avery Livengood and Keya Kunte). The residents of informal settlements have shown how they can provide detailed answers when asked questions such as: when did your settlement last flood, how high did the waters come, how long did it last, what did you do to protect your home and property, what did you lose or was damaged…? And such data drawn from all the informal settlements also provide a citywide understanding of floods and their impacts.

THE DIFFERENT COMPONENTS

Three particular forms of information gathering about informal settlements are discussed in the case studies in this volume. The first is the **profiling** of each informal settlement, drawing primarily on consultations and discussions with residents of the settlement by a mapping team that includes federation leaders. This quickly produces a rich set of data about the settlement, its inhabitants and the problems they face. For instance, as the paper by Avery Livengood and Keya Kunte describes, in Cuttack, settlement profiles were developed for more than 300 informal settlements during visits to each by women from Mahila Milan, the federation of women's savings groups. The visits involved a meeting with a group of residents and their community leaders. The settlement profile was built from their responses to a series of questions, and the residents and the visitors also walked around the boundary of the settlement; this

6. See reference 2, Karanja (2010).

7. Rayos Co, Jason Christopher (2010), *Community-driven Disaster Intervention: Experiences of the Homeless People's Federation Philippines*, *Inc*. *(HPFPI)*, IIED/ACHR/SDI Working Paper 25, IIED, London, 54 pages; also Carcellar, Norberto, Jason Christopher Rayos Co and Zarina O Hipolito (2011), "Addressing vulnerabilities through support mechanisms: HPFPI's ground experience in enabling the poor to implement community-rooted interventions on disaster response and risk reduction", *Environment and Urbanization* Vol 23, No 2, October, pages 365–381.

provided the opportunity for further questions and discussions and for the boundary to be mapped with a handheld Global Positioning System (GPS) device. A settlement profile does not produce detailed data on each household and each house plot but it does provide a detailed overview of, for instance, the settlement, its inhabitants, land tenure, quality of housing, extent of provision for infrastructure and services, and the residents' main problems and priorities. In Cuttack, each settlement profile took two to three hours. Its accuracy depended on the residents and their community leaders trusting the visitors and being prepared to engage with them. What was obviously important here was the fact that most of the visiting team were from Cuttack and were themselves residents of informal settlements (and included leaders from these settlements); and some were already known to the residents.

The second form of information gathering is **enumerations**. These are more detailed and involve information drawn from interviews with at least one member of each household in every settlement. In effect, these are as censuses should be; there is no sample because every household is included. When an external "expert" advised one federation with regard to developing an appropriate sample frame (and so reducing the number of households that had to be interviewed), the response was no, we want to talk to every household. Speaking to one or more persons in every household helps increase the level of understanding about the enumeration – its purpose and the questions that are being asked. These enumerations produce more accurate quantitative data than the settlement profile, as each building is counted and numbered and data is collected about each household. Accurate plot boundaries are also established. The data collected are returned to each household as well as to organizations of residents (for instance, the women's daily savings groups) for verification, and are also presented and discussed in community meetings. It has become common practice for a photograph to be taken of each household standing in front of their home, with the number given to that structure visible on the photo, and this is then returned to each household as a photo card that includes details about the household. This is often the first time that a household will have had any identity documentation, and in some cases

this photo card has proved particularly useful for households regarding getting access to state entitlements or for proving residency when there are public schemes to provide infrastructure or to offer resettlement. Although these enumerations and the plot boundary mapping involve much more work and detail than settlement profiles, the federations have become adept at training large numbers of residents to undertake these and to rapidly cover all households and bring back the data for presentation at community meetings and discussions.

The fact that these enumerations cover all households and include a lot of detail usually means that local government agencies accept them – especially if local government has witnessed how the enumerations are planned and implemented. This is often the first time that detailed data are available for these settlements – and they can produce data that surprises local authorities. In some instances, as in Old Fadama in Accra, the enumerations showed a much larger population than local government estimates. Along with showing the scale of residents' involvement with the local economy and the extent of public infrastructure and services, this documentation helped discourage successive governments in their intent to evict them (see the paper by Braimah R Farouk and Mensah Owusu). By contrast, the enumerations in Joe Slovo (Cape Town) showed a smaller than expected population, which then made in situ upgrading more feasible – which is what the residents wanted as opposed to government actions to relocate them as part of preparations for the 2010 FIFA World Cup (see the paper by Carrie Baptist and Joel Bolnick).

The third form of information gathering involves **mapping** a settlement. This ranges from sketch maps produced by community leaders and from community discussions (often undertaken as part of the settlement profile), through to draft maps of settlements and their surrounding neighbourhoods, produced by those doing settlement profiles or enumerations, through to very detailed maps showing each structure and its boundaries. Detailed maps often include the adjustment and re-drawing of base maps from satellite or aerial images, incorporating data collected and maps produced by GPS and with data incorporated within them in full Geographic Information Systems (GIS) – see, for instance, the papers on Epworth (Zimbabwe) and on Cuttack

(India). When undertaken with enumerations, these can help produce the detailed to-scale maps showing plot and building boundaries that are needed when planning upgrading (although producing this level of detail and the basis for agreement between households as to plot sizes and boundaries may require plane-table surveys). The use of GPS and the development of digital maps and GIS have proved very valuable in many of the experiences described in this issue of the Journal. These are not replacements for detailed on-the-ground work and interaction with residents, but they are valuable for providing initial maps and then for allowing the incorporation into maps of data collected from settlement profiles or enumerations. This is very different from surveys of informal settlements undertaken by local governments or the enterprises they contract, which use aerial or satellite images without any ground truthing and without engagement with the residents. For instance, mapping based on aerial or satellite images without ground verification cannot determine populations or the boundaries between houses or settlement boundaries, and provides very limited information about house structures.

Each paper about community-driven documentation and mapping describes how these different aspects were combined. Generally, the settlement profiling and draft mapping were done first, and the enumerations and more detailed mapping were undertaken when there was support for initiatives to upgrade the settlement.

Many of the federations have produced profiles for all informal settlements in a city as an initial step towards negotiating government support for addressing the needs of their inhabitants.[8] As discussed in the paper on Cuttack, settlement profiles and boundary mapping covering all informal settlements provide the basis for planning interventions. This overcomes the difficulty faced by city authorities with regard to how rapidly data collected on informal settlements can become out of date.

Undertaking a comprehensive, detailed household survey covering all households in a settlement, and producing an accurate map of each building and its plot boundaries is time consuming and expensive. If there is a delay between the information gathering and analysis and the start of an upgrading initiative, the information about the residents of each informal settlement often proves to be out of date. The Alliance that organizes the enumerations in India (the National Slum Dwellers Federation, Mahila Milan and SPARC) has suggested a two-phase process. The first phase includes settlement profiles and boundary mapping for all the informal settlements to provide the basis for the citywide plan and prioritization. The second phase takes place only when specific plans have been developed for specific settlements, and this is when the more detailed surveys are undertaken, collecting data from each household including precise plot boundaries.

LOCAL NEEDS SERVED BY THE COMMUNITY-DRIVEN DOCUMENTATION

Each initiative proved useful for its outputs and for the benefits that arose from its planning, organization and implementation. With regard to outputs, these are useful for the residents as they produce the information about current situations that allow the residents to assess the problems they face, understand their own resources and consider their priorities. These initiatives often provide the first opportunity for residents to engage in a settlement-wide discussion about their needs and priorities. As the case studies show, the process of undertaking and completing an enumeration helps build organizational networks, skills and confidence, which are necessary if the residents are to undertake larger improvement projects in the future. As such, the enumeration process is also useful for strengthening community organizations in each informal settlement (especially in expanding the number of savers and women's daily savings schemes) and in community discussions about their needs and priorities.

These information-gathering processes must also be understood as part of the federations' larger processes, which include support for community savings groups (that are at the foundation of all the federations),

8. See, for instance, CORC (2005), *Profiles of Informal Settlements within the Johannesburg Metropole*, Community Organization Resource Centre, Cape Town, 177 pages; also CORC (2006), *Profiles of Informal Settlements within the Cape Town Metropole*, Community Organization Resource Centre, Cape Town, 220 pages; and Pamoja Trust and SDI (2008), *Nairobi Slum Inventory*, Pamoja Trust, Urban Poor Fund International and Shack/Slum Dwellers International, Nairobi, 175 pages.

peer learning exchanges, as well as precedent-setting initiatives (to show their capacities) and dialogue with local (and sometimes regional and national) governments. The information-gathering process also helps improve relations with local government. Detailed documentation is useful for those local governments wishing to work with the federations. And the information is useful for the federations, as local governments with antagonistic views towards informal settlements can be shown these settlements in a new light; they can show the scale of their contribution to the city's economy and employed workforce. The very fact that there is documentation available about a settlement that is considered legitimate by government agencies can help increase the legitimacy of the settlement itself. Some enumerations also produce surprises for local governments – for instance, in showing the amount of publicly provided goods and services present (for example, electricity, telephone land lines, publicly provided water taps or points and toilets), which also increases a settlement's legitimacy. The first example of community-driven settlement profiling was in the early 1970s in Janata Colony in Mumbai, as Jockin Arputham (one of the community leaders who was fighting the threat of eviction) encouraged and supported the residents to identify and count all the examples of public provision for infrastructure and services (including telephone and electricity poles), and examples of licensed businesses. This was used to help demonstrate that Janata Colony was a legitimate settlement and the data were used in court as the residents sought to prevent eviction. The data collected also included details of how the settlement was located on land and plots provided by government to those evicted from a more central site, which also meant that the settlement was legal.[9]

In some cases, the settlement profiles, enumerations and mapping have influenced national government policies. For example in Namibia, as the paper by Anna Muller and Edith Mbanga describes, the Namibian federation and the national government are working together on the Community Land Information Programme (CLIP). Through this programme, the federation has worked with the residents of

more than 200 informal settlements (totalling more than half a million inhabitants) to develop a settlement profile, and has held discussions about their priorities. As the community presented the results of their settlement profile to the city and municipality, it was a statement not just of ownership of the data but also that the residents of informal settlements now needed to be more involved in the planning and development of the city. In India, the Alliance between the two federations (the National Slum Dwellers Federation and Mahila Milan) and the NGO SPARC has helped influence the setting up and orientation of a national government of India fund to support community-driven in situ upgrading of informal settlements. The settlement profile, enumeration and mapping of Magada in Epworth (Zimbabwe) helped produce the first local government agreement to support in situ upgrading, and the settlement plan that developed from this is the first to include meaningful participation by residents in articulating their own development priorities and influencing the design.

SOME CONCLUSIONS

The inhabitants of informal settlements are rarely seen by governments and international agencies as providers of solutions. But their capacity to produce relevant, up-to-date, detailed data through surveys, mapping and enumerations remains one of the powerful ways in which they do contribute to solutions – and get their voice heard and respected. Much progress has been made through community-driven documentation and mapping; but success in this area in any nation or city increases the pressure to increase the scale, to make sure that this documentation and mapping covers all informal settlements and brings their inhabitants into the discussions. The experiences of the shack/slum dwellers federations in community-driven documentation are constantly evolving, changing, adapting – often so fast that what is prepared for publication is out of date by the time it is published.

With the range of papers here, giving detailed accounts of community-driven documentation, it is tempting to try to draw out general lessons. Certainly, in most nations this documentation has contributed first of all to giving identities as

9. See also Arputham, Jockin (2008), "Developing new approaches for people-centred development", *Environment and Urbanization* Vol 20, No 2, October, pages 319–337.

"federated communities" to those who find that the surveys bring their neighbourhoods together. In addition, it contributes to building better relations between those in informal settlements and local governments, as well as giving greater political legitimacy to the residents. In some cases, community-driven documentation has contributed to positive changes in local and national government policy, one of the most important being the greater acceptance by national and local governments of in situ upgrading of informal settlements. The work of the federations and the settlement profiling, enumerations and mapping have certainly helped support this shift in policy and practice in many nations, and are now also providing the information base for such upgrading.

But there is also a need to recognize the complex and constantly changing local and national contexts that influence what can and cannot be done. In each of the nations from which examples have been drawn, there are complex histories that need consideration, so that recent successes need to be understood in the light of long struggles and long-sustained processes by the federations and their support NGOs. In each of the nations and cities where enumerations have been undertaken, there has been a constant process through which the federations have sought to establish links with civil servants and politicians and show them the positive contributions that the federations can bring to development. For instance, the influence of the National Slum Dwellers Federation, Mahila Milan and SPARC on city developments and on state and national support programmes has evolved over 30 years, during which time there have been many setbacks. Here, the experience of community-driven documentation goes back to the early 1970s – where, as noted above, it was used to help establish the scale of the economy and the legitimacy of a large informal settlement, Janata Colony, as the residents fought to avoid eviction. So often there are important local details that are missed in quick overviews. For instance, although the eviction of Janata Colony in 1976 might imply that the community organizing was unsuccessful, this community organizing helped ensure provision by the state to resettle the population (tenants and landowners) in a relatively well-located site, which in turn set an influential precedent (see the paper by Jockin Arputham). Another key precedent was

the enumeration of all the pavement dwellers in Mumbai in the mid-1980s, which fully involved the pavement dwellers in its design and implementation.[10] That enumeration helped make the case that pavement dwellers were entitled to rights and to compensation if evicted, a legal precedent that was later affirmed by the Supreme Court of India.

Development interventions and the surveys associated with them are often termed participatory. But assessing participation in documentation should include an assessment of whether those whose lives are being queried are involved in setting the questions, whether they have ownership of the information generated and whether they own and can use the knowledge produced by the research, surveys and data collection. Not many documentation processes would be assessed positively according to these three criteria, unlike the community-led documentation described in many of the papers in this issue of the Journal.

One final issue raised by the papers on community-driven documentation concerns who should be listed as authors. In a conventional survey, the researchers who design and implement the research (or supervise its implementation by others) put their names down as authors. But who are the authors when the survey was designed and implemented by many people within community-driven processes? If professionals involved in these enumerations write up these experiences, how should those on whose knowledge and experience this draws be credited? In papers that have drawn on interviews and discussions with federation members, these are included as co-authors – for instance, in the paper on Namibia, Edith Mbanga, who has been a member of the People Square Savings Group in Windhoek since 1990, and is currently a National Facilitator of the Shack Dwellers Federation of Namibia; and in the paper on Uganda, Edith Samia, who is the Monitoring and Evaluation Facilitator on Uganda Slum Dwellers Federation's National Executive Committee and is also Secretary of Jinja region. In the paper by Jockin Arputham, who is founder and President of the National Slum Dwellers Federation in India and President of Shack/Slum Dwellers International, the text is drawn directly from a

10. SPARC (1985), *We the Invisible. A Census of Pavement Dwellers*, SPARC, Mumbai, 41 pages.

taped interview, with the transcript returned to him for correction.

ADAPTING CITIES TO CLIMATE CHANGE

This issue of the Journal includes three papers on climate change adaptation. The paper on Durban by Debra Roberts, Richard Boon, Nicci Diederichs, Errol Douwes, Natasha Govender, Alistair McInnes, Cameron McLean, Sean O'Donoghue and Meggan Spires is of special interest as it explores the scope for and constraints on ecosystem-based climate change adaptation.[11] As the paper notes, ecosystem-based adaptation is being promoted as a cost-effective and sustainable approach to improving adaptive capacity. The paper is also notable for the fact that most of the authors work for the Environmental Planning and Climate Protection Department of the municipal government and so the paper is in large part about not only what is needed but also about what is possible.

The paper by Jeb Brugman on financing the resilient city is not about what funding can or should be provided by international agencies but rather about how funding has to be drawn in from the private sector. Such finance needs to draw on the vast financial momentum behind global urban development to deploy capital for urban adaptation. Thus, effective adaptation includes a need to catalyze profitable market-based investment in value-adding measures to reduce risks to urban assets, areas and systems and to increase resilience.

The paper by Anika Nasra Haque, Stelios Grafakos and Marijk Huijsman describes how Dhaka's expansion has eroded and continues to erode the capacity of the city's natural drainage system. It then presents a framework for a participatory assessment and prioritization of current and potential adaptation measures aimed at protecting vulnerable areas from flooding, and applies it to addressing flood risks in the eastern fringe area.

FEEDBACK

Of the six papers in this section, two are detailed studies on migrants. The first is on the "villages in the city" in Guangzhou, China by Yanliu Lin, Bruno de Meulder and Shifu Wang, and the difficulties that migrants to these cities have faced in getting state provision. The second paper, by Jonathan Baker, details the economic interdependence between the town of Kemise (Ethiopia) and the surrounding rural areas, and how migration and mobility fits within this.

The paper by David Sanderson, Anshu Sharma and Juliet Anderson reports on the findings from revisiting 10 of the 23 villages that were rebuilt in a partnership between the NGO CARE India and the Federation of Indian Chambers of Commerce and Industry after the earthquake in Gujarat in 2001. This programme built 5,554 permanent houses as well as schools and community centres, and while the houses remained structurally strong and were mostly in use, residents' levels of satisfaction and usage were mixed. The initial prioritization of seismic safety sacrificed longer-term considerations of comfort, adaptability and the environment. The paper ends by stressing the need for people's involvement in building processes after disasters.

The paper by Kasper Anias Møller, Ole Fryd, Andreas de Neergaard and Jakob Magid assesses the performance of three constructed wetlands for wastewater treatment in Thailand. The results reveal the importance of socio-cultural dimensions, including public perception, awareness and knowledge, local expertise and clear roles for institutions. The environmental benefits and the low operational and maintenance costs of such systems are also important.

The paper by Shlomo Angel, Jason Parent and Daniel L Civco reports on some of the findings from their ambitious review of urban change in 120 cities that drew on satellite images from 1990 and 2000.[12] This paper focuses on the fragmentation of urban landscapes – or the inter-penetration of cities' built-up areas and the open spaces in and around them. Analyzing satellite images for 1990 and 2000, they find that cities typically contain or disturb large areas of open

11. See also Roberts, Debra (2008), "Thinking globally, acting locally – institutionalizing climate change at the local government level in Durban, South Africa", *Environment and Urbanization* Vol 20, No 2, October, pages 521–538; also Roberts, Debra (2010), "Prioritizing climate change adaptation and local level resiliency in Durban, South Africa", *Environment and Urbanization* Vol 22, No 2, October, pages 397–413.

12. Angel, S, J Parent, D L Civco and A M Blei (2010), *Atlas of Urban Expansion*, Lincoln Institute of Land Policy, Cambridge, Mass, accessible at http://www.lincolninst.edu/subcenters/atlas-urban-expansion.

space – on average, equal to their built-up areas. Fragmentation (the relative share of open space in the urban landscape) is in decline; larger cities and cities with higher levels of car ownership are less fragmented; and higher-income cities are more fragmented. The authors recommend that making room for urban expansion in rapidly growing cities should take into account their expected fragmentation levels.

The paper by Mark Hunter and Dorrit Posel draws on nationally representative household survey data and on interviews with individuals who were relocated from an informal settlement to a "transit camp", to suggest that more detailed attention should be paid to the changing connection between housing, household formation and work. The paper substantiates the point that informal settlement residents live in locations for reasons vital to their everyday survival. It also highlights the limitations of relocations because these disrupt their livelihoods, and it underscores the importance of upgrading informal settlements through in situ development.

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