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Towards inclusivity in design and planning in India: the role of education

Abstract

Outdated and western planning models have become impediments to meeting the Indian urban challenge. Others have noted the need to embed a new DNA into Indian urban processes. This chapter suggests if planning outcomes are to be more inclusionary, improve people's lives and deliver the benefits of growth and development, then there is a need to 're-wire' a significant area in the urban sector: the education of urban professionals. Growing challenges, especially climate change and the importance of the nexus between health, basic services, land use and urban form, will benefit from new and interdisciplinary approaches to professional education. The case of the educational program, Global Studio, and the possible lessons it offers, will be examined.

Introduction

Outdated and western planning models have become impediments to meeting the Indian urban challenge. Others have noted the need to embed a new DNA into Indian urban processes. This chapter suggests there is a need to 're-wire' the education of urban professionals if planning outcomes are to be more inclusionary, improve people's lives and deliver the benefits of growth and development. Growing challenges, especially climate change and the importance of the nexus between health, basic services, land use, land values and urban form, will require new -and interdisciplinary - approaches. Today, more than half the world's population lives in cities, yet cities generate around 80% of GDP.¹ Given that urban space accommodates this concentration of wealth and capital, the political economy of land is necessarily a powerful driver of the urbanization process.

Within a theoretical perspective that derives from Lefebvre's and Harvey's 'right to the city', and Sen's capability theory, as well as some reflection on inequality, this chapter will address just one aspect of the urban challenge: design and planning education. It draws on the experience of the international, interdisciplinary 'think and do tank', Global Studio, and through examples proposes approaches with the potential to help address - and deliver - more inclusive planning outcomes. Central to this approach are

¹ World Bank (2010), "Cities and climate change: an urgent agenda", Urban Development Series

ways in which the design process and design thinking can harness the tools of citizen engagement, which, in turn, can assist in providing urban solutions to climate change and health challenges.

In conclusion I will argue that if design and planning is to be inclusive in practice, and not just in theory, then reforms in the public sector will be required to provide organizational and career opportunities for these differently educated professionals that will enable them to implement more inclusive design and planning in India.

Inequality, poverty and the challenges of climate change

The Right to the City

Henri Lefebvre's 1968 book *The Right to the City* initiated a productive line of thinking for the inclusive city, and by implication inclusive planning. An ideal model, visualized in Figure 1 shows how equality and inclusion in political, social, and economic dimensions of life can produce access to the full opportunities of urban life, within a virtuous circle that can support and nurture democracy, prosperity and growth, culture, and quality of life. A 'rights' based approach privileges human rights principles, environmental sustainability, social equity, political empowerment and economic growth and distribution. North American geographer David Harvey further developed the rights based discourse in his 2008 essay by the same title. An important right, Harvey states, is 'a right to change ourselves, by changing the city. This transformation inevitably depends upon the exercise of collective power to reshape the processes of urbanization'.² In his recent book, *Rebel Cities*, Harvey writes,

The increasing polarization of the distribution of wealth and power are indelibly etched into the spatial form of our cities, which increasingly become cities of fortified fragments, of gated communities and privatized public spaces kept under constant surveillance.³

In the same vein, but in reference to India, Ananya Roy comments that the rapid growth in the Indian economy, compounded by social and economic inequality and the provision of infrastructure has resulted in a 'landscape of bourgeois enclaves and

² Harvey, D., (2008) 'The Right to the City' *New Left Review* 53. pp. 23-40.

³ Harvey, D., (2012) *Rebel Cities: From the Right to the City to the Urban Revolution*, Verso Books, p. 15

slums'.⁴

Inequality

The background paper for this conference provided a snapshot of the urban situation in India, and observes that while the urban poverty ratio has declined over the last 30 years, around 80% of urban workers are in the informal economy, and that,

about 25 per cent live in slums and around 25 per cent are poor or vulnerable. ...In spite of the high economic growth, the bottom half of the urban population face acute deficiencies with regard to access to housing and basic services.

The implications for health are profound, and show unacceptable levels of exclusion of the most vulnerable of all- children. ⁵

Nearly 100,000 babies in Indian slums die every year before their fifth birthday, as a result of poor access to healthcare, poor nutrition and health seeking behavior, poor environmental conditions.⁶

Income inequality, a growing trend around the world, is another measure of exclusion. While income inequality in India is not as pronounced as it is in some other countries, it is trending towards increased inequality, which is reflected in urban form. While imperfect as an indicator, the Gini co-efficient provides some insight into the causes of exclusion. ⁷ India's Gini is 36.8, for example, and compares quite favorably with China (46.9).⁸

Capability and Sen

⁴ Roy, A. (2009), "Why India Cannot Plan Its Cities: Informality, Insurgence and the Idiom Urbanization", *Planning Theory*, Vol 8, No. 1, pp. 76-87.

⁵ Environmental justice and inequality need to be linked. Brown, A. Dayal, A., and Rumbaitas del Rio, C., (2012) cite the case of Gorakhpur, India where over 33% of residents live on flood prone and water logged land, and suffer water and vector borne disease. From 2007-2010 there were more than 500 deaths (mainly children) due to Japanese encephalitis. See 'From practice to theory: emerging lessons from Asia for building urban climate change resilience', *Environment & Urbanization*, Vol 24, No. 22): 531-536.

⁶ . International Conference on Inclusive Urban Planning, 18-19 February 2013, Background Note, p. 1

⁷ The Gini co-efficient is a measure of income and wealth inequality. It is a somewhat limited indicator as it does not reflect inequality within a country, nor account for tax systems and social spending.

⁸ World Bank, Nation Master http://www.nationmaster.com/graph/eco_gin_ind-economy-gini-index

Indian economist and Nobel Prize winner Amartya Sen has been very influential in the understanding of development and progress. Since 1990 his thinking re-shaped the way in which the UN measured development, moving from an economic model based primarily on GDP to one that looked at human development. The HDI or Human Development Index takes into account life expectancy, access to education, and income. Since 1990, the world's countries have been ranked into four tiers of human development. India's HDI (.547) for example, is lower than China's (.687) but compares favorably with Bangladesh (.500). By contrast the HDI in the USA is .910.⁹ On the ground, of course, there is ample evidence of the need in India for affordable housing and basic services for the urban poor. An important part of Sen's approach is capability theory, a concept he originated and which has gone on to be elaborated by many scholars, including Martha Nussbaum.¹⁰ Capability theory considers what an individual is capable of being, and the obstacles to realizing that capability.

Climate change

Together, inequality and the potential for human development frame the debate for the 'right to the city,' and inclusive planning. But they need to be seen within the context of the global phenomenon of climate change, and its impact – present and future- in countries and cities. The urban poor are often the most vulnerable, and adaptation and mitigation strategies need to be pro-poor.¹¹

Judith Baker writes,

Poor people living in slums are at particularly high risk from the impacts of climate change and natural hazards. They live on the most vulnerable lands within cities, typically areas that are deemed undesirable by others, and are thus affordable.

Residents are exposed to the impacts of landslides, sea level rise and flooding. Exposure to risk is increased by overcrowded living conditions, lack of adequate infrastructure and services, unsafe housing, inadequate nutrition and poor health. These conditions can turn a natural hazard or change in climate into a

⁹ UNDP (2011), *Sustainability and Equity Human Development Report*

¹⁰ Nussbaum M., and Sen, A. (Eds) (1993) *The Quality of Life Oxford* University Press; Nussbaum, M. C. (2000) *Women and Human Development: The Capabilities Approach*, Cambridge University Press, Cambridge; Sen, A. (2001) *Development as Freedom*, Oxford University Press.

¹¹ By mitigation is meant the reduction of greenhouse gas emissions, capture and storage. By adaptation is meant measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects, and build climate change resilience.

disaster, and result in loss of basic services, damage or destruction to homes, loss of livelihoods, malnutrition, disease, disability and loss of life.¹²

As Brown, Dayal and Rumbaitos de Rio observe in their paper on the work Asian Cities Climate Change Resilience Network, there are 10 critical climate change resilience action areas. These are,

Climate sensitive land use and urban planning, institutional coordination mechanisms and capacity support; drainage; flood and solid waste management; water demand and conservation systems; emergency management and early warning systems; responsive health systems; resilient housing and transport systems; strengthening of ecosystem services; diversification and protection of climate affected livelihoods; and education and capacity building of citizens.¹³

Greenhouse gases are a major contributor to climate change. As Figure 2 shows, richer countries have higher carbon emissions per capita than poorer countries. The figures are largely reversed when we look at carbon emissions per country, but do raise an ethical issue for those contributing to high per capita emissions. How can individuals help reduce their carbon footprint? According to the Global Carbon Project, the biggest contributors to global emissions in 2011 were China (28%), the United States (16%), the European Union (11%), and India (7%).¹⁴ The point needs to be made that improved standards of living for the poor should not be impeded but that new technologies need to be developed to reduce emissions.

The design and planning professions can play an important role in mitigating the impacts of climate change on the urban poor. Educational curricula needs to provide an understanding of the resilience building measures listed above, as well more discipline specific measures. Globally, the construction sector contributes around 30% of greenhouse gases, and consumes up to 40% of all energy. A greener construction industry, well designed intermodal mass transit, provision for cyclists and pedestrians, increased housing densities and shorter distances to work, city greening, water

¹² Baker, J., (2011) (ed) *Climate Change Disaster Risk and the Urban Poor: Cities Building Resilience for a Changing World*, World Bank, p.8

¹³ Brown, A. Dayal, A., and Rumbaitas del Rio, C., (2012) 'From practice to theory: emerging lessons from Asia for building urban climate change resilience', *Environment & Urbanization*, Vol 24 (2): 531.

¹⁴ Global Carbon Project (2012) <http://www.globalcarbonproject.org/>

harvesting and solar technologies, good housing design that can reduce the risks of water and vector borne disease, are some of the adaptive tools to help create more resilient, equitable, inclusive, smart and sustainable cities. Generally it would help if designers approached projects with a smaller is smarter attitude. The over-consumption of space (and building resources), especially in high-end housing, has not been paid sufficient attention in developed or developing countries.

Global Studio

Aromar Revi, director of the IIHS (Indian Institute of Human Settlements) has noted the challenge to educate the professionals to meet the growth in India's cities,

If you want be part of India's transformation you have to work in interdisciplinary teams. We need to build an entirely new generation of change makers. What is it that young people need to know in the late 2020s...when they have the power to make change? We are creating a new profession; we call them 'urban practitioners'. We have to address the questions of 'why' and not only 'how'.¹⁵

Global Studio, an interdisciplinary, international 'think and do tank' shares the view that a new generation of change makers is required to meet the needs of the urban poor. Since 2005 it has focused on the question, 'How can urban practitioners work more effectively with the urban poor?' and through a series of intensive hands-on design and planning studios, conferences and symposia, has tried to address that question. The Global Studio was spearheaded by the United Nations Millennium Project Task Force on Improving the Lives of Slum Dwellers¹⁶, largely in response to slum dweller critiques that urban professionals did not work effectively with the urban poor.

Since 2005, Global Studio has run programs in Istanbul (2005), Vancouver (2006), Johannesburg (2007-09) and Bhopal (2012). Over 600 students, academics and professionals from 10 disciplines, 66 universities in the global north and south, and more than 30 countries have participated. A key aim has been to contribute to the

¹⁵ Revi, A. 'Learning about Cities' You Tube, July 1, 2011, <http://www.youtube.com/watch?v=-DnzCaaxWf0>

¹⁶ One of 10 taskforces established (2002-04) to develop policies and strategies by which the Millennium Development Goals could be implemented. The Slum Dweller taskforce report *A Home in the City* (2005), Sclar, E., Garau, P., Carolini, G. See http://www.unmillenniumproject.org/reports/tf_slum.htm. The author was a member of the task force.

education of urban professionals, to promote inclusive and equitable cities. Future urban professionals need to be much more broadly educated in a number of disciplines that include business, management, social entrepreneurship, community development, urban governance, the creative arts etc. As an intensive program, it is beyond the Global Studio's remit to deliver interdisciplinary knowledge in any depth; instead it seeks participants from across fields that can bring their own disciplinary knowledge to the 'on the ground' community oriented focus of the program. As a result participants find ways to collaborate with people from different disciplines, and for many this is their first experience of interdisciplinary work.

Global Studio has operated with eight principles and priorities, within an overall action research framework that emphasizes citizen engagement and participation in urban decision-making. These principles and priorities are:

1. Work with, and learn from, disadvantaged communities.
2. *Develop* participatory design and planning skills to support community-driven change.
3. *Empower* participants; be driven by local needs; promote social entrepreneurship and on-going action.
4. *Communicate* outcomes to communities, local government, organizations, and general public.
5. *Create* global networks of professionals, educators, students, and communities.
6. *Contribute* to knowledge production, build bridges between communities and institutions and deliver innovative, proactive solutions.
7. *Encourage* development of the "citizen scholar" and "citizen professional."
8. *Contribute* to the implementation of the Millennium Development Goals, especially "environmental sustainability," improving "the lives of slum dwellers," and developing "an international network for development."

Action planning and a pro-poor perspective characterize the Global Studio approach. This counteracts the top down planning models that have not served the urban poor well, and focuses on a form of interdisciplinary action where 'top-down' meets 'bottom-up'. Global Studio identifies five keys to educating for resilient, equitable, inclusive, smart and sustainable cities. They are: academic commitment; partnerships with relevant organizations; useful outcomes; an engaged community; and a long-term involvement. This educational approach brings together the concepts of: ACTION PLANNING + ENGAGED INQUIRY + CITIZEN ENGAGEMENT + TRUST with the aim of

PUTTING KNOWLEDGE AND IDEAS INTO ACTION.

Global Studio uses a nonlinear and context specific process that has developed over time with students, academics, urban practitioners, and community partners. While the process is always evolving, there are some useful starting questions. These include: What do people like/dislike about where they live? What would improve their lives? What physical changes could help improve their lives? What is the political, developmental, and historical context? Does the community have a vision for the future? When a project emerges there are a number of additional questions to ask. Will the project build capacity? Will it generate income or create jobs? Will it build community confidence? Will it build partnerships? Is it something people want?

Not all projects fulfill these conditions, but the questions provide a good beginning framework, and are a useful brake on solution-oriented designers. At the same time Global Studio asks, can design make a difference? Can a good design solution help improve people's lives? The Global Studio 'tool kit' for participatory planning and design varies according to the circumstance but Figure 3 shows 20 possible actions that can contribute to effective citizen engagement in urban decision-making. Of the many actions, developing trust emerges as one of the essential requirements. While seemingly simple, an essential skill is learning to listen to what people say.

It has been noted that the Global Studio process is an evolving one. In future it will give greater importance to the issue of climate change and the vulnerability of the urban poor. It takes to heart this warning by UN Habitat:

If concerted action is not undertaken to reduce greenhouse gases (GHGs) and promote more environmentally sustainable and equitable patterns of urban development, there will be a deadly collision between urbanization and climate change.¹⁷

Global Studio Bhopal

Global Studio conducted an action-planning program in Bhopal in January 2012 in conjunction with its international conference, 'People Building Better Cities: Re-imagining Inclusive Urbanization'.¹⁸ Working with the School of Architecture and

¹⁷UN Habitat (2011) *Cities and Climate Change*, Earthscan p. 163

¹⁸ The conference program can be found on <http://theglobalstudio.com/main/wp-content/uploads/2012/03/Global-Studio-Bhopal-2012-Conference-Program.pdf>

Planning at MANIT (Maulana Azad National Institute of Technology), Global Studio and MANIT developed the background and supporting materials necessary to engage in a program of design, planning and research on a range of topics. This included conveying an understanding of the national policy frameworks to participants, and especially JNNURM and the Rajiv Awas Yojana (RAY) Slum Free Policy. That the JNUURM and RAY both address EWS and LIGS (economically weaker and lower income groups), and have provisions for civil society participation in urban development was significant in the framing of Global Studio Bhopal projects.¹⁹ Policy document and extensive materials about participatory design and planning were provided in advance of the program on the Global Studio website.²⁰

Process and projects

Global Studio Bhopal brought together more than 80 participants from over 20 countries and seven disciplines to take part in an intensive studio workshop led by Bhopal academics and professionals and international mentors. Three projects could be described as action research; three fit the description of action planning and design, with the latter leading to design proposals and some physical outcomes. The process and outcomes of the six projects are documented in the report, *Global Studio Bhopal 2012*, and are available on line.²¹ Two design and planning projects have been selected to illustrate the Global Studio approach: Housing in Kabadkhana and the Prempura Public School.

Housing in Kabadkhana

This project is a demonstration of inclusive planning with local residents. Kabadkhana is an inner city neighborhood in close proximity to the former Union Carbide pesticide plant. It is likely that Kabadkhana will be redeveloped using the Government G + 3 (ground plus three stories) model, of which there are already a number in Bhopal (Figure 4). The Global Studio project looked first at existing conditions in Kabadkahana using a range of techniques: observation, talking with residents, identification of stakeholders, meetings with stakeholders, analysis of secondary data, existing maps and reports. While there are problems with services, there are quite high levels of

¹⁹ Source: http://en.wikipedia.org/wiki/Jawaharlal_Nehru_National_Urban_Renewal_Mission and *Guidelines for a Slum Free City Plan of Action*, http://mhupa.gov.in/ray/planning_guidelines.pdf

²⁰ Global Studio India resources, see <http://theglobalstudio.com/bhopal-resources/>

²¹ . Global Studio Bhopal Project Report 2012 (261 pp.) see <http://theglobalstudio.com/global-studio-bhopal-projects/>

satisfaction with Kabadkhana and these focus especially around the low rise housing and the space available for livelihoods, which results in an active street life.

The next stage of the project involved an investigation of a G+3 housing block, where using the same methods of investigation, considerable dissatisfaction became evident. Thus, the planning project for this group became an investigation into design alternatives to the G+3 model that would capture the aspirations of Kabadkhana residents. This model achieves approximately the same density, but is low rise, and provides flexible public space and streets that can better accommodate livelihoods. While this process of research and design was fairly short, the method shows that people can articulate preferences, and that in this case the preferences could be accommodated within density guidelines (Figure 5). The takeaway message from this project was that 'one size doesn't fit all' (i.e. the G+3 is not necessarily appropriate), and that by engaging with people suitable alternatives that meet their needs could be achieved. Those involved, including the MANIT architecture and planning students, gained knowledge of inclusive planning and skills in engaging with residents, mapping a neighborhood, analysis, and interpretation of people's preferences.

Prempura Public School

This project is a demonstration of inclusive planning with children. Prempura is an urban village of 3000 people on the outskirts of Bhopal. Around half of the housing stock is 'informal' and many houses lack adequate sanitation. Prempura Public School is a two-room building, and the school and serves the village's poorer children. An NGO (Muskaan) provides a storytelling program, and mothers take an active role at the school. The Prempura Public School has no toilets, desks, or chairs. The treeless playground is the site of open defecation and dumping (Figure 6). Vandalism and theft of school property is frequent. Through a participatory design process with school children, teachers, parents, and villagers, a collective vision to improve the school emerged. The anti-social elements became interested, and as a result became part of the solution rather than part of the problem.

Global Studio prioritized projects by immediate or long-term feasibility. The group devised innovative ways, including games, to engage children in the implementation of projects to improve their health (waste pickup, recycling, personal hygiene); environment (tree planting); education (murals and playground slide)(Figures 7, 8). The site plan proposes that the school and community share a new public open space, with

shade structures, toilets, and community gardens (Figures 9,10).

Mobilizing community dissatisfaction with the state of the school ground, the cleanup and waste recycling was converted to an educational game, providing lessons that could be repeated by teachers or parents. Children embraced their roles as “planet protectors,” and received a planet protector badge after the cleanup.

The school and the broader community enthusiastically developed ideas to transform the cleaned space. Drawing on input from children, the overall principles for the use of the site were agreed on, and consolidated in the site plan. The tree planting, the beginning of an ambitious site afforestation plan was based on children’s vision drawings (Figure 11). A design for a low-cost backpack prototype that doubles as a writing desk and/or seat addressed the lack of desks and chairs in the classroom (Figure 12).

The Global Studio group focused on establishing trust through engaging with children, mothers, and youth in small projects that would improve the children’s well being and health at school, and hence their ability to learn. Many of the women are under or unemployed, and Global Studio facilitated a women’s sewing group in the school, an example of the potential of community development in the school.

As with the Kabadkana housing project the process involved understanding, documentation, analysis and interpretation. Meetings were held with diverse stakeholders to understand problems and opportunities. One of the key takeaway message from this project was that child centered approaches are necessary if children are to be included in the planning process. A second message was that if trust is to be gained then some immediate changes have to be implemented. People want action, not more questionnaires. Third, if projects such as these are to be sustainable, then long-term partnerships have to be developed. In this instance there is scope for MANIT to continue working with the school, and for them to seek the partners that can continue with this inclusive planning approach.

Conclusions

These two projects illustrate that inclusive planning can take place at different scales and that the key to inclusive planning is engagement with people, as subjects, not as objects, of community development. A third project, creating a more inclusive city

center, has not been reported here but it demonstrates that engagement with citizens about public space can also have positive outcomes.²² With an understanding of people's experience, planning and design can be responsive to needs, culture and aspirations. In the case of Kabadkhana it would appear that a top down process of urban renewal is underway, but the findings of the Global Studio project indicate that an inclusive upgrading process would be appropriate to people's needs, and could address basic infrastructure problems. In the case of Prempura School, the inclusive approach created opportunities for change by engaging the broader community in making changes to the school. At the same time public health and educational gains were initiated. In both instances, the problems and the solutions were to a large degree defined by the people themselves. The participatory tools used are noted on the figures. The site plan design, for example, involved use of the following: 'brainstorm', 'debate', 'think', 'design', 'feedback'; learning about the G+3 housing involved these tools: 'observe', 'listen', 'talk', 'reflect', 'debate'; the tree plantings by children: 'collaborate', 'implement', 'adapt', 'build'.

Inclusive approaches such as these can help local government- and the urban professionals- better address people's needs and make people active partners in their own development. Inclusive approaches can also help address the growing problems of climate change. A community mapping process, for example, has the potential to assess climate change vulnerability and to generate, with residents, a management plan for extreme climate events as well as strategies for mitigation. Mapping can detect health hazards, which, through design and planning, may help address issues of national concern such as children's deaths under the age of five.²³ The skills required to facilitate processes as mapping, or community oriented design, are not generally part of design and planning curricula.

This 'learning by doing' takes future professionals out of the classroom, and into the slum, the school or the city. A participant in Global Studio Johannesburg (2007) enunciated the value of this form of learning:

... a radical shift in mindset is really about understanding context,
...understanding what in the past has failed, a radical shift is made by coming to

²² See 'We are Bhopal: inclusive City Centre' report, <http://theglobalstudio.com/bhopal-2012/>

²³ Global Studio has learned from the Healthhabitat 'Housing for Health' approach, which uses design to achieve improvements in health for disadvantaged people based on nine Healthy Living Practices. See <http://www.healthhabitat.com/>

a new place with your academic counterparts, going through a process of exploration and discovery, and understanding that the tools that you have been given in the classroom don't necessarily prepare you to understand the issues that are afflicting people in their everyday lives. ²⁴

The view of Somsook Boonyabancha, secretary general of ACHR (Asian Coalition of Housing Rights), is 'Let People be the Solution'. Taking this idea further she says,

The question is not how to 'train' the urban poor or change their behavior but rather, to identify how development interventions can nurture and develop the strength that already exists, letting people make change. ²⁵

This has been the experience of Global Studio Johannesburg where it worked for three years (2007-09). Since then, and with the assistance of an NGO, substantial progress has been made in toilet upgrading and in areas of arts and cultural development.²⁶ ACHR and its subsidiary organizations, ACCA (Asian Coalition for Community Action) and CAN (Community Architects Network) show that people driven development can be taken to scale. From 2009 to 2012 the ACCA program supported 950 small upgrading projects in 165 cities in 19 Asian countries. ACCA engages in effective pro-poor urban development at settlement, city, national and regional levels. With CAN, para professionals and community builders. ACCA plays a key role, helping people transform "what is" into "what it could become". The Community Architects' Network focus is on community mapping, upgrading, city planning, training, university programs and knowledge sharing.

The six cycles of Global Studio has given rise to an international network of practitioners from a range of disciplines, some of whom have gone on to put into practice the principles of participatory planning and design. Indian students have participated in all

²⁴ Anita Rohira, Student, New School of Social Research, NY in 'New Mindsets' film, <http://theglobalstudio.com/new-mindsets-2007/>

²⁵ Boonyabancha, S., Acellar, Kerr, T. (2012) 'How the poor communities are paving their own pathways to freedom' in *Environment and Urbanization* Vol. 24, No. 2: 444

²⁶ Global Studio Johannesburg helped form two community based organizations, DACN (Diepsloot Arts and Culture Network) and WASSUP (Water, Amenities and Sanitation Services Upgrade). These organizations have been supported by NGO Sticky Situations (<http://www.stickysituations.org/>) and an on-going relationship with Global Studio. See also Rubbo, A. (2010) 'Towards equality, social inclusion and human development in design education: the case of Global Studio 2005-2008', *Architectural Theory Review*, Vol 15, no.1

cycles, but many report their frustration that there is little opportunity to apply new knowledge to problems they now have a better understanding of. Due to a perception that the public sector is cumbersome and unreceptive to innovation, the majority is engaged in the private sector. At the beginning of this chapter I flagged the need for some 're-wiring', even a new DNA in the urban sector. Just as there is need for new curricula, so must there be opportunities for future professionals to exercise new forms of practice. As IIHS' Aromar Revi noted, there is a pressing need for a new generation of urban change makers. As the 2015 SDGs (Sustainable Development Goals) with a strong urban focus replace the MDGs (2000-2015) a re-wiring in the education and public sectors, led by the institutions that have already innovated, becomes an ever more urgent task to ensure a sustainable, inclusive and equitable urban future in India.

List of figures and captions

Note: The figures in this chapter have been drawn from the People Building Better Cities exhibition, designed and developed by Anna Rubbo, Megan Bullock, Matthias Neumann, Devangi Ramakrishnan, Jennifer van den Bussche and William Chan, and draws on the work of Global Studio Bhopal participants.

All figures can be found on the People Building Better Cities exhibition panels.
<http://peoplebuildingbettercities.org/>.

From February 2013 to December 2014 PBBC was shown in 16 cities (Bangkok, Rio de Janeiro, Sydney, Johannesburg, Nairobi, Mumbai, Beijing, Delhi, Chennai, Cincinnati, Shanghai, New York, Medellin, Durban, Melbourne, Brisbane) and nine countries, accompanied by a relevant local program.

To locate figures go to the 'About PBBC' page and click on PBBC panels. PBBC is a traveling exhibition to encourage a dialogue on inclusive urbanization based on the premise that "resilient, equitable, smart and inclusive cities require citizen engagement".

Figure 1

The Right to the City model. All citizens have full access to the opportunities of urban life. Source PBBC (panel 6)

Figure 2

CO2 emissions contribute to extreme weather and global warming. Source PBBC (panel 5)

Figure 3

Global Studio 'tool kit': 20 possible actions to engage people in participatory design and planning. Source PBBC (panel 9)

Figure 4

G+3 housing, Bhopal. Source Global Studio 2012, PBBC (panel 12)

Figure 5

Kabadkhana, Bhopal. Low-rise housing alternative based on understanding of resident preferences. Source Global Studio 2012, PBBC (panel 12)

Figure 6

Prempura Public School, Bhopal. Littered playground. Source Global Studio 2012, PBBC (panel 15)

Figure 7

Prempura Public School Clean playground. Source Global Studio 2012, PBBC (panel 14)

Figure 8

Prempura Public School Bhopal. Murals painted in collaboration with children. Source Global Studio 2012, PBBC (panel 14)

Figure 9

Prempura Public School, Bhopal. Site plan based on community vision. Source Global Studio 2012, PBBC (panel 14)

Figure 10

Prempura Public School, Bhopal. Proposal for a community garden. Source Global Studio 2012, PBBC (panel 15)

Figure 11

Prempura Public School Bhopal. Tree planting. Source Global Studio 2012, PBBC (panel 14)

Figure 12

Prempura Public School. Bhopal. Design for a student backpack that can also be used as a seat or writing tablet. Source Global Studio 2012, PBBC (panel 15)

ⁱ Author bio notes

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