

# The Policy of Design: A Capabilities Approach

Andy Dong

## Introduction

In 2004 and 2005, a series of natural disasters on a scale unprecedented in modern times unfolded tragically. The Sumatra-Andaman earthquake and subsequent tsunami on the day after Christmas in 2004 killed and displaced more than 200,000 people. Hurricane Katrina battered the Gulf Coast of the United States, flooding more than eighty percent of the City of New Orleans, and leaving a swath of destruction across an estimated 90,000 square miles. The Pakistan earthquake in October 2005 is estimated to have left four million people homeless. Beyond the criticisms of international aid and government relief responses arises the question of the capacity of local communities to rebuild. However, their capacity to rebuild also hinges upon the precursor issue of their capability to design. The vividness of these disasters playing repeatedly on television screens around the world suddenly linked the citizens of Sri Lanka and New Orleans to the squatters as developers in Mumbai,<sup>1</sup> to the citizens as urban designers and planners in San Francisco's Octavia Boulevard Project, and to many other citizens around the world designing their local communities. Increasingly, at least in the space of public works, the ultimate responsibility for design is held by the people.

Citizens are actively engaged in designing housing, sanitation schemes, and cityscapes; and they are not just working with or depending upon design professionals. Often, it is the citizens who lead the way. The UN Millennium Project offered the following policy statement in relation to the urban poor: "More people than ever before are doing more and more for themselves and others, pushing central and local governments to take progressive action .... Our policy conclusion ... is to place the urban poor at the very centre of ... policy formation."<sup>2</sup> This policy conclusion is significant for all societies because it reinforces the public's freedom to realize public works projects and the obligation of public policies and civic administrators to promote this capability.

A similar sentiment was issued by Sulfikar Amir<sup>3</sup> in his call for a more humanitarian policy of design. Amir outlined a set of human-centered national design policies that focus on people's needs, and incorporate participatory design methods. Urban designers and planners have been practicing participatory design for quite some time.<sup>4</sup> Carroll,<sup>5</sup> citing Herbert Simon, suggests that participa-

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1 Vinit Mukhija, *Squatters as Developers?: Slum Redevelopment in Mumbai* (Aldershot, Hampshire, England: Ashgate, 2003).

2 UN Millennium Project, "A Home in the City: Task Force on Improving the Lives of Slum Dwellers" (Washington, DC: United Nations Development Program, 2005), xiv.

3 Sulfikar Amir, "Rethinking Design Policy," *Design Issues* 20:4 (2004).

4 Henry Sanoff, *Community Participation Methods in Design and Planning* (New York: John Wiley & Sons, Inc., 2000).

5 John M. Carroll, "Dimensions of Participation in Simon's Design," *Design Issues* 22:2 (2006).

tory design makes users *ipso facto* designers. In a 1971 conference,<sup>6</sup> design professionals already were engaged in considering how user participation in design would reorient the design professions and approaches to design. Presciently, the group discussed the potential sway in the balance of power in design, from the professional designers to the users themselves. Several decades later, while user participation is firmly entrenched in the design practice of some professions, it takes only the merest reading of the debates surrounding the design of public works to know that the public is not always, in the viewpoint of local governments and the language of policy instruments, authorized to design, nor believed to be capable of designing.

In Australia, as in many wealthy, pluralistic, democratic societies; decision-makers often believe that public engagement in the design of public works may impede progress or result in the dreaded “design by committee” projects. This tension most recently played out in the State of New South Wales (NSW) when former Planning Minister Craig Knowles stated that the design of the Kurnell desalination plant is “beyond public debate.”<sup>7</sup> Public policies can effectively remove public engagement in the name of expediency. A case in point is Part 3 of the NSW Infrastructure Implementation Corporation Bill 2005, authorizing the Premier to establish “project authorization orders” for major infrastructure development “on such terms and conditions as the Premier determines, and as are specified or referred to in the order.” Thus, what the urban poor in developing countries and citizens in developed countries share is the problem of enacting a policy of design that reflects the values of the people.

However, asking public policy organs to require citizens’ participation in design without understanding the parameters and conditions that can be transformed into a capability to design is cynical, and makes the potentially naïve assumption that the public can *do* design. People have the right to user participation in design only if there are effective policies to make people truly capable of design. So what is needed is not user participation in design as a counterforce to the power of designers, as thought by the 1971 conference of designers, but instead a design culture of pluralism with effective means for achieving it.

This article outlines a framework for the policy of design based on the theory of social justice known as the “capabilities approach.” The author believes that the capabilities approach offers one avenue to situate design practice as part of an endeavor of social justice and not “after all, a tool for domination.”<sup>8</sup> For the purposes of this article, a policy of design must assert a *just* socially-mediated process of devising a system, component, or process that achieves a set of goals established as a result of a shared understanding of the design work within a context defined by both the natural environment and human interests. At issue is the contention that design in the public arena shapes human development and well-being, thus

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6 *Design Participation: Proceedings of the Design Research Society's Conference*, Nigel Cross, ed. (London: Academy Editions, 1972).

7 Wendy Frew, “Desalination Plant ‘Too Important to Debate,’” *Sydney Morning Herald*, July 12, 2005.

8 Gui Bonsiepe, “Design and Democracy,” *Design Issues* 22:2 (2006): 31.

making the policy of design an issue directly taken up by the capabilities approach. I suggest that the capabilities approach offers a theory for conceiving a policy of design that is suited to grapple with the planning and design of public works in a way that facilitates the conditions of possibility for designing by the public.

### The Capabilities Approach

The capabilities approach is a normative theory of social justice developed primarily by the economist Amartya Sen<sup>9</sup> and legal ethics philosopher Martha Nussbaum.<sup>10</sup> Capabilities theorists claim that increasing the capacity of people to live the type of life that they value should be the primary concern of public policy organs. Their approach toward human development shifts the measurement of progress from output toward the measurement of people's capabilities to achieve outcomes. Such measurements include literacy, mortality, and women's employment participation outside the home, all reported in the UN Human Development Report. They stand in stark contrast to indicators such as GDP and GNP, which shield economic output from the reality of conditions that prevent people from leading valuable lives. The intuition is that an illiterate or innumerate person is unlikely to have the capability to produce economic outcomes. As a normative theory of social justice, the capabilities approach emphasizes a person's capability to achieve certain actions (functioning) that the person deems valuable for living.<sup>11</sup>

Capabilities theorists promote the idea that working to account for and advance human capability strengthens governance, not just at the level of macroeconomic measures but also in terms of civic engagement and citizenship. Jean Drèze and Amartya Sen write: "The object of public action can be seen to be the enhancement of the capability of people to undertake valuable and valued doings and beings."<sup>12</sup> In acknowledged support of this concept, both the United Nations Millennium Development Project and the World Bank recognize capability development in relation to community-led public works projects as the key to achieving poverty reduction.<sup>13</sup>

The World Bank forecasts ten percent of project cost goals toward capability development in large infrastructure projects because capability development sustains the human functioning achievements these projects generate.

Two key themes arise from the conceptual foundations of the capabilities approach. The first is Sen's economic theoretical justification for the approach.<sup>14</sup> Sen critiques aspects of utilitarianism as the foundation theory to account for economic development and assess human development. The principle aspects of his critique are that utilitarian approaches do not pay adequate attention to distributional inequality, neglect constraints on freedoms to pursue economic output such as the limitations on women's economic participation outside the home, and presume that manifest preferences are not

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9 Amartya Kumar Sen, *Development as Freedom* (Oxford: Oxford University Press, 1999).

10 Martha Craven Nussbaum, "Human Capabilities, Female Human Beings" in *Women, Culture, and Development: A Study of Human Capabilities*, Martha C. Nussbaum and Jonathan Glover, eds. (Oxford: Clarendon Press, 1995).

11 Amartya Kumar Sen, "Capability and Well-Being" in *The Quality of Life*, Martha C. Nussbaum and Amartya Kumar Sen, eds., (Oxford: Clarendon Press, 1993).

12 Jean Drèze and Amartya Sen, *Hunger and Public Action* (Oxford: Clarendon Press, 1989), 12.

13 UN Millennium Project, "Investing in Development: A Practical Plan to Achieve the Millennium Development Goals. Overview" (Washington, DC: United Nations Development Program, 2005).

14 Amartya Kumar Sen, *Development as Freedom*.

subject to mental conditioning, that is, the problem of adaptive preferences. Sen further argues that the informational basis of the utility calculus of well-being, namely income, is inadequate. The utility calculus reduces well-being to the sum of resources (income) by excluding information about one's substantive capacity for economic output. The excluded information includes: intrinsic characteristics such as age, health, and disability; extrinsic conditions at the socio-economic and institutional levels; and, the available resources for the conversion of the capability set into a functioning. The limited informational basis for the utility calculus thus ignores, and at best is indifferent to, the notion of well-being as being more than the sum of income. According to the theory that evaluation guides policy in indirect ways, (i.e., focusing on collecting information, but not the information itself, changes institutional practices<sup>15</sup>), not having to collect such information for the utility calculus subalterns these capabilities to income. The capabilities approach is intended to reverse the teleology of economic development from an assessment exercise based on economic utility to the valuation of the human inputs.

The second key theme is the problem of differential inequalities that erect impediments to human flourishing. The basic critique here is that poverty, assessed in terms of income, is only one of a variety of factors that prevent people from leading valuable lives. Factors such as lack of environmental resources, political constraints, and medical conditions should not be discounted in their impact on limiting the capability of people to produce economic outputs. To illustrate this critique, take the problem of public transit. Without public transit suited to people in wheelchairs, for example, a disabled person is unlikely to be able to maintain stable employment. Even without transit amelioration, this impediment most likely would not exist for a person without any mobility impairment. While there are many more dimensions to the capabilities approach, its main contribution is to place humans at the center of economic development rather than economic growth itself. The capabilities approach asks what requisite "capability set" humans need to achieve self-defined goals of well-being.

In the context of design, the capability set denotes the requisite conditions for ("doing") design. The question is: "If I wanted to engage in design, what set of capabilities would I need?" The question is not "How capable of design am I?" but rather if one is capable of doing design at all. What resources are available for people to transform the capability set for design into the functioning of designing, and is the person appropriately positioned to do it?

### **The Capabilities Approach and the Policy of Design**

As a basis for design policy, the capabilities approach foregrounds what people need to achieve self-defined goals in the theorization of what counts as a just policy. The dilemma of justice in the policy of design is a component of the tension that is always present in

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15 Caron Chess, "Evaluating Environmental Public Participation: Methodological Questions," *Journal of Environmental Planning and Management* 43:6 (2000).

design in the public arena—the tension “in seeing public participation as involving citizens on the one hand, and government on the other.”<sup>16</sup> The social and political exclusion of the public in the design of public works is becoming a real concern, and thus important to design policy. Consequences of the lack of capability to design extend beyond the lack of public engagement in design into matters of public health and social capital:

- 1 Design is becoming a matter of public health. Urban designers and planners, architects, public health professionals, real-estate developers, and local governments are beginning to recognize the health costs of certain urban design solutions. Inappropriate urban design is linked to obesity, mental health, and chronic illnesses such as asthma and heart disease.<sup>17</sup> But communities often treat “outside experts” with disdain and suspicion. In response to expert advice that cul-de-sacs are poor suburban design, the *Sydney Morning Herald* interviewed residents in cul-de-sacs who say they would never live anywhere but in a cul-de-sac because they are quiet, safe, and neighborly. “It’s a good way for the kids to grow up,” say Patrick “Snowy” Sheehan and Lucy Zappavigna.<sup>18</sup> These residents’ lifestyle preference for the cul-de-sac design is in stark contrast to evidence of their negative health implications reached by urban designers and public health professionals. The low-density and disconnected sidewalks prevalent in cul-de-sac neighborhoods have been shown to be correlated with more driving and less walking.<sup>19</sup> In turn, less walking is symptomatic of a sedentary lifestyle, which ultimately contributes to obesity.<sup>20</sup> An ability to address the set of complex issues in urban design, architecture, public health, and lifestyle choices by the public must be part of their capability set for design if they are to be engaged in the design of new suburbs.
- 2 The design of the civic environment is linked to the establishment of identity as part of the matrix of the visual field that says you belong and have a stake in its formation. This does not mean that design is a form of social engineering. Instead, design is a source of social transformation. As Kwame Anthony Appiah writes, “If we are authors of ourselves, it is state and society that provide us with tools and the contexts of our authorship. We may shape selves, but others shape our shaping.”<sup>21</sup> Thus, the lack of capability to design could lead to a loss of a civic identity.

However, these social development and justice aspects of design often are overlooked in frameworks for design policy that link design development to socio-economic gains. One of the most widely cited models is Gui Bonsiepe’s theoretical model of industrial design development<sup>22</sup> H. Alpay Er’s<sup>23</sup> extension of Bonsiepe’s model

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- 16 Judith E. Innes and David E. Booher, “Reframing Public Participation: Strategies for the 21st Century,” *Planning Theory & Practice* 5:4 (2004): 421.
  - 17 Howard Frumkin, “Urban Sprawl and Public Health,” *Public Health Reports* 117 (2002).
  - 18 Sherrill Nixon, “Once There Were Walkers,” *Sydney Morning Herald*, August 12, 2006.
  - 19 Lawrence D. Frank and Gary Pivo, “Impacts of Mixed Use and Density on Utilization of Three Modes of Travel: Single-Occupant Vehicle, Transit, and Walking,” *Transportation Research Record* 1466 (“Issues in Land Use and Transportation Planning, Models, and Applications,” 1995).
  - 20 U.S. Department of Health and Human Services, “Physical Activity and Health: A Report of the Surgeon General” (Centers for Disease Control and Prevention, 1996).
  - 21 Kwame Anthony Appiah, *The Ethics of Identity* (Princeton, NJ: Princeton University Press, 2005), 156.
  - 22 Gui Bonsiepe, “Developing Countries: Awareness of Design and the Peripheral Condition” in *History of Industrial Design: 1919–1990: The Dominion of Design*, C. Provano, ed. (Milan: Electa, 1990).
  - 23 H. Alpay Er, “Development Patterns of Industrial Design in the Third World: A Conceptual Model for Newly Industrialized Countries,” *Journal of Design History* 10:3 (1997).

suggests interventions such as government-financed postgraduate schools of design and government agencies supporting particular design enterprises to stimulate industrial design growth. There are two significant problems with this framework. First, we have good reason to worry about marshalling newly industrialized countries toward “big” industrial design and expecting those socio-economic gains to produce real gains *equitably*. The critiques against utilitarianism in economic development lodged by Sen apply in this case. Stimulating industrialization of design may not necessarily lead to the creation of communities which are capable of transforming ideas into designed works that advance their interests and well-being.

Second, if what is measured and promoted is the economic growth of design-related industries, there is then a serious misrecognition of the potential of communities outside of formal industries as sites of design and innovation. Policy justifications supporting industries based on aggregate utility and economic rationalization of industries create an expert discourse about the relevance of design to industry—not to people. The Industry Sector Productivity Indexes published by the Productivity Commission in Australia, is one example of a measurement that governments track and cite to assess the health of industries. These measurements are based on the aggregate, market sector productivity in terms of *output* of goods and services. Yet, there are relatively few measures on the availability of technical means for the public to become engaged in design-related industries and activities. Measures such as personal computer ownership and broadband access compiled in the Household Use of Information Technology by the Australian Bureau of Statistics are the kind of capability indicators needed by the capabilities approach.

The presumption in Alpay Er’s formulation that design success in industry is valuable to nations misses the point that for many of the world’s poor, design, *inter alia*, is a means to goals that provide for quality of life. Access to design and means of production is at stake in the policy of design. Reflecting on a project for capacity building of women in Mumbai to design better settlement, the Society for the Promotion of Area Resource Centres (SPARC), an Indian NGO, wrote: “The most powerful advocacy tool for land security and housing for the poor is when the poor themselves take on housing projects which demonstrate how to develop solutions. This is the role that the federation plays—supporting local communities [that] negotiate for land and build and design houses themselves.”<sup>24</sup> While promoting formal, design-related industries is vital, a capabilities approach to design policy should focus attention on capacity-building of this “informal design sector.”

Thus, the capabilities approach directly handles what most models linking industrial design development and socio-economic advance lack; overcoming the problem of the reliance on economic efficiency and aggregate utility as measures of design progress, without first considering what it takes to do design. A capabilities

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24 Society for Promotion of Area Resource Centres (SPARC), *Sparc Annual Report* (Bombay, India: 2005), 20.



approach to design policy asks what is needed for the public to be engaged in (“do”) design. The ambit of the capabilities approach is the space of poverty, inequality, and the design of social institutions. By asking what is needed to be equal—instead of just asking what level of equality is desirable—the capabilities approach showcases the level of real freedoms people actually have to achieve the valued functions that constitute their self-defined well-being.

In her book *Women and Human Development*, Martha Nussbaum proposes a provisional list of “Central Human Functional Capabilities”<sup>25</sup> in order to theorize what basic level of normative justice is desirable under the capabilities approach. Nussbaum offers the list in order to formulate the basic intuitions as to the core human capabilities that allow a person to “function in a fully human way.” Her list of central capabilities echoes some of the goals in Maslow’s hierarchy of needs. For example, the capability for “Life and Bodily Health” are similar to the goal of satisfying physiological needs.<sup>26</sup> However, the capability to live in harmony with nature and to participate effectively in political choices is not taken up in Maslow’s hierarchy. Of particular relevance to design is the tenth capability for “Control over one’s environment” both political (such as participation in civic administration) and material (such as being able to hold property). Given the centrality of design to bodily health and identity for the reasons argued above, I would add “Control over the design and production of civic building” to Nussbaum’s list as sitting astride political and material control.

I offer the following capability set for design as the foundation for ethical principles in design policy. The list is based on research in design cognition, theory and methods in architecture and engineering, supplemented by the author’s discussions with designers and “non-designers.” In the list, we must be careful not to confuse *capability to design* with *capability as a designer*. Nigel Cross distinguishes between everyone’s innate capability to design and an expert designer’s fluency as a seemingly “natural intelligence”<sup>27</sup> for design. However, in the language of the capabilities theorists, Cross’s “capability to design” conjecture is more akin to what Sen calls “functionings”—the things that people actually do. In the spirit of Nussbaum’s list, the list I offer is both a proposal that should be tested over time and a set of necessary conditions for designing.

### Capability to Design and Public Policy

At issue for design policy then is to develop citizens’ capability to design. It is about the creation of the conditions of possibility for citizens to transform the capability set needed to do design into the functioning of being engaged in (“doing”) design. Here, it is important to note that the capabilities approach does not propose to compel people toward specific functionings. For example, we might ask citizens, “Would you like to take part in the design of a public

25 Martha Craven Nussbaum, *Women and Human Development: The Capabilities Approach* (Cambridge: Cambridge University Press, 2000), 78–80.

26 Abraham H. Maslow, “A Theory of Human Motivation,” *Psychological Review* 50:4 (1943).

27 Nigel Cross, “Natural Intelligence in Design,” *Design Studies* 20:1 (1999).

**Table 1**

<b>Capability</b>	<b>Description</b>
INFORMATION	Have transparent access to all technical, financial, community, and political information relevant to a design work. Be in contact with communities and experts who have faced similar design problems as sources of ideas and solutions.
KNOWLEDGE	Have sufficient numeric, mathematical, and scientific training to engage in a conceptual and technical understanding of the design work. Knowledge of technical design methodologies. Have knowledge of making and interpreting relevant technical standards and codes.
ABSTRACTION	Develop aptitude for analysis and contextualization of design work at multiple levels of abstraction, from low-level functional, behavioral, and structural aspects to higher-order aspects such as systems integration, lifecycle maintenance and operations, and disposal.
EVALUATION	Be able to engage in a critical evaluation of the implications of the design work on matters such as the welfare of the community, the health of the environment, and economic viability. The welfare of the community includes individual concerns such as cognitive and physical ergonomics and universal design.
PARTICIPATION	Be part of, and collaborate with, others in the design process; from early project definition stages, through to conceptual design, concept testing, prototype development, prototype testing, prototype review, full-scale implementation, and final project delivery and validation. The formation of a shared understanding of all aspects of design work is paramount.
AUTHORITY	Have the power and right to enact a design work rather than token "paper studies." Have the authority to commission reports and information. Have the authority to select and set criteria and requirements for design work.

square if you had the opportunity to do so?" This question can indicate whether a person would choose to do the design of the public square (the functioning) if the person had the capability (phrased as opportunity) to do so. While design policy should not seek to make every citizen *do* design, it is the rightful purview of public policy to develop their capability to design.

The capability set that I proposed in the previous section and the concept of differential inequalities in the capabilities approach make us think about framing public policy toward design capability in terms of what is required for citizens to design. Framing the policy of design by understanding and theorizing citizens' capability to design as a matter of justice necessitates the consideration of factors that precede capability, factors that indicate capability, and what the public manages to achieve. The space between an innate capability to design and functional performance in design has to be addressed when accounting for capability to design, in as much as this space is relevant for the aims of public policy.

Asymmetries in capability to *do* design may arise from differences between people and socio-political barriers. Sen noted these differences in human development. He categorized human differences as relating to personal characteristics such as age, gender, and physical abilities; external characteristics such as economic wealth, environmental resources, and accessible cultural institutions, and,



most important, their ability to convert resources into valued functionings.<sup>28</sup> There will be people who, through background experiences, engaged in activities which increased their “innate” capability for design, such as knitting, sewing, gardening, drawing, or building model cars. Others, less advantaged, may not have been afforded these same opportunities, which could have increased their aptitude for the capability set for design. The capability to achieve a functioning is attenuated by real differences between people. On the other hand, the achievement is regulated by external factors; the expression of the designed work which the public manages to achieve as a result of their capability is ineffectual if the policy mechanisms inhibit their capability to design.

To develop the capability to design, design policy therefore must recognize the “pre-conditions” scaffolding capability, the operational conditions “transforming” capability, and what the public manages to achieve as a result of the capability set. First, let us begin with pre-conditions. The pre-conditions set up the basic framework for capability to design independent of any specific design project or design work. The pre-conditions for the capability to design are a function of both “internal factors,” such as creativity and the ability to handle different levels of abstraction simultaneously, and “external factors,” such as public participation and planning laws, which amplify or attenuate the expression of these internal factors. Public activities and institutions that increase interest and understanding of design and cultural attitudes toward design are part of the pre-conditions/external factors for capability to design, while background experiences that increase a person’s ability for abstract thinking are part of the pre-conditions/internal factors.

Internal factors related to capability to design constitute the subject of research in design cognition. Explanatory frameworks for mental processing in design seek to identify mental operations evident in expert designers but not novice designers,<sup>29</sup> patterns of reasoning,<sup>30</sup> and how design knowledge might be mentally represented.<sup>31</sup> Design studies researchers have sought to uncover the ultimate and proximate factors which influence successful ways of designing. The institutionalizing of design in universities and the production of accreditation criteria for academic programs in design that codify what constitutes competence in design is recognition of the required capabilities for design inculcated through formal education.

External factors regulate the possibility of expression of the internal factors. The first category of external factors includes the policy instruments for civic administration and governance such as local planning codes and other laws concerning the legislative and executive powers (e.g., oversight over public finance) of the public. There are known differences in external factors arising from legal statutes related to design policy. For example, Part 3 of the NSW Infrastructure Implementation Corporation Bill 2005 authorizes the Premier to establish “project authorization orders” on “such terms

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28 Amartya Kumar Sen, *Inequality Reexamined* (Oxford: Oxford University Press, 1995).

29 Saeema Ahmed, Ken M. Wallace, and Lucienne T. M. Blessing, “Understanding the Differences between How Novice and Experienced Designers Approach Design Tasks,” *Research in Engineering Design* 14:1 (2003).

30 Donald A. Schön, “Designing: Rules, Types and Words,” *Design Studies* 9:3 (1988).

31 John S. Gero, “Design Prototypes: A Knowledge Representation Schema for Design,” *AI Magazine* 11:4 (1990).

and conditions as the Premier determines.” The Environmental Planning and Assessment Act 1979 Section 75A specifies the types of projects that fall under the Premier’s authority. Conversely, in San Francisco, no such authority vests solely in the government, and San Francisco residents retain legislative and executive capability. This authority has been exercised by the citizens of San Francisco in relation to the reconstruction of the Central Freeway off-ramp. Citizens in San Francisco voted three times over three consecutive years on voter-initiatives related to the urban design, planning, and operation of the Central Freeway Replacement.

The second category of external factors encompasses investments toward public activities and institutions that increase interest and understanding of design and cultural attitudes toward design. These include design resource centers, museums of design, media attention to design, public awards for design, and public events about design. Design resource centers for the urban poor such as the Byculla Area Resource Centre in Mumbai, India<sup>32</sup> provide people-to-people horizontal learning through which the community documents, consolidates, and accesses strategies for slum redevelopment. Museums of design and applied sciences such as the Design Museum in London, Ann Arbor’s (Michigan) Hands-On Museum, and The Exploratorium in San Francisco take designed works out of their market and industrial context, and put them into an environment in which the processes and technologies for designing the work can be understood. Research has shown that these museums can transfer the *knowledge* capability for design when the interactive exhibits are structured so that the learner knows “what is expected from them in relation to what they need to do (procedures) and in relation to the facts or concepts they are expected to learn (concept understanding).”<sup>33</sup> The long-running television show *The New Inventors* broadcast by the Australian Broadcasting Corporation educates the public about design and invention, and encourages do-it-yourself designers. A design policy which invests in institutions, technologies, and practices that enable everyday creativity and engagement in design is of strategic value in terms of social capital and broad capability to design. Investments in these institutions, coupled with public policy recognizing the capability set, should be evaluated based on their contribution to design education outside of formal schooling, literacy about design through the media, and access to practical information about designing through community-based learning resources. The operational conditions transform capabilities into functionings, and are likely to be related to a specific design project. These conditions are:

1. *Actions toward capability development* such as type(s) of public participation; action(s) to include those otherwise unlikely to participate; and education on matters specific to a project. Public participation may range from consultative

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32 Sundar Burra, “A Journey Towards Citizenship: The Byculla Area Resource Centre, Mumbai” (Mumbai, India: 2000).

33 Agostinho Botelho and Ana M. Morais, “Students-Exhibits Interaction at a Science Center,” *Journal of Research in Science Teaching* 43:10 (2006): 1014.

and informational to functional and interactive,<sup>34</sup> though each may have different impacts on design capability.

2. *Support of capability development* such as percent of project funds allocated to capability development; measurements of intensity and duration of such efforts (i.e., whether integrated throughout the life cycle of the design process); and continuous improvement toward collaborative planning.

Thus, we have two problems for design policy: one is to inculcate the capability to design, and the second is to direct the capability towards tangible outcomes. A third problem is one of measurement. Assessments of the capability producing investments described above are likely to include the type of econometric measurements that will have substantive resonance to public policymakers. While it is not obvious what we should measure, it is likely that we will be measuring the sorts of investments in pre-conditions and operational conditions mentioned above, and what the public manages to achieve. Instead of solely focusing on measuring output, such as public sector efficiency or rates of participation, we need to measure the potential for output. For example, a measurement of national science and engineering capability is the number of students majoring in science and engineering at institutions of higher learning. Likewise, investments in the knowledge of and practical engagement with design could be partially assessed in terms of public expenditures toward institutions which provide access to the understanding of the technical means of design and general design literacy. Measures such as the number of visitations to hands-on museums of design, the number of design resource centers, the number of social networks for community-based redevelopment projects, and the value of prizes awarded for community-based redevelopment projects may indicate the public's capability to design. It should be noted that agreement on empirical measurements of capabilities remains one of the most elusive and challenging aspects of the capabilities approach.<sup>35</sup>

The measurement of capability to design calls our attention towards factors that precede the functioning of designing and the likely effectiveness of public engagement in design. What is needed is a consensus on aspects that can be usefully quantified as indicators of capability to design, but not design capability itself.

## Conclusion

Realizing that our aspirations for a pluralistic form of design that is efficient and effective is far from straightforward and, at times, is perceived as a social cost rather than a social benefit, we nonetheless should work towards conceiving the outcome of a just policy of design. The rapid growth of urbanization underscores the need for an urban identity woven into the urban fabric. The question that we must deal with is the way design is practiced so that the identities of

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34 Jules N. Pretty, "Participatory Learning for Sustainable Agriculture," *World Development* 23:8 (1995).

35 Enrica Chiappero Martinetti, "A Multidimensional Assessment of Well-Being Based on Sen's Functioning Approach," *Rivista Internazionale di Scienze Sociali* 2 (2000).

citizens inhabit it. The absence of a normative framework for citizen engagement in designing, not just participating in designing, is an abandonment of the possibility of expression of identity of everyday urban spaces and practices.

A capability approach to design shifts the dialogue in the policy of design by asking “What could citizens design?” given *constitutive and instrumental conditions*, rather than “What was designed?” given the *procedural conditions*. The capability approach to design policy circumvents the dilemma of “bean counting” the number of public review forums, amount of money spent notifying the community, and the number of participants in a project as indicators of public engagement. In view of the capabilities approach, the choice is not between the situation in which “citizens and other players work and talk in formal and informal ways to influence action in the public arena before it is virtually a foregone conclusion,”<sup>36</sup> and the delegation of authority to design to experts. Rather, the capability to design connects the discourse about public engagement in design to the question of who can impose order upon the designed world. If the answer to that question is the citizens who inhabit that designed world, then our attention logically turns to their capability to write and inscribe the designed world and developing their capability to express a designed world that resonates their states of mind, desires, and affects.

Michel Foucault, when asked if architecture could resolve social problems, responded: “I think that it can and does produce positive effects when the liberating intentions of the architect coincide with the real practice of people in their exercise of their freedom.”<sup>37</sup> This article echoes Foucault in seeking a normative theory on the capabilities of citizens to design.

### Acknowledgments

This article was written as part of Global Studio 2 Vancouver ([www.theglobalstudio.com](http://www.theglobalstudio.com)). Global Studio brings together students, academics, and professionals in the city-building professions from developed and developing countries to take part in an interdisciplinary studio. Global Studio 2 took up aspects of the UN World Urban Forum agenda, and worked with underrepresented communities in Vancouver on participatory design and planning projects. Funding for this research is provided by an Australian Research Council research project DP0772252 on the capability of the public to design.

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36 Innes and Booher, “Reframing Public Participation: Strategies for the 21st Century,” 429.

37 Michel Foucault, “Space, Knowledge, and Power” in *The Foucault Reader*, Paul Rabinow, ed. (London: Penguin Books, 1991), 246.