RELATIONAL PLANNING

Tracing Artefacts, Agency and Practices

Edited By
Monika Kurath,
Marko Marskamp,
Julio Paulos and
Jean Ruegg



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kurath@arch.ethz.ch

Monika Kurath
Marko Marskamp • Julio Paulos
Jean Ruegg
Editors

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palgrave
macmillan

kurath@arch.ethz.ch

Editors
Monika Kurath
ETH Zürich
Zürich, Switzerland

Marko Marskamp
ETH Zürich
Zürich, Switzerland

Julio Paulos
ETH Zürich
Zürich, Switzerland

Jean Ruegg
University of Lausanne
Lausanne, Switzerland

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kurath@arch.ethz.ch

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kurath@arch.ethz.ch

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kurath@arch.ethz.ch

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kurath@arch.ethz.ch

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kurath@arch.ethz.ch

Part I

Introduction

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1

Introduction: An Invitation to Inquire the Relations Inside Planning

Marko Marskamp, Julio Paulos, Monika Kurath, and Jean Ruegg

From the original inspiration of regulating nuisances in the industrial city, to more contemporary uses of evaluating increased density, promoting transit-oriented development or endorsing low-carbon and human-scale built forms, planning identifies, projects, and aligns relations across the physical environment. These relations are formed between activities and buildings, or more generally planning relates *objects*. For example,

M. Marskamp (✉)
Department of Geography, University of Lausanne, Lausanne, Switzerland

J. Paulos
ETH Wohnforum – CASE, ETH Zurich, Zurich, Switzerland

M. Kurath
Research & Faculty, University of St. Gallen, St. Gallen, SG, Switzerland

J. Ruegg
Department of Geography, University of Lausanne, Lausanne, Switzerland

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kurath@arch.ethz.ch

relations are deployed to prevent a residential tower from casting a shadow on an adjacent park, to complement a residential development with a school, to require ample parking for a mixed-use building, or to assess the impact of a new big box store on inner-city retail. The first set of relations between the objects of planning is made possible by a second set: those inside the *practice* of planning itself. For example, in the regulation of objects, land-use planners draw zoning maps, limit floor-to-space ratios (FSR), study household projections, simulate shadows, and meet with landowners.

With relations in the objects and practices abound, a popular definition of planning states it as 'that professional practice that seeks to connect *forms* of knowledge with *forms* of actions in the public domain' (Friedmann 1993: 482; emphasis added). This definition is often shortened into the more simple 'link between knowledge and action'; however, the drawback of this formulation is the loss of complexity to the connection between knowledge and action, leaving it to appear as simply integrated, linear, and logic. This simplistic definition was thought to be true in the early days of planning, but in the last decades the link has been widely considered as complex, uncertain, and messy (De Roo and Silva 2010). Consequently, past adjectives of 'rational' and 'scientific' have been superseded by 'transactive' (Friedmann 1973), 'collaborative' (Healey 1997), or 'deliberative' (Forester 1999) to indicate a form of planning that embraces subjectivity, uncertainty, and complexity.

As the chapters in this volume exhibit, in addition to a more contingent connection, the respective forms of knowledge and action are multiplied through international expert workshops (Söderström, this volume), participatory planning processes (Kurath, this volume), governance networks (Torres, this volume) and stakeholder initiatives (Blok, this volume). Consequently, the relations between the *objects* of planning are increasingly shaped by the adversarial, multiple, and heterogeneous relations inside the *practices* of planning. The multiplication of forms of knowledge and action transforms the connections between the two into an important research topic. It raises the question of the many trajectories of planning issues and the few planning imaginations that order them. Such a problematization of planning follows the view on space from Thrift (2008) and Löw (2008) as relational and as an assemblage of technical and social practices.

kurath@arch.ethz.ch

So, for a practice that is already relational by a conventional definition, why in this book do we introduce the qualifier known as 'relational'? While planning indeed has an almost foundational interest in the relations between objects, the latter have been little theorized with respect to the relations found inside the planning practices themselves (Karvonen, this volume). The chapters collected here illustrate that this kind of relationality can bring valuable insights. In general, it emphasizes how the planning process relies on expert officials and experienced stakeholders to negotiate different assessments and versions of the city while incorporating different entities and concerns in various planning locations. Although relations are not new to the planning studies agenda (see Healey 2006), they have in the most part only been studied in instrumental ways, separating the relationality of objects and practices. This book suggests a more symmetrical analysis of the relations between planning objects and practices in order to explore the trajectories of different *forms* of knowledge and action.

Unlike what other adjectives of planning might suggest, this volume does not hold relational planning as a paradigmatic change in studying or carrying out planning. Instead, it proposes to study the relationality that is so characteristic of planning, not through an instrumental lens, but more so an empirical one. Consequently, this book attempts to distinguish the relations in planning to recognize how specific sets of object–practice associations relate to space, and to explore the reasons behind how some entities manage to stabilize networks that come to enact a specific place. In other words, it inquires how heterogeneous entities, forms of knowledge, and forms of action are involved and engaged in the planning process. The aim for this inquiry is to think through the formation of new assemblages harnessing the multiplicity of forms, and harbouring the heterogeneity of entities.

The following chapters primarily discuss the turn to the empirical through the writings and ideas of Science and Technology Studies (STS)—a study field surfaced in the 1960s studying the mutual shaping of science and technology on the one hand, and society, politics and culture on the other (Sismondo 2009). In planning theory, several scholars have specifically drawn on STS and actor–network theory (ANT) to account for the non-human entities that occupy the 'material' world of

kurath@arch.ethz.ch

planning practice (Beauregard 2015; Lieto and Beauregard 2015; Rydin 2013; Doak and Karadimitriou 2016). This book touches upon this research by studying the material mediations between 'knowledge and action'. At the same time, it opens up the multiple *forms* of knowledge and action for analysis within the wider STS repertoire.

Positioned in what has been called a 'material turn' in planning theory (Rydin 2014), this book does not set a definite STS agenda for planning research. Rather, it aims to develop an overall sensibility of STS, apt to grasp the distinct relationality of planning. It should be noted that STS is not a clearly defined or coherent theory, as the diversity of concepts and methods in the chapters attest. Yet a commitment to empirical inquiry certainly is a common characteristic, together with an overall sensibility of STS that hinges on studying planning 'in action'. The book posits, by extension, that relationality in planning is an empirical phenomenon. It borrows from the original STS scholarship, that planning 'in action' can be studied as an assemblage of artefacts (Pinch and Bijker 1984), agency (Latour 2004) and practices (Knorr-Cetina 1981), and applies this in its analysis. Accordingly, questions of how specific sets of relations are inscribed in everyday planning practices and instruments, and how these relations are enacting the qualities of particular places, are drawn into view.

Briefly stated, this book proposes to empirically study planning in terms of the trajectories of various *forms* of knowledge and actions. As such, it aims to make visible the ways in which heterogeneous entities relate to the physical environment, and how these relations are ordered through planning. Understanding this relationality in specific planning situations allows, in turn, to think through modes of planning that assemble heterogeneous entities and their relations in new configurations of coexistence. For this purpose, the book is organized in three parts, each dealing with *artefacts*, *agency*, and *practices*, respectively. Although there is a necessary overlap in this triad, it is possible to distinguish each of them through the contrast between the relations they involve. This in consideration, *artefacts* have black-boxed relations that are invisible until their actor-networks break down, and following this, need to be renegotiated (Bijker et al. 1987; Collins 1985; Pinch and Bijker 1984). When artefacts themselves are enrolled into actor-networks, that is, they are brought into interaction with other artefacts, entities, or spaces, they obtain *agency*

kurath@arch.ethz.ch

(Latour 2005; Jasanoff 2004; Shapin and Schaffer 2011). This agency is the effect of loosely coupled relations that are mobilized in purpose-driven *practices* (Lynch and Woolgar 1990; Latour and Woolgar 1986; Knorr-Cetina 1981).

With the structure of this book based on it, the triad's quality and utility will be discussed in more detail. Prior to this, however, an introduction to the overall relevance of STS to the study of planning will be made along with a brief overview of research at the intersection of STS and planning studies, indicating how an engagement with relationality seeks to build on this. The individual chapters will be introduced and discussed from the standpoint of how inquiries into issues of planning might gain and/or lose from an STS-inspired focus on relationality in conclusion.

An STS Stance on Epistemology and Ontology in Planning Studies

The empirical perspective on relations suggests to problematize planning as a relation-building activity that continuously needs to convince other entities of their shared interest, and its own legitimacy (Callon 1984). Prioritizing planning situations as the unit of analysis allows to unpack master plans (Farías, this volume), city visions (Kurath, this volume), expert-claims (Paulos, this volume) and land-use plans (Marskamp, this volume). Whereas planning itself is mostly concerned with 'totalities' (see Latour and Hermant 1998), the study of these artefacts focuses on the work of drawing maps, drafting policies, projecting urban development, or evaluating rezoning applications. The chapters in this volume emphasize that this happens in confined spaces that themselves are inscribed in their own spatialities, for example, the Council Chambers, the municipal planning office, or the planning consultancy.

Planners work with the totalizing views of comprehensive land-use plans (see Murdoch 2006) and tend to dismiss the particulars of neighbourhood consultations with the 'not-in-my-backyard-syndrome' (see Metzger et al. 2014). Yet, planning studies, as Beauregard (2013) argues, also tend to overlook the sites of planning practice and miss the

kurath@arch.ethz.ch

socio-material negotiations inside the planning office. As (2014) argues, a heterogeneous view on the work of planning challenges the field of planning studies. By tracing the formation and negotiation of relations in the many sites of planning, this book aims to reintroduce some of the contingency with an analysis of the connection between different forms of knowledge and action. Describing this connection symmetrically in terms of multiple trajectories of knowledge and action draws into focus the question of how the *form* of different knowledges and actions affects planning practice (see also Gomart and Hajer 2003). This topic emerges within this book in a twofold way: *epistemologically* and *ontologically*.

First, the epistemological shift is made clear with the planning examples presented at the beginning of this introduction. Planning is concerned with a topographical space filled with high-rises, parks, and transportation infrastructures, and in this, a premise that this space can be organized with a toolbox of maps, reports, and ratios. Although contemporary planners may not share the traditional planners' complete scientific trust in this toolbox, the modernist tenets of planning, as Beauregard (2015) has argued, continue to persist today. Some of these positivist inspirations in the planning practice can be unpacked with STS and an inquiry into how various *forms* of knowledge come together in planning processes. Consequently, the epistemological shift allows to study planning along the knowledge claims that are included or excluded in the governance, arrangement, and configuration of the physical environment.

Such a socio-technical analysis of planning draws on the original idea of STS and its interest in the production of knowledge (Latour and Woolgar 1986) and the social construction of technology (Bijker et al. 1987). It inquires the ways in which knowledge is produced and how divergent knowledge claims are negotiated. For example, a neighbour might contest a planner's computer-generated shadow analysis with their experiential knowledge and a couple of photographs of the site in question. In such a situation, an STS analysis would highlight by which means, and with what intermediaries, some knowledges obtain the fact-like quality of, for example, an official land-use plan. A socio-technical inquiry makes visible the selective and performative qualities of planning instruments, and asks how and by whom these technologies are designed

kurath@arch.ethz.ch

and maintained in order to reduce arenas of contestation (Lascoumes and Le Galès 2005).

A second key feature of STS engagement with planning's relationality is that relations are not only studied between humans, but also between humans and non-humans (Sayes 2014; Winner 1980). Thus, it suggests an ontological shift and establishes an analytical symmetry between heterogeneous entities (Law 1992). The photograph the resident from the previous example brings to the meeting with the planner is meant to support his or her knowledge claim and is intended to have agency to change the situation. Agency, or the ability to make a difference, can be attributed to the procedures set up for consultation sessions regulating speaking time or the non-neutral setting of the Council Chambers. A symmetrical analysis seeks to account for how humans and non-humans interact and actively participate in planning activities. This question has inspired several recent planning studies looking into the material practices of planning (see Rydin and Tate 2016; Beauregard 2015; Lieto and Beauregard 2015). The focus on materiality is even considered within a material turn in planning theory, centred around those planning studies that embrace complexity and heterogeneous relations (Rydin 2014). After all, the analytical symmetry between humans and non-humans seems to fit planning scholars' interest in describing the shaping of the physical environment (Beauregard 2015).

In this book, the sensibility to relationality and the consequent attention to heterogeneity is developed analytically as well as politically. This book seeks to combine planning's topographical concern with the physical environment with a topological awareness of the multiple realities that are at stake in planning processes (Murdoch 2006). In this way, it seeks to think through the *forms* of planning that enable the formation of new collectives in which heterogeneous entities can coexist. It is against this background that several chapters discuss the 'ecologization' of planning (Metzger, this volume) or develop an issue-centred approach to the politics of planning (Blok, this volume). The book's overall aim is to develop a profoundly relational understanding that integrates topography and topology and, therefore, to draw in a whole range of participants with complex issues and uncertain relations into the making of a common world (see also Blok and Farías 2016).

kurath@arch.ethz.ch

A thorough STS engagement with the topologies of planning brings about yet another kind of ontological shift, sitting somewhat in between the two mentioned above. This shift is not simply an extension of ontology but a multiplication of it. Thus, it allows for the coexistence of heterogeneous entities in the overlapping versions of the sites of planning. This suggestion is derived from Annemarie Mol's (2003) ethnographic study of the diagnosis and treatment practices of atherosclerosis. Observing how different departments diagnose the disease in different forms, she put forward that each practice diagnosing and treating the disease generates its own material reality. The way these different realities relate to each other is not a varying interpretation but a practical matter that makes the disease and the body cohere in theory. It is possible to draw parallels between these medical practices and planning practices on an urban site in the planning department. Here too, the engineering, real estate, and legal experts involved in the creation of a zoning bylaw are enacting different yet overlapping forms of the urban site that enable the zone to exist in theory.

Tracing Artefacts, Agency, and Practices in Planning Situations

The above-mentioned epistemological and ontological shifts suggest a radical rethinking of planning activities in terms of contingency, heterogeneity, and multiplicity. These shifts are not however part of a single STS theory but rather the outcome of an STS attitude towards the relations that circulate in specific planning situations. In the absence of a coherent theory, the studies collected in this book exhibit a diversity of concepts derived from STS literature but used generally in combination with ethnographic methods. It is this sensibility towards planning that guides the following chapters through the exploration of planning through its myriad of forms, its variegated settings, and its multiple trajectories.

To account for the shared mode of inquiry, and at the same time respecting the diversity of STS concepts and planning topics within the chapters, this book, as mentioned earlier, is structured along the triad of

kurath@arch.ethz.ch

artefacts, agency, and practices. Employing this triad, the book aims to display the STS attitude to relationality common in all chapters and elucidate the notable contributions this attitude makes to studying planning issues. More specifically, along the line of artefacts, agency, and practices, the book seeks to convey a specific mode of inquiry into the representations, arrangements, and performances of planning. Although this structure is used to organize the book in all three parts, as a relational perspective implies and the chapters illustrate, any analysis includes all three sets of relations to different degrees. At the same time, foregrounding the analysis of one type of relations over another allows to ask specific questions while taking notice of the presence of other relations.

Furthermore, the chapters illustrate that a common starting point of such an inquiry are situations of crisis (Metzger, this volume), disaster (Farías, this volume; Hommels, this volume), pressure (Paulos, this volume) and breakdown (Marskamp, this volume; Macmillen and Pinch, this volume). In these situations, formerly stable and apparently coherent relations disintegrate and become observable as they are subject to re-negotiation and new efforts of stabilization (Tironi et al. 2014). The chapters therefore study, describe, and understand the triad through a process-oriented approach identifying planning artefacts, distributing planning agency, and assembling planning practices. While the potential of the triad to rethink planning along the epistemological and ontological shift of STS is above all empirical, each of the components will be given a brief introduction:

Artefacts are what concern planners and what they work with; from residential towers and parking lots, to the land-use maps and architectural models that represent them. They are crucial in establishing a link between the objects and practices of planning, enabling planners to work with abstract representations in the planning office when regulating the production of the concrete materialities of the built environment. STS analyses of laboratory work have shown how scientists produce objects or artefacts through the superimposition of outputs of different inscription devices (Latour and Woolgar 1986). One of the ubiquitous artefacts in the planning office is the map—an inscription device that reduces space to a diagram on a computer screen or a sheet of paper (Latour 2011). Maps are what Latour (2004) calls 'immutable mobiles'. They allow planners to act on places from different locations and times (see Söderström, this

kurath@arch.ethz.ch

volume). Moreover, for the map to be useful, it needs to be legible; thus, the translation is necessarily a transformation. A land-use map, for example, shows the city as a collection of zones with a certain use, density, and built form (see Marskamp, this volume). This translation is a partial view of the city with a particular relation to its space, helping planners visualize, but also participate, in the enactment of a site. In other words, immutable mobiles play a significant part in connecting knowledge and action as well as in constituting *forms* of knowledge and action. Unpacking them sheds light on how they are assembled, maintained, and deployed to produce specific boundaries of inclusion and exclusion, and technics and politics.

Agency, because of circulating artefacts, is distributed. Contrary to the modernist planning ideal of the master planner as a technocratic 'hero' (Latour 1993), STS views planners and their instruments as one of many agents in a complex network. More specifically, *agency* is not concentrated in network nodes, think the municipal planner, but distributed in the many relations between human and non-human actors (Paulos, this volume; Rydin et al., this volume). For example, in the exercise of development controls, planners do not need a constant patrol and survey of the city (Marskamp, this volume). They rather draw technical maps and development plans, standardizing and stabilizing the use and occupancy of urban land in technical, political ways. In other words, the stability of the city is guaranteed by the collective efforts of planners, maps, municipal councils, and the courts. Therefore, spatial management and planning in general, as stated throughout this volume, are relational effects.

Practices stand for the network maintenance and negotiation of the circulating and stabilizing relations of actors. They are productive in enacting specific realities through different practices. Inside a complex planning process there are various planning practices, each enacting the object of planning differently (Farías, this volume; Hommels, this volume). As previously mentioned, this multiplicity raises the question of how the many pieces making up planning relate to one another. The answering begs for an analysis of the relationality between various enactments and the, more or less, powerful actors putting them forth. This analysis can feed into the political and normative question of how the configuration of the enactments in planning can be altered to include a

kurath@arch.ethz.ch

greater number of realities, thereby accounting for a wider range of issues and publics. Practices then not only relate to the *epistemic* practices of making things commensurable but also to the *political* practices of allowing them to coexist.

Relational Planning at the Interface of STS, Urban Studies, and Planning Theory

For this volume, the triad of artefacts, agency, and practices is the starting point for a dialogue between STS and planning studies. Albeit in different forms, this is a longstanding dialogue in STS questioning sociotechnical artefacts (Bijker et al. 1987) and a recent topic in urban studies surrounding issues of infrastructures (Graham and Marvin 2001) and urban complexity (Farías and Bender 2011). These studies do not research planning as such, but open various planning issues up to a relational perspective. As of late, specific planning studies are drawing on STS and ANT to study the socio-material relations in planning practice (Rydin 2013; De Roo and Hillier 2012; Beauregard 2012; Boelens 2010). In this light, a discussion of artefacts, agency, and practices in planning does not initiate the dialogue with STS but tries to gather it around specific interests. This gathering is neither absolute nor complete; it tries to identify the connections in the dialogues and use these to assess the opportunities and tensions when combining STS and planning studies.

Again, the book does not claim to define the STS theories for planning studies and set a relational planning agenda. Instead of such an abstract consideration of relational planning and the chosen triad, the dialogue between STS and planning studies is held in practice. In other words, the volume presents empirical case studies that analyse the *forms* of planning, in their own way. A discussion between different ways of analysing planning forms is the chosen method to build on the various dialogues between STS and planning. To illustrate this, the subsequent description attempts to outline some of these connections and reflect on how they can push both planning studies and STS in new directions.

kurath@arch.ethz.ch

Artefacts form a longstanding interest in STS and are central to early studies exploring the ways science and technology shape society. Their analysis has also included planning settings. Winner's (1980) study of the Long Island Parkway bridges and their impact on the circulation of public buses puts a planning issue at the centre of a seminal debate on artefacts and politics in STS. The study describes the bridge's design by the master planner Robert Moses as a form of racial discrimination restricting public transport access to more affluent areas, and concludes that this form of planning 'embod[ies] a systematic social inequality, a way of engineering relationships among people that, after a time, becomes just another part of the landscape' (124). While the study raises important questions about the techno-politics of planning, the responses this study triggered point to yet another takeaway: the effects of artefacts and narratives are not systematic but rather contingent on the sets of relations in which they are deployed (Woolgar and Cooper 1999; Joerges 1999).

This contingency points to the agency of networks and the difference various formations of actors make. Another seminal STS study of a historical planning issue considers precisely this negotiation of a planning issue with various actors and the different networks. Aibar and Bijker (1997) use the framework of the social construction of technology (SCOT) to analyse the extension of Barcelona in the nineteenth century. They analyse how different technological frames view the objects and objectives of the planned extension, and by which means the selected plan for the extension of De Cerdà finally took hold. This study views the city itself as a socio-technical artefact of heterogeneous elements and considers the practice of planning a powerful technology 'in building new forms of life' (23). While illustrative of the significance of accounting for the networks in which relations are deployed, the SCOT analysis is selective in the expert communities that frame planning technologies and urban life. The chapters in this volume seek to extend the connectivity of relations between the frames and the framed, engaging with the topographies and topologies of planning in an integrated way.

The extended relationality of how planning shapes and is shaped by artefacts and agency draws *practices* into focus. This move reflects the opportunity STS has offered studies of urban infrastructures in terms of a 'hopeful' STS research agenda (Coutard and Guy 2007). The STS

kurath@arch.ethz.ch

opportunity here is an insight into 'the deeply contingent nature of the process of "socialization" or appropriation of new technologies and, in fact, the mutual shaping of new technologies and their use(r)s' (718). In the field of urban studies this relational perspective has triggered an interest in urban assemblages (Farías and Bender 2011) and assemblage urbanism (McFarlane 2011) offering an alternative to the structuralist reading of contemporary urban capitalism (Brenner and Theodore 2003). Recently, STS and the writings around ANT specifically have made their way into planning theory (Rydin and Tate 2016; Beauregard 2015; Rydin 2013). One way of understanding the STS 'hope' for this research agenda is the problems with communicative planning in practice (Davies et al. 2012). By accounting for the material environment of planning, scholars have attempted to address some of the discontents of participatory planning and the politics of planning and development (Metzger et al. 2014; Flyvbjerg 1998).

The introduction of STS and ANT in planning theory has primarily discussed materiality in terms of practices and has left its political relevance unexplored (Blok, this volume). In the work of Robert Beauregard (2015), material practices are important, but this non-modern description does not alter his conclusion that planning will always be 'modern'. To further the dialogue, this volume sees 'hope' in understanding the relationality of planning in order for new entities to be detected and the processes of planning to be rethought so that these new entities can participate in the assembling of worlds of planning. This has important consequences for the ways in which planning acts with nature and shapes the physical environment (Farías, this volume; Metzger, in this volume).

Engaging with Planning's Relationality Using STS

Adopting a relational stance to study planning is an invitation to go beyond a clear definition suggesting a lateral move (Gad and Jensen 2016)—as opposed to a holistic understanding—of how to explore, investigate, and disentangle the boundaries that are stabilizing planning practices with their objects, means, or issues. In short, this volume

kurath@arch.ethz.ch

describes what creates planning's opacity. Here, a connection between the claims outlined previously and the ways STS helps pose the questions in planning research and urban studies is made. Simultaneously, an enunciation of the structure of the volume insisting in communicating its own particular disposition by rethinking the relations that stabilize the forms of knowing and forms of acting in planning, is framed.

The volume proposes a trifold structure, each applying to co-shape, and stimulate certain conceptual or methodological features that problematize planning's relationality. The three suggested recollections—artefacts, agency and practices—approach planning in action, inviting the reader to rethink, perceive, and locate planning as an exercise that is permanently tied together by a heterogeneous network of relations. The title's caption is led by the verbal expression *tracing*. It is precisely this explorative mode that conceives the volume's (metaphysical) claim. Disposing the analytical repertoire along the triad is set to allow for a relative orientation of the associations the volume makes.

The first section, locating artefacts, sheds light on how planning rationales are stabilized and objectified. Söderström, Rydin et al., and Marskamp portray the multiple ways in which zoning codes, planning policies, or mapping devices coordinate planning knowledge and co-regulate expertise. Söderström's contribution focuses on mediators that help establish heuristic powerful planning assemblages. Rydin et al. portray how material entities in their own right regulate and mediate the perception and understanding of the natural and built environment. Marskamp's analysis of land use describes how zoning regulations negotiate uncertainty.

The second section highlights the allocation of abilities in planning, focusing on how boundaries allow certain responsibilities and concerns to be expressed, translated, or mediated. Metzger, Kurath, Torres, and Farías follow the trajectories of planning concerns and how they turn into representative issues. While Metzger depicts the ecological challenges that planning theory/practice is undergoing in its search and need for epistemic and ontological reconfigurations, Kurath discusses how public knowledge is being integrated into the planning process. Torres shows in his contribution how urban governance networks 'displace' democratic deficits to reorganize collective matters, while Farías examines the way

kurath@arch.ethz.ch

master plans bring with them a 'cosmos' that proposes which entities and relationships are expected, possible and desirable in the city.

The final section inquires how issues are being performed rather than drawn together. Hommels, Paulos, Blok, and Macmillen and Pinch all focus on planning practices—by invoking the visibility and particularity of situated actions—to understand in what ways planning is being framed and reassembled in operative modalities, policy formats and/or institutional arrangements. Blok describes how concerned publics impact the formal planning process, while Paulos deciphers a planning consortium discussing how planning expertise is enacted. Hommels looks into the potential of a negotiation process for urban innovation. Finally, Macmillen and Pinch follow planners' assessments of vacant school buildings.

Each contribution illustrates that planning's vocational concern is the act of conceiving and organizing spatial orderings. The volume simultaneously illustrates how this interest and responsibility is mainly being articulated around the figure of expertise. Again, a systematic account of planning expertise is not being provided. Instead, the reader will be guided to understand how expertise is being represented as a spatial concern or infrastructural matter in terms of planning topographies.

To inquire into these topographies, and their forms of knowledge, requires a simultaneous move to reconsider the types of relations. In order to circumvent a polarization of both schemes—knowing forms and action forms—the volume specifically concentrates on the heterogeneous associations that compose planning rationales and their ontological nature. Planning does not connect with its immediate environment in a multitude of ways. This void is often attempted to be filled with linear formats and devices in order to frame the social and material outcomes of planning projects. Marskamp and Söderström both touch upon the ways knowledge is bounded either by policy assemblages or by zoning codes and how these objectify and help stabilize certain planning procedures. Those formats and devices are often being humanized into artefacts that correspond to the social, material, and semiotic representations of the physical environment.

The role and implications of those artefacts that link planning objects with the potential of future user's experiences do not just question those

kurath@arch.ethz.ch

exact normative equations of planning rationales but also leads to question the contexts where they come into being. The variety of contexts encountered in the contributions evokes therefore a concern of ontological nature—largely known and debated in STS (Woolgar and Lezaun 2013; van Heur et al. 2013). This ontological move, however, suggests some methodological manoeuvres. Questions of how to empirically account variations in planning knowledge, or how far circulations of planning iconographies are complemented by the hesitations, analyse these without applying readymade theoretical concepts. In other words, when cities or other planning topographies are to be inquired ontologically, how do we then synthesize or compare the 'makings' and their impacts across territories?

As shown by Söderström and further developed by Farías, there is no single answer to that question. Both answer the methodological difficulty by using different conceptual means. Söderström develops an analytical approach 'beyond ANT' that reconsiders how translocal imaginaries are being translated into policy assemblages, while Farías enounces a cosmogrammatic analysis that rethinks how certain representations of the world are re-enacted during the re-evaluation of a master plan after a tsunami disaster.

The 'opaque' but simultaneously 'contingent' character of planning is visible throughout the volume. Be it as a technical operation, administrative application, public-private partnership, or political agenda; all these practical and discursive variations reflect the hybrid identity that the disciplinary and applied field of planning comes to endorse. Furthermore, the applied repertoire of planning, in search for a bound and steady identity, seems to be more likely to embrace and multiply the nature of project-formats, network-constellations, and process-operations. Farías and Paulos take a look into the multiple configurations of planning expertise of how planning issues are being operated in the context of a post-disaster reconstruction, or in the latter case, how experts perform and modulate concerns into issues by rectifying measures and through interaction. Both scenarios represent a rupture with the mundane planning process and could be dismissed for their extraordinary character. Nevertheless, both cases make an argument on the circulation of epistemic references and their capacity to re-enter operative and authorized planning documents.

By drawing on STS premises, the volume's characteristic aim is to propose that there is not one single way to tackle planning issues but that

kurath@arch.ethz.ch

inquiring planning provides a proof of the contingent 'character' of planning. The instant arguments that emerge within a research community usually challenge the limitations of STS, and in particular ANT, by invoking the specificity of the empirical focus (Whittle and Spicer 2008; Brenner et al. 2011) and questioning the absence of a critical perspective by lack of representative nature. This volume asks what situations, objects or sites tell us about spatial processes or infrastructural arrangements. Or, what do maps, codes, devices, or agendas reveal—besides being two-dimensional representations of the topographies in question.

The study of 'dioramas' (Latour and Hermant 1998)—sites where the physical environment is being planned—requires us to refute the idea of continuity and scales. Rather than opposing the sites of planning activity to the planning 'panoramas' by assuming there is linearity between subject and object—planning and territory, urbanism and city, architecture and buildings—the volume illustrates and argues that such structural divides tend to have a gap. In order to understand how epistemic references are used or negotiated, as a constitutive part of the multiple planning topographies, the volume investigates the epistemic and ontological claims that mark the relationality, heterogeneity, and multiplicity of planning practices.

In this light, a relational and hybrid understanding of planning shifts out the focus from discourses and procedures while shifting in the lens on actions and processes to question how they are being reassembled and made durable. For instance, Kurath and Rydin et al. show how socio-material entities recreate a regulative interface that mediates knowledge and responsibilities. Rydin et al. examine how the implementation of a significant infrastructure project is carried out, while Kurath compares two case studies where planning knowledge is not just exhibited but also challenges participation. Both highlight the role of maps, photographs, and a range of other visualisations and artefacts in shaping the planning process.

The reluctance encountered towards STS is not only a problem of 'size' but also of 'seizure'. Most arguments present a complementary but contradictory nature of statement and display a dual concern of scalability and probability. The lack of critical capacity or explicative nature of the mundane doubts the representative capacities of sites. However, studying

kurath@arch.ethz.ch

the practices and sites of planning is yet another analytical move to inquire the representative makings of planning rationales and the trajectory of planning issues. In other words, which way of thinking has turned into a fact that stabilizes the planning representations and activities beyond their actual understanding? As Blok discusses in his chapter, there is an essential point of inquiry into how concerned publics raise ecological issues that enter and reshape formal planning processes, or as demonstrated by Metzger, as he recounts the immersion of ecology, in planning theory and its current applications. Both accounts provide different methodological and conceptual approaches, but in each, the reader is able to trace the emergence of issues and how certain initiatives co-articulate new forms of knowledge and action.

The volume therefore suggests a particular attention to the formative qualities of artefacts, agency, and practices. In other words, studying planning activities and their relations allows to overcome specific framings of the discipline and its knowing objects. Hommels and Torres develop their cases around the idea of frameworks and their stabilizing capacity. While Hommels discusses how two frames complement each other to produce a new epistemic take on a post-disaster case, Torres traces how issues are displaced into political assets for the renovation of a market.

The idea of successive acquisition is a core element of the volume's claim. For clarifying matters, acquisition does not mean a gain in terms of accumulation but rather an assimilation. Yet, acquisition does not mean continuity either. When referring to planning rationales and their means, the volume underpins the opaque relations that have made durable and invisible the work between the forms of knowledge and forms of action in planning. Discussing environmental issues, the logical question that emerges from this reasoning is how the concern for nature has made its way to a discipline that at first has been widely preoccupied with techno-legal regulations. This volume aims to unravel this durability by questioning which relations fill the gaps between knowledge claims and their durability after foundation. An exemplary case would be the holistic visions that are recursively appearing in contemporary planning projects and discourses problematizing environmental issues. In this volume, the concerns of environmental change play an important role narrating the conditions and requirements that the activity of planning is challenged to

kurath@arch.ethz.ch

solve. Be it the cases of post-disaster reconstruction (Farías, this volume; Hommels, this volume), infrastructures (Marskamp, this volume; Rydin et al., this volume), policies (Söderström, this volume), places (Torres, this volume), historic preservation (Macmillen and Pinch, this volume), development projects (Paulos, this volume), or public engagement (Kurath, this volume), the concern of an articulation between nature and environment is always present in the case-making of contemporary planning.

Epistemological research tries to bridge the gap between reality and representations. Depicting the binary rationales of big versus small, real versus virtual, or object versus subject invites the reader to rethink the 'singularity' of planning practices and acknowledging the contingent nature of planning activities. An ontological account extends this endeavour by probing by which means the actual representations are being performed and projected. The question at stake here is not only the meaning of environment, but its employment and which means or passage points—mediums, formats, or channels—allow for its successive appearance and thus amplify its justifying use. How does the notion circulate and then stabilize in given planning constellations, but also beyond those situations?

The resulting interface opens between visionary agendas or large-scale urban projects and technical operations or allotment rezoning, thus suggesting that a planner's work is torn between 'knowing subjects' and the 'objects known'. This also suggests the existence of a 'natural' separation—in theory and practice—between forms of knowledge and its knowing objects. In this volume, the question revolves around the types of relations by means of correspondences, connections, and circulations that allow multiple practices of planning to coexist.

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kurath@arch.ethz.ch

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Marko Marskamp is a PhD candidate in urban geography at the University of Lausanne and part of the ETH CASE research group at the ETH Zurich. In his doctoral research, he draws on insights from science and technology studies to inquire into the workings of zoning in the negotiation and standardization of urban development. He is particularly interested in how land-use planning operates between urban development, planning law and private property.

Julio Paulos is a PhD candidate at the ETH CASE (Centre on Society, Architecture and the Built Environment) in Zurich and an assisting researcher on the project *Rethinking Zones: A Comparative Study of Planning Cultures*. He conducts ethnographic research on situated planning practices by examining the heterogeneous relations of 'city-making' in order to understand how epistemic arrangements and sociotechnical framings contribute to the formation, displacement and translation of planning issues.

kurath@arch.ethz.ch

Monika Kurath is a senior researcher and head of a research group at the ETH Zurich Department of Architecture and has a "venia docendi" from the University of Vienna. Her research focuses on the intersection of science and technology studies (STS), urban studies and sociology of architecture.

Jean Ruegg is Professor of geography at the Faculty of Geosciences and Environment at the University of Lausanne, Switzerland. Ruegg has a background in both geography and urban planning. His research focuses on the processes by which territories and contemporary urban forms are produced, governed and organised. He serves as an expert on various national and international land use planning boards.

kurath@arch.ethz.ch

Part II

Identifying Planning Artefacts

kurath@arch.ethz.ch

2

Analysing Urban Government at a Distance: With and Beyond Actor-Network Theory

Ola Söderström

Introduction

This chapter is a praxeological intervention into the relation between Science and Technology Studies (STS) and Planning Studies. In other words, I am interested in what we can do and what we cannot do with STS, and especially how we can use its conceptual apparatus to make sense of urban planning. To what extent can the contemporary transformations of urban development and planning be elucidated with STS concepts is thus the central question of this chapter. This is, of course, a rather ambitious aim, as the reach and limits of STS vary depending on the forms and dimensions of planning that we consider. Regional planning and urban planning, for instance, raise distinct questions and can widely vary across countries. Therefore, I investigate a specific aspect of urban planning and development: the role of transnational and translocal processes. In this context, I look at the reach and limits of concepts developed within actor-network theory (ANT) which is the most influential subfield of STS.

O. Söderström (✉)
Institut de Géographie, Université de Neuchâtel, Neuchâtel, Switzerland

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kurath@arch.ethz.ch

My argument is that an ANT perspective is very helpful in thinking urban planning relationally as 'government at a distance'. It offers a conceptual vocabulary which directs the investigation towards the role of intermediaries and translation procedures in the construction of translocal planning assemblages.[1] Thereby, it inspires scholars to analyse planning beyond the scale of the local and agency beyond the role of human actors and their interactions. However, as appropriated in urban planning and urban policy studies, ANT also has a series of limitations. This chapter argues that the main limitations are related to three foci in the existing literature: a focus on the role of mobile intermediaries (maps, pictures, consultants) rather than large polycentric actor-networks, a focus on 'flat' spaces and places rather than three-dimensional concrete places and a focus on planning issues in the Global North rather than in the Global South.

My discussion is based on a long-standing companionship with STS that started with work on heritage planning in the 1980s (Söderström 1992) and went on with studies on the role of the visual in urban planning in the 1990s (Söderström 1996, 2000). It also draws on more recent work on the role of translocal relations in the development and planning of economically marginal cities in the Global South (Söderström 2014a; Söderström and Geertman 2013). Across these different research themes, STS has continuously been present as a perspective and as a toolbox, but I have never used it alone and never considered it as a coherent theory (which anyway, it is not designed to be; Latour 1999).

In what follows, I start by discussing how ANT has provided important tools for the relational turn that has taken place in planning and urban studies since the 1990s. Then I move on to look at some of its limitations as encountered in work on policy mobilities, the visual in urban planning and public space policies in cities of the Global South. And I conclude by discussing how my arguments relate to recent work on the heuristic power of ANT in geography.

Governing the Urban at a Distance

ANT provides a powerful vocabulary for the study of agency beyond a focus on human actors and their presence in specific locales. The notion of 'action at a distance' is particularly relevant for capturing urban

kurath@arch.ethz.ch

planning in the global age. For Latour (1987) action at a distance refers to situations where social action (like control, domination, measurement, surveillance etc.) is performed at a distance through the use of technical objects situated in socio-technical networks. Colonial conquest and rule through standardized and synthesized information collected in colonial territories (maps, for instance) is an example of such action at a distance. Latour famously insisted on the role, among these technical mediations, of what he called 'immutable mobiles': ways or means of knowledge inscription characterized by the fact that they are mobile, stable and combinable. Latour mostly has Big Science in mind. For instance, he refers to the sixteenth-century astronomer Tycho Brahé who collected observations of the position of planets on the same pre-printed forms which he then sent around to fellow astronomers all over Europe (Latour 1987, chap. 7). Immutable mobiles serve the same function—locating planets, describing the shape of a city, of a molecule, and so on—independently of the location where they are used. And the information they contain is not altered when they circulate across space.

This account of how power and knowledge reach beyond place has been very helpful in providing concrete observable phenomena to relational urban and planning studies. It pins down city relations to phenomena that can be empirically studied, whereas, as Malpas (2012, 228) rightly observes, work on spatial relations sometimes depicts space "as a swirl of flows, networks and trajectories" that seem to be unlimited by any type of boundary and independent of any material form. Malpas refers to the work of poststructuralist urban scholars such as Ash Amin (2004) and Nigel Thrift (2006). However, his critique can be extended to work on urban neoliberalization, another frequently employed way of looking at how cities are governed at a distance. In a neo-Marxian urban political economy approach, neoliberalism works often like some 'Big Leviathan' (Collier 2012) organizing the privatization of infrastructures, services, public space and so on. It is often unclear how these neoliberal principles are put to work in specific contexts. Therefore, in the context of a literature divided between an 'everything flows' poststructuralist perspective and neo-Marxian political economy, ANT focuses attention on the concrete empirical circumstances of city relations. This is because, as Ignacio Farías (2011) put it a few years ago, STS is first an inquiry (in the pragmatist Dewey-ian sense of the word), before being a theoretical

kurath@arch.ethz.ch

critique (like neo-Marxian political economy). And this inquiry classically focuses on mediators and artefacts.

ANT's conception of action at a distance has been particularly fruitful in recent work on urban policymaking in a global context. Against diffusionist conceptions of the transfer of policies (McCann 2011), it pays attention to the human (such as policy consultants) and non-human mediators (such as tables, pictures, and figures) involved in the translocal mobility of models of urban development, such as (to name but a few) Business Improvement Districts (Didier et al. 2012; Ward 2006), the creative city (Peck 2011; Prince 2010) or green urbanism (Bulkeley and Castán Broto 2013; Faulconbridge 2012).

If ANT has been inspiring for this strand of work, albeit often implicitly, recent relational urban studies also show that the non-human mediations in urban government at a distance are not immutable mobiles: they are mobile and combinable but are rarely stable. In fact, the description of the mutability of policies across space is probably the major added value of policy mobility studies with regards to policy transfer studies (McCann 2011). Models of urban development are very flexible: green urbanism, for instance, varies highly from place to place. Urban policies should therefore be seen as 'mutable mobiles', to pursue Guggenheim's play on Latour's famous expression that he initiated when talking about buildings as 'mutable immobiles' (Guggenheim 2009). Flexibility and instability as observed in the study of policies on the move are features rarely associated with actor-networks. This is because, as Müller and Schurr (2016, 6) argue, the most influential texts have been those of Latour before 2000, in which actor-networks are conceived as fixed and stable rather than as precarious and ephemeral. These influential texts also draw little attention to two other questions, important in urban government at a distance: the experience of space as an affective atmosphere, and postcolonial entanglements. In this chapter, I argue that these three aspects—instability, affective atmospheres and postcoloniality—are insufficiently engaged within ANT-inspired urban studies. This does not mean, as we will see below, that they all are absent in ANT as such.

In summary then, ANT provides conceptual tools that have now become classic in relational urban studies: mediations/intermediaries,

kurath@arch.ethz.ch

humans/non-humans, action at a distance, script and immutable mobiles to name but the most widely used. However, to better understand the relatedness of urban policies I argue that urban and planning studies need to look beyond these classic ANT tools. To do so, we first need to identify the main mediators in urban government at a distance. They are, of course, quite different from the ones investigated in the forms of Big Science that ANT mainly focuses on. We could compile a long list of such mediators, ranging from very general urban development ideas to very specific techniques for the evaluation, say, of the energy efficiency of buildings. But, because my goal is to discuss the merits and limits of ANT in general, in what follows I use general categories and argue that these mediators consist of models, images, and discourses. In the next section, I discuss aspects of these three categories in order to investigate how relational urban studies should both enrich its reception of ANT and move beyond its analytical repertoire.

Analysing Models of Urban Development Beyond Mobility

Models of urban development are very old tools of urban management (Choay 1997). The fact that they reach beyond the local, because of colonial conquest or ideological influence, is far from being a new phenomenon either. But our present period is characterized by a fast-paced crafting and international diffusion of new models of urban development—from the sustainable city to the creative city and the smart city. We live in the age of what Peck and Theodore (2015) call 'fast policy'. One of the major recent fast-track urban policies is smart urbanism (henceforth SU). SU raises interesting and challenging questions for ANT scholars, which is why I focus on this 'model' in this first vignette.

There is no such thing as *a* model of smart urbanism. There are rather a series of initiatives of IT-focused urban government with a variety of aims and forms ranging from corporate-led to grassroots-led versions (Marvin et al. 2015). However, one of the main reasons why SU is interesting is that it constitutes today a battlefield where actors compete for authority and authorship over what should be *the* model of SU. And it is

kurath@arch.ethz.ch

a battlefield where probably for the first time in history large corporations such as Cisco, IBM, and Siemens are attempting to become providers of all-in-one solutions in urban planning. In that sense—more than in the sense trumpeted by its promoters where it is the epitome of efficient, problem-solving urbanism—SU is an emergent (and of course worrying) phenomenon. This is particularly visible in the SU strategy of IBM, the market leader in the business of smart urban technologies.

IBM has developed a strategy involving two elements: first, a 'full-scale contracting for city governments' with flagship contracts such as those with Singapore and Rio, and second, its Smarter Cities Challenge launched in 2010 where experts provide 100 municipalities across the world with pro bono consultancy in the hope that this initial investment will yield returns (McNeill 2015; Söderström et al. 2014). This strategy is supported by a worldwide marketing campaign that started in 2008 and cost the company US$100 million as of 2013 (see Fig. 2.1).

IBM's smarter urbanism 'package' is a highly mobile model exerting its influence in a wide range of contexts around the world, notably through the work of the IBM consultants in the company's promotional campaign: the Smarter Cities Challenge. It is also highly mutable because priorities in terms of possible SU initiatives are related to local situations. In Philadelphia, for instance, the company targeted workforce education because of the city's persistent problems of unemployment (Wiig 2016). This is common to most mobile policies studied in recent years. What is uncommon is the fact that this model does not have, like the Barcelona or the Vancouver model, a place of origin: it originates in a networked multinational company which can mobilize and combine experience and competencies from a wide range of different local and national contexts. Such a corporate form of SU corresponds to a complex geography that cannot easily be described by the classic ANT concepts that have been predominantly used in urban studies: socio-technical networks, translations, immutable mobiles. As Allen (2016, 29) points out, with this vocabulary, we easily 'slip back to a topography of movement and extension'. In the case of IBM's SU policy, relations cannot be traced as trajectories from Place A to Place B through a series of human and non-human mediations within networks of urban planning. In addition, considering this type of planning model as mobile and mutable is insufficient for

kurath@arch.ethz.ch

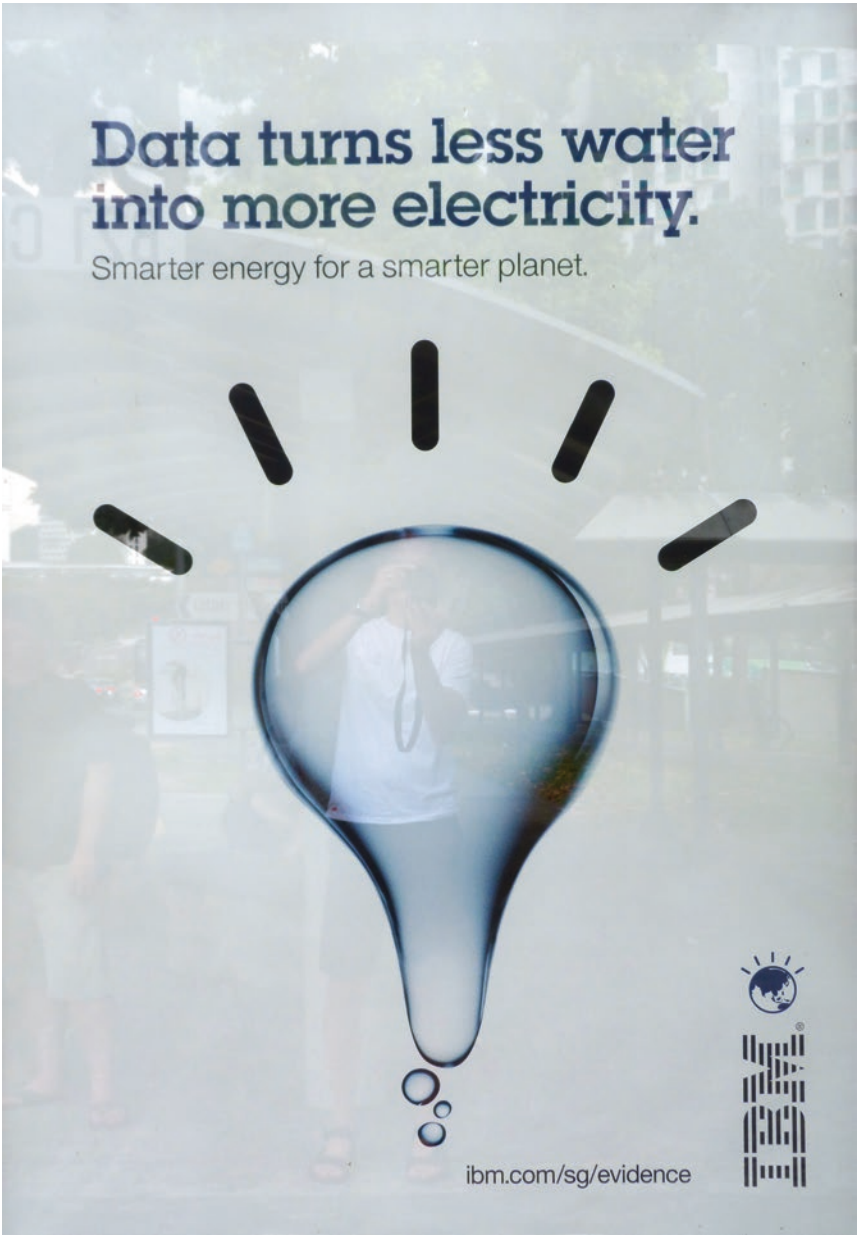

Fig. 2.1 An IBM street-ad in Singapore (photograph by the author)

kurath@arch.ethz.ch

grasping the form of multi-centred combinable city relations that are at work in this initiative.

IBM's SU is important because I think that these characteristics—polycentrism, instability—are not specific to the company's recent move to become urban planners. Rather, it is indicative of emerging logics of planning in the global age. Increasingly, actors in planning are in a position to develop strategies of urban development that draw on a number of experiences and competencies made available to them by an increasing number of web-based platforms, conferences, journals and so on. These widely distributed resources can be activated in ways that transcend a stable socio-technical network. To consider this emerging phenomenon, the vocabulary we use to grasp the role of models in governing cities at a distance must be enriched. Recent work in urban studies has suggested at least three different ways of doing so. First, theories of cosmopolitanism could offer useful lines of thought because, as Anders Blok (2012) argues, urban policymaking is increasingly related to global virtual policy arenas rather than to the experience of a specific city. This is the case on issues of climate change, for instance. Second, attending to the role of immaterial topological relations—constituted by memories of conversations, readings, visits and so on—broadens the study to include the subtle ways through which urban policy models and ideas are shared and arrived at (Robinson 2013). Thirdly and finally, the Spivakian idea of 'worlding practices' used to 'identify the projects and practices that instantiate some vision of the world in formation' (Ong 2011, 11) is another fruitful way of investigating model-making and its effects by paying attention to the role of imagination.

In sum then, the first point that comes from looking at the evolution of studies on models of urban development is that we should look at government at a distance beyond mobility. The travels of consultants and the use of (im)mutable mobiles are important means through which cities are put in relation and 'governed through elsewhere'. But the repertoire of actually existing modes of city relatedness (Söderström 2014a) is a much broader one. I am not saying that ANT limits its analysis of action at a distance to mobility and topography. Law and Mol's (2001) work on topology and multiple spatialities have, for instance, explored other lines of thought. But apart from a few exceptions (Allen and

kurath@arch.ethz.ch

Cochrane 2010; Robinson 2013), as yet such ways of understanding action at a distance have had little impact on relational urban studies. Employing recent developments in ANT and other conceptual resources is therefore necessary to renovate the analysis of urban government at a distance.

Images as/and Atmospheres

Planning is in many of its forms a highly visual discipline and practice. Images have been constitutive of modern urban planning at different stages of its development, from Alberti's techniques of geometric urban plan-making in the Renaissance to the role of zoning maps in the late-nineteenth-century German urban planning (Söderström 2000). Images create spaces where cities or parts of them can be simulated and transformed, and therefore governed, at a distance. Today, a broad array of visual representations of different types and at different scales is used in planning. Within this world of images, the new generation of computer-generated images (CGIs) is of particular interest. Nearly all urban development and planning projects now use CGIs, to both design a project and to communicate and promote it. Large-scale, capital-intensive developments, especially, very often involve sophisticated costly imagery based on CGIs.

As Rose et al. (2014) have shown, the geography of such image-making is stretched across different places and has become extremely transnational. I will briefly use their work to develop my argument here. The fieldwork in their study focuses on the project for the transformation of the city centre of Doha in Qatar, particularly rich in its use of CGIs. The project began in 2008 and was scheduled to finish in 2016. CGIs in this project are highly mobile. They travel across space from the UK, to China, to the USA, and to Qatar as they pass from office to office to be reworked and developed within the network of actors involved in the project design: architects, visualizers, engineers, public authorities and so on. CGIs are constantly transformed in the process, picking up more details, adding new layers of information to convey a sense of how the place will (or could) look and feel to different types of audiences.

kurath@arch.ethz.ch

ANT provides the analytical framing of Rose et al.'s (2014) study whose aim is to analyse the circulation of these images within the networks of planning, focusing on different 'interfaces', or zones of activity involving CGIs. The chosen framing is very helpful for the production of a fascinating account of how new generations of images are part and parcel of the new visual logics and the new spatialities of contemporary urban planning. ANT concepts allow the description of emerging image-mediated forms of urban government at a distance. However, I would argue that this perspective also limits our understanding of the role of CGIs in urban planning. It misses an important point, at least from the perspective of my reflection here on government at a distance. This point is the seductive power of CGIs, or how they create what John Allen (2003) calls 'ambient power'.[2] Allen refers primarily to the experience of carefully and seductively designed material spaces, but ambient power is of course also an attribute of digital planning images. Their seductive power is related to their 'atmospheric' quality which formerly design imagery did not possess to the same extent. CGIs invite their audience into a 'climate-controlled' atmosphere created by visual designers adding or moderating light, colours, shades and so on. These CGIs simulate future atmospheres precisely in the Sloterdijk (2011) sense of an existential volumetric envelope. Atmospheres 'require a subject to apprehend their ephemeral and evolving presence but also emanate from the multiplicity of human and non-human entities present in that situation' (Adey et al. 2013, 302). Of course, in CGIs, this multiplicity is experienced only on screen or through printed images (in journals or on billboards) and not in 'real 3D'. But nonetheless, the atmospheric quality of CGIs constitutes a powerful tool in planning processes. It allows an audience to get an embodied and almost sensorial feeling of what is going to be (or might be).

Simulating architectural atmospheres through images is not a new phenomenon. It can be traced back at least to the work of the Renaissance architect Sebastiano Serlio, credited as being one of the first to design theatre stages and to use the word scenography.[3] But digital images bring a lot more power and new dimensions to iconic representations. They provide their audience with a much greater possibility of being immersed

kurath@arch.ethz.ch

in future built environments. Let me briefly take an example from fieldwork in Vietnam regarding the power of these computer-generated atmospheres.

As an emerging country, targeted by Foreign Direct Investments in real estate, Vietnam is a country of frenetic urban development (Söderström 2014b). In cities such as Hanoi, Ho Chi Minh City, or Da Nang, this boom is visible not only in the proliferation of new urban developments but also in the ubiquitous presence of CGIs announcing future developments, both on billboards in the streets and on webpages (see Fig. 2.2).

These images are powerful means of enrolling their audiences in a narrative of modernisation, with the promise of a bright future. Even if many of these high-profile housing or office projects are for the happy few, their wide diffusion in the mediasphere and in the streets has the effect of involving a much larger audience in the state's nationalist and boosterist narratives. The atmospheric quality of these images is a powerful means of governing at a distance in the sense that they invite



Fig. 2.2 A CGI of a future development in Vietnam (courtesy of Aedas Architects)

kurath@arch.ethz.ch

citizens to participate in planning projects in a specific way. To use Huxley's (2013) distinction in her discussion of the genealogy of participatory planning, they create participation as partaking, as a simple being part of a collective of people, rather than participation as taking part in political decision-making. The atmospheric new imagery in planning—at least in this Vietnamese case—thus enhances the affective individual and collective engagement of actors in future urban developments. They potentialize urban government both at a spatial and temporal distance.

So, if we want to grasp the power of this new sophisticated imagery in urban development, we need to move beyond the rather flat 2D ANT vocabulary of socio-technical networks and inquire into the role of 3D simulated atmospheres. Networks as conceived by ANT are not necessarily flat: in a dialogue with Sloterdijk and a comment on the concepts of network and sphere, Latour (2009) sees no important difference between them. They both aim, he argues, to rebuke the society–nature divide and bring space and place firmly back into our ways of thinking. But there is a difference in the types of spatial imaginations connected to these two terms, and it is no wonder that ANT scholars usually pay little attention to the richness of elements evoked by *atmo*-spheres. And this richness is, for the reasons I have developed in this section, increasingly important in urban government at a distance.

Discursive Categories and Postcolonialism

My third and last point relates to discursive categories. Discourse is another powerful tool for governing cities at a distance. In the previous vignette, I alluded to the role of modernist narratives. Not only narratives, but concepts also play an important role. Categories such as sprawl, regeneration, gentrification, and many others describe patterns of urban development and orient planning in cities that may be very distant from the places where these categories were forged. While ANT is sensitive to the power of discourse as a mediator in socio-technical networks, it rarely discusses how the power of discursive categories operates in places where they may not make much sense.

kurath@arch.ethz.ch

In this third and last vignette, I want to briefly dig into this question looking at the recent debates on public space policy. We will stay in Vietnam, and more precisely in Hanoi, and I will draw again on some recent fieldwork. Traditionally in Vietnam, public space was purely for people to meet in groups defined by their level of education, religious affiliation or a common trade. In a recent study, Drummond and Lien (2008, 185) show that public space is generally understood by both the young and old in Hanoi as spaces for everyone's use. When interviewees were asked about what public space refers to, they generally mentioned streets, sidewalks, swimming pools, residential areas, squares, and parks. There was more disagreement on whether closed places such as hotels, game rooms, and Internet cafes qualified as public spaces. In my own research, discussions we had with architects, planners and governmental officials in Hanoi in 2009 and 2010 revealed that definitions within professional milieus are often just as imprecise as those of non-professionals (Söderström and Geertman 2013). In legal planning documents, the term has only appeared very recently. It is mentioned in the 2003 Law on Construction, in the 2008 Vietnam Construction Standard and in a governmental decree of 2009. However, none of these legal documents defines the type of locations that are supposed to constitute public space, and the term is used in very different ways by architects, planners, and government officials. The process of conceptual definition is thus still underway, which means that uncertainty and indeterminacy characterize debates over public space policy.[4] This definitional phase is not anecdotal. It was an important one in the making of European public space policy in the 1980s and 1990s, as it allowed cities to reorganize their municipal services under a common 'public space' office or service to manage domains of planning (parks, streets, plazas) that were previously considered separately within different technical services (Thomas 2001, 81).

There is as yet no comprehensive public space policy in Hanoi. But a controversy in 2007 over the transformation of the city's largest park, Lenin Park, into a theme park put this question on the agenda of the government. Mobile discursive categories played an important role in this controversy and more generally in the development of a public space policy in Hanoi. In particular, the Habermassian concept of public space was instrumental in this controversy. It is well known that Habermas

kurath@arch.ethz.ch

himself conceives public space as a sphere of democratic discussion much more than as material urban spaces and places (Habermas 1962). However, since the 1980s many urban scholars have connected these two meanings of public space. Mike Douglass, an influential expert in South-Asian urbanism (Douglass and Daniere 2008; Douglass and Ho 2008), is one of them. Having for many years trained both Vietnamese planners and US planners established in Hanoi, Douglass has been central to the 'travel' of this Habermassian discourse on public space. His focus on the importance of civic space for democratic life has led some planners to both subsume parks, plazas, and streets under the category of public space and to valorise these spaces as providers of social cohesion. This influence is one of the reasons why the Association of Vietnamese Planners and local NGOs have been pushing the idea of public space in recent years and opposed the transformation of Lenin Park into a theme park. If we think that public space is important in urban planning and political life—and there are good reasons to do so—action at a distance through this discursive category can be considered as a positive and virtuous thing. But, in what follows and in order to make a case for a postcolonial sensitivity in relational urban studies, I want to briefly show that things can get a bit more complex and ambiguous when observed in context.

One of the important steps in the direction of a public space policy in the country was an international workshop organized in October 2011 in Hanoi by the Vietnamese government and HealthBridge, a Canadian NGO. I happened to be invited as an expert. Interestingly, the day before the workshop, the speakers were asked by the governmental organizers to limit their presentations to parks and plazas. This was intended to avoid discussing the most important aspect of Hanoi's and Vietnamese urban public space: the sidewalks (see Fig. 2.3). Most ordinary public life in Hanoi takes place there. These are spaces where shops spill over on the street, street vendors make a living, people eat, play badminton, cut their hair, shave, and sometimes sleep (Drummond 2000).

The multiple uses of sidewalks in Hanoi are precisely what the government wants to get rid of because it considers these uses as archaic and, in the typical language of Vietnamese authorities, 'uncivilized'. The government officials who organized this 2011 workshop on public space knew also quite well that many foreign specialists think this use of sidewalks is

kurath@arch.ethz.ch



Fig. 2.3 Street life on a Hanoi sidewalk (photograph by the author)

in great part what actually makes the city's specific public life. But, as one official told me, this is 'a Northern and romantic view' of Hanoi's urbanity. However, parts of the discourse of foreign experts during the conference were quite compatible with governmental views. In the best-practice examples of cities put forward by these experts—such as Copenhagen, Berlin, Lyon, or Barcelona—the development of public space rests on the strict regulation of private activities in public space. This vision of public space and this strict divide of public versus private do not correspond at all to Vietnamese and more broadly South-Asian conceptions and uses of urban space (Arabindoo 2011). Therefore, applying such norms off-the-shelf to Vietnamese public spaces could involuntarily be an efficient way to discipline Hanoi's street life in accordance with the views of the government. It can in particular be used to reinforce current actions against street vendors and sidewalk eateries.

In this context, we need to be alert to not only local emic understandings and uses of public space but also how they are shaped by colonial

kurath@arch.ethz.ch

histories, including the French and Soviet period in the nineteenth and twentieth centuries. In other words, beyond ANT and its focus on discursive mediators, we also need to use the resources of postcolonial urban studies to think critically about urban government at a distance. Since the pioneering work of Anthony King (1990), studies from this perspective have brought an indispensable de-centring and broadening of the lexicon of urban studies (Connell 2014; Robinson 2006; Roy 2015; Watson 2009). Such work incites us as urban scholars to question the reach and relevance of concepts, how they relate to different places and their specific (colonial) histories.

With these three vignettes, I have insisted on the necessity to think about urban government at a distance beyond classical ANT concepts. In my conclusion, I show how this discussion is connected to broader debates about the merits and limits of ANT.

In Favour of Theoretical Pluralism

The central question this chapter addresses is how far we can elucidate contemporary transformations in urban development and planning with STS concepts. To limit my investigation, I have focused on the most influential strand of STS in urban studies, ANT, and to the specific domain of *urban* planning. I have argued that ANT brings a lot to urban studies and particularly to relational urban studies. It provides an analytical vocabulary and an attention to the concrete empirical circumstances of city relations. This contrasts with sometimes overly vague and context-blind poststructuralist or neo-Marxian perspectives. Through the influence of ANT, urban studies have become much more sensitive to how cities are shaped by strategically connected, spatially distributed and ontologically variegated entities such as maps, figures, travelling consultants, ideologies, models, technologies, and materials.

However, as used by scholars in urban studies, ANT is also heuristically limited. To identify these limits, I have looked at three means of governing cities at a distance: models, images, and discourses. I have argued that the main limitations are related to three foci in the existing literature: a focus on the role of mobile intermediaries (maps, pictures,

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consultants) rather than open and recombining policy assemblages, a focus on 'flat' spaces and places rather than on three-dimensional concrete places and a focus on planning issues in the Global North rather than in the Global South. Drawing mostly from my own attempts to find suitable analytical means, I have looked at situations where I think these limitations have to be overcome to provide a richer and more timely analysis of urban change and planning.

My analysis of IBM's smarter city initiative first argues that polycentric, unstable, and unpredictable associations for which classic ANT concepts are not so well attuned are increasingly at play in city development strategies. Cosmopolitan approaches—in Ulrich Beck's (2006) sense of the word—immaterial topological relations and worlding practices are useful complementary tools in order to think these processes beyond actor-networks. My second point relates to work on new imageries in planning. Although an ANT reading of their efficacy enables an understanding of how images mediate and construe transnational planning networks, it does not capture their immersive-affective-atmospheric dimension which is of crucial importance, at least in capital-intensive contemporary urban developments. Thirdly, I examine concepts as part of the role of discourse in urban government at a distance. The analysis of how the travelling concept of public space is entering planning policies in Hanoi shows the crucial importance of mobilizing the resources of postcolonial urban studies to think critically about city relations. If ANT, at least since Callon's (1986) classic piece on translation, engages with discursive mediators, there is to my knowledge in ANT very little engagement with the colonial history of these mediators.

These three arguments about the limitations of ANT and how they could be transcended are not confined to urban planning. More generally, as Müller and Schurr (2016) argue when discussing ANT and assemblage theory in human geography, an engagement with the work in ANT since 2000 that focuses on fluidity rather than networks, on the one hand, and with a sensitivity to the unexpected event and to the role of wish and desire, foregrounded in assemblage theory, on the other hand, would be fruitful developments. This does not mean that we should favour a chaotic theoretical eclecticism but rather a reasoned theoretical pluralism. ANT's strength lies in the specificity of its perspective: its pragmatic

kurath@arch.ethz.ch

associationism which prioritizes description over explanation. ANT also opens our investigations to the variegated entities involved in the phenomena we study, rather than a priori confining it according to different divides (Bourdieusian fields, actor-centred approaches etc.). However, ANT can also be entrenched in its viewpoint and endogamous in its references. As this chapter suggests, using concepts and sensitivities stemming from approaches that bear family resemblances with ANT, such as assemblage theory, can only improve the relevance of urban studies.

Notes

1. 'Assemblage' has become a widely used term in urban studies, both in work by ANT scholars (Farías and Bender 2010) and by scholars more inspired by the 'fluid' Deleuzian definition of assemblages (McFarlane 2011).
2. This is not a critique of Rose et al. who clearly state that their aim is not to look at CGIs as persuasive marketing images.
3. In more recent times, there is what can be called an atmospheric genre in twentieth-century urban planning. For example, in her analysis of the history of Italian urban planning, Patrizia Gabellini (1996) has shown that there is a long-standing iconic genre aiming at providing realistic images of future built environments in contrast with a conventional and more technical genre.
4. For a fuller discussion of public space in Hanoi—notably of the influence of European conceptions of public space under French colonization—see Söderström and Geertman (2013).

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Ola Söderström is Professor of Social and Cultural Geography at the Institute of Geography, University of Neuchâtel, Switzerland. He has written extensively on urban material culture, visual thinking in urban planning, and urban globalization. His most recent book is *Cities in Relations* (2014).

kurath@arch.ethz.ch

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Artefacts, the Gaze and Sensory Experience: Mediating Local Environments in the Planning Regulation of Major Renewable Energy Infrastructure in England and Wales

Yvonne Rydin, Lucy Natarajan, Maria Lee, and Simon Lock

Introduction

Regulation is a key part of any planning system. Even if plans identify preferred locations for developments and even if investors follow these plans, there are almost always issues of detail that have to be considered before development can proceed; sometimes this involves the grant of an explicit development consent. This is as true of the major renewable energy infrastructure projects that are currently being promoted in pursuit

Y. Rydin (✉) • L. Natarajan
Central House, Bartlett School of Planning, UCL, London, UK

M. Lee
Bidborough House, UCL Faculty of Laws, London, UK

S. Lock
UCL Department of Science and Technology Studies, London, UK

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kurath@arch.ethz.ch

of more sustainable development as of other kinds of development. So this chapter considers the nature of regulatory planning practice regarding major renewable energy infrastructure in England and Wales. Rather than adopting the approach usual within much environmental regulatory theory and research—of focussing on how social actors interact in the context of regulatory frameworks and available regulatory tools—it follows a science and technology studies (STS) approach, which emphasises the role of material artefacts and other features of the materiality of regulatory practice.

The next section discusses the STS approach adopted here, focussing on the role of artefacts. There then follows a short section explaining the regulatory regime for major renewable energy infrastructure in England and Wales, known as the Nationally Significant Infrastructure Projects (NSIP) regime. The empirical research base for the following analysis is then set out before the analytic sections. This begins by considering how visualisations of the local environment are engaged in regulatory decision-making, emphasising their contested nature. This is then set alongside the continued importance of the unmediated "gaze" of the regulators through site visits. This analysis of how the visual is treated within NSIP regulation is then expanded into a wider consideration of experience of the environment, taking in noise.

Artefacts and the Material Turn in Planning Studies

Planning studies has traditionally focussed on how social actors—the planner, the politician, the developer, the community group and so on—have interacted. During the 1980s and 1990s there was a particular emphasis on such interactions within the regulatory process in order to understand how planning policies and plans were (or were not) implemented (Barratt and Fudge 1981). This arose from the recognition prevalent at the time that the promises of planning regimes were not being fulfilled. Plans were not implemented as expected; development did not go ahead when and where planned and development at other locations

kurath@arch.ethz.ch

did happen. Implementation proved much more problematic than expected, with all the efforts of plan-making seemingly often going to waste (Hill and Hupe 2008).

Regulation was not, therefore, a simple step in which alignment with a policy or plan was merely checked. Rather it was a substantive process in its own right, with its own dynamics and often leading to outcomes that did not derive straightforwardly from the plan or policy. While the procedural details of the regulatory framework were considered, implementation studies often drew attention to how much discretion was involved in deciding how those regulations might be applied and activated. Opportunities for professional judgement to be exercised became the subject of scrutiny and this revealed that negotiations often occurred during the process of regulation; regulations were not straightforwardly applied but rather were the focus of interactions between social actors, each seeking to pursue their own interests and values (Gouldson and Murphy 1998).

This shift towards seeing regulation as a process involving discretion and negotiation offered many new insights into why planning outcomes so often diverged from stated policies and plans. But it is the contention of this chapter that the material turn of recent years can deepen these insights and provide much new detail with regard to how such discretion is exercised. The material turn involves an exploration within planning studies of how change is effected not just by relationships between social actors but involving material elements also (Beauregard 2015; Beauregard and Lieto 2016; Rydin 2014; Rydin and Tate 2016). These material elements can take a variety of forms from the physical setting of the development site; the materiality of the proposed development and of its impacts to the materiality of the planning process, including the spaces within which planners work; the files they use; and the variety of material artefacts that circulate.

Here we particularly focus on and question the work done by material artefacts in the regulatory process surrounding the consideration of major renewable energy projects. The leading STS researcher Bruno Latour (2010) has shown how materiality enters into the creating of statutes and also the legal rulings of the most senior court in France. Here he argues

kurath@arch.ethz.ch

that "we do not understand anything of Law if we seek to pass directly from the norm to the facts of the particular case without this modest accumulation of papers of diverse origin" (2010: 90). He goes further to point to the "reduction of the world to paper" (2010: 229).

The importance of the paper—documents, maps and so on—that he studies is that they reveal the "alchemy through which elements of fact are incessantly kneaded, leafed through, summarised, forgotten, rediscovered and finally glued together, hooked up and juxtaposed to elements of text" (2010: 91–92). And, of course, some factual claims will be omitted through this alchemical process. Paper is also essential to revealing how legal reasoning is characterised by collective hesitation (2010: 91–92) as many different possibilities of fact and interpretation are allowed for. Latour describes this as "an accumulation of micro-procedures which manage to produce detachment and to constantly reactivate doubt" (2010: 212).

This is echoed in Hull's study (2012) of how urban planning works in Pakistan through the circulation of material objects—files, permits, maps, plans—in material spaces—offices, corridors. In his research, he "restored the visibility of documents, to look *at* rather than *through* them" and thereby "to treat them as mediators". Quoting Latour (2005: 39), he describes mediators as transforming, translating, distorting and modifying the meaning of the elements they are supposed to carry. He particularly points to the role of graphic artefacts: "The material qualities of graphic artefacts are mobilized in signification, but they also allow them to mediate many other processes beside semiosis" (2012: 13). He goes on to argue that: "The insight that representations are material encourages a shift from semiotic structures (texts) abstracted or abstractable from their material vehicles to the relationships of material forms and texts" (2012: 13). "Graphic artifacts are a kind of semiotic technology. Semiotic technologies are material means for producing, interpreting, and regulating significance for particular ends" (2012: 27).

Thus in the following analysis, there will be a particular emphasis on the role that such artefacts play. In particular, the analysis will consider how visual artefacts such as photos are involved in the deliberations around major renewable energy projects. Given the scale of these projects, particularly but not only wind farms, the treatment of visual impacts is generally a significant focus of discussion. As we shall see, visual artefacts

kurath@arch.ethz.ch

are centrally involved here. These artefacts mediate the engagement of social actors with the material environment; they often are a way of articulating knowledge claims about that environment (see also Rydin 2013). But—to anticipate the following discussion—the analysis also shows the limitations of the mediating role that such visual artefacts can play. In a subsequent analytic section, the continuing role of a more direct engagement with the physical environment within planning regulation will be discussed, highlighting the role of differently mediated experience.

Before discussing the way that these differently mediated forms of engagement operate within planning regulation, the institutional context for regulating major renewable energy infrastructure in England and Wales will be briefly set out.

The Regulatory Regime for Major Renewable Energy Projects in England and Wales

The Planning Act 2008, subsequently amended by the Localism Act 2011, introduced the Nationally Significant Infrastructure Project (NSIP) regime into England and Wales. The new system provides a mechanism for granting Development Consent Orders (DCOs) on major infrastructure schemes, including major renewable energy projects. It established that an Examining Authority (ExA) from the Planning Inspectorate (a central government agency), in the form of an individual or a Panel, would examine and make recommendations to a government minister of state who would then take the final decision on whether to grant the DCO or not. The minister must decide (other than in particular circumstances) in accordance with relevant National Policy Statements; in the case of renewable energy infrastructure, EN-1 (DECC 2011b) and EN-3 (DECC 2011a) are particularly important.

The introduction of the new regime was driven by the policy goal of expediting infrastructure investment, including renewable energy infrastructure. At the same time, the ExA's recommendations are required to be demonstrably based in evidence from a wide range of actors. The key points of emphasis for the NSIP regime were therefore transparency and efficiency: "the new planning system for major infrastructure is intended

kurath@arch.ethz.ch

to provide a more efficient and transparent decision-making framework which will facilitate the construction of the kinds of new energy infrastructure which we need" (DECC 2011b: 11).

The Planning Act 2008 sets the threshold for energy-generating plants to be considered under the regime as over 50 Mw onshore or 100 Mw offshore within England and Wales (TSO 2008); onshore wind farms have recently been removed from these provisions and are handled by local planning authorities. After the application is accepted, the process proceeds to the examination. The Planning Act 2008 sets out the format for the examination as a primarily written process (Ch. 4, S. 90) with supplementary hearings and site visits. All information (with very limited exceptions) must be made publicly available on the portal, that is, open access website of the Planning Inspectorate.

For such projects, the developer is under an obligation to conduct an environmental assessment (reported in the Environmental Statement) and consult with the public prior to submission of the application. The relevant local authority/ies must provide a 'Local Impact Report' (LIR), the content of which is at their discretion but should include "details of the likely impact of the proposed development on the authority's area (or any part of that area)" (TSO 2008, Ch. 1, S. 60.3). Guidance on the LIR suggests local topics such as planning history and transport patterns, as well as area characteristics and site constraints.

However, the LIR, the Environmental Statement and the application materials are only part of the paperwork that may be submitted during the examination. All registered 'interested parties' may make representations and are encouraged to submit these as written statements even where given verbally at a hearing; the ExA may also specifically ask for new evidence. It is emphasised throughout the policy and guidance for NSIPs that the ExA has discretion on how to assess the evidence and how to interpret the regulatory framework for the examination.

The Empirical Research Base

This chapter draws on empirical research undertaken with a grant funded by the UK Economic and Social Research Council under Award No. 164522. This project ran from July 2015 for 30 months and involved

kurath@arch.ethz.ch

researchers from the disciplines of planning studies, laws and STS. It comprised a number of different elements, including document analysis, focus groups, interviews, a survey and practitioner workshops. The research that is reported here draws particularly on the analysis of the extensive documentation lodged on the NSIP regime website.

At the time of the start of the empirical work, 15 renewable energy projects had been through the regulatory process and reached final decision stage. Three of these gave rise to a more specific set of potential impacts for discussion during regulation since they were wind farms located far out to sea. This left 12 cases which were examined in depth: Kentish Flats Offshore Wind Farm Extension, Galloper Offshore Wind Farm, Burbo Bank Offshore Wind Farm Extension, Rampion Offshore Wind Farm, Walney Offshore Wind Farm Extension, Triton Knoll Offshore Wind Farm, Navitus Bay Offshore Wind Farm, Brechfa Forest West Wind Farm, Clocaenog Forest Wind Farm, Swansea Bay Tidal Lagoon, North Blyth Biomass Plant, and Rookery South Energy from Waste Plant.

The ExA's final reports (extending to several hundred pages each) were read and coded. These reports are important and fascinating (even occasionally entertaining) documents. They represent the logic of the regulatory process as expressed by the ExA's drafting. As Latour notes in his analysis of the Conseil d'État's rulings, elements have to "appear" in the file to count in the reasoning (2010: 149); in the same way, elements have to be included in the final report to feed into the final recommendations that the ExA makes to the government minister. Thus, close examination of these report offers insights into the regulatory process itself, just as Latour finds the "close knitting" or "weaving" of the texts he studies to be revealing (2010: iix; 91). Initially the Environmental Statements submitted by the developer and the Local Impact Reports prepared by local authorities were also read and coded, but it became apparent that this was replicating the material in the final reports, but without the quality of argumentation, reasoning and justification that makes these documents by the ExAs so revealing of the regulatory process.

Coding was undertaken using NVivo software, building up a code set of some 119 codes under five themes of actors, impacts, evidence, deliberative processes and mitigation. The coding was tested through blind re-coding of randomly sampled text extracts from the cases by two coders; the coding proved robust and replicable. Code runs were then

kurath@arch.ethz.ch

iteratively undertaken to build up the analysis; the initial runs selected extracts for further close reading, which suggested lines of analysis and further code runs. For this paper, the main codes considered related to the artefacts of maps, graphic material and photos, the interface of noise impacts and modelling, and accompanied and unaccompanied site visits by the ExA.

Artefacts of Visualisation: Photos and Montages

Planning regulation mainly takes place within private offices and meeting arenas, such as the public hearings of the NSIP regime. It is here that different parties get to present their concerns in writing or orally, that the different arguments and viewpoints are rehearsed and that the key actors (the ExA in the case of NSIPs) move towards their conclusions. This means that the development project and the environmental context of the development site have to be brought into those rooms in some way. Artefacts play a key role in doing this by representing the site and the local environment in a variety of ways.

Some of these artefacts are maps or plans, performing a variety of functions. Most obviously, they communicate the location of the development site and the works to be undertaken, but they also set out the boundaries of the area that will be subject to development consent, often termed the "red line". While this might seem a simple and necessary use of a map-ground artefact, the precise boundary carries implications. For example, in the Kentish Flats case, concern was expressed about the spatial extent of submitted DCO area shown in Site Location and Order Limits Plans and whether it had been adequately justified by the applicant. Some argued that the DCO was too broadly defined and that there was therefore uncertainty about the extent of the work; others claimed that there could be potential for damage from construction-related activities if consent was given for the extent of the DCO as submitted.

But maps and plans are also important in relating the development site to other features of the local environment. Sometimes such maps and plans are specifically designed to indicate the setting of the site in

kurath@arch.ethz.ch

its context and, in particular, in relation to sites of nature conservation and heritage importance. In the Navitus Bay case there was extensive mapping of important sites; historic mapping, aerial photography and LiDAR (Light Detection And Ranging, combining light sensors and radar) were used to identify 154 possible "assets" in addition to the 358 non-designated "assets" identified in the Environmental Statement; these covered historic sites and buildings, nature reserves, Sites of Special Scientific Interest and so on. In the Rampion case, Registered Parks and Gardens, Listed Buildings and Conservation Areas were all identified and mapped in detail in a figure in the Environmental Statement and, in Triton Knoll, a plan provided by the applicant showed designated and undesignated heritage assets along the cost of Lincolnshire within a 35-km-radius study area from the site.

In addition to locating such relevant sites in relation to the development, maps and plans were used to identify a variety of zones of significance. In Triton Knoll, herring spawning grounds were debated and mapped in relation to the DCO limits for the project, while in the Kentish Flats case it was the extent of oyster grounds in relation to the existing and planned wind farms that were mapped. Marine Conservation Zones were identified in the Walney case; maps of River Basin Districts were submitted as evidence in the Swansea Bay case, as were Development Advice Maps relating to flood risks; and in the Clocaenog wind farm case, Catchment Boundaries for river basins were provided in response to questions from the ExA.

Prominent among the mapped zones are areas used to assess the potential visual impact of the proposed development. These are variously termed Zones of Visual Influence, Zones of Theoretical Visibility or some similar nomenclature. But these zones are just the starting point for the introduction of a much larger number of artefacts into the regulatory discussions. These zones contain a number of viewpoints from which the development may be seen. To clarify what the development will look like from these viewpoints, individual photos, computer-aided wireframes, photomontages and even video montages are submitted to the examination. Before-and-after comparisons may also be made using such visual images. In addition, greater understanding of the existing landscape character of the area may be achieved through imaging. In the Swansea Bay case, aerial photos were used

kurath@arch.ethz.ch

to supplement beach survey data, to help "illustrate the scale and varied character of the intertidal area" (Swansea Bay ExA Report, para 4.9.6, p. 90). The visual nature of these artefacts is often referred to as helpful by the ExA in their deliberations and they sometimes request additional visualisations. For example, in the case of the Rampion offshore wind farm, they sought to understand the potential effect of the array on coastal settlements at night and asked for night-time visualisations.

At issue in the examination is whether these visual artefacts can be considered as evidence sufficient to act as the basis for recommendations. When it is considered that they do form sufficient evidence, the language of the ExA changes. Thus in the Galloper case the ExA stated that the photomontages and Zones of Theoretical Visibility "demonstrate" the visibility of blades and hubs from the coastal viewpoints (Galloper ExA Report, para 9.5, p. 114); in the Kentish Flats case, the mapping of Zones of Theoretical Visibility was referred to as "comprehensive and accurate" (Kentish Flats ExA Report, para 5.184, p. 142). However, visual artefacts are often the focal point of debate and contestation as different parties seek to influence the ExA's judgement about the validity of such images as evidence. Attention may be drawn to issues with how the photos were taken; in the Swansea Bay case, certain photos were criticised because it was misty on the day they were taken. There may be more fundamental concerns over the ability of visualisation to represent the local environment; again in the Swansea Bay case it was argued that the visualisation could not capture the difference of up to 6 m between the open sea level and the retained water in the proposed lagoon, that is, a dynamic feature compared to a static visualisation.

The ExA in the Clocaenog case was particularly critical of the photographical imagery. While accepting that "the applicant's visual graphics provide a useful reference" (Clocaenog ExA Report, para 4.62, p. 37), they went on to state: "However, the degree of clarity in the definition of the turbines in the photographs and consequently in the photomontages does risk understating the visual impact of the turbines" and "visual graphics do not necessarily provide an accurate representation of the level of visibility and hence impact that the turbines would have within each view" (Clocaenog ExA Report, para 4.62, p. 38). Specifically:

kurath@arch.ethz.ch

> In this photomontage the turbines are shadowy figures on the skyline seen over a distance in excess of 14km. However, the turbines are likely to be more conspicuous in clear weather than indicated in the applicant's landscape and visual graphics. (Clocaenog ExA Report, para 4.70, p. 39)

Photomontages are described as giving only "an impression" of how the turbines would be visible. The ExA then came to their own conclusion that (taken in combination with the existing wind farm) "small groups of turbines would be joined up, and wind turbines would extend across a significant part of the view" (Clocaenog ExA Report, para 4.77, p. 41).

The Navitus Bay case provides an example where visual imagery was extensively discussed and arguably proved pivotal in this being the first case of an NSIP project being refused development consent. Photomontages for day and night were prepared and included in the Seascape and Landscape Value Impact Assessment (SLVIA) submitted by the developer. The applicant's consultants had used guidance set out by Scottish Natural Heritage (SNH, a government agency) in 2006. The resulting images were criticised both for being inherently inaccurate and for failing to follow more recent advice published in 2014. Much discussion ensued, including additional visual images being requested from the applicant by Natural England (a government agency) and the ExA. In addition, the main NGO representing local communities—Challenge Navitus—provided their own visual imagery.

There was considerable criticism of the visual images presented by the applicant: "The visualisations are not an accurate representation of the true impact, partly because of not using the latest guidance but also because of the limitations of static representation of a dynamic facility" (Navitus Bay ExA Report, para 7.2.4, pp. 109–110). The ExA noted that there are "marked differences" between images produced under previous and updated guidance (Navitus Bay ExA Report, para 7.2.64, p. 123). The ExA did not criticise the applicant for continuing to rely on SNH 2006 given the timing of the planning application, but they concluded that "even SNH 2014 confirms that images can never be 100% accurate" (Navitus Bay ExA Report, para 7.2.64, p. 123).

kurath@arch.ethz.ch

The ExA sought to rely only on visual images that could be validated: "The Panel … finds some of the images submitted unhelpful for objective considerations of the projects" and "The Panel has therefore not relied on images that cannot be properly validated" (Navitus Bay ExA Report, para 7.2.60, p. 122). Photographs that were provided by PCBA (Poole and Christchurch Bays Association, a local Residents Associations' collective) of fogging around wind turbines in Denmark was not relied on as another local NGO pointed out "that the image provided by the PCBA was the only recorded image of the generation of significant downwind fog" (Navitus Bay ExA Report, para 17.2.14, p. 339).

Despite criticism by the applicant of the way photos were cropped, the ExA favoured the visual imagery offered by Challenge Navitus: "The visualisations prepared by Challenge Navitus …, on the other hand, were modelled accurately and the photography is to a high standard" (Navitus Bay ExA Report, para 7.2.61, p. 122). In effect, this accepted the claim that Challenge Navitus's graphics provided a "more realistic and truer picture" (Navitus Bay ExA Report, para 7.2.4, p. 110). The video montages presented by Challenge Navitus (CN) were also considered "useful for imparting a sense of the movement of the turbines that photographic images are unable to capture" (Navitus Bay ExA Report, para 7.2.62, pp. 122–123). Although the Panel went on to say that: "The Panel notes that the quantity and quality of CN's visual representations to the examination are impressive, but is aware that video montages must be treated with some caution" (Navitus Bay ExA Report, para 7.2.62, pp. 122–123).

Thus, visual images play an important role in the regulatory discussions around major renewable energy infrastructure projects, offering evidence on a project's impacts that may influence the recommendations regarding the grant or otherwise of the DCO. However, such images are subject to contestation and there remains doubts over their ability to represent the changes in environment resulting from the development of these projects, both static and dynamics changes. Into this zone of uncertainty, the analysis of the reports shows that a differently mediated form of engagement with that context is sought, that is, the site visit.

kurath@arch.ethz.ch

The Environmental Gaze: The Role of the Site Visit

The limited ability of visual artefacts to create uncontested evidence on the impact of the development opens up a gap into which the site visit can come to prominence. The mediated representations of visual imagery then become supplemented by the ExA's direct experience of the environment on that occasion. The role of site visits in the deliberations of the ExA and how argumentation proceeds and conclusions are arrived at was stated clearly in the Rookery case: "From our own experience of visiting the site and the locality, it is difficult to gain a full appreciation of how the proposal sits in the landscape and its design considerations without a site visit" (Rookery ExA Report, para 5.62, p. 31).

Such site visits are used to assess a variety of issues, such as access problems and traffic levels or the presence of heritage assets, but the main focus of such visits tends to be the assessment of the artefacts providing visual evidence on the impacts of projects. It is common practice to visit each viewpoint for which photographic images are provided and assess the image and the direct experience *in situ*: "The Panel undertook to visit each of the viewpoints featured in the ES10 … as well as viewpoints suggested by others" (Navitus Bay ExA Report, para 7.2.63, p. 123). In this case, "actual views" were compared with photomontages and "The Panel duly noted that a photographic image does not fully represent exactly what the eye will observe on site" (Navitus Bay ExA Report, para 7.2.64, p. 123). The Panel conducted site visits of viewpoints identified in the ES and other parties' representations as well as site visits of two other wind farms "for completeness" (p. 123). Following an argument put forward by the applicant that "Visuals alone cannot give a true representation and the best impression is to be gained by comparison of the visualisations at the viewpoint location" (Navitus Bay ExA Report, para 7.2.3, p. 108), it was agreed that "the visual material should be regarded as tools to assist in the decision-making process" (Navitus Bay ExA Report, para 7.2.65, p. 123). Photomontages and wireframes "offer a fair and reasonable basis for aiding judgements on potential visual effects" (p. 123) but not on their own. Thus, in the Navitus Bay case, the "conclusions that the Panel

kurath@arch.ethz.ch

has reached on impacts are based on our experiences of the area and inspections at identified viewpoint locations assisted by the images on site" (p. 123).

While Navitus Bay provides the fullest discussion of this, the same practices with regard to site visits were evident in other cases. In Triton Knoll, visual effects of the development at night produced not only ExA requests for supplementary night-time visualisations of visibility of the lighting but the ExA also "tested this evidence through its own night-time inspection" of existing wind farms. In Walney, there is reference to unaccompanied site visits to the majority of selected viewpoints in the SLVIA, plus on a ferry crossing: "Because of the presence of existing wind farms in views this allowed us to compare the accuracy of the photomontages within the SLVIA and the general assessments of visual impact. Our experiences also served to underline the influence of meteorological and atmospheric conditions in limiting visibility" (Walney ExA Report, para 4.347, p. 84). In the Clocaenog Forest case, the ExA acknowledged both that the landscape and visual graphics accorded with good practice and that a number of objectors were critical of them, deciding what counted as evidence after site visits which were "real life":

> However, during the clear weather conditions on my accompanied and unaccompanied inspections of the site and surrounding areas, I saw the site from a number of the applicant's viewpoints. Where the TMFG turbines were in sight, I was able to compare the visibility of those turbines with the representation in the applicant's viewpoints. I found that the [existing] TMFG turbines were generally more sharply outlined and prominent in the real life view than they appeared in the photographs and photomontages. (Clocaenog ExA Report, para 4.61, p. 37)

The Rookery case suggests the combined effect of visual artefacts, the site visit and some onsite additions of balloons: "We found the photomontages, and the indicative heights represented by the balloons flying on the day of our second site visit, particularly helpful in conveying the visual impact of the development in the locality" (Rookery ExA Report, para 5.51, p. 29).

But site visits can play a wider role than just allowing for comparison of "reality" with submitted visual impacts. The ExA refers to site visits

kurath@arch.ethz.ch

providing information and allowing the Panel to note a variety of detailed features (Rampion ExA Report, passim). Judgements about views could be more extensive after site visits: "In order to consider the visual effects in more detail I made a number of site visits" (Kentish Flats ExA Report, para 5.194, p. 145). This could involve quite specific issues about the development: "The extent of mature vegetation removal necessitated by the proposed 'works' was clear to see from site observations and using the annotated photomontages provided, when standing at the prescribed viewpoints" (Galloper ExA Report, para 9.28, p. 117).

However, it could also support more general assessment of the character of the landscape: "We had observed the open nature of the view to the sites" (Galloper ExA Report, para 9.90, p. 126). In the case of Rookery:

> the overriding impression from vantage points … is currently one of openness and limited built development. Many elements of infrastructure have blended well into the landscape… In our view, it is not a scarred heavy industrial landscape into which a major new built development can be easily inserted. (Rookery ExA Report, para 5.48, p. 29)

These sites visits also made direct connection to the concerns of local interested parties, the ExA almost standing in their shoes as they went about their visits. In Rampion, the ExA refers to site visits as enabling them to understand the concerns of such parties, while in Triton Knoll the ExA undertook site visits "to ensure that it had a clear understanding of the issues raised in representations in their broader landscape and seascape context" (Triton Knoll ExA Report, para 5.518, p. 79).

The ExAs use confident language to describe the effect of the site visits. As a result they "gained a full appreciation" (Clocaenog ExA Report, para 4.210, p. 71) and were able to come to judgements about the evidence provided. At Triton Knoll, site visits were "used to calibrate landscape and seascape impact assessments at night" (Triton Knoll ExA Report, para 5.5.20, p. 79). In the Rampion case, the specific issue of the impact of lights on the turbine at night time was decided by combining the "indicative" visualisations which suggest that the lights would be clearly visible in fair weather with the experience of site visits: "However, having regard to various night time unaccompanied site visits to settlements along the coast, the Panel accepted the applicant's assessment that from

kurath@arch.ethz.ch

many vantage points … the wind farm lights would be seen within the urbanised setting of the brightly lit coastline and in the context of lighting from shipping operating in the area" (Rampion ExA Report, para 4.3.40, p. 114).

The result was that the site visits also enabled judgement of the quality of the Environmental Assessment process. In Brechfa Forest, the ExA stated that "More generally my programme of site visits, supported by the applicant's written documentation, has enabled me to reach a judgement on the adequacy of the ES in assessing the LVI [Landscape Visual Impact] of the proposed development" (Brechfa ExA Report para 4.30, p. 28). In Kentish Flats, "The site visits confirmed that overall the applicant's ES analysis provides a thoroughly prepared and reasonably accurate assessment of the visual impacts" (Kentish Flats ExA Report para 5.199, p. 147). Similarly in Triton Knoll, the process of site visits "was used to support the Panel's understanding of landscape and seascape proposals and impact assessments included in the Environmental Statement" (Triton Knoll ExA Report, para 5.5.117, p. 79).

This leads to the ExA being empowered in making conclusions about the impacts of the projects on the seascape and landscape. A key quote here is provided from the Rampion final report:

> Taking all relevant points into account, the Panel does not agree with the analysis in section 17.5.35 (APP-074) of the ES which when considering the impact on the South Downs states that '*the introduction of a windfarm 13km out to sea is unlikely to have a serious impact on those elements of the rural experience—the scenery and landscape, peace and quiet, and lack of crowds … that are the main draw to the area*'. This is because the Panel's site visits confirm the applicant's own ES conclusion and the cases put by the SDNPA and NE (set out in the section on landscape and visual impacts) that there would be significant adverse visual effects on the National Park, in addition to the adverse short term effects of construction of the onshore export cable corridor through the National Park. (Rampion ExA Report, para 4.507, p. 151, original emphasis)

This suggests that the direct gaze upon the environment remains a significant aspect of planning regulation alongside the consideration of

kurath@arch.ethz.ch

and judgement on the visual artefacts that circulate within the regulatory process. Macnaghten and Urry (1998) provide an account of the importance of the visual gaze in representing nature and constructing the idea of a landscape. They argue that "how and why particular senses are stimulated is not something that is directly determined by the physical characteristics of the external environment but is irreducibly socially and cultural structured" (1998: 108). Tracing the importance of the visual environmental gaze historically, they point to the eighteenth-century shift whereby "natural history came to involve the observable structure of the visible world" and thus science and observation became linked, while "lay" observation, as in travel, "became more obviously bound up with the comparative aesthetic evaluation of different natures" (1998: 111–112). The late eighteenth and nineteenth centuries then saw the development of "the new and distinctive discourse of the 'visual consumption of nature', which has been so significant for the last century or so" (1998: 113). Macnaghten and Urry consider the ubiquity of photography creating a new gaze upon the environment, one in which "Nature appears to represent itself" (1998: 118). However, as we have seen, this is not an uncontested representation and so, within NSIP regulation, there is continued recourse to a differently mediated form of engagement with nature.

Macnaghten and Urry also emphasise how official planning documentation proposes a gaze upon nature which is in the Romantic tradition, involving a particular aesthetic of beauty and valuing the apparent emptiness of natural spaces (1998: 187–188). While ExA reports are primarily not written in a Romantic style, they can capture the essence of this tradition. It is interesting, for example, to note that there is repeated emphasis on the "openness" of land and seascapes. There are also a few cases that are different in style where the emotional response by the ExA to the areas they visit comes through in the text. In the Rampion case: "the Panel were struck by the extent to which visibility and perception of the size of the wind farm altered, depending on the colour of the sky, shadow and sun and the height from which the wind farm would be viewed" (Rampion ExA Report, para 4.338, p. 113). Meanwhile in the Navitus Bay example:

kurath@arch.ethz.ch

> At the site inspections the Panel observed the prominence of the chapel and visibility of it from the coastal footpath approaches to the east and west. In distant viewpoints, the nearby coastguard lookout and cottages detract from the isolation of the chapel but in closer views along the footpath it is seen against a backdrop of the sea to the east and west. There is a distinct sense of spiritual value derived from the chapel's remoteness from local settlements, which is heightened, in our view, by its exposure to the open seascape. (Navitus Bay ExA Report, para 10.7.17, p. 234)

Thus, the direct experiential engagement with the local environmental offered by site visits was not only welcomed by the key decision-makers in NSIP regulation but was actively used to assess the quality of visual artefacts as evidence and to comment further on the quality of the environmental assessment process. These visits also provided the ExA with the sense that they were understanding local concerns more fully and, at times, their gaze upon local nature was expressed in emotional terms, resonant of Romantic discourses but also perhaps reflecting local attachments to these local places.

Experiencing Beyond the Gaze: The Issue of Noise

These attachments to and understandings of the local environment do not just relate to the visual aspects though. The site visit is enabling a multi-sensory experience of the locality, an experience which underpins the local attachment to places and the quasi-Romantic discourse about the impact of engaging with nature. This becomes apparent when the discussion is widened to consider noise impacts also.

The artefacts involved here comprise assessments of the current level of tranquillity—absence of noise—in the area around the development site and outputs of exercises modelling the noise impacts of the completed and operating development. In the case of Clocaenog, the Wales Tranquil Areas Map 2009 was a key reference point; in this map, much of the forest was classified as "undisturbed". It was stated as a result of noise modelling that the new wind farm would result in reclassification of the area

kurath@arch.ethz.ch

within 0.5 km of each turbine as Zone B115 and those within an additional 0.5 km as Zone C116: "As a result the majority of the central core of the forest would lose its current high level of tranquillity" (Clocaenog ExA Report, para 4.52, p. 35). Such modelling and mapping can also occur underwater. In the Navitus Bay case, underwater noise contour maps were produced by the applicant following requests at a hearing; this was linked to mapping of an "avoidance zone" that underwater divers would need to observe to avoid unacceptable noise impacts (Navitus Bay ExA Report, Sect. 11.4, pp. 243–246).

There is clear guidance on how to undertake these various noise modelling exercises; a key reference point for wind projects is the report "The Assessment and Rating of Noise from Wind Farms" produced by the Working Group on Noise from Wind Turbines in 1996. This sets out assessment methods and also recommends noise limits to protect the amenity of neighbours, both for day and night. References to ETSU-R-97 are widespread in the NSIPs documentation, but again site visits can play a key role for the ExA in coming to final conclusions on evidence through the sensory experience of the locality that they provide. The existing level of tranquillity of the site area was judged by the Panel's experience on such visits: "the fact that the otherwise rural setting provides a reasonably peaceful acoustic environment, as the Panel appreciated on its accompanied and unaccompanied site visits" (Rampion ExA Report, para 4.249, p. 91). And again in the case of Burbo Bank: "Having conducted several unaccompanied site visits to the north Wirral foreshore at night, it is clear that the existing conditions in open spaces and residential roads fronting the sea can be tranquil" (Burbo Bank ExA Report, para 4.234, p. 92).

Such visits were also used to help assess the impact of the development. This was sometimes done by experiencing directly existing wind turbine noise, as shown by the following quote from the Clocaenog Report:

> However, during my accompanied site inspections, I visited some of the properties which experience low levels of background noise, but which could be affected by increases up to and in excess of 8dB with CFWF. I also experienced the background noise level about 1km downwind of TMFG in a position where I was advised that the background noise was about 40dB. The difference in the noise environment when compared with that

kurath@arch.ethz.ch

> of a residence unaffected by wind turbine noise was significant. I therefore have no doubt that at properties which currently experience the quiet of the forest, the introduction of wind turbine noise up to a level of 40 dB(A) would have a noticeable impact on the noise environment. (Clocaenog ExA Report, para 4.128, p. 53)

The ExA's "experiences" here stood for the wider anticipated experience of local residents.

While the above example suggested evidence from the site visit of significant noise impact, the opposite also occurs. In the Brechfa Forest case: "During the accompanied site visit along the proposed access track the turbines were audible, but the wind was light and I was in relatively close proximity to the turbines, which were turning gently. The level of noise was not intrusive, but given the circumstances I do not attach significant weight to this" (Brechfa ExA Report, para 4.108, p. 66). This could also relate to offshore turbines as this rather poetic quote illustrates: "On the accompanied boat-based site visit the vessel was taken right up to the base of a rotating wind turbine in the existing Kentish Flats wind farm. In wind conditions of Beaufort Force 2–3 it was difficult to hear the turbine blades or gearbox even though the turbine was revolving immediately above the vessel" (Kentish Flats ExA Report, para 5.138, p. 125).

The consideration of how noise impacts were represented and assessed reflects the conclusions drawn in relation to visual impacts of the importance of circulating artefacts within the regulatory process but, at the same time, the continued reliance on a differently mediated form of engagement with the environment in the vicinity of the proposed development in order to not just note or look upon the landscape but to experience it directly and sensuously, and thereby to understand local concerns more fully.

Conclusions

The recent material turn in planning studies invites attention to be drawn to the material artefacts that circulate within planning processes, particularly regulatory processes. This chapter has shown how

kurath@arch.ethz.ch

artefacts such as maps, plans and particularly photos and montages play an important role in representing nature in the regulatory process. Furthermore, such artefacts constitute claims about the local environment and the potential impact of the major renewable energy infrastructure that can be constructed as evidence and thus enter into the decision-making on the various projects. A similar point may be made about artefacts concerning noise (assessing both the tranquillity of the area and noise impacts of the operational project). However, such claims are contested with the quality of the artefacts becoming a central point of discussion. This uncertainty creates spaces of doubt and hesitation (see Latour 2010) into which site visits come to prominence. Here the differently mediated engagement with the local environment is framed as experiencing "reality" and used to test the artefacts. The key decision-makers—the ExA here—rely on their own gaze and wider sensory experience to assess individual artefacts and, from that, the whole process of environmental assessment involved in the development application.

This emphasises not only the potential agency of artefacts within planning regulation but also the need to consider this in relation to the continuing role of social actors, with their direct, personal engagement with the local environment under consideration. We need to remember that key social actors within regulation are material, embodied entities also. The nexus of nature, artefact and a sensory human actor is involved in these regulatory processes, in deciding what constitutes evidence and what can thereby influence the regulatory outcomes. The visual gaze, which has so long been culturally influential in representing nature, alongside the wider sensory experience of the environment continues to be part of the relations of planning regulation despite the emphasis on deliberations within the indoor spaces of public hearings and offices.

The claim contained within many of the artefacts presented to the regulatory process is that they represent observation of factual matter, but this analysis of the regulatory process rebuts this by emphasising the idea of a quazi-Romantic gaze and embodied sensory experience. Here the importance of the direct and sensory engagement with nature is demonstrated as opposed to the largely text- and document-based engagement

kurath@arch.ethz.ch

that is comprised by the documentary evidence produced by participants in the regulatory process. The site visits allow the ExA to engage all their senses, not just sight and hearing as emphasised above, but also potentially smell, sensation of wind, taste of air, and so on; they are experiencing a full bodily engagement with the landscape in a way that a photograph or a document simply cannot provide. These become a form of knowledge claim also.

This form of engagement has a potentially participatory dimension. The site visits were regarded as a means of enabling local people's concerns to be understood, not just represented. The ExAs seem to be partly creating their own "expert-led" discourse, in which the emotional value of the landscape is constructed as a particular form of knowledge, but also sympathising with existing local discourses of attachment to place. It remains for further investigation to consider whether the key regulatory actor, here the ExA, is advancing their own discourse on nature while ignoring/discounting local ones or is generally supporting them. If the latter case prevails, then the role of sensory experience and the gaze may not just go beyond the examination of key artefacts but may also become a way of validating as "evidence" what was previously only presented as local opinions. The combination of artefact, gaze and experience may hold democratic potential in an otherwise strictly circumscribed regulatory environment.

This point should not be pushed too far. Such dynamics may affect the way that landscape, seascape and noise issues are discussed and concluded on. They may not affect the overall outcome of the regulatory process where a project is concerned. The rejection of certain evidence—such as on seascape and landscape impact—may not be decisive. And there are a range of other issues—such as impact on habitats and species—which may weigh more heavily. Overall, the NSIP regime is also framed by a strong presumption in favour of infrastructure projects, based on assumed need, which may prove more significant in shaping the opportunities for democratic debate (Lee et al. 2013). However, this analysis has suggested that these constraints may, at least, be challenged by disputation over artefacts and the role of sites visits, allowing new lines of engagement with nature to enter the discussion.

kurath@arch.ethz.ch

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Yvonne Rydin is Professor of Planning, Environment and Public Policy at University College London's Bartlett School of Planning. She specialises in urban planning, governance and sustainability but is particularly concerned that

kurath@arch.ethz.ch

planning research should be theoretically informed. She has worked with concepts of governance, social capital, and (more recently) governmentality and actor-networks.

Lucy Natarajan currently works at University College London (UCL) in the Bartlett School of Planning, where she teaches and researches strategic planning of renewable energy infrastructure (NSIPs). Her research centres on excellence in policymaking, and in her current research, she focuses on the role of publics and evidence in decision-making within planning.

Maria Lee is Professor of Law at UCL, where she teaches and researches environmental law and governance.

Simon Lock is Lecturer in the Department of Science and Technology Studies at University College London. His research focuses on the governance of science, sociology of new technology, and science in public. His focus is interdisciplinary examining of the public dimensions of new science and technology from sociological, historical and policy-related perspectives.

kurath@arch.ethz.ch

4

Politics of Zoning: Plans, Procedures and Publics in Land-Use Change

Marko Marskamp

Introduction

Pivotal to the formation of spatial planning as a modern practice in the beginning of the twentieth century (Rabinow 1991), regulatory standards continue to shape the authority and legitimacy of city planning today (Fischler 1998). Alongside recent standards for a sustainable and liveable built environment, more traditional standards for the use of land continue to be key artefacts in the spatial management of the city. Land-use renders the urban environment both legible and controllable, representing it as a collection of zones with a range of uses, densities and physical forms (Kaiser et al. 1995). Used in comprehensive plans and zoning ordinances, this standardization sets conditions for the allowable uses and developments of land. At the same time, the land-use standard translates the urban environment into a distinctly technical version. While this version enables an apparently rational administration of the city, it also seems to distance land-use planning from disparate versions of urban land

M. Marskamp (✉)
Department of Geography, University of Lausanne, Lausanne, Switzerland

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kurath@arch.ethz.ch

(e.g. property; see Blomley 2016). As such, it might silence other concerns with the relationships between uses, buildings, people and land. To investigate this, the present chapter suggests to unpack a land-use standard and explore how a specific land-use designation obtains and maintains its legitimacy, based on a case study of a rezoning in Vancouver, Canada.

The transformation of the Downtown Area of Vancouver over the last decades has been celebrated as "one of the grandest experiments in Canadian urbanism" (Boddy 2006). Internationally, it has come to represent "a planning model of almost paradigmatic status" (Hutton 2005: 99) known as "vancouverism". In the planning discourse, this style is linked to the city's high score in international rankings of liveable cities (Economist Intelligence Unit 2015). In the *Vancouver Achievement* (2004), the British professor in urban design John Punter tells the transformation of the city's landscape and land uses as a success story of urban design principles and planning expertise. Consequently, vancouverism has created a narrative and commodity of "good" urban planning that stabilizes urban development locally and inspires urban transformation internationally (McCann 2013).

However, as city planners seek to replicate this success outside the central areas of the city, the acclaimed urban planning and development narrative is increasingly debated. Today, vancouverism faces challenges considerably different from the achievement of converting office space and industrial lands to residential neighbourhoods in the 1990s (Berelowitz 2010). Planning for infill and densification in existing communities requires more tailored work with residents and built environments. Consequently, local discussions on how land is used and developed challenge the apparent universality of the city's signature planning style. This chapter therefore suggests to re-evaluate vancouverism in terms of situated uncertainties and discussions about the use of land. Instead of analysing the typical configuration of the built environment, I evaluate the particular arrangement of a land-use standard through the lense of Science and Technology Studies (STS).

An STS perspective allows to question how standards are produced, held together and put to work. Its attention to relationality invites an exploration of the often invisible work of making things such as land, buildings and people commensurable. Its focus on practices raises

kurath@arch.ethz.ch

questions of who does this work, where does it take place and what happens to the cases that resist standardization (Bowker and Star 2000). Insight into how standards are assembled sheds further light on the work of standards and how their engagement with the urban environment might also enact a kind of reality (see Denis and Pontille 2014). The following case study draws on STS to understand the relations that are formed, negotiated and stabilized in the production of a land-use standard. Surveying this standardization process, the case borrows from STS the analytical stance of symmetry between human and nonhuman actors to describe the interactions between heterogeneous objects of study, such as residents, maps, floor-to-space ratios (FSR) and shadow analyses (Law 1992). Situated within a unique discretionary zoning and participatory planning system (Punter 2004), and amid high pressures on real estate development and housing affordability, the case symmetrically traces the heterogeneous relations in the remaking of a land-use regulation for a piece of city land.

The aim of this study is to explore why and how a land-use standard is interrogated and contested in a rezoning. Drawing on STS, it frames the rezoning as an opening up of the land-use "black box" (Latour 1999), allowing a view on the internal complexity of the standard and an examination of its renegotiation. While this intervention is formally organized with a rezoning procedure, the ordering of a new zoning bylaw could face unanticipated issues and resistance from multiple publics. Accordingly, this chapter attempts to find out how a rezoning produces and organizes uncertainty about the use of land by various means. It investigates what uncertainties are at stake where, and how these issues are included or excluded in the standardization of land-use. The four situations in which the remaking of land-use is analysed are the rezoning application, an expert review, a public consultation and a judicial review.

The structure of this chapter is as follows: in the next section, I consider the contribution of STS to the analysis of urban planning issues and discuss the STS inspiration in recent planning literature. My study seeks to contribute to this literature by redirecting the STS focus towards the production of order and the many hybrids inside land-use planning. Accordingly, I frame the zoning code as a "thing" (Latour 2004) of multiple concerns, and consider zoning a technology

kurath@arch.ethz.ch

that orders uncertainty about the use of land. I illustrate the analytical potential of this perspecive in a case study of a rezoning in the Yaletown neighbourhood in Vancouver, Canada. I have structured the three years of rezoning controversy along the plans, procedures and publics involved in the negotiation and stabilization of a new land-use standard.

Literature: STS Insights for the Study of Land-Use Planning

In a classic text on land-use planning, Edward Bassett (1922) argues the instrument of zoning avoids "chaotic conditions" (319) and "stabilizes buildings and values" (321). He proposed to American municipalities "the creation by law of districts in which regulations differing in different districts prohibit injurious or unsuitable structures and uses of structures and land" (333). Seeing the function of zoning to "conserve[e] the future" (321), he also recognized that the instrument "encourages growth while at the same time prevents too rapid changes" (330). For the first zoning of many American cities (see also Bassett 1935), he suggests the formation of an expert zoning commission that assesses the uses of land and codifies them into a zoning plan. Finally, he recommends that the zoning plan should be made in consultation with landowners and adopted by a vote of council (327–31). Nowadays, land-use planning is a widespread institutional practice that regulates buildings and uses in accordance with the city's policy objectives for particular areas (Needham 2006). In this way and with the political support of council, land-use planners set conditions for what landowners can and cannot do with their land.

However, the work of land-use planners is not a simple assessment and codification of the physical environment. Neither is a land-use standard comprehensive in registering the urban environment and representing the public good. Rather, land-use planning foregrounds a distinct imagination and regulation of the built environment, apparently concerned with the relations between the uses and physical occupancy of land

kurath@arch.ethz.ch

(Murdoch 2006). The activity of classifying "conflicting" uses and "unsuitable" buildings is thus a value judgement of what the relations between uses and buildings should be. At the same time, uses and buildings have human purposes, so land-use planning judges the relationship between the users and owners of land too. Land-use standards are still apparently less concerned with social relations than with the technical characteristics of the physical environment. As such, land-use planning has an important techno-political character of imagining and regulating things, people and their relationships in the city.

Apparently concerned with uses and buildings, an STS perspective on land-use standards questions how other relationships are made and ordered. Moreover, it questions what other concerns than "use" and "buildings" are raised in the decision-making processes of land-use planning, and inquires how these concerns shape and are shaped by the land-use standardization. An analysis of the politics of zoning therefore examines the relationship-building activities of heterogeneous entities and the stabilization of these relations in a land-use standard. Such a techno-political analysis is carried out by Aibar and Bijker's (1997) with respect to De Cerdà's plan for the expansion of Barcelona. They note how previous STS analyses of the city are primarily focused on "the 'hard' technologies worthy of study, and the city itself remains a mere unproblematic physical/social locus for their implementation" (6, emphasis in original). They therefore turn to the planning of the city to illustrate how the city itself can be the object of controversy, and to argue that planning tools are important "in building boundaries between the social and the technical, and therefore, in building new forms of life" (23).

A study of the networks of land-use planning also relates to the engagement with complexity in planning theory (de Roo and Hillier 2012). In particular actor-network theory (ANT) has been inspirational for many planning studies (Rydin and Tate 2016; Beauregard 2015; Rydin 2013; Boelens 2010) and significant for a "material turn" in planning theory (Rydin 2014). My inspiration for unpacking a land-use designation is, on the one hand, to investigate "how planners plan with things" (Beauregard 2012). On the other hand, I also want to explore what such a perspective means for a reading of the city, put forward by Amin and Thrift (2002),

kurath@arch.ethz.ch

"as an ordering of uncertainty and as a political arena full of potentialities" (5). With this reading of the city, the authors (ibid) looked to introduce" a politics of hope" (4) in urban studies. This has also been picked up by Coutard and Guy (2007) in the study of infrastructure, and who see with STS the potential "to identify an urban technological politics that breaks free from the technological pessimism and offers some hope for change" (731). Similarly, work on urban assemblages (Farías and Bender 2011), inspired by ANT, has challenged the structuralist program of critical urban studies with "a more open and explorative form of engagement with the world" (Farías 2011: 366). In planning studies however, a first review of the book (Amin and Thrift, 2002) by the planning scholar John Friedmann (2002) commented that it has little to offer planners since "Planning theory is barely mentioned" (53). In this chapter I want to explore with STS how land-use planning can be seen "as an ordering of uncertainty and as a political arena full of potentialities" (Amin and Thrift 2002: 5).

It is only recently that STS has made its way into the domain of planning studies, arguably with a different "politics of hope". The STS-inspiration in planning theory is primarily an exploration of the material world of planning and as an alternative to communicative planning theory (Rydin and Tate 2016; Beauregard 2015). Drawing particularly on ANT, these studies question the role of the physical objects (e.g. high-rises and parking lots) and the material artefacts (e.g. land-use maps and view impact analyses) in planning processes. In the present study I also problematize a nonhuman actor in planning practice and examine the contingent and multiple networks this actor participates in (see Latour 1999). Yet my entry point is not land use as a focal actor but rather land-use planning as "a body of practices widely regarded by outsiders as well organized, logical, and coherent, in fact consists of a disordered array of observations with which [planners] struggle to produce order" (Latour and Woolgar 1986: 36).

In recent ANT discussions, the analytical concern of the production of order has transformed into a normative aspiration to make a difference in how order is produced (Latour 2004). My study explores what this could mean for STS-inspired planning studies with an inquiry into the ways order is produced in land-use planning. As such, I inquire not only into the nonhuman and human hybrid in planning (Lieto and Beauregard

kurath@arch.ethz.ch

2015) but also into other planning hybrids, which are arguably less "new" to the planning community. Thus, concentrating on the production of order in land-use planning, my study examines the potential of STS to elucidate more traditional yet important planning hybrids such as technocratic and democratic, knowledge and experience, public good and private interest (Fischler 2012; Forester 1988; Friedmann 1987).

Theory: An STS Perspective on Land-Use Planning

Land-use planning is a type of spatial planning that governs space through categories of land-use. Although apparently concerned with the use, density and form of the physical environment, this standard also classifies the users and owners of land (Bowker and Star 2000). An STS perspective on land-use planning holds a relational insight into what entities are, either directly or indirectly, involved and how they are in- or excluded in a land-use standard. Applying this perspective on a rezoning, allows to make visible how relationships between entities are built, what intermediaries are used in this process, and why some concerns with the use of land find their way into land-use while others do not.

A first step in making the politics of zoning intelligible is to follow Lascoumes and Galès (2005) and study land-use planning as an instrument of territorial governance. Zoning is the technique linked to this instrument; it enables a representation of the physical environment as a collection of zones with a set use, density and form. This technical view is employed in the regulation of the conservation and development of a particular area through a category of land-use. This standard classifies the relationships different plots of lands should or could have with each other in planning strategies, and defines those that already exist in a zoning bylaw. This ordering of relations is supported by a set of tools ranging from development plans, design guidelines, floor-to-space ratios, setbacks and other planning artefacts. This toolbox creates, borrowing from Andrew Barry (2006), the 'technological zone' of land-use planning (see also Rydin 2010). In this sense, land-use planning can be approached as "the forms of knowledge, skill, diagrams, charts, calculations and energy

kurath@arch.ethz.ch

which makes its [*land-use standards*] uses possible" (Barry 2001: 9). Since these standards are used to modify as well as to codify the use of land, the material artefacts of land-use planning are the (strategic) land-use plan and the (legal) zoning ordinance.

A distinction between the technology and the artefact is insightful in the description of a rezoning: the artefact is overhauled while the technology is maintained. To explore how the technology is stabilized while the artefact is negotiated, STS work on the governing of technologies is useful. For Barry (2001), a distinction can be made between "politics conceived as ways of codifying institutional and technical practices, and the political as an index of contestation and experiment" (201). In this light, land-use planning is politics to the extent that institutionalized expert professionals rely on zoning work in building regulations, spatial studies and municipal policies (see also Alexander 2016). A reassembling of a land-use standard can become political when the entities implicated in the black-boxing oppose the ways uncertainty about the use of land is formally dealt with. In this way, other issues, concerns and associations triggered by the use of land can be raised in alternative arenas and by different publics, and have the potential to interrupt the domain of politics.

Briefly stated, a rezoning opens up the internal complexity of a land-use standard and makes visible the actors and associations implicated in the classification of the physical environment by density, form and use. This process includes negotiations between architects, landowners, residents and planners, but also nonhuman actors such as plans, buildings, design guidelines, architectural renderings and real estate development proformas. In this negotiation, the planner is not a technocratic master-planner or a "hero" (Latour 1993) but one of the many actors that needs to convince other entities of how a land-use standard should be assembled (Callon 1984). Involving both human and nonhuman entities, the eventual black-boxing of land use is the achievement of "heterogeneous work" (Star 2010). Accordingly, the practice of land-use planning, and by extension the process of rezoning, can be viewed as a form of "network ordering … a somewhat uncertain process of overcoming resistance" (Law 1992: 380; see also Guggenheim 2010; Hommels 2008).

This approach to the politics of producing an order of land uses allows to reveal the apparent rational administration of the physical environment

kurath@arch.ethz.ch

with land-use standards as a social-material negotiation between things, lands, buildings and people. The technology of zoning frames this negotiation over the use of land by stipulating the concerns that are explicit in a land-use standard. It also steers this negotiation with the requirement of technical diagrams, calculations, categories and studies to be presented to decision-makers. In this way, the technology of zoning simultaneously serves the deliberation and stabilization of a land-use standard. This twofold operation of zoning, to codify and to modify urban form, makes for an interesting subject to approach with the ANT notion of "a thing"'. According to Latour (2004), "A thing is, in one sense, an object very much out there and, in another sense, an issue very much in there, at any rate a gathering" (233). With regards to land-use, it is "out there" as a legal designation of use and property, and "in there" in terms of a negotiable future use of land. Consequently, framing land-use as a thing guides an analysis of land-use planning as a technical and political gathering activity. That is, a techno-political inquiry into land-use planning asks how "the same word 'thing' designates matters of fact and matters of concern" (Latour 2004: 233).

Method: Tracing the Issues of Land-Use Planning

The uncertain process of overcoming resistance is analysed in a rezoning case study. Since the inherently political and apparently technical nature of land-use planning is the central question, the research cannot assume a clear demarcation between a domain of technical expertise and political deliberation. Consequently, an institutional analysis following planners inspecting rezoning applications and councillors debating the merits of a rezoning is not appropriate. Neither is an analysis of NIMBYism in public hearings or an examination of a neoliberal logic in planning and development. Rather, when the techno-political boundaries of land-use planning are considered fluid, the question is how zoning is more or less political. This requires the analysis to get up close to land-use planning and "follow the actors" (Latour 2005) in their network ordering activities. In this study I therefore decenter the planner, the politician and the public all together and follow instead the land-use standard and

kurath@arch.ethz.ch

its many associations (Law 2002). This means, yes, zoning is both technical and political, but how? My hypothesis here is that the boundaries between politics and technics are set in every rezoning as the outcome of "the uncertain process of overcoming resistance" (Law 1992).

Concerned with the making of land-use associations, the research is based on participant observation, site visits and a document analysis carried out in 2015. Observational data was collected at an open house, two public hearings, three council meetings and two court sessions relevant to the rezoning application. The documents analysed included the Vancouver Charter (City of Vancouver 1953), the Vancouver Housing and Homelessness Strategy (City of Vancouver 2011a), the West End Community Plan (City of Vancouver 2013a), the rezoning and development application files, the land exchange contract, the correspondences with council, the minutes from council, the Urban Design Panel (UDP) and the Development Permit Board (DPB) meetings, and the documentation from the court hearings. The ethnographic field notes and documents were analysed through a close STS reading. This case study is a vignette from a research project that employs Knorr-Cetina's (1999) notion of epistemic cultures to study epistemic planning cultures in Vancouver, Amsterdam, Lisbon, Vienna and Zurich.

Case Study: Rezoning Controversy at 508 Helmcken Street

The practices of network ordering are analysed in the rezoning of 508 Helmcken Street (508 Helmcken) in the Yaletown neighbourhood in Downtown Vancouver. This site is owned by the City of Vancouver (City) and leased to a social housing association (SHA) that operates housing on the site. Across the street from the social housing, at 1099 Richards Street (1099 Richards), is the office of a real estate developer (RED). In 2012, the RED approaches the city with the plan to develop a residential tower at 508 Helmcken and, in return, build new social housing at 1099 Richards. This marks the start of a rezoning controversy and three years of uncertainty about the use and occupancy of land.

In this case study I analyze the ordering of uncertainty about the use of land with the technology of zoning. I structure the analysis according to

kurath@arch.ethz.ch

the plans, procedures and publics through which land-use is negotiated. These negotiations take place in the settings of the official development plan, the rezoning application, expert reviews, the media and the court.

Setting 1: Plans

In the absence of a city-wide comprehensive plan, Vancouver's planning is largely developer-led and land-use changes are considered plot by plot. Land uses are defined in zoning bylaws that "divid[e] the city or any portion thereof into districts or zones of such number, shape, or size as Council may deem fit" (Vancouver Charter 1953: para. 565a). In a rezoning, planning staff evaluates the compatibility of land uses, buildings and "City Council policies based on community goals for the future of the city" (City of Vancouver 2009a). Three important policies influencing the 508 Helmcken rezoning are (1) Vancouver's Housing and Homelessness Strategy 2012–2022 (City of Vancouver 2011a), (2) the Downtown South Guidelines (City of Vancouver 2004) and (3) the Downtown Official Development Plan (DODP; City of Vancouver 1975). The first encourages the development of affordable housing in general, and the construction of "social housing" in this rezoning. View cones defined in the second urban design policy limit the maximum building height of the site owned by the RED, while the third development plan for the area designates the use of social housing on the site owned by the City.

A document with maps and plans, the DODP (City of Vancouver 1975) outlines and describes the different downtown districts in terms of use, density and form. The aim of the plan is threefold, it has the planning aim "to improve the general environment of the Downtown District as an attractive place to live, work, shop and visit" (ibid.: 4). A second architectural objective is "to ensure that all buildings and developments meet the highest standards of design and amenity for the benefit of all users of the Downtown" (ibid.). Finally, its urban development goal is "to provide for flexibility and creativity in the preparation of development plans" (ibid.). In this plan, the city-owned site is designated as a Downtown District-1 (DD-1) with a density of 3.0 FSR and the use of social housing. In line with the third aim of the DODP, the developer applies to rezone the city-owned site from a DD-1 to a Comprehensive

kurath@arch.ethz.ch

Development-1 zone (CD-1). A CD-1 is a custom and site-specific zone that ceases to be subject to the DODP and could allow the commercial, institutional and residential use the RED applies for on February 12, 2013. The so-called rezoning application further seeks to increase the density on the site from 3.0 FSR to 17.19 FSR and the height of the building from 21.3 meters to 97.5 meters.

Although initiated by the RED, the rezoning is applied for by the architect working on behalf of the RED. The application contains primarily technical information on the proposed development and, in this case, also includes materials provided by an engineer and landscape architect. It presents the project statistics comparing the uses, FSR and building height under the existing and the proposed zoning, along with a context plan, a site plan, a (bike) parking plan, the floor plans of the proposed development, the building elevations, the building sections, a landscape plan and a shadow study.

At this point, the technical consideration of the change in land use of 508 Helmcken is closely linked to uncertainty about two other issues, namely a land exchange between the city and the RED, and the development of social housing at 1099 Richards by the RED. View cones drawn up in the Downtown South Guidelines (City of Vancouver 2004) with the aim of protecting the view on the North Shore, restrict the maximum building height at the site owned by the RED. The same design guidelines designate the Downtown South neighbourhood for mixed-use and high-density developments. Invoking this urban design policy and the housing affordability policy, the RED expresses its interest to develop a residential tower on the city-owned site. In return for the up-zoning and the required land exchange, the developer offers the city to rebuild the social housing on its own site 1099 Richards.

Setting 2: Procedures

According to the Vancouver Charter (City of Vancouver 1953) and the DODP (City of Vancouver 1975), the three issues, which are different in planning substance, follow their respective procedures: the land exchange needs to be voted in council (City of Vancouver 1953: para. 190), the 508 Helmcken site needs to go through a rezoning procedure (ibid.: para.

kurath@arch.ethz.ch

566.1) and the 1099 Richards site requires a development permit application (ibid.: para. 565.1).

The development application for social housing at 1099 Richards seeks to increase the density from 3.0 FSR to 7.04 FSR. Since the proposed "building will contain 162 social housing units, a portion of which meet the definition of low cost housing (as defined in the Downtown Official Development Plan)" (City of Vancouver 2013a, b: 2), a first bonus density of max 5.0 FSR is granted for "social housing" and an extra density of 2.04 FSR is enabled by "low cost housing" (ibid.: 9). Although "low cost housing" is defined in the DODP (1975: 6), the development permit staff report states that this definition is "somewhat dated" and that "While a portion of the 162 units meet the Downtown Official Development Plan definition of low cost housing, it is very likely this building will be referenced simply as social housing, and known to house individuals with a range of income levels" (City of Vancouver 2013b: 8).

The definition is updated with amendments to the West End Community Plan (WECP; 2013a), a plan for a neighbourhood adjacent to Yaletown, on February 4, 2014. Planning staff proposes that "wherever the words 'low cost housing' appear, Council adds, immediately after those words, 'or social housing'" (City of Vancouver 2014). It further included an amendment that makes it possible for the DPB to grant density bonuses for social and low-cost housing without prior approval of council. In the notice of public hearing for the proposed amendments to the WECP distributed in the West End, it is mentioned that the amendments will also affect the DODP. Yaletown residents contest this implicit definitional update in the months following the approval of the 508 Helmcken rezoning, and a court ruling eventually quashes the definition update in the DODP. On March 26, 2015, the DODP is revised again and defines social housing as "rental housing in which at least 30% of the dwelling units are occupied by households with incomes below housing income limits" (City of Vancouver 2015: 3).

The rezoning procedure starts at the Rezoning Center with a pre-application process in which the applicant is assigned a rezoning planner to help research the policies and guidelines to improve the success rate of the submission. In the case of 508 Helmcken, the pre-application process runs parallel to the procedure of the land exchange. On January 26, 2013, staff sets up a land exchange contract with the RED. The contract,

kurath@arch.ethz.ch

itself conditional on the approval of council, subjects the land exchange to target dates for the turn-key delivery of the social housing at 1099 Richards and the rezoning of 508 Helmcken, both of which, in turn, are still conditional on council's approval.

Following the application on February 12, 2013, the UDP reviews "the design and inter-relationship of all physical components of the City" (City of Vancouver 2009b) and the proposed 508 Helmcken rezoning. The UDP is an advisory committee appointed by council and its review relies on the (technical) expertise of six architects, two engineers, two landscape architects, a member from the Vancouver City Planning Commission (VCPC) and an artist (ibid.). At a UDP meeting, the rezoning and development planners introduce the application with a scale model and posters of the project statistics, submitted by the applicant, besides the meeting table. The applicant's architect, charged with most of the process work, answers questions from the panel followed by a vote on the application once everyone has returned to their seats.

The 508 Helmcken rezoning application only receives approval (5-3) in a second review on April 24, 2013, after the members of the advisory committee did not approve with a 0–7 vote about a month earlier. On the day of approval, the RED submits the development application for 1099 Richards. The UDP and the Development Permit Board (DPB) unanimously support this application on June 5, 2013 and on August 12, 2013, respectively. The DPB is chaired by the Director of Development Services and comprises the Director of Planning, the General Manager of Community Services and the General Manager of Engineering Services (City of Vancouver 2011a). It is joined by an advisory panel, which includes a representative, appointed by council, of the development industry, the design profession, the UDP, the Vancouver Heritage Commission and three members of the general public.

Setting 3: Publics

Lasting over two days, the public hearing included 28 speakers, over 180 emails and 300 signatures. While land-use planning has overcome the

kurath@arch.ethz.ch

resistance in politics with the decision of council, the new zoning regulation becomes soon contested in other arenas. The Community Association of New Yaletown (CANY), an association sparked into being by the rezoning controversy (see Marres 2007), starts a legal petition challenging the "procedural fairness" of the rezoning on May 6, 2015. In their view, the new zoning regulation has been prematurely closed, as the network ordering has not given its dues to residents' concerns. In a statement on their website, CANY (2014) clarifies that they "are not against social housing" rather they see an issue with "the size and density of a building that massively exceeds neighbourhood plan bylaws" (CANY 2015) and "an [sic] City process that withheld, distorted and hid important information from the public, preventing informed discussion and decision-making" (ibid. 2014). On these grounds, CANY engages a municipal lawyer to challenge the city and the developer in the BC Supreme Court. To fund their legal actions they seek donations and pledge that any funds raised in excess of legal costs will be donated "to social housing initiatives in the New Yaletown neighbourhood" (ibid.).

Now that the rezoning procedure has been opened up, a group of planning academics and former municipal planners use the occasion to argue that major zoning variances, like the 508 Helmcken rezoning, "ignore long held planning values about the need for new developments to fit in with their surroundings" (Cameron et al. 2015). Questioning the expert view of the planning department, they "are very concerned that the proposed development at 508 Helmcken Street is out of scale with its surroundings" and "believe the current application warrants another review by the UDP prior to consideration to Public Hearing" (ibid.). Challenging the technology of zoning, the planners argue that "This review will also hopefully provide guidance to Council and staff on how far the city should deviate from accepted zoning and planning guidelines in order to achieve much desired affordable housing and other amenities" (ibid.).

In the court, the issue at stake is the city's dealings with zoning uncertainty and resistance, that is, the work in the rezoning, the land exchange and the development permit. The BC Supreme Court (2015) judge therefore asks "whether the City provided enough information for the public, in a form that was understandable" to evaluate the public benefit of the development (para. 112). Approaching the issue of "procedural fairness",

kurath@arch.ethz.ch

the BC Supreme Court judge takes a different perspective than the petition of CANY, attempting "to identify a series of deficiencies having legal consequences" (ibid.: para. 113). Instead, the judge looks at how that what is to be debated is brought under the attention in the rezoning process. Consequently, on the topic of the CACs for the rezoning, the judge is not concerned with whether there are "objective standards from which these [developer contribution] values have been derived" (ibid.: para. 116) but rather that if there are none "the public has a right to know that the City has provided conclusory figures that are not objectively justified" (ibid.). Similarly, in evaluating the information on the rezoning provided by planning staff at the public hearing, the judge critiques "The material is highly technical. … There is nothing that addresses the public in simple, direct terms" (ibid.: para. 114).

Accordingly, the judge (BC Supreme Court 2015) problematizes that the public hearing should not be held "on the basis that the public will get just enough information to technically comply with the minimum requirements of a public hearing" (para. 120) but as "a chance for perspectives to be heard that have not been heard as the City's focus has narrowed during the project negotiations" (ibid.). The judge (BC Supreme Court 2015) also notes that the rezoning information offered to the public "has the general effect of allowing the public eavesdrop on correspondence between technical staff and City Council (para. 114), or put differently, that the expert-public boundary work in the rezoning is "unfair" (para. 130). Consequently, the judge (ibid) quashes the rezoning of 508 Helmcken and the development permit for 1099 Richards and orders "new hearings on each, permitting concerned citizens to address the whole project, including the essence and value of the land exchange to the City and its residents." (para. 133).

The city and the developer successfully appeal the decision and so close the domain of politics again. This happens only one day after the rezoning and the development permit have been approved by council again. The BC Court of Appeal (2015) sees no problem with the material provided to the public since "citizens saw what City Council saw" (para. 109) in the consideration of "whether to enact the 508 Rezoning By-law in the public interest" (para. 114). It acknowledges that the material is indeed technical, "but the design of a 36-storey tower and its impacts on its neighbours is a matter of some technicality" (ibid.: para. 113). As to

kurath@arch.ethz.ch

what material is disclosed to the public, the Court of Appeal (2015) identifies the legislative and business powers of the city arguing "Good business may not serve the same interests as good land use planning and development control. … What is required of a municipality in such situations is to ensure that it manages the conflict, that it not let its business interests overwhelm its duty to make good law" (para. 61).

In following this line of argument, the judges (Court of Appeal 2015) maintain that citizens have a right to information "to come to an informed, thoughtful and rational opinion about the merits of the rezoning" and "They also have the right to express this opinion to the City at a public hearing" (para. 153). They further qualify however that "Citizens who disagree with the City's view of the public interest must seek change through the political process rather than through the courts" (ibid.). In this way then, the judges close down the political, stating that "when the City exercises its legislative powers (assuming it is acting within its jurisdiction), the principles of traditional political accountability provide the remedy: it is at the ballot box." (para. 61).

Conclusion

In this chapter I have attempted to unpack a land-use standard in a rezoning by framing land-use planning as a form of "network ordering … a somewhat uncertain process of overcoming" (Law 1992: 380). From this perspective, I tried to make visible the techno-politics of zoning in different settings, and so inquired when and how zoning is technical and political. In the case study, I looked at three situations of a specific controversy over how to standardize the city with the technology of zoning. I here analyzed what concerns were raised by planning experts and residents in the remaking of land-use, and how these concerns where shaped by the specific situations in which they were voiced. Some of these issues were raised outside the planning department or the domain of politics, and so challenged the formal rezoning procedure and its institutional expertise. The Court of Appeal (2015) has effectively reduced the controversy to politics, which has allowed the City to continue business as usual in the rezoning of land and the funding of social housing. In the aftermath of the

kurath@arch.ethz.ch

controversy however, Vancouver's Director of Planning and Development has stepped down. More importantly, a new insitutitional boundary has been introduced with the split of the original position in a new position for a Director of Planning and one for a Director of Development.

Reminiscing about the "good planning" of Vancouver, former director of planning Ray Spaxman (2015) comments on the search for a new director and congratulates the city that it has been able to identify and address major emerging issues in the city and find new ways of dealing with them." The task of finding out how to address those issues is indeed a central one to any spatial planning department. Often overlooked however, is the capacity to find out what the issues are in the first place. In this light, an STS-inspired analysis of rezoning processes focused on the concerns triggered by the remaking of land-use can be productive. Such a perspective could further draw on a notion of 'good' experiments, presenting the planning process as "'passing through' a trail and 'coming out of it' in order to draw its lessons" (Latour 2004: 195). In this way, the present description of the unpacking and blackboxing of a land-use standard is a first step in the direction of analyzing how order is produced as well as reimagining how this could be otherwise. Such an STS-inspired study (see also Marres 2013) would shift the focus from the non-human actor to the heterogeneous gathering that is so central to the production of land-use standards.

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Marko Marskamp is a PhD candidate in urban geography at the University of Lausanne and part of the ETH CASE research group at the ETH Zurich. In his doctoral research, he draws on insights from science and technology studies to inquire into the workings of zoning in the negotiation and standardization of urban development. He is particularly interested in how land-use planning operates between urban development, planning law and private property.

kurath@arch.ethz.ch

Part III

Distributing Planning Agency

kurath@arch.ethz.ch

5

Can the Craft of Planning Be Ecologized? (And Why the Answer to That Question Doesn't Include 'Ecosystem Services')

Jonathan Metzger

Introduction

In a somewhat impressionistic account of the historical development of the crafts of geo-territorial planning, Jonathan Murdoch (Murdoch 2006, Chap. 6) has suggested that recent years' ambitions to increasingly include ecological relations into planning processes constitute part of an almost linear development path. In somewhat broad brushstrokes, Murdoch argues that in the beginnings of town planning, the practice initially pertained quite exclusively to human constructions. Later, with the development of comprehensive planning, the gaze was shifted to also include more broadly defined social entities and 'systems'. In later decades, environmental planning has further expanded its scope to also include and integrate ecological entities such as biotopes or river basins as functional systems to be optimized or sustained with the help of purposeful human intervention.

J. Metzger (✉)
Divison of Urban & Regional Studies, KTH Royal Institute of Technology, Stockholm, Sweden

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kurath@arch.ethz.ch

If one accepts the gist of Murdoch's account, however stylized it may be, it is possible to discern that yet another broadening of the ambit of planning appears to presently be underway. For, at current, geo-territorial (urban, environmental, spatial etc.) planning is being proposed as a means of tackling ecological challenges on no less than the grandest of scales, in relation to planetary threats of global warming and biodiversity loss. To give but an example, the influential UN-sponsored Cities and Biodiversity Outlook report from 2012 (Secretariat of the CBD 2012) suggests in Key message 7 that 'Urban and environmental planning provide consultative opportunities and formal legal mechanisms to integrate the protection of biodiversity into the design, building codes, zoning schemes, spatial plans, strategic choices, and enforcement of city management' and that 'the practice of urban planning' can be 'a vehicle for securing the long-term public good at the city scale', which is why 'strengthening the ability of urban planners to navigate biodiversity concerns is critical' (Secretariat of the CBD 2012: 39).

In the midst of all this inspired enthusiasm it may however be necessary to momentarily pause and consider what sorts of demands such a new and bold mission for planning would place on its practices and methods. One way to imagine the development of planning into a craft harnessed to tackle ecological challenges on the planetary scale would of course be to envisage this as a simple task of expanding, retrofitting and fine-tuning already existing frameworks and methods of planning. Such a shift is also at present discernible in parts of the literature on planning methods, as signaled by the burgeoning plethora of methods for what is being labeled as 'ecological planning' (Ndubisi 2002), often with a strong grounding in Ian McHarg's seminal book *Design with Nature* (McHarg 1969)—which there will be reason to return to in some more detail further below. However, in the remainder of this chapter I will argue that visions of an ecological planning of a McHargian bent, as well as another increasingly popular approach to environmental planning, the Ecosystem Services approach, both are based on a thoroughly modernist conception of the world and are therefore unable to productively grapple with the wicked problems of ecological interdependencies in planning processes. In contrast, I will argue, a more thorough 'ecologization' of the craft of planning would require a more significant shift that goes all the way

kurath@arch.ethz.ch

down to the ontological and epistemological assumptions that underpin planning practice (see also Murdoch 2006, chap. 6). A shift, that—if accepted—requires the craft of planning to not only radically reconfigure its sensibility but also puts it on a mission to develop a new methodological toolbox so as to be able to enact such a sensibility in practice.

To make this argument I will on the one hand be drawing upon Science and Technology Studies (STS), which helps directs attention toward the relational effects of technologies, including their 'upstream' prerequisites and 'downstream' consequences, and on the other hand Bruno Latour's committedly non-reductionist political ecology (see, for example, Latour 1998, 2004, 2016). I will be following Latour by arguing that a truly ecological approach to planning stands in direct contrast to the modernist ideology that contemporary crafts of geo-territorial planning still adheres to in practice, even if not in letter. To become ecologized, in a Latourian sense, the latter must be shed.

The rest of the chapter will be structured according to the following: in the next section I will make use of Chunglin Kwa's concepts of romantic and baroque complexity to reason around why the conceptualization of 'the nature of nature' that underpins much of current 'ecological planning' methodology is problematic and in doing so utilizing Ian McHarg's seminal book *Design with Nature* as a pivot for discussions. Thereafter I will, drawing upon Latour's definitions of these terms, contrast a modernist mode of action to a more ecological mode—arguing that the professional crafts of geo-territorial planning have up until now generally operated according to the former of these. Then I will turn to Ecosystem Services approaches, a set of methods that is today considered to be at the forefront of ecological planning, and carefully scrutinize how they in practice come to enact (or not) issues of wicked ecological complexity. I will round off by concluding that the application of Ecosystem Services approaches in most probability will only serve to reproduce ingrained modernist conceptions of the world and therefore fail to provide any helpful handles in conceptualizing and grappling with complex transscalar ecological interdependencies that planning processes unavoidably must tackle if they are to function as vehicles for confronting planetary ecological challenges. Therefore, what is sorely needed at this point is work toward the establishment of a new sensibility underpinning

kurath@arch.ethz.ch

planning practice, as well as the development of practices, tools and institutional arrangements that can function to introduce and stabilize such a sensibility within the processes of planning.

Conceptualizing Ecological Complexities

In the postscript to his groundbreaking book *Design with Nature*, first published in 1969 but increasingly often cited as an authoritative text in the ecological planning literature, architect and planner Ian McHarg paints a worrying picture of a distant future in which humanity has failed to recognize its fundamental dependency on ecological relations beyond its own making (McHarg 1969: 196). McHarg warns that if humanity will continue along the same path of cavalier destructive exploitation of the planet, without any regard for its dependency on ecosystemic relations beyond itself for its existence and well-being, this does not bode well for the future of the species. To halt this destructive trend, McHarg argued that instead of imagining our living environments as reserves or stocks of 'resources', laying around just waiting to be tapped or extracted, humans instead need to learn to plan, design and live with 'Nature' in a reciprocal relationship, recognizing the fundamental, trans-scalar interconnectedness of human existence and the well-being of all sorts of other living entities and existences. Nonetheless, McHarg was optimistic for what the future may hold. 'Recent technological advances' such as satellites and remote sensing could be harnessed for the enumeration of all-encompassing 'elaborate ecological inventories' that would in fact cover the entire surface of our planet. And further, when these inventories were finally completed they could be 'constituted into a value order' through classification and ordering, which in the end would emanate in a full picture of all the interdependencies between living beings, which could then be used as a stable baseline and guidance for planning everywhere and anywhere in the future.

McHarg's problem description appear as relevant today, almost half a decade later, as ever before. If anything, the current situation is even more dire and acute, with the amassing of evidence that humanity is well on its way to undermine the planetary preconditions for its own existence

kurath@arch.ethz.ch

as a species (Rockström et al. 2009) and that it in the process appears to be on the verge of taking innumerable other types of existences with us in our fall, through the initiation of a cycle of biospheric extinction (Barnosky et al. 2011). Whereas the worst early consequences of these changes, heralded as the Anthropocene—the era in which humanity must be recognized as a (highly self-destructive) geological force—will initially primarily be inflicted upon already poor and vulnerable corners of the world, it is the well-to-do Global Northern urbanites who are extremely disproportionately contributing to the unbalancing of existing Earth System equilibria that generate the preconditions for human life on the planet.

Unfortunately, McHarg's proposed solution today rings a little hollow and perhaps doesn't come across as quite as inspiring and comforting as it might once have appeared. For the prospect of ever being able to fully enumerate and map the complex sets of relations that are habitually grouped under the label of 'nature' today looks more bleak than ever, as humans are slowly coming to grips with the scientific insights that the processes sustaining and produced by these relations are far from stable, linear or predictable. Rather, most of these systems appear to be susceptible or prone to nonlinear and sometimes unpredictable behavior, that is, governed by 'order on the edge of chaos', as taught by Nobel laureate Ilya Prigogine (see e.g. Prigogine and Stengers 1997). Simply put, the problem is that one generally cannot even know beforehand when a specific system will shift from a predictable pattern of change to sometimes sudden bursts of radical reordering or even collapse.

Within the field of ecology itself, this shift from a conceptualization of 'Nature's nature' as being predictable and reliable, toward an understanding instead based on the potential for nonlinear and abrupt change of ecosystems has been described as a move from a romantic toward a baroque sense of complexity (Kwa 2002). In a romantic conception of complexity, things add up. There are simple components that form a coherent pattern. This pattern may be intricate, but it forms a whole which is somewhat stable. The metaphor of choice is that of organism. With a baroque sense of complexity, things look much more messy. There may be 'wholes', yes, since they are often connected and/or overlapping in intricate ways, it becomes different to delineate them from each other.

kurath@arch.ethz.ch

Furthermore, the parts do not neatly add up. Different 'parts' may be components of different 'wholes' at the same time. And even worse, complexity isn't only the result of simple small parts adding up into intricate wholes that generate emergent properties then acting back on the parts. No, the parts are themselves engaged in sometimes erratic and unpredictable behaviors in the form of sometimes fluctuating or transforming relations with other parts and 'wholes' both 'near' and 'far', depending on the chosen topological or topographical measure of distance. From such a view, as much relational complexity can be expected in things seemingly 'small' and 'local' as in the apparently 'big' and 'global' (Law 2004).

With a romantic view of complexity, such as that espoused by, for example, McHarg in 1969, it makes sense to expect that with decent-enough technology and plenty of computing power it will be possible to once and for all survey and chart all the components of the Earth's natural systems in such detail that one will then be able to make predictions of their developments possible on any scale one wishes. But viewed from the angle of a baroque sense of complexity, any such ambition would seem a futile endeavor. The world is simply too much of an adventure for us to ever be able to predict all the intricacies of the eventful becoming of heterogeneous bits and pieces of matter bumping into each other in various ways, sometimes forming somewhat stable constellations for some range of time (a microsecond or eon), only to then at some later point, when the conditions have changed in some aspect, become rearranged or dissolved, thus bringing forth a bit of 'newness' into the world.[1] So instead of rosy prospects of technological solutions, what much of recent decades of natural science instead has left us with are rather intractable conundrums of an order that has sometimes been referred to as 'deep uncertainty' of an ontological character (see e.g. Lempert et al. 2003). The upshot of this is that large quarters of the natural sciences today recognize that it is often wickedly difficult to beforehand know how an action will make a difference to what and in which way.

At present, these insights and their consequences for how the circumstances of human existence are understood are only dimly starting to seep into much of popular consciousness: namely that the relations that sustain complex webs of life generally transverse the boundaries humans try to erect between entities sorted in the neat little boxes of, for example,

kurath@arch.ethz.ch

'nature' and 'culture', 'big' and 'small', and 'near' and 'far'. All these categories are transgressed and short-circuited by the empirically really existing relations mapped by e.g. Earth System Scientists and ecologists. As a consequence, it becomes difficult—if not impossible—to make any form of strong assumptions concerning what phenomena, localities and timescales must be taken into regard when acting here and now, since it becomes highly problematic to make any predictions regarding the cascading effects of these actions on intricate webs of ecological relations. It is simply extremely difficult to predict for sure what will weigh in on the unfolding of any undertaking, and it becomes impossible to ever fully know the full spatial or temporal distribution of consequences of any action. This points toward the need of coming to terms with the limits of human knowledge. But if these limitations are recognized, how can then McHarg's hope be kept alive, that humans will one day learn to plan their built environments and landscapes on the basis of an understanding of our species as situated within vast meshworks of complex ecological relations, in the big as well as in the small?

To Modernize or to Ecologize? That Is the Question

Planning has often been diagnosed as the modernist craft par excellence, up to this day compromising a 'tightly woven modernist fabric' (Balducci et al. 2011: 489) stitched together from a variable mixture of survey-plan-implement-evaluate, cybernetic mirages of predicting and controlling the evolution of complex urban systems and Habermas-fueled dreams of the planner as a neutral albeit empathetic mediator. What unites all these heterogeneous components of current planning practices is that they are all deeply steeped in a Western tradition of rationalism, albeit sometimes stretching these ontological underpinnings to the point of bursting at the seams. However, according to the influential STS scholar and political ecologist Bruno Latour, the particular modernist brand of rationalism appears to have run out of steam (Latour 2013: 10).

In the eyes of Latour the current ecological crisis has been brought upon humanity by modernization. By stating this, Latour does not mean

kurath@arch.ethz.ch

to point a finger toward some supposed evils of technology. Rather, what he has in his crosshairs is that figure of thought which he calls 'the modern constitution' (Latour 1993), the central modernist idea that 'Culture' and 'Nature' are mutually exclusive ontological domains; and which further enacts 'Culture' and human activity as flexible and active agency that can change and be changed, while 'Nature' is posited as a passive backdrop—inert, static, predictable and reliable.[2] At present, humans are rudely awaking to a reality that does not at all look this way, a so-called natural environment that is far from stable and reliable, but rather volatile, and perhaps unpredictable—and with a capacity to strike back if it is pushed too far beyond certain parameters.

Latour argues that humanity at this point therefore stands before a choice: either modernization proceeds—in which case the future prospects of the species look somewhat bleak—or humans instead begin to *ecologize* (cf. also Murdoch 2006, chap. 6). What is in substance the distinction made here, and what could such an enigmatic claim imply for planning practice? Latour is at pains to explain that he sees ecology not as a domain that has to do with 'the environment' but rather as a broad sensibility. An ecologizing way of thinking is for him specifically not claiming to know for sure 'that something has or, conversely, has not a connection with another, and knowing it absolutely, irreversibly, as only an expert knows something' (Latour 1998: 232). It is rather about to some degree always leaving open questions of what constitutes mere means and final ends, of what a thing is or does—or might become capable of doing; not necessarily seeing everything as somehow directly interrelated but rather recognizing that 'we don't know what is interconnected and woven together. We are feeling our way, experimenting, trying things out' (Latour 1998: 485). Such a sensibility, which Latour calls a political ecology approach, 'does not shift attention from the human pole to the pole of nature; it shifts from certainty about the production of risk-free objects (with all their clear separations between things and people) to uncertainty about the relations whose unintended consequences threaten to disrupt all orderings, all plans, all impacts' (Latour 2004: 25).[3]

It is somewhat disheartening to realize that in light of Latour's differentiation between a modern and ecological approach, basically all

kurath@arch.ethz.ch

established methods for dealing with so-called environmental aspects or factors in planning processes are hopelessly modern, as they generally are based on an assumption of an ability to provide stable and exhaustive definitions of what things are and what they do. As a consequence, the reproduction in these practices of the foundational myth of modernism—that of the possibility of exhaustive knowledge about 'natural things' and hence the possibility to predict and control the mechanics of wickedly complex ecological relations—will only lead to the perpetuation, and most probably also exacerbation, of the current planetary ecological predicament. The next section will more closely investigate exactly how this dynamic plays out in relation to a specific, presently widely popular, such approach to bringing 'nature' into planning processes, the Ecosystem Services approach.

How Do the Measures Measure Up? Assessing Ecosystem Services Approaches to Planning

The already-mentioned influential *Cities and Biodiversity Outlook* report, with the subtitle *Action and Policy: a global assessment of the links between urbanization, biodiversity, and ecosystem services*, center-stages the concept of ecosystem services as a key tool for halting the current destruction of planetary life-supporting systems on Earth.

The central tenets of the report are captured in its 'Ten Key Messages' (Secretariat of the CBD 2012: 65), which read like this:

1. Urbanization is both a challenge and an opportunity to manage ecosystem services globally.
2. Rich biodiversity can exist in cities.
3. Biodiversity and ecosystem services are critical natural capital.
4. Maintaining functioning urban ecosystems can significantly enhance human health and well-being.
5. Urban ecosystem services and biodiversity can help contribute to climate-change mitigation and adaptation.
6. Increasing the biodiversity of urban food systems can enhance food and nutrition security.

kurath@arch.ethz.ch

7. Ecosystem services must be integrated in urban policy and planning.
8. Successful management of biodiversity and ecosystem services must be based on multi-scale, multi-sectoral and multi-stakeholder involvement.
9. Cities offer unique opportunities for learning and education about a resilient and sustainable future.
10. Cities have a large potential to generate innovations and governance tools and therefore can—and must—take the lead in sustainable development.

In the report, 'natural capital' is defined as 'the stock of goods and services that are provided by ecosystems', which increase human well-being (Secretariat of the CBD 2012: 26). Immediately thereafter the reader is also told that the quantification of the value of such ecosystems in terms of 'capital' is an important tool for 'mainstreaming ecological considerations into the management of a city' (Secretariat of the CBD 2012: 26). After some hastily administered caveats about that valuation can be both qualitative or quantitative, the report quickly moves on to argue the benefits of adopting a thoroughly quantifying and monetarizing approach to such valuations, that is, measuring the economic value of ecosystems and the 'services' they render humans, in dollars and cents, so to say. It is argued, quite assertively, that 'ecosystem services', that is, the beneficial work of all sorts of heterogeneous phenomena grouped under the label of 'nature', 'can be captured in economic terms' (Secretariat of the CBD 2012: 26). In the same breath, extensive reference and praise is given to the international project *The Economics of Ecosystems and Biodiversity* (TEEB), which aims at developing methods for this. It is argued that TEEB draws attention to 'the global economic benefits of biodiversity, highlights the growing costs of its loss and of ecosystem degradation, and draws together expertise from science, economics, and policy to enable practical actions', and further that it has made a 'compelling case for the conservation of natural capital' through proving that 'nature has cost-effective solutions to local problems such as drinking-water supply and air-pollution control' (Secretariat of the CBD 2012: 26).

kurath@arch.ethz.ch

So how is this 'accounting for nature' then performed in practice? Let's go to the horse's mouth and take a closer look at the TEEB-project synthesis report, *Mainstreaming the Economics of Nature* (TEEB 2010), in which one can read, rather more soberly stated than in the *Cities and Biodiversity Outlook*, that '[v]aluation is not seen as a panacea, but rather as a tool to help recalibrate the faulty economic compass that has led us to decisions that are prejudicial to both current well-being and that of future generations. The invisibility of biodiversity values has often encouraged inefficient use or even destruction of the natural capital that is the foundation of our economies' (TEEB 2010: 3). It is further recognized that 'monetary valuation of biodiversity and ecosystem services may be unnecessary, or even counterproductive if it is seen as contrary to cultural norms or fails to reflect a plurality of values' (TEEB 2010: 11). Wise words indeed—and so far, so good. But after catching breath, the next paragraph then follows: 'Nevertheless, demonstrating value in economic terms is often useful for policymakers and others, such as businesses, in reaching decisions that consider the full costs and benefits of a proposed use of an ecosystem, rather than just those costs or values that enter markets in the form of private goods' (TEEB 2010: 11, emphasis in original, underscore added).

According to the authors of the report, this can be achieved through the application of the so-called tiered approach of TEEB which seems simple and straightforward enough:

> Step 1: For each decision IDENTIFY and ASSESS the full range of →ecosystem services affected and the implications for different groups in society. Consider, and take steps to involve, the full range of stakeholders influencing and/or benefiting from the affected ecosystem services and biodiversity.
>
> Step 2: ESTIMATE and DEMONSTRATE the value of ecosystem services, using appropriate methods.
>
> Step 3: CAPTURE the value of ecosystem services and seek SOLUTIONS to overcome their undervaluation, using economically informed policy instruments.
>
> (TEEB 2010: 13, emphasis in original)

Building on this method, the report offers a few 'best practice' case studies from which the reader can learn that halving the global deforestation

kurath@arch.ethz.ch

rate by 2030 would generate more than 3.7 trillion US dollars in savings in climate damage reductions; more sustainable fishing practices would increase profits for the fishing industry by 50 billion US dollars yearly; and the total value of insect pollination worldwide is estimated at 153 billion Euros. What the authors however seem to forget to mention is that if the latter kindly provided 'service' would cease to function, the long-term survivability prospects of a sizable proportion of the world's human population would look distinctly dire.[4]

Illusions of Mastery: Some Problems with Ecosystem Services

In an academic analysis of monetarizing ecosystem service approaches, such as the one suggested by the *Cities and Biodiversity Outlook* and TEEB, and the market relations they engender, Kosoy and Corbera (2010: 1229) suggest that these involve three steps: (1) narrowing down an ecological function to the level of an ecosystem service, separating the latter from the wider ecosystem; (2) assigning a single exchange value to this service (i.e. 'putting a price-tag on it'); (3) linking 'providers' and 'consumers' of these services in market-like exchanges. In the first of these steps, ecosystemic relations are 'itemized' for the purpose of monetary valuation. This demands a delimitation and extraction of a specific ecosystem 'service', qualified on its supposed beneficiary contribution to furthering some human desire or interest, from a complex web of ecological relations that are sustaining and sustained by that specific 'item'. Furthermore, to be able to proceed to the second step of the process, commensurability between disparate entities must also be generated, establishing relations of 'this-here is in this aspect equivalent to, and exchangeable with, that-there' enabling a treatment of 'any individualized thing in one place being treated as really the same as an apparently similar thing located elsewhere' (Castree 2003: 280; see also Robertson 2004 and Verran 2013).

However, Norgaard (2010: 1221–1222) has relayed the experiences of expert participants in the influential Millennium Assessment, which was based on an Ecosystem Services approach, who when tasked with this

kurath@arch.ethz.ch

mission were confronted with such wicked relational complexities and situated particularities of ecosystems, that they were led to realize that what they had learned in one ecosystem did not easily translate to another, even if seemingly similar on a superficial level. Furthermore, they learned that they could say very little about how the delivery of one 'service' affected the availability of another. Therefore, they concluded that the relational complexity of ecological interconnections across geographical and timescales is simply too deep to be readily charted. Based on similar insights, others have therefore also argued that the itemization and generation of commensurability between disparate entities that is demanded by an Ecosystem Services approach serve to obscure ecosystems' complexity and establishes boundaries within ecosystems that are difficult, if not impossible, to draw with any certainty (Kosoy and Corbera 2010: 1231; Robertson 2004; Vatn 2010).[5] Nonetheless, this is exactly what Ecosystem Services approaches demand is done; that is, they require that the baroque complexity of ecological relations is disregarded and that these relations instead are broken down into distinct 'services' that are individualized and itemized—so as to enable the monetarization and thereafter potentially also calculation of marginal gains, in the steps to follow.

To be fair, the TEEB report mentions that 'more complex situations involving multiple ecosystems and services, and/or plurality of ethical or cultural convictions, monetary valuations may be less reliable or unsuitable' and that 'Economic valuation is less useful in situations characterized by non-marginal change, →radical uncertainty or ignorance about potential →tipping points' (TEEB 2010: 12, 26, emphasis in original). What it fails to mention is that if there is anything contemporary biology, ethology, spatial analysis and earth systems science is teaching us, it is that such radical uncertainty generally appears to be the rule rather than the exception in our world and that—simply put—it is generally very difficult to know for sure just what hangs together and how in complex, overlapping and scale-crossing ecological entanglements which may at some points be quite fragile.

Contrary to recognizing such immense relational complexity, and the fundamental existential and ontological uncertainty it engenders, the ecosystems services framework and similar types of methodological tools

kurath@arch.ethz.ch

profoundly fuel an illusion of mastery: an illusion that one can exhaustively know all the roles and functions played by beings and things that most probably are deeply entangled in complex ecologies stretched out over time and space, which human knowledge quite certainly can only ever have the dimmest of grasps of. Even worse, it actually enacts an illusion of substitutability between different 'providers' of ecosystem services. A seductive reality in which one can supposedly know what 'service providers' in 'nature' do so assuredly that a price-tag can even be placed on them. Through this, affordances are also opened to then use this information to figure out how to trade them for something that can do the job comparatively cheaper, even though it is widely accepted that the price of a commodified 'service' provided by a spruce grove, shoreline or marshland to the benefit of human well-being only captures but a faint subset of the multiple functions it has in complex webs of ecological relations (cf. Vatn 2010: 495; see further also e.g. Uexküll 2010).[6]

It could of course be argued (and is) that it is good that in societies that privilege numeric accountancy over other forms of discourse, Ecosystem Services approaches at least get 'Nature' into the frame of calculation, so to say (see e.g. McKenzie et al. 2014; Hahn et al. 2015). As Norgaard (2010: 1219) argues, the use of market metaphors was perhaps also strategically necessary to kindle a fledgling ecological sensibility in some of the quarters where it is most desperately needed, that is, in the spheres of commerce and economic policy. Others have argued that schemes compensating for the provision of ecosystem services can be used strategically by marginalized groups to receive some remuneration and financial support for activities that they undertake which are actually founded in other, much more ecologically minded ways of understanding the world (Jackson and Palmer 2015). But even if so, it is a distinctly double-edged sword. For at the same time as it makes visible, tangible and value-able entities that previously have been excluded from important calculations toward what is seen as beneficial developments, the framing provided by ecosystem services further fuels human hubris and arrogance through feeding the dangerous illusion that one can easily know and once and for all establish what something does, in all its dimensions, and that these functions can then be assigned a stable value, which thereafter can be calculated back and forth: 'how much of this ecological service provider

kurath@arch.ethz.ch

do we really need, can we perhaps make an economic profit by substituting it for something else?'

Thus, Ecosystem Services approaches generate calculative infrastructures that provide affordances for simplification and unwarranted reductionism, which then paves the way for unthoughtful action underpinned by illusions of commensurability, substitutability and tradability where this simply is not. Therefore, as Ernstson and Sörlin (2013: 275) argue, ecosystem services cannot be viewed as 'reflecting an objective biophysical reality' but rather as a 'social practice to articulate value'. Furthermore, this specific way of doing so is perhaps particularly dangerous because of its projected veneer of scientificality, universality and comprehensiveness—but without any regard for how a wider application of an Ecosystem Services approach, without a humility in the face of wicked ecological complexity, will in all probability lead to a series of successful operations leading to the eventual death of the patient—to paraphrase a well-known proverb.

However, it is important to clarify that this line of criticism directed at such approaches in no way constitutes an argument against quantitative science, that is, the collection, quantification and analysis of information in ways that give us new handles on the world, per se.[7] Furthermore, it doesn't either have anything to do with any claims toward the need to recognize some supposed 'intrisic value of nature'. Rather, it is founded on an insight that even action driven by an 'instrumental' interest in the long-term survival of humanity as a species on this planet demands different approaches than those offered by ecosystem services. The simplifications demanded and performed by this approach are simply too crude and sweeping to be able to contribute to the more fundamental changes in thinking and behavior that are necessary to further this wider goal.[8] Rather than constituting an attack on 'science', contesting the productivity of adopting an Ecosystem Services approach to planning is an argument against specific ways of articulating value, which engender an illusion of grasping all there is to know about the reality, thus—so to say—confusing the map with the terrain, and generating a very limited and one-dimensional enactment of the supposed 'whole' under scrutiny. The serious danger with this specific approach is that in addition to this, it also claims to be able to provide unquestionable solid answers as to how best to navigate in the depicted landscape.

kurath@arch.ethz.ch

Concluding Discussion: Doing Ecological Planning, Differently

From a Latourian perspective, a nascent ecologization of planning practice would need to be based upon the insight that humans can do great things and generate changes to their living environments even on the grandest of planetary scales—both wittingly and unwittingly, but they can never ever fathom the full consequences of their actions. Building on this insight, those engaged in the development of methods for 'ecological planning'—as well as in their application—must stop believing (or pretending to believe) that they can ever know exhaustively all that which things do, that is, the variegated and multiple roles that various entities play in immensely complex, trans-scalar overlapping ecological systems. Not to mention what they can do if circumstances change—or for that sake what they cease to do if they disappear, which perhaps wasn't even previously known before it was too late. It is thus about coming to an understanding that humans will never be able to grasp the full scope of consequences of any event, not to say anticipate them—neither in the seemingly small nor large. To use a different vocabulary, ecological thinking and action, in the Latourian vein, must be founded upon a recognition of the fundamental uncertainties of complex worlds, by staying faithful to Isabelle Stengers injunction that one for as long as possible holds on to the intuition that there is always more in nature than what is observed (Stengers 2011: 36; Braun 2015).

A more humble approach to such wicked ecological complexity would proceed from an ambition to move toward what Michel Serres (2006) has called the 'mastery of mastery', a phrase by which he attempts to capture the sensibility of moderation and caution which he means would be the necessary new practical ethos for a humanity that for far too long has been intoxicated by its own illusion of command and control over a supposedly predictable and inert 'Nature'; a potent intoxicant indeed—and potentially deadly at that. It is precisely herein the problem lies with 'ecological planning' in the McHargian tradition, as well as the Ecosystem Services approach. They are simply steeped in the same modernist ontology of traditional, mainstream approaches to planning which build upon

kurath@arch.ethz.ch

a core assumption that it is possible for humans to attain perfect knowledge of an in-itself-supposedly-stable and predictable natural world. Therefore, from a Latourian political ecology perspective, to call, for example, an Ecosystem Services approach grafted onto a traditional, mainstream planning procedure 'ecological' would be a little bit like adding lettuce to an industrial fast food-chain hamburger and calling it 'green' (cf. Paul et al. 2014). In other words, it is either self-delusional or, in the worst of cases, even deceitful—given that such claims risk papering over the fundamental predicaments of human life as viewed from the perspective of wicked ecological interdependencies.

Based on the review performed in this chapter, a reasonable conclusion might be that if the craft of planning is ever going to become anything but a vehicle for palliative self-delusion in relation to the wicked complexity of contemporary ecological challenges, it will need to find 'other ways to go on' that recognize that the world itself is 'a lively place, a reservoir of agency, that can always surprise us in its performance, and that we always have to get along with and accommodate ourselves to, rather than seeing through and controlling' (Pickering 2007: 2). To ever begin to make any form of manifest difference within the bureaucratic machineries of planning processes, these new ways would reasonably need to be founded upon, and enact, recognition of the limits of human knowledge. But even if more 'modest' in its attitude toward the world than most established planning protocols, it would nonetheless be quite far from 'do nothing' or 'business as usual' inclinations of planning and would to the contrary demand quite a radical rethinking and reworking of current practices, way beyond producing illusions of being able to fully account for those multifarious and often unpredictably interconnected things habitually referred to the category of 'Nature'.

Notes

1. See also Pickering (2007) on 'islands of stability'. Aside from the natural scientific work of, for example, Prigogine, and mathematicians such as Edward Lorenz, some of the most eloquent philosophical formulations of such a 'baroque' conception of 'becoming' in the world can be found in

kurath@arch.ethz.ch

the work of philosophers such as A.N. Whitehead (1929) and Deleuze and Guattari's (1987) discussion of becoming, the 'molecular' and 'lines of flight'.

2. Furthermore, Latour argued that although the intellectual movement of modern*ism* posited such a separation, in effect most supposedly 'modern' practices in effect amounted to a constant under-the-blanket transgression of these supposedly fundamental categories. Therefore, according to Latour, even though modern*ism* as a way of thinking has definitely been influential, so-called Western societies have in practice nonetheless 'Never Been Modern' (cf. Latour 1993).
3. The Latourian take on ecologization and his definition of a political ecology approach also resonates deeply with the work of Guattari on transversal ecologies, ecosophy and 'eco-logic', for example, the need to engender a new, fundamentally relational sensibility that aims at thoroughly connecting 'mental', 'social' and 'environmental' ecologies, see further Guattari (2000) and also Murdoch (2006: 188).
4. A sympathetic commentator would perhaps argue that the monetarization of the economic value of such 'services' rendered by 'nature' to humans is but a helpful rhetorical ploy to be able to bring in and make relevant ecological issues in accounting-crazed contemporary societies. However, it appears as if the 'economic gains' rhetoric is less than a contingent side-aspect of the Ecosystem Services approach and more of a central grounding justification for the whole approach, at least in how it is then translated into practice. An illustrative example of this can be found in a report authored by some of the world-leading researchers on ecosystem services and meant to function as strategic planning guidance in Stockholm County, where the center-staging of this aspect of the framework is made very explicit. In the opening of the report, the list of 'positive effects' of an ecosystem approach to planning is top-billed by the statement that 'we earn money by letting nature do the job' (SLL 2013: 7, *author's translation*). Later in the report, it is claimed that 'Ecosystem services are economically profitable' and that 'We face a considerable income loss' if ecosystem services are not accounted for (SLL 2013: 10–11, *author's translation*).
5. For a similar argumentation relating to a somewhat different context, see also Hinchliffe et al. (2007).
6. There is also an interesting parallel here to Michel Callon and John Law's work on qualculative practices, that is, the study of the by necessity reductive processes of qualification that by necessity preclude any form of calculation. See further Callon and Law (2005).

kurath@arch.ethz.ch

7. It has been repeatedly suggested that the scientific base of Ecosystem Services approaches actually is quite weak, see, for example, Norgaard (2010) and also Verran (2013). As Ernstson and Sörlin (2013: 279) argue, 'these practices in many ways resemble scientific practices, although they depart from conventional science in the essential sense that they are used to establish value'. Furthermore, the current research front in ecology recognizes that it does not have the predicative capacity to identify the sustainable use of any particular ecosystem service, to describe trade-offs between uses of ecosystem services, let alone on some form of universal level. To the contrary, 'much of the ecology we know does not support the ecosystem services perspective' (Norgaard 2010: 1220).
8. Hahn et al. (2015) argue that the only real alternative to a commodifying/itemizing approach such as ecosystem services is to argue for the intrinsic value of nature, beyond human interests and well-being. However, an alternative tack would be to approach the problem of human well-being 'instrumentally' but with a recognition of the limits to human knowledge and an appreciation of the ubiquity of (baroque) complexity, acknowledging that operations of valuation based on too narrowly defined understandings of functionality and utility are dangerous and counterproductive (see also Dewey 1939: 50). This insight has nothing to do with downplaying or disregarding human well-being but rather sets it into a wider, relational frame. See also Latour (2016).

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Jonathan Metzger is Associate Professor of Urban and Regional Studies at the KTH Royal Institute of Technology in Stockholm, Sweden. He has a professional background as a practicing planner, and much of his research centers on the enacted epistemologies and ontologies of planning practice. In his work, he often explores the disciplinary common ground between planning studies, human geography and STS while also drawing upon the wider social sciences and humanities for inspiration.

kurath@arch.ethz.ch

6

Constructing the Urban Citizen: How Public Knowledge Is Translated into Urban Planning Processes

Monika Kurath

From Deficit to Democracy and from the Rational to the Material: Public Engagement with Science and Planning

Since the establishment of planning legislation in Western societies in the second half of the twentieth century, public knowledge and interests have played a role in land use planning processes (e.g. Cullingworth 1993; Rydin 1999; Tanquerel 1992). In its legal origins, public participation in planning has been framed in terms of a rather technical format of a legally predetermined consultation of land owners. Its epistemic orientation has mostly followed a Habermasian approach of rationale discourse that is based on the idea that the various interests can be met by one solution (e.g. Healey 1997; Forester 1999; Rydin 1999). More recent trends point to more variegated ways of engaging citizens in urban planning processes. One of these trends, also termed as *material*

M. Kurath (✉)
Research & Faculty, University of St.Gallen, St. Gallen, SG, Switzerland

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kurath@arch.ethz.ch

participation, includes non-traditional, aesthetic, affective, experiential and irrational modes of expression, like pictures, songs, poetic imageries and intuitive, material and contextual knowledge that plays a role in planning decisions (Marres 2012; Rydin and Natarajan 2015; Davies et al. 2012; Metzger 2011). A second trend stands for mutual learning-oriented approaches that are based on the idea that planners can learn from citizens and that the city belongs to everyone (e.g. Brabham 2009; Lauwaert 2009; Hommels 2010).

By drawing on this recent trend of more material and mutual learning-oriented participation in urban planning—here termed as *public engagement with planning* (PEP), this chapter draws a parallel to public engagement with science (PES). In both fields, traditional, more one-way, public understanding or rational discourse-oriented communication approaches have been criticised and a turn towards more material and mutual learning-oriented lines of public engagement has been observed. While in planning, this turn stands for a shift from rather rational to more material and mutual learning-oriented approaches (e.g. Rydin 2003); in science, this turn has been conceived as a shift from "deficit" to "democracy" (Irwin 2014).

Furthermore, in planning the aim of public engagement from its origin was to *influence* the planning process, whereas in science public engagement was initiated with the idea to create public *acceptance* for science and technology endeavours.[1] Only later the idea of a public involvement in science and technology emerged, but as such remained a "problematic construction" as Irwin (2014, 74) has termed it.[2]

Thus, in science, the idea of public engagement emerged after the Second World War under the notion of *Public Understanding of Science* (PUS), with its aim to increase the public acceptability for "big science" projects (de Solla Price 1967). Due to its top-down and one-way communication orientation, its disregard of "civic epistemologies" and its epistemic basis in an expert–lay knowledge divide, this traditional science communication approach has been widely criticised as ill-defined and as a "deficit model" in STS (see e.g. Irwin and Wynne 1996; Wynne 1995; Wynne 1996; Hagendijk 2004; Hagendijk and Irwin 2006; Jasanoff 2005; Wynne 2006). These PUS criticisms and further science policy controversies have contributed to a turn towards a more dialogue-oriented science communication that has been framed under the notion of PES.

kurath@arch.ethz.ch

In particular, in context of emerging technosciences, like nanotechnology, a more equally and upstream-oriented engagement of the public at an early stage of technology maturity in science and technology-related decision-making has widely been propagated.[3]

Despite the contribution of PES to an apparently successful shift from science governance to a more complex perception of citizens' knowledge, several authors and PES proponents still draw a rather sceptical picture of such approaches, particularly with regard to their translation into the political process (Nowotny 2014; Jones 2014; Felt et al. 2012). Recent contributions point to the changing relationship between science, democratic and public legitimation (Chilvers and Kearnes 2016) and the temporal, global and sociocultural complexity in which engagement and claims for democracy normally take place (Irwin 2015; Irwin and Horst 2016; Felt 2016).

While PES has widely been discussed, particularly in STS literature, PEP hasn't been largely in the focus of STS analyses so far (exceptions are Davies et al. 2012; Karvonen and van Heur 2014; Hommels 2005).

In planning, comparable to PUS approaches in science communication, rationalist concepts of communicative planning, here termed as PUP, have been criticised as a rather technocratic, top-down or one-way-oriented communication approach. These PUP concepts are further criticised as disregarding the diversity, the individual contexts and situatedness, in which planning projects are normally embedded (Sandercock 1998; Fainstein 2000; Healey 2003). Also the establishment of a gap between expert and lay knowledge has been observed within both: the rational model of communicative planning (PUP) and PUS. Additional criticisms further argued that communicative planning has hardly contributed to a significant inclusion of public opinions and attitudes into the planning process (e.g. Schmid 1999) and that due to their epistemic basis on generating consensus among the involved actors, they are hardly able to reflect the multiple and pluralist facets of democratic societies (Michels 2010).

In the last decade and in parallel to PES initiatives in science communication, these criticisms of rationale planning led to a focus towards more material and mutual learning-oriented approaches of engaging citizens in planning-related decision-making—here termed as PEP—(Rydin 2003; Davies et al. 2012; Marres 2012).[4] Through their inclusion of

kurath@arch.ethz.ch

non-traditional aspects of planning such as aesthetic, affective and experiential aspects, such PEP initiatives have been described as going beyond the traditional rational discourse approach (e.g. Rydin and Natarajan 2015). Comparable to PES also PEP has been related to the idea of democracy (Rydin 2007; Karvonen and van Heur 2014).

Thus, several planning offices in Western cities developed strategies for PEP. Such novel forms often take place outside of traditional meeting rooms at different spots in the city and act closer at the living environment of citizens, and they have been conceived as an acknowledged process to improve decision-making (Davies et al. 2012).

Against this background, it is argued here that science and planning are—despite their epistemic differences—comparable with regard to public engagement.[5] Hence, in the deliberation of science and planning, a turn towards a more reflective, exchange and mutual learning-oriented way of listening and negotiating topics has been observed that incorporates civic epistemologies and takes up situational and material aspects. In science communication, these novel approaches have been challenged for their disconnection from science policy, the public disinterest in the discussion of rather technical topics and for their simplistic picture of science and democracy. In contrast, such novel approaches in planning have received little attention so far. This is where the subsequent analysis starts: by taking up these criticisms of PES, it analyses two case studies of PEP with regard to the ways they show similar shortfalls and with a twofold focus:

1. It analyses the ways the framings of the urban citizens—either in more rational or more engagement-oriented ways—have had an impact on the translation of the results of the two analysed engagement processes into planning-related decision-making.
2. It examines whether criticisms addressed in context of PES, like its disconnection from the political process, can also be found in PEP.

By doing this, this analysis draws on STS literature on PES, on PUS criticisms and on Irwin's (2001) concept of the "scientific citizen", with which he has studied constructions of citizens in public engagement with the biosciences. Hence, Irwin's (2001, 15) relational framing of his scientific citizen concept as the interaction between science and citizenship given

kurath@arch.ethz.ch

by the different conceptualisations and co-productions of "social processes", "underlying assumptions" and "operational principles" is further developed for the needs of analysing constructions of citizens in urban planning—or as it is termed here, the *urban citizen*.

Social processes are here understood as the interaction of planners and citizens in PEP initiatives, including the question which planning stakeholders and what kind of citizens have been brought together and the "balance of information and consultation" and the amount of "activity" or "passivity" the participants are accorded. *Underlying assumptions* are conceived as conceptualisations, imaginaries and pre-framings of all the involved actors, related societal domains, namely cities, politics and the public, but also such of technical aspects, like the debated themes and topics in such PEP initiatives. *Operational principles*, finally, are here understood as the technical framework of such deliberative formats, like their institutional location, their communicative approach and their overall technical setting.

Taking this analytical framework and using the described parallels between science and planning with regard to public engagement, this chapter is based on the thesis that STS concepts to analyse PES, like the scientific citizen (Irwin 2001) can—despite their epistemic differences—be applied on the analysis of PEP.

For this chapter two cases of public engagement with urban planning were analysed, and both were collected within a larger research project.[6] This project investigates zoning and plan development in urban planning in the five Western cities Amsterdam, Lisbon, Vancouver, Vienna and Zurich. Methods consist of participant observations (Emerson et al. 2001) in the related planning offices, document analysis, qualitative expert interviews (Bogner and Menz 2009) and workshop discussions with planners to validate the results (Lamneck 1995). The interviews were recorded, transcribed and—together with the research notes and the pictures—analysed using the method of content analysis (Emerson et al. 2011).

The cases analysed are two urban planning exhibitions[7]:

1. The "getting growth right" exhibition in Zurich from 2013
2. The "Vienna 2025 exhibition: developing the city in dialogue" from 2013/2014

kurath@arch.ethz.ch

In both exhibitions, citizens were included in the process of developing urban planning documents and both problematised urban growth. The Zurich exhibition was built around the regional development plan and the communal building and zoning code, both legal documents that aimed for a revision. The focus of the Vienna exhibition was on the drafting of a new urban development plan (Stadtentwicklungsplan/STEP), a strategic document that is used as a guide for urban planning decision-making.

From a methodological perspective, the documents in the focus of the two analysed public engagement initiatives differ from their technical and political character and their judicial commitment: while the regional development plan and the zoning code are legal documents, already preformulated by their precursors, the urban development plan is a strategic document, and without legal consequences its status is much more open and individually configurable. Furthermore, a zoning code revision involves more political steps than an urban development plan (see Sects. Zurich: "Getting Growth Right" and Vienna 2025: Developing the City in Dialogue). However, despite their differences, the two cases inform each other as both document revisions have been established within an urban planning exhibition and as both exhibitions clearly aimed at including citizens in the development of these urban planning documents.

Hence, the subsequent analysis is twofold: first, it studies how the urban citizen has been constructed in the two exhibitions and in the accompanying events and asks after the ways this framing influenced the translation of the results into the two planning documents. Second, it investigates whether criticisms addressed by STS scholars with regard to public engagement with science—like its disconnection from the political process—can also be found in the two analysed cases of PEP. This leads to the subsequent key questions of this research:

- What are the co-constitutions of the city, planning, the citizens and the planning specialists in these two exhibitions and in the related public events?
- In what way have planning knowledge, planning practice and public knowledge been related to each other?
- How did these two exhibitions construct "the urban citizen", or more precisely, what were the social processes, the underlying assumptions

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and the operational principles in the construction of the urban citizen in these exhibitions?
- Where have these exhibitions been institutionally located?
- How was the balance between information and consultation?
- What pre-framings of all the involved actors could have been observed? How active or passive could the citizens engage?
- What were the underlying social or technical assumptions?
- To what extent have the citizens' ideas and voices been included into the related planning documents? And in what way was urban planning conceived, as a technical, expert-driven or as a participatory process?

The next two sections discuss the two case studies with regard to the mentioned questions, and the last section will conclude on the framings of the "urban citizen" in the two cases and on the impact this framing had on the translation of the results into related decision-making processes.

Zurich: "Getting Growth Right"

In fall 2013 the city of Zurich published a revision of the regional development plan (Richtplan) and a partial revision of the building and zoning code (Bau- und Zonenordnung). Such a zoning code revision involves a decision from the city council (Stadtrat) after which the responsible counsellor—in the case of Zurich, the head of the building department (Hochbaudepartement)[8]—charges the related authority—in this case the office for urban planning (Amt für Städtebau)—to make a first draft that goes back to the building department. The planning and building law that indicates a public consultation of 60 days, before new or revised regional development plans or building and zoning codes come into force. The final version is to be approved by the legislative body of the city, the municipal parliament (Gemeinderat). The referendum is non-mandatory according to the planning and building law (ZH Lex LS 700.1 1975 #699). During this consultation the plans and codes need to be made publically accessible for 60 days and any interested person is allowed to comment on these in written form (ZH Lex LS 700.1 1975, § 7).

kurath@arch.ethz.ch

To engage public comments, the organisers from the office for urban planning decided to embed the consultation within four communicative approaches, including public events and documentation:

1. An exhibition with the title "getting growth right" (Wachsen, aber richtig), situated in a municipal building of the City of Zurich in the government district where the building department is located (Amtshaus IV);
2. Three reports, accompanying the exhibition;
3. Four panel sessions in the planning department; and
4. A related public lecture series entitled "growing pains", organised by the University of Zurich and the Department for Urban Development (another municipal authority in the city of Zurich).

The citation below, extracted from the flyer to the "getting growth right" exhibition, points to a rather one-way communication-oriented framing of the citizens. It further hints to the underlying assumption that the planners decide on urban development and include the citizens to learn about their decisions. Thus, the major aim of the exhibition might have been that of informing citizens on current urban planning knowledge and the ways this has been included into the revisions of the regional development plan and the zoning code:

> In the exhibition "getting growth right" Zurich people are invited to get a picture on the ways the city should develop and what this means for the regional development plan and for the building and zoning code. (Stadt Zürich 2013, 2, translated by the author)

The core of the exhibition was built around an existing vast three-dimensional wooden model of the municipal area of the city of Zurich, as it is used in architecture. This model is situated in the basement of the planning department (Fig. 6.1). It displays a detailed cubatory scheme of each building and a true-to-life reproduction of the urban natures; however, it excludes any urban infrastructures, as it is the custom in architecture models. This model was complemented with rectangular, coloured ceiling lamps, on which a selection of human activities and functions

kurath@arch.ethz.ch



Fig. 6.1 "Getting growth right" exhibition, cardboard model with coloured ceiling lamps and posters (photograph by author)

were made visible. By including these activities into the exhibition, the organisers point to a rather functionalist understanding of the city that, besides its material layers like buildings, natures and the free space, is also composed by some specific human activities.

The walls of the exhibition rooms were covered with posters. Those pre-framed the discourse by illustrating the spatial development aims of the city of Zurich. Each poster had a visually offset last section, summarising the content by a normative statement like "keeping growth right", "Zurich stays Zurich" and "get involved".

The poster with its last section saying "get involved" was one of the only ones that directly addressed the public and encouraged the visitors to comment on both revisions (that of the regional development plan and the partial zoning code revision). Thus, the pre-framing of the citizen's contribution was rather narrow and positioned in the context of rationale discourse, namely by citizens who have the interest and the

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ability to visit the exhibition and who are able to read and interpret quite complex plans and to write and to bring a personal attitude into a written statement (Figs. 6.2 and 6.3).

Furthermore, the floor of the exhibition was decorated with coloured bubbles, posing questions like "Which city do we want?" "Does this



Fig. 6.2 Poster at the exhibition (photograph by author)

kurath@arch.ethz.ch



Fig. 6.3 Bubbles on the floor of the exhibition room (photograph by author)

concern me?" "How dense is dense?" and "Is there space for everything?" Again, these questions rather appeared as rhetoric ones, as the visitors weren't provided with a possibility to answer them. And again, urban planning topics have been summarised by relatively vague and general questions with unclear assignments of who poses these questions and where and in what way they can be answered.

As an additional communicative approach copies of publications were made available for inspection in the exhibition room, including the current and former zoning codes, plans and overviews. Several of these publications were sold at the exhibition, like a synoptic overview on the planned partial revision of the zoning code (CHF 29.60), an exemplification of the planned revision (CHF 37.), and the three publications "fairer" (gerechter), a historic overview on the development of zoning codes in Zurich; "further" (weiter), an overview on urban sustainability; and "more dense" (dichter), an outline of examples of urban densification (each CHF 25.). Within these publications, the planners were framed as

kurath@arch.ethz.ch

experts with clear strategies and written-down ideas of the ways they aim at developing the city. And the citizens were also indirectly framed as members of knowledge societies with abilities in not only reading texts but also rather complex plans and in being wealthy enough to buy these publications.

Beside the exhibition and the publications, the organisers hosted four public panel sessions in the planning department. These sessions that covered pressing issues like density, fairness, housing and labour were designed around a similar frame, namely, experts giving talks, a panel discussion and the audience that could ask questions after the panel discussion. Here, again we can see a rather imbalanced setting of top-down information—or one-way discussion, meaning that the citizens could only passively engage as audience and had to wait until the end of the panel discussion before they could raise their own questions.

As a fourth approach, the University of Zurich and the Department for Urban Development (Stadtentwicklung), which is located in another division of the city of Zurich administration, organised a public lecture series that problematised urban growth under the title "growing pains: societal challenges of urban development and its meaning for Zurich". This series consisted of nine sessions that took place at different locations in the city, like at the University of Zurich, in the city hall, at the University of the arts, in a cinema, in a tramway, at an alternative culture centre and at two private locations in the city (Hengartner and Schindler 2014). By situating itself also outside of traditional places for such a lecture series—namely, the lecture hall—and included public transport and cultural centres, this lecture series was aimed at more complex and multifaceted perspective of citizens, the city and spaces of participation.

Immediately after the publication of the zoning code revision in the opening of the "getting growth right" exhibition, harsh critique and a media controversy emerged on the planned partial zoning code revision. Over 150 objections were made. In the media, the revision was considered as severely flawed. Several adaptations were seen as opposing the interests of most stakeholders, ranging from investors to housing cooperatives (e.g. NZZ 2014a). In October 2014, the city council issued a press release, in which it gave an overview on the substantially overworked

kurath@arch.ethz.ch

first draft of the zoning code revision (Stadt Zürich 2014). The city council has included a high degree of the objections that have been made by the public within the consultation process (e.g. NZZ 2014b, c).[9]

To sum up: Comparable to the PUS model in science communication, the "getting growth right" exhibition and the surrounding events were mainly technically, top-down and expert-driven framed. They followed a communication style that was based on information and understanding rather than on mutual learning. Furthermore, it excluded a wide range of citizens that, for example, lack abilities and interests in architecture and planning topics. Except for some events of the public lecture series, there was only little space for more exchange-oriented modes of deliberation.

The construction of the citizens changed between the lay person and the stakeholder. But even the lay persons were conceived as having a basic understanding of architecture and planning to follow the expert discourse. However, this framing changed, when the citizens acted within the predetermined frames of the consultation process and submitted an objection.[10] Then the citizens were framed as stakeholders and the chances were high that their voice was included into the revision of the related documents.[11]

Vienna 2025: Developing the City in Dialogue

In fall 2013 the city of Vienna opened the exhibition: "Vienna 2025: Developing the city in dialogue", at its permanent urban planning information centre (Planungswerkstatt), which is located at an administrative building in the government district of the city of Vienna. A second phase of the exhibition started in spring 2014 and lasted until the end of summer 2014.[12] The reason for this exhibition was the design of a new urban development plan (Stadtentwicklungsplan/StEP) that was intended to be decided on in fall 2014 (MA18 2014b). This plan is, in contrast to the regional development plan and zoning code analysed in Zurich, not a legal document but an urban development vision that consists of strategies, principles and focal points. There are also fewer steps in the political process: the municipal parliament (Gemeinderat) charges the responsible authority, the planning department "Magistratsabteilung" (MA 18), with

kurath@arch.ethz.ch

composing an urban development plan, which after its termination is enforced by the municipal parliament.

As the quote below extracted from the flyer of the "Vienna 2025" exhibition shows, the Viennese planners have framed the StEP revision and the exhibition within a rather exchange and consultation-oriented framework. The organisers stressed the importance of the dialogue starting from the beginning of the process to secure a mutual understanding of urban development:

> The decision of the Viennese municipal council on the StEP, scheduled in summer 2014, is the final step in a process, lasting more than two years. Within this process, a mutual understanding of the core challenges in the urban development of Vienna have been worked out. For securing the effects of participatory processes in the implementation, a constructive dialogue has been consequently applied from the beginning of the thematic elaboration of StEP 2025. (MA18 2014b, 4, translated by the author)

Thus, the consultation process started initially after the decision of the municipal parliament in 2011, to compose a new urban master plan and included a series of deliberative interactions. These started with a knowledge platform including six workshops. Within the following 18 months the urban development plan project was advanced with additional workshops and cross-section topics. From the beginning, the organisers showed a sensitivity to exchange and non-traditional modes of deliberation that included atmospheric, material and sonorous aspects, like music, locations outside of lecture hall and the planning department and diverse modes of articulation, like slam poetry and theatre, and they established a soundboard and a platform for a regular exchange with district representatives.

In early 2013, further deliberative approaches, like future talks, future labs, sounding boards, workshops as well as a teaching course and a website were established.[13] These approaches showed a multidimensional and complex framing of the citizens by accounting for various age, education, gender, social and cultural backgrounds. Further events included everyday practices and colloquial discourses and operated closely at the living environment of citizens, like meetings that

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have been developed in collaboration with concerned actors and citizen groups. In these meetings, they had the possibility to discuss topics like local urban sustainability agenda, the strategic development of Vienna, public transport and cycling.

The exhibition "Vienna 2025: developing the city in dialogue" was composed by an assemblage of diverse objects and interactive tools and was designed with the aim to address a wide range of citizens in terms of age, education, gender and cultural background. The exhibition combined visual and playful objects with highly interactive gadgets, like a panoramic terminal and a simulation game that enabled the visitors to act as decision-makers in the city. The exhibition further included a green city index, by which the visitors could compare the environmental achievements of cities around the globe and an interactive tool that showed the networking of urban spaces and green environments in the city, to which the visitors could contribute their own ideas and imaginations via a specific application. Audio guides informed the visitors on mobility and traffic topics and smart city mobility solutions (Fig. 6.4).



Fig. 6.4 Entrance of the exhibition (Source: https://www.wien.gv.at/stadtentwicklung/veranstaltungen/ausstellungen/2013/wien2025/; visited 02.10.2015)

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Further discussion and public engagement events accompanied the exhibition, as for example, the screening of the movie *my favourite.n visions*, in which young people engaged with the future development of the Favoriten district. Another workshop located in the architecture and urban planning department at the TU Vienna (Vienna University of Technology) consisted of a presentation of the department's current research and a public discussion.

Also in its second phase, starting in spring 2014, the "StEP 2025" exhibition was accompanied by a series of events. They were organised to showcase and promote the upcoming urban master plan and discussed public engagement in the Viennese context. They included further non-traditional modes of deliberative interaction, closely related to everyday life (Fig. 6.5).[14]

The process brought up the idea of the StEP 2025 becoming an orientation toolkit with concepts and guidelines rather than a strategic master plan. The process further resulted in the selection of three thematic



Fig. 6.5 Panorama terminal at the Vienna 2025 exhibition (Source: https://www.wien.gv.at/stadtentwicklung/veranstaltungen/ausstellungen/2013/wien2025/; visited 02.10.2015)

kurath@arch.ethz.ch

concepts on *participation*, *mobility* and *public space* and the decision to elaborate a particular master plan to each of these themes. However, these ideas were abandoned during the elaboration process of the final document. On June 25, 2014, the municipal council of the city of Vienna issued its new urban master plan, in which it outlined its urban development strategy within a single document.

The new urban master plan is built up around four core sections, including (1) urban development, (2) the built environment, (3) growth and (4) network.[15] In order to strengthen and further elaborate selected major topics from the master plan, four, instead of the originally identified three thematic concepts, have been established including *public space* and *mobility* as originally resulted from the consultation process. While *participation* was abandoned as a topic for an own master plan, new topics, including high-rise buildings and free and green space, have been identified as topics to be discussed further as a thematic concept.[16]

In general, the new urban master plan covers a high variety of topics. The multitude of covered themes and aspects might point to the broad public and actor group consultation. However, it is not obvious to trace back and specify the public impacts into the plan. Compared to its precursor document, which frames planning strategies in a rather rational style, the analysis of the StEP 2025 document points to a more complex conception of planning. Besides classic planning topics, like functions, building heights and infrastructure, the StEP 2025 also refers to atmospheres, social and aesthetic aspects, like flexibility, social and gender justice, integration, ecology and liveability (MA18 2014a). However, as the analysis of the MA18 (2014b) document shows, the translation of the multifaceted aspects, produced within the diverse events in the development process of the master plan, into a written version was difficult. Thus, the final master plan document formally appears as a report, mainly worked out by planning and urban design specialists but on the basis of public engagement. As it is indicated in the impressum of the report, only selected aspects from the public consultation process have been included in the final version of the STEP 2025 (MA18 2014a, 143). Aspects mentioned in the STEP 2025 report that haven't been included are ideas developed in the science slam event and in the *my favourite.n visions* movie. Furthermore, such subsumed under terms like "centre

kurath@arch.ethz.ch

landscapes", "responsibility for the city" and "intergenerational liveability" haven't found their way into the final version of the STEP 2025 either (MA18 2014b, a).

After the issuing of the new master plan ideas no observable public or media controversy emerged. News coverage was rather supportive and benevolent, except for a few experts who addressed a general criticism of participatory approaches in judging the vast dimension of the public consultation as facilitating the silencing of sceptical voices (e.g. Die Presse 2014; Vasari 2015). However, it might be problematic to trace back the absence of public controversy in Vienna on the comprehensive inclusion of citizens in the development process of the StEP 2025 only. The process might have created an atmosphere of participation in which critical voices were silenced because there was a general understanding that the process was participatory.

Compared to Zurich, where the negotiated plan was a legal document with considerable impact on the economic value of private property, the StEP is a strategic document only without such specific impact. Furthermore, the strategies, formulated within the StEP 2025 have been elaborated in rather general terms. Therefore, the overall framework provided within the StEP might not have given much target space.

To sum up, the deliberation process leading to the STEP 2025 urban master plan in Vienna showed awareness, openness and sensitivity to forms of deliberative interaction that operated closely at the living environment of citizens and thus included civic epistemologies at multiple levels. This has enabled a multifaceted framing of the citizen, including age, cultural, social and gender diversities. In these terms, the development process of a new urban master plan for Vienna emerged within a deliberative and mutual understanding-oriented framing, in which both the planners and the citizens actively contributed to the collection of ideas for the document.

The communicative balance of the exhibition and the related events was clearly on the side of dialogue and mutual understanding, and selected insights from this process were taken up into the final version of the master plan. Against this background, the STEP 2025 process can be framed as having included two steps: (1) generation of potential ideas in different participatory formats and (2) composing a new plan by experts

kurath@arch.ethz.ch

who used the collection of the ideas as a resource. Thus, despite its framing in a rather deliberative and upstream mode of public engagement, the analysis has shown that in the end the planners and municipal officers mainly framed the content of the master plan. This points to the difficulties of a translation of such a broad and multifaceted public consultation, including everyday life encounters, into an urban strategy, outlined in a written document. Furthermore, it remains to be seen in what ways the multifaceted visions expressed in the STEP 2025 master plan will be translated and taken up within specific urban planning projects.

Rational Democracies and Deliberative Deficits in the Translation of Public Knowledge into the Planning Practice

In both cities, Zurich and Vienna, urban development was problematised in terms of urban growth, and citizens were engaged in the revision of a planning document. While this document in Zurich was part of a legally pre-framed procedure to change the communal zoning code and the cantonal development code, the document discussed in Vienna was an informal urban master plan. In Zurich, the engagement of the public was limited to the frames of visiting an exhibition, to commenting (in written form) on an already pre-formulated first version of a zoning and development plan revision, to listening to panel sessions at the planning office and to a public lecture series that took place at different locations in the city. Furthermore, the citizens could formulate written comments to specific aspects in the pre-formulated documents. Thus, the balance of the exhibition, the panel and the public lecture series in Zurich was rather on the information than on the consultation side. Planners were conceived as the experts that frame the topics and the issues to be discussed.

In Vienna, the development process of a new urban master plan emerged within a more deliberative and dialogue-oriented framing, in which both the planners and the citizens contributed to the development of the document from the beginning. The process consisted of a multiplicity of activities, including two exhibitions at the urban

kurath@arch.ethz.ch

information centre "Planungswerkstatt" and the engagement of the citizens in accompanying workshops that consisted of site visits, movie screenings, discussions, science slams and other interactive elements. The balance of the exhibition and the related events was clearly on the deliberation and mutual understanding side, and the citizens could engage quite actively and contribute to shaping the urban development plan through different activities.

Rational, formal and one-way communication approaches in science and in planning have been challenged as a deficit model by STS scholars and planning theorists due to their omission of civic epistemologies. The Zurich case has mainly consisted of such a formal, predefined communication approach that informs citizens rather than to engage them. As it is legally intended, citizens' objections had to be included into the revision of the zoning code document. However, since the objections were mainly made by expert or stakeholder citizens that provided the planners with rationale objections that could have been included into the revision of the document, the civic epistemologies included in this case remained rather narrow.

Also new and more democratic forms of PES have been criticised in recent STS literature for their difficulties in translating public knowledge into the political process. Whether these criticisms also apply to the Vienna 2025 public deliberation process can't be determined at this juncture. This study has shown that Viennese planners included a multiplicity of citizens' ideas into their urban planning strategy. However, despite the various topics the new urban master plan addresses on diverse levels, it remains unclear to what extent the knowledge produced in non-traditional modes of deliberative interaction, for example, the poetry slam and the movie screening, could have been included in the final version of the urban development plan. Further effects might lie in the creation of mini-publics around certain issues and that people with similar ideas, concerns and interests could have been brought in contact. However, it remains to be seen in what way the multifaceted visions expressed in the master plan will be translated into specific urban planning projects and legal documents.

In both cities, the urban citizen has been constructed as an informed and interested member of the knowledge society and knowledgeable to intervene in planning decision-making. In Zurich, particularly in the consulta-

kurath@arch.ethz.ch

tion process, when the citizens were meant to formulate written objections against the plan revisions, their construction changed from a lay person to that of a stakeholder. In this role, they were conceived as being further able to understand the rather complex planning issues and to formulate their own attitude towards the draft documents in written form. Thus, the urban citizen addressed in Zurich is able to follow expert talks, is wealthy enough to buy urban planning documents and, most importantly, is able to act as a stakeholder in formulating a written comment to the revision of the related documents. In Vienna, planners seem to attribute their citizens more abilities and possibilities in co-developing the city than in Zurich.

In contrast, the Viennese approach has enabled a more diverse framing of the urban citizen, including cultural, social, age and gender diversities. Also in Vienna a distinction between experts and citizens took place. But here it was not that the experts developed all the ideas and that the citizens could only react to them; in Vienna the citizens developed the ideas and the experts put the plan together based on them.

As the foregoing sections have shown, in both PES and PEP, one of the core concerns is the inclusion of public knowledge in the decision-making processes at an early stage of the discussion or, in other words, the *impact* or the *relevance* of public engagement. In both domains more reflective exchange and mutual learning-oriented ways of listening and negotiating topics that incorporate civic epistemologies and take up situational and material aspects have gained importance. While in PES these novel approaches have been challenged for their disconnection from science policy, the public disinterest in the discussion of rather technical topics and for their simplistic picture of science and democracy, such novel approaches in PEP have received only little attention in STS and planning theory so far.

However, due to the significant epistemic differences of science and planning, the link between PES and PEP provokes questions concerning their comparability and whether previous PES discussions really fit with the observed urban planning cases. Obviously a debate over GM food, nanotechnology or synthetic biology at a national level might differ considerably from that on a specific planning project in a neighbourhood of the home city, in terms of civic interest and impact. And in contrast to emerging technologies, planning topics are characterised by a genuine closure to the living environment of the involved citizens. In particular,

kurath@arch.ethz.ch

when such participatory events focus on a specific and localised planning topic, it is easier to generate public interest for such a discussion than on overarching planning strategies or emerging technologies. This is particularly the case when citizens feel that the knowledge generated within participatory events has relevance and impact on a specific planning decision. In both PES and PEP, a core concern often is its disconnection from politics and decision-making. This disconnection might even be stronger with science, which is often perceived in terms of autonomy and academic freedom, while each planning project is inherently dependent on external decisions and policies.

However, despite these divergences, the planning cases, particularly the Vienna case, have shown that more material and mutual learning-oriented participatory formats can provide results that can fruitfully inspire the political process. Particularly, the consideration of local contexts instead of national discourses, the relation on alternative discussion formats that also address emotions, material and situational issues and atmospheres, as well as the location of such events at places closer to the living environment of the citizens than auditoria and meeting rooms, might address a wider range of citizens. Acting at the local context and including more material aspects might particularly be a format to experiment with in complex PES issues, like such on emerging technologies and technoscientific developments.

Notes

1. See, for example, the *Public Understanding of Science* (PUS) paradigm, which has been based on the idea that the public acceptance of science and technology is related to public understanding of scientific topics (see e.g. Bodmer et al. 1985).
2. Public engagement with science (PES) has been conceived as a "problematic construction" (Irwin 2014, 74) that is not able to deliver its promises of a more democratic inclusion of citizens in science and technology-related decision-making (Stilgoe et al. 2014).
3. See, for example, Irwin and Michael (2003), Grove-White et al. (2004), Wilsdon and Willis 2004, Macnaghten et al. (2005), Kearnes et al. (2006), Kearnes and Wynne (2007), Felt et al. (2007).

kurath@arch.ethz.ch

4. Furthermore, recently increased public protests against large urban planning projects, like Stuttgart 21, the Media Spree Project in Berlin and the Gängeviertel in Hamburg, have been conceived as a claim for a more direct democratic orientation in planning-related decision-making, which traditionally has mainly been linked to indirect and representative approaches (Othengrafen and Sondermann 2015).
5. Similar parallels between science and planning have been drawn by Davies et al. (2012), who compare the criticisms addressed to citizen engagement in urban planning to those to citizen engagement in technoscience. Furthermore, Karvonen and van Heur (2014) draw on STS analyses of scientific laboratories to analyse urban planning projects as "urban laboratories". Also Hommels (2005, 328) has pointed to interactions between technosciences and urban development.
6. This research is funded by the Swiss National Science Foundation (grant number 100013-146516).
7. Both exhibitions were held in German. All the subsequent translations of quotes, document titles and excerpts, as well as the title of the exhibitions are translations of the author.
8. The Hochbaudepartement of the city of Zurich is assigned with urban planning, built heritage conservation and urban archaeology (see https://www.stadt-zuerich.ch/hbd.html/visited 20.01.2016).
9. See https://www.stadt-zuerich.ch/hbd/de/index/.../bzo/bzo_teilrevision.htm (visited January 29, 2016).
10. Besides individual citizens, mainly land owners and also organisations that have a working lobby and experience in making their voices heard in these processes made objections, such as housing associations and owner organisations (interview source).
11. Hence, also the media controversy might have put a certain pressure on the office for urban planning to profoundly overwork the zoning code revision and to include a high degree of the objections made.
12. In Vienna urban information is institutionalised within the Magistratsabteilung (MA18). This department established the "Planungswerkstatt" as a permanent exhibition in an administrative building in the government district in 1989. From its beginning, the aim of this exhibition was to inform the public on urban planning projects, with quarterly changing topics (MA18 2009). Since 2010, when Vienna has a red–green coalition, the format of the Planungswerkstatt has considerably changed from an informative exhibition to a more interactive format. These exhibitions have covered current topics from the Viennese urban development

kurath@arch.ethz.ch

process and have been complemented with interactive elements, such as round tables and presentations not only within the location of the Planungswerkstatt but also at selected sites in the city and abroad.

13. Particularly the future.labs were established as important forums in which further actors including organisations, corporations and institutions organised smaller events. The aim of the future.labs was to develop specific contents and positions on the urban development of Vienna. Within this format, the organisers were free in their thematic focus and the design of the deliberative interaction.
14. Such events, for example, included a cabaret and a presentation on aging in the city, a participatory event on developing visionary ideas for a lively Vienna and a discussion evening of Caritas Vienna on social solidarity. They further consisted of a discussion of urban goods traffic, experimental research and teaching, as well as a science slam event (MA18 2014b).
15. Urban development is framed in terms of strategic and legal instruments for urban and landscape planning, including principles for the future urban development in terms of liveability, social justice, gender equality, education, cosmopolicy, prosperity, integration, ecology and participation. Strategies for developing the built environment include aspects like soft urban redevelopment and a focus on internal growth to protect attractive green and free space and support smart consumption of resources. Urban growth strategies are framed in terms of knowledge societies, European regional development, high-quality infrastructure and district development, especially with regard to the attraction of high-tech research and development firms. Strategies for developing networks include a strengthening of multifaceted mobility, urban green and free space, and social infrastructure (MA18 2014a).
16. See https://www.wien.gv.at/stadtentwicklung/strategien/step/step2025/fachkonzepte/ (visited January 20, 2015).

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Monika Kurath is a senior researcher and head of a research group at the ETH Zurich Department of Architecture and has a "venia docendi" from the University of Vienna. Her research focuses on the intersection of science and technology studies (STS), urban studies and sociology of architecture.

kurath@arch.ethz.ch

7

Tracing the Democratic Deficit: An Actor-Network Theory Approach to an Urban Governance Network in Madrid

Guillén Hiram Torres Sepúlveda

Introduction

This chapter presents an analysis of the development of a governance network (GN) in Madrid, to describe what actors and strategies are at play when the presence of the democratic deficit (DD) is denounced by groups of citizens that define their collective identity as affected by it. In other words, the goal of the following paragraphs is to answer, from an Actor-Network Theory (ANT) perspective, what is the DD and how it moves through a Governance Network (GN). As a heuristic strategy, the deficit is not considered to be the context in which the material production of cities and their political lives occur but is viewed as another actor capable of determining the socio-material outcomes of governmental activity, producing specific distributions of power among the entities

G.H.T. Sepúlveda (✉)
Media Studies, University of Amsterdam,
Amsterdam, Noord-Holland, The Netherlands

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kurath@arch.ethz.ch

involved. Since the struggles among actors during the deployment of a GN do not happen in a void, tracing the DD also implies identifying the role of urban space in the process. Therefore, this text also intends to identify how are urban spaces used as tools to introduce or exclude particular topics from the political ecosystem of a city. The main hypothesis guiding the research is that the DD has become one of the most important actors in the local dynamics of modern Western cities, at least in two different but interconnected ways: first, it functions as the socio-material support for a decision-making process that allows local authorities to produce states of affairs that do not comply with ideal views of democracy and social justice, while nevertheless keeping the formal legitimacy of participative democracy. Second, it allows organised groups of citizens to challenge power configurations they judge inappropriate, since the DD is used as a tool to transport collective matters, from the realm of the post-political (Mouffe 2005a, b; Rancière 2007; Swyngedouw 2007; Žižek 1999), to the public spotlight.

To achieve the aforementioned goals, this text builds an original definition of the DD, which focuses on the visibility of the tools needed to deploy GN in cities. Hence, as an alternative to other approaches which understand the DD as the displacement of political issues to fora unreachable for its interested public (Marres 2005) or as the displacement of conflicts via the exclusion of those who radically disagree (Swyngedouw 2011, 2014a, b, 2015), the DD is presented here as a process of making invisible the tools needed for the deployment of a GN, which results in the public's inability to understand how, why and through what socio-material means, political issues are being displaced.

After an initial theoretical reflection, the research builds upon a short analysis of the governance process deployed to renovate the Legazpi Fruits and Vegetables market in Madrid, Spain. The focus is set on to the actions of the Espacio Vecinal Arganzuela (EVA), an umbrella organisation comprising of 30 grassroots collectives, who requested—unsuccessfully—the use of the Legazpi Market to create a self-managed community centre.

kurath@arch.ethz.ch

Governance Networks and the Democratic Deficit

Governance has become one of the preferred mechanisms for decision-making processes in modern Western democracies due to what, from an ANT perspective, could be understood as a particularly efficient capacity to develop democratically legitimate links between previously disconnected elements, particularly in comparison to other popular tools, such as imperative state regulation or market regulation (Sørensen and Torfing 2007). What sets GNs apart is their capacity to perform and secure these links through a process of negotiation that, ideally, would harmonise the interests of politically diverse actors. Therefore, among their manifold uses, GNs can be understood as one of the many mediators (Latour 2005) making possible the translation between different urban assemblages making up the city (Farías and Bender 2010). GNs translate back and forth from the institutional urban assemblage resulting from the performance of the institutional framework of the city, to the public assemblage resulting from the articulation of citizen's interests, to the economic assemblage product of the constant clashing of economic rationality, and so on. Ideally, GNs should constantly reinforce the connection between governmental action and democracy by securing that these translations occur in a distributed way, promoting the involvement of a diversity of participants, some of whom would not have access to the decision-making process if it happened through other technologies of democracy (Laurent 2011). In this way, the constant linkage between urban assemblages and the ideals of democracy, performed by GNs, would imply that all the interests involved found their way into the resulting materiality of the urban form.

However, what happens very often is that the translation process establishes the *desired* links between certain interests and actors but is not as successful in establishing the *desired* links between others. This is what the actors such as those approached in this research signal as the democratic deficit (DD) of modern urban governance. For example, while urban governance networks (UGNs) work well in translating the interests

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of businessmen, who manage to produce a city responding to their economic needs—by securing a connection between its materiality and the assemblages involved in economic profit—they are not as successful in translating the citizens' interests, generating the feeling that their concerns are not addressed. Such an asymmetrical process has produced the perception of a strong connection between GNs and the DD, as if any enactment of the former implied necessarily the latter.

The permanent spot that this connection between governance and the DD occupies in the contemporary performance of politics has produced a considerable amount of literature (Blakeley 2010; Hajer 2003; Keil 2009; Swyngedouw et al. 2002; Swyngedouw 2005, 2011; Taylor 2007) by researchers in the social sciences, who have lent their epistemic authority (Ezrahi 1990) to contribute in turning the Deficit into an entity capable of producing effects in the real world. Postfoundationalism's *postpolitics* and Science and Technology Studies (STS) have recently produced widely discussed accounts of this connection. For the first, governance results in the exclusion of disagreement from the decision-making process. For the second, discussions around public matters increasingly happen in fora inaccessible to those directly affected. According to the first argument, governance has the ultimate effect of displacing conflicts and *truly political struggles*, via the implementation of consensus-seeking *managerial practices* of decision-making, in which the most fundamental questions about how to organise society are never addressed (Swyngedouw 2011). Therefore, since GNs turned into one of the preferred and most effective tools to deploy *politics*—as opposed to *The Political* (Schmitt 2008)—some critics have also warned about the possibility that they have turned into a DD-producing machine by means of a "colonization of the space of the Political by forms of consensual depoliticised governance" (Swyngedouw 2010, 1577). From this perspective, a DD arises every time *the proper political* (Swyngedouw 2009; Oosterlynck and Swyngedouw 2010) is not addressed during collective discussions. On the other hand, according to the second version of the connection between the DD and GNs, many decisions affecting the organisation of collective life have switched location, from the usual discussion sites connected to representative government, to intergovernmental bodies, networks of non-governmental organisations and, mainly, to the fora where

kurath@arch.ethz.ch

innovations in science and technology are produced (Marres 2005). As a consequence, the decisions taken in these spaces, although affecting society as a whole, cannot be contained by previous mechanisms developed to guarantee democratic legitimacy and representation. Therefore, according to this approach, every time an *issue* is decided in a location inaccessible to its *public*, a DD would arise, since the issue moves away from its democratic settlement.

The Democratic Deficit as an Actor

These accounts of the agency of the DD within the governance process can be added to those produced by citizens in many cities around the world, very well exemplified by movements such as Occupy Wall Street or *Indignados*. The effects that these actors ascribe to the DD are, from an ANT perspective, a tempting invitation to analyse it as an actor rather than a quality of modern democracy or an institutional failure. Such a perspective implies recognising that the presence of the DD can in fact affect the flow of power within GNs and, therefore, their outcomes. Moreover, since for ANT actors are not nodal sources of agency but trajectories (Harman 2009; Latour 1999), the DD would be understood as a constant enactment of associations between material and non-material elements that result in an exercise of power which has legitimacy issues. To be able to have sustained effects in the real world, the DD needs to constantly develop associations and mobilise other actors, *interesting* them to join forces (Callon 1986). In this sense, the DD cannot be understood as pre-existing the deployment of GNs or as a one-time accidental occurrence. Instead, its presence is the result of a constant enactment related to an interest in achieving the outcomes of its performance. This means that the DD is *intentionally* enrolled in a GN, with the specific interest of producing a particular result.

However, nothing guarantees that the enrolment of the DD will always produce the desired outcomes. As exemplified by the case study in the following pages, to the *programme*, "enrolment of the Deficit as a city-production tool" deployed by local authorities and a private developer corresponds to the *antiprogramme* (Latour 1990) "enrolling of the Deficit

kurath@arch.ethz.ch

as a re-politicising tool for non-discussed subjects" deployed by the citizens. This can be understood as an evidence of the Deficit's agency and a confirmation of its status as a full-fledged actor; those who introduce it to the socio-technical network are not necessarily capable of controlling the translations it will operate during its participation, particularly because, given the complexity and diversity of cities, it has the possibility to unexpectedly build linkages with a plethora of other actors.

It is due to the possibility of these unexpected associations that the material context of the enrolment of the DD in GNs should not be overlooked. Diverse researchers have analysed the importance of materiality for civic involvement in political processes (Barry 2013; Marres 2012), and although they have usually focused on the role of relatively small objects or individual infrastructures, complex urban assemblages could also be considered as devices of public engagement by recognising their capacity to trigger the emergence of publics. Although this implies a tremendous challenge, since it is difficult to account for the high material density and diversity of the city, it also has the possibility of being extremely productive, for it can present the city as a resourceful participation machine. Taking into account the complexity of urban spaces, it is not unreasonable to suggest that the type of participation they make possible is different to that enacted in other environments. This means, on the one hand, that using the space of the city to engage in the organisation of collective life might allow citizens to politicise subjects that other spaces would not support, and on the other, that the objects making up the city might trigger the emergence of publics that do not arise in other places. In broader terms, this implies the recognition that the city, as a socio-technical assemblage, contributes to the organisation of public life in a very specific manner.

Rubio and Fogué (2015) have analysed this specificity from Architecture, through the idea of the *unfolding* capacity of urban design, that is, the possibility of urban design to enlarge the number of entities and materials that constitute the cosmos of the political. Similarly, Colin McFarlane has highlighted the importance of materiality in the process of *learning the city* (McFarlane 2011), which entails a constant production, movement and transformation of knowledge that is only possible through the implementation of material means. Both insights shed light over

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what makes planning, and in general the material modification of the city, such a controversial and inherently political process, as well as why citizens, institutions and private actors are so eager to get involved in the production of urban spaces; these processes allow each actor to inscribe and materialise their specific versions of the political, therefore adding entities to the political ecosystem of their cities.

Taking into account the importance allocated to materiality in this process, it is possible to suggest that the differentiated access of actors to material resources might result in highly differentiated outcomes. Cities are learned and produced by planners through documents, by bureaucrats through regulations, by businessmen through economic reports and so on. Consequently, the socio-material strategies of learning implemented by each actor determine not only the overall number of associated entities but also their *type* and their scope of action; one can only (intentionally and unintentionally) do specific things with a specific assemblage. The crucial importance of each actor's capacity of enrolment makes understandable the demand for the deployment of accountable and transparent networks. Opaque networks make it difficult for those involved to understand the results. As a consequence, opaque networks lack democratic legitimacy in the eyes of the public. In this sense, the cry for transparency within the political process does not necessarily imply a demand for the direct transportation (without translation) of the citizen's will by the representatives (Latour 2003) when producing urban space (or during general decision-making) but the possibility of following the translation and understanding how and through what means it was performed.

The following case study attempts to mobilise the theory outlined so far, to describe how the DD, understood as a socio-material strategy to make opaque the translations and the actors performing them during the decision-making process, affects the power configuration within a GN.

Methodology: Case Study Madrid

To obtain the empirical material for this research, I joined part of what Colin McFarlane calls the *learning assemblage* (McFarlane 2011) of the group of citizens involved in the GN under scrutiny. Through my

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involvement in Espacio Vecinal Arganzuela's learning forum and the analysis of their *coordination devices* (McFarlane 2011), I aimed to acquire a wide variety of accounts of the development of the GN needed to renovate the market, where I could find instances in which the DD is described as an element determining the outcomes. Since the process was still ongoing during my fieldwork, I was able to attend for three months the weekly meetings of EVA, as well as the different activities they organised to make their cause public: open air film projections, the creation of an urban garden, interventions in Madrid's Urban Debates Club, and meetings with other organisations. These were the spaces where most discussions around the destiny of the Legazpi market were held and most decisions determining the actions of the organisation were taken. Fortunately, EVA developed a strong communication strategy that included the production of an important amount of audio-visual material and a constant presence in the local alternative media of Madrid. Therefore, this material was also used as an important source of empirical information.

The Issue

The issue around the Legazpi Market in Madrid was born out of the proposal of two different uses for a single piece of public infrastructure: a civic project conceived to solve the needs of the neighbours of the Arganzuela District through the creation of a community centre, and a public-private partnership between the City of Madrid and the developer ADRIPABEL, which intended to turn the market into an upscale shopping mall. The issue emerged and evolved during the last months of Ana Botella's term as mayor of Madrid in 2015, and although it still subsists, became politically frozen with the arrival of Manuela Carmena. The citizen's proposal was elaborated by EVA with the help of a team of experts composed of sociologists, urban planners, economists, architects and even archaeologists. It was rejected by the government with the argument that the market was not, at the time, available for reuse. However, barely two weeks after rejecting EVA's proposal, the municipality of Madrid announced its intention to license the market to a private investor. The

kurath@arch.ethz.ch

simultaneity of the announcement of the possible concession and the rejection of EVA's proposal gave birth to the *issue* of the future of the Legazpi Market in services-deprived Arganzuela, and a *public* (Marres 2005)—a collective of social organisations that identified a potential political conflict in the fact that, while they felt the need for a community centre, the local authorities attempted to allocate an available and publicly owned building to a private investor. The ensuing struggle over the materiality of the market opened the possibility to contest a style of making political decisions that the members of EVA considered undemocratic, therefore not only questioning the authorities' choice in relation to a particular piece of infrastructure but also the whole style of urban planning in Madrid. This endeavour was carried through the establishment and stabilisation of links between topics described as absent from public discussion, the market and the DD, with the goal of reducing the democratic legitimation of the private proposal. The following sections present an analysis of how these topics are identified by the members of EVA and how they were used by the group to develop further strategies of visibilisation of the connection between the non-discussed topics, the DD and the market, which became the material condition of possibility for the whole process.

The Governance Network

According to Spanish Law, any Contract of Public Works Concession—such as the one needed to license the Legazpi Market to private investors—requires the interested public to participate during a Public Information and Allegations period. Therefore, the GN needed three actors to modify the materiality of the market: the citizens, who may present objections to the project; the government, coordinating the process; and the private investor, who produced the initial renovation proposal. Each actor has a specific interest in joining the network. The government needs to participate if it wants to coat with democratic legitimacy its decision to license public infrastructure, the private investor joins to obtain profit, and the citizens partake to obtain the use of the market to build their community centre. As aforementioned, the

kurath@arch.ethz.ch

ideal role of the network should be to mobilise the three actors in conditions of equality, with the final goal of producing a spatial configuration of the city materialising all interests with fairness. However, the differences in the resources available for each actor to build a network to transport their interests, and the lack of an institutional framework that acknowledges such differences and balances them, imply this is not the case. The perceived power asymmetries between the citizens, the investors and the government are often represented by the conviction of the former that, given that local authorities prioritise the reduction of public debt, private actors have leverage over political decisions, since authorities obtain a big share of their budget by selling public property (Santiago López, EVA's website administrator, Personal Communication, March 3, 2015). In addition to this, time, money and manpower are particularly important elements configuring the power structures within the GN; activists are not full-time activists in the same way that public officials and investors are full-time workers. They have to divide their time between their *productive* activities and their political activities. This leaves them with fewer resources to allocate to the construction of a network that allows them to transport their interests, from their own places of discussion, to official discussion fora, translating them, and enrolling the necessary actors to back them up. While institutions are able to join the network with a stock of waged workers who professionally perform activities related to the spatial modification of the city (architects, urban planners and economists), who are also endowed with the necessary material means (computers, cars and technical equipment), and a fair amount of economic resources, activists enter the process with a smaller arsenal and therefore are able to deploy a less complex network. This asymmetrical relation is not a small matter; *state effects* (Harvey 2005) are the consequence of the mobilisation of very complex institutional machineries that involve the activity of a gigantic amount of actors deriving their legitimacy from a similarly diverse array of sources. If a specific course of action is backed up by the mobilisation of such an impressive army, to disagree is a considerably difficult matter. A similar thing can be said about the powerful resources available for private investors, including not only their economic power but also their social networks.

kurath@arch.ethz.ch

The Learning Assemblage

EVA's main strategy to counteract the power asymmetries within the GN has been, since the beginning of 2015, to create and sustain a *centre of calculation* (Latour 1987) at the premises of the Matadero, one block away from the Legazpi Market. The collective holds weekly meetings, where the main aim is to *make sense* of the urban assemblages connected to the issue of the Legazpi market. During their gatherings, EVA's members help each other to understand why the process of producing the city seems to be out of their control, developing strategies to regain it during the exercise. This dynamic benefits greatly from the activists' diversity, since each one of them uses their own expertise to deconstruct and make sense of a small bit of the assemblages constitutive of the market. Their resulting awareness of the multidimensionality of the market increases the amount of translations they can perform and the amount of actors they can enrol. For example, understanding the market through its historical importance allows EVA to mobilise heritage arguments against its material modification; to think about it from an architectural perspective allows them to produce arguments against the technical proposals of the private developer; focusing on its economic importance makes them able to deploy arguments in relation to the difference between its use of value and its exchange value, and so on. Each of these versions of the market adds up to strengthen the network they deployed to oppose ADRIPABEL and the municipality's programmes of action.

Establishing connections between the issue of the Legazpi Market and the DD allows the activists to affect the power positions of all the actors within the UGN, since the questioned democratic legitimacy of modern democracies has turned the DD into a sensitive subject that attracts the attention of a wide audience (Norris 2011). EVA achieves this goal via two strategies: first, by making visible the connections between ADRIPABEL's project and *objectionable* actors like inequality, market rationality, lack of democratic legitimacy, corruption, and so on, and second, by developing and strengthening connections between their vision of the market and *desirable* actors, like community building, citizen empowerment, social benefits, and so on. These connections are achieved through the use of many coordination devices, the most important of them being the documents produced by the collective, since this is where

kurath@arch.ethz.ch

most of the new associations are performed. By inscribing their vision in these documents, what the Legazpi market *could* be if allocated to the collective becomes an *immutable mobile* (Latour 1986) and therefore cannot be made dependant on another context but the one identified by EVA, namely, the democratic illegitimacy of urban planning in Madrid. This process of *black-boxing* (Latour 1999) a particular version of the market is important because it will be used to contest the *black-boxing* attempts of the municipality, which tries to produce an alternative version that benefits them politically. Table 7.1 presents some examples of EVA's strategy to link their vision of the market with *desirable* actors while at the same time connecting ADRIPABEL's proposal with *inadequate* actors, through excerpts from interviews and EVA's documents.

In addition, EVA dedicated a considerable amount of effort to translate the technical knowledge contained in ADRIPABEL and the municipality's own coordination devices. The goal of this endeavour was to transport this knowledge to discussion fora where technical language was out of place. The process was extremely relevant as a mechanism of empowerment since, as critics of the post-political condition have made evident, the *making things technical* is a common strategy to reduce the political importance of issues and objects (Metzger et al. 2015). As a consequence, things whose presence in the public sphere was no longer associated to the emergence of *publics* seeking their democratic settlement suddenly became part of the political ecosystem again. This process can be understood as one of re-politicisation of matters that were abandoned by the institutions. The exercise, which was constantly referred to as *hacer barrio—building community*—implied not only translating information but also pushing outwards the public's boundary, making it bigger by including more individuals who became linked to the deployment of the learning assemblage.

In addition to building connections between their vision of the market, the legal framework and formal, technical, juridical and economic rationalities, EVA also devoted an important part of its activities to dissolve the links ADRIPABEL created between its own course of action and similar sources of legitimacy. EVA's documents made visible the disconnection between the authority's decision and the will of the citizens, showing explicitly how, in comparison, the civic proposal was more beneficial for the neighbours of Arganzuela. Table 7.2 shows some of the

kurath@arch.ethz.ch

Table 7.1 New associations performed by EVA

Subject	Desirable connections	Inadequate connections	Actors enrolled
Democratic legitimacy	EVA is a project in which more than 30 collectives are involved, plus thousands of Madrileños mobilised by the need for a citizen's space in the area. Therefore, we demand the cession of the market to develop non-profit open activities. To achieve this goal we have worked hardly and efficiently during months; we have designed and published projects; we have gathered the neighbours and small commerce of the area, to invite them to dwell their common space with their interest and through a process of knowledge exchange (…) (EVA—Algo Maravilloso)	Definitively, what the local government proposes is (…) a decision with its back turned to the citizens but carried out with their resources. (Nueva Tribuna)	*Desirable:* Madrid Neighbours, non-profit philosophy, technical knowledge, small commerce *Inadequate:* technical inadequacies, lack of representation
Social benefit	"[Our proposal] represents practically zero costs to the municipality but implies free solutions based in programs of *women empowerment, family conciliation, alphabetization and memory, cultural integration, academic support, intergenerational programs aiming at battling the digital divide, neighbourhood empowerment, urban gardening, consumer groups, solidarity networks and support of small commerce (…)*" (EVA—Algo Maravilloso)	"To understand the official proposal, we advise you to substitute the following terms of the previous paragraph (in reference to the paragraph to the left): where it says 'women's empowerment', substitute it for 'gourmet market'; where it says 'intergenerational programs' or 'support of small commerce', substitute it for 'Commercial Centre'". (EVA—Alegaciones)	*Desirable:* everything in italics (emphasis in the original) *Inadequate:* market rationality, private profit

(*continued*)

kurath@arch.ethz.ch

Table 7.1 (continued)

Subject	Desirable connections	Inadequate connections	Actors enrolled
Economic motivation	"We pretend to liberate the Legazpi Fruits and Vegetables Market from economic uncertainty via the materialisation within its premises of a stable institution, immune to financial swings, that guards the memory of the neighbourhood and the building itself; and from which it is possible to manage and promote the growth of the social fabric." (EVA—Algo Maravilloso)	"Definitively, we can state that the totality (of ADRIPABEL's project) departs from a false premise, from a legal fraud through which a publicly owned space is destined to private profit." (EVA—Alegaciones)	*Desirable:* social fabric, social benefit, memory *Inadequate:* Economic uncertainty, illegality, private profit
Sustainability and community building	"We will offer an infrastructure for the meetings and activities of the groups around the neighbourhood that work to promote better ecologic and sustainable practices of urban life, through consumer groups, urban gardening, recycling workshops, composting, ecological gardening, seed banks and bioconstruction, amongst others." (EVA–Proyecto)	Although ADRIPABEL's proposal contains a chapter dedicated to the "environmental impact and corrective and preventative measures", it is clearly insufficient due to lack of reference to, among others: (…) increase of pollutant emissions due to the increase in automobile traffic (…) sound pollution (…) environmental impact	*Desirable:* community building *Inadequate:* pollution, traffic congestion

kurath@arch.ethz.ch

Table 7.2 EVA's re-politicisation strategies

Subject	Connection to the market	Re-politicisations	Actors
Undemocratic planning in Madrid	"The project wasn't thought for the neighbours of Arganzuela or for the normal inhabitants of the city. It was thought to be reached only by car, so one can arrive, consume and then leave by car […] What they want is to turn the city into some kind of amusement park for tourist" (Ángel Lomas)	Non-inclusive planning. Privatisation of public space, city for tourists versus city for locals	*Desirable:* Jane Jacobs, sense of community *Inadequate:* alienation, privatisation of public space
Market-oriented city	"What we want is to move from the model of the mercantilist city, to a more cooperative model. We have discovered with horror that the people we have delegated (the production of) our most immediate environment have very deficient creative processes and their only proposal is the creation of Shopping Malls." (Santiago López)	Sharing economy, cooperative economy, civic engagement, DIY urbanism	*Desirable:* Direct democracy, economy of the commons, hands on urbanism *Inadequate:* mercantilist city, bureaucracy, shopping malls
Political representation	We should have a social and political fabric that, rather than closing doors and ignoring proposals coming from people who are interested in participating…., well, actually did their job. The first thing they did was not listening, turning us into a ping-pong ball, ignoring us. In the end we were forced to put a bit of pressure to get them to pay attention. They are more worried about their own political process than about doing their job with the citizens. (Santiago López)	Madrid's urban planning process, participation mechanisms, politician's private interests.	*Desirable:* political participation, civic empowerment, social fabric *Inadequate:* democratic deficit, bureaucracy

(*continued*)

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Table 7.2 (continued)

Subject	Connection to the market	Re-politicisations	Actors
Privatisation of public spaces	We [citizens] are begging for spaces. The ones we've found are not public: we have to pay for them. This space (the market) is already ours. It belongs to the Arganzuela neighbours and all the inhabitants of Madrid. It doesn't belong to private actors. (Sacri García)	Use of public space, beneficiaries of public space appropriation	*Desirable:* gathering places, inhabitants of Madrid *Inadequate:* privatisation, private developers
Demise of the welfare state	"What we try to solve are the problems that come from *up there*. These are problems that the State, through its bureaucracy, is creating. We are not creating these problems ourselves." (Sacri García)	The role of institutions in public life	*Desirable:* solidarity *Inadequate: up there*, bureaucratic inefficiency

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elements that assert EVA's *compatibility* with a democratic production of space, achieved through the re-politicisation of subjects that the citizens consider necessary to discuss, but cannot be transported to the political fora provided by the authorities. Therefore, these topics are discussed in and *through* the public spaces around the market. Thanks to the legal provision that allows the interested public to present allegations to the project before it is effectively turned into a Public Works Concession, the knowledge that EVA infused in its allegations travelled from their city landscape, to the regulatory city landscape, linking them. As a consequence, the citizen's interest was no longer an expression of private individuals but became a matter of institutional action, forcing the municipality to consider its content.

The following section describes how the processes of knowledge production and translation and the resulting re-politicisations impact the development of the governance network.

The Deployment of the Governance Network

Figure 7.1 describes in a visual fashion the deployment of a GN and the influence of the DD in its development. Four different urban assemblages involved in the material production of the city are located on the vertical axis. The horizontal axis represents time. Movements between assemblages require a process of translation, which can only be achieved by the enrolment of the necessary coordination devices. The origin of the GN is located to the extreme left, in the State's decision to produce an open call for proposals for a Public Works Concession Contract. In parallel, a public interested in using the market to create a community centre is also born. Shortly after these two incidents, a public-private partnership is created, when the municipality of Madrid designs ADRIPABEL as the winner of the call for proposals for the concession of the market. The necessary translation to turn the market rationality interests of the private investor into the institutional rationality of the state's regulation is operated through technical documents, for example, the project proposal developed by ADRIPABEL, allowing the municipality to make a decision based on the rationality of economic benefit.

kurath@arch.ethz.ch

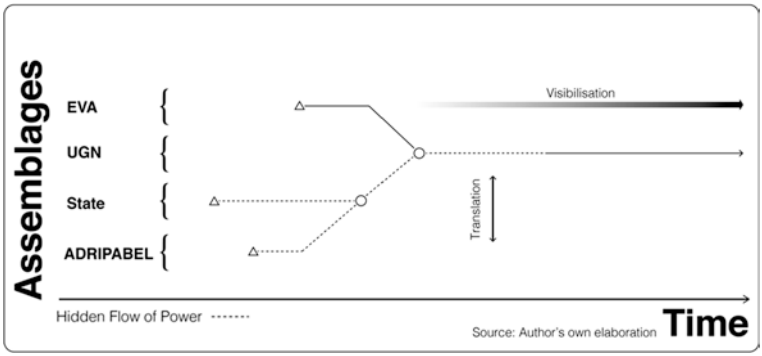

Fig. 7.1 Deployment of urban governance network in Madrid

Before the three assemblages meet and a GN is effectively deployed, each of them performs a series of activities aimed at strengthening its capacity to materialise their interests in urban space: citizens gather under the EVA label, becoming a critical mass demanding their right to modify the city so it responds to their needs. They produce a series of written materials to stabilise the links between the many collectives involved, for example, their manifesto *Something Marvellous Is Happening in Madrid, in spite Madrid*,[1] in which the vision of the umbrella organisation is outlined.

The socio-material networks that transport and stabilise the interests of EVA, the institutions and the private investor, come together at a later stage, when, as a part of the administrative process, ADRIPABEL's proposal is subject to public scrutiny. This is the point in which a *proper* governance network—in the sense of a distributed decision-making process (Chhotray and Stoker 2009), is created, and EVA gains—potentially—the possibility to materially modify the city. Throughout the deployment of the GN, the identity of the market is enacted in different modes, depending on the associations in which it gets involved by the actors. Therefore, its reality becomes a function of different trajectories: (a) the private endeavour, "How can I, the investor, profit from this space?"; (b) the citizens' programme, "How can we turn it into a social centre?"; and (c) the state's interest, "How can this space be given in concession under a context of democratic legitimacy?" To turn these different trajectories into a unified, democratically legitimate, flow of power, a

kurath@arch.ethz.ch

wide variety of objects should be involved, their job consisting in translating opposing interests into a single discourse. However, the tools employed by the municipality (administrative processes without proper mechanisms for citizen participation) and the investor (a privately developed project focused on achieving private economic profit) are incapable of translating EVA's interests. There are two reasons for it: (a) these instruments are intended to guarantee an efficient flow of power for homogeneous actors (only the municipality or only the investor) and not a heterogeneous assemblage of conflicting interests and (b) both socio-technical networks can be deployed without making their assemblage processes transparent to other participants. That is, both the municipality and the investor can materialise their interests on the space of the city without making the tools they used accountable for the public and available for them to use. This results in the perception that the decisions are being taken "with the back turned to the citizens".[2] For example, EVA joins the network in disadvantage, since their attempt to get a hold of the necessary information to analyse ADRIPABEL's project is truncated by the denial of the authorities to share it. It is in this moment that EVA's suspicion that the approval of the project lacks democratic legitimacy becomes more certain. Within the group, there are talks about the existence of a DD, since they are incapable of understanding how the decisions of the authorities that supposedly represent Arganzuela's citizens have been taken. As a reaction, EVA enrols Madrid's legal framework to force the authorities to make the project public, that is, making visible the tools needed to modify the city. Once ADRIPABEL's proposal has been analysed, EVA distributes a document with their allegations to the project, in which their vision of the market is contrasted to that of the private investor. In it, the activists attempt to strengthen their vision of public space, while at the same time reducing the legitimacy of ADRIPABEL's. When they publish their claims against the approved project, along with their concerns about why the administration was not willing to make it public, the DD detected by EVA is transported from their internal discussion to the public sphere, via articles published both in digital and printed media. At this point, the opaque socio-technical network deployed by the private investor and the municipality becomes transparent and the non-democratically legitimate components detected by EVA are fully visible. Therefore, the DD becomes

kurath@arch.ethz.ch

observable all over Madrid. While the network assembled by authorities and the investor had a considerable amount of power before, EVA's enrolment of the DD changes the configuration of the power positions. When hidden, ADRIPABEL's socio-material network was powerful enough to get the local government to approve its proposal; however, once the links between the project and objectionable actors were made visible, the assemblage lost strength.

Given the closeness of the municipal elections, and the possibility (later turned into reality) of a shift in the party governing Madrid, the issue around the Legazpi market became dormant after the public information period, at least in relation to the institutional and private actors, although EVA continued developing visibilisation and re-politicisation strategies. With the arrival of Ahora Madrid, a left wing party, to the government of the city, the possibility of the concession of the market to ADRIPABEL became less likely. EVA was able to carry out its first public event within the walls of the market in late July 2015, to commemorate almost one year of its origin. However, their demand for a social centre has not been met.

Conclusions

The process of deploying a GN could be understood similarly to Bruno Latour's account of the Spanish conquest over the Aztecs: "The Spaniards triumphed over the Aztecs not through the power of nature liberated from fetish, but instead through a mixed assemblage of priests, soldiers, merchants, princes, scientists, police, slavers" (Latour 1993, 202–203). Similarly, the current material configuration of the city can be understood as the result of the deployment of networks that triumphed over other alternative assemblages. This type of description makes evident that the process of enrolling allies to achieve a determined outcome does not happen in a situation in which all the actors involved have an equal share of power. Among all the participants in the material production of the city, some have more resources than others and therefore are capable of building larger and stronger networks which allow them to materialise their particular vision of urban space over the others. To say that the production

kurath@arch.ethz.ch

of urban space is a profoundly undemocratic process implies that citizens are often incapable of materialising their view of the city because the assemblage they are able to deploy is smaller and therefore less powerful than the assemblage deployed by other actors. In this sense, to the problem that cities are highly unequal landscapes (Swyngedouw and Baeten 2001), we can add another one: they are also produced through unequal resource allocations that are, surprisingly, *formal*—democratically legitimate. In the past few pages I have also suggested that the transparency or opaqueness of these assemblages heavily impacts the results.

EVA's account of urban development in Madrid suggests that local authorities and economic actors have successfully enrolled the DD as a city-producing tool during the deployment of GNs, since Madrid is described as going under a process of commodification opposed to its inhabitants' interests that, nevertheless, has been carried out respecting the rules of the democratic process. Their experience within the governance network can be looked at as an effort to make visible and dismantle the connections between the space of the city and particular versions of urbanism and democracy implemented from top to bottom by formal institutions. Figure 7.2 represents that process in a visual manner.

The citizens' interests, which were previously not politically discussed, are reintroduced to the political ecosystem of the city by the Learning Assemblage, through a process of re-politicisation. The assemblage also manages to expel certain institutional and private interests by disconnecting them with the elements that turned them into publicly discussed topics. This research attempted to locate the role of the DD in these processes, analysing the interaction between the institutional *programme* of assembling the city through a GN, and an *antiprogramme* built through the association between alternative versions of spaces, situated urban issues, and citizens. Four main conclusions can be derived from this analysis:

First, political processes are the result of a complex effort in which the involved actors participate by deploying intricate socio-technical networks to achieve their goals. These *programmes* are, more often than not, contested by other actors with conflictive goals deploying networks in the opposite direction. Unfortunately, some actors are not able to assemble their networks with the sufficient strength to convey their interest to the institutionally designed fora.

kurath@arch.ethz.ch

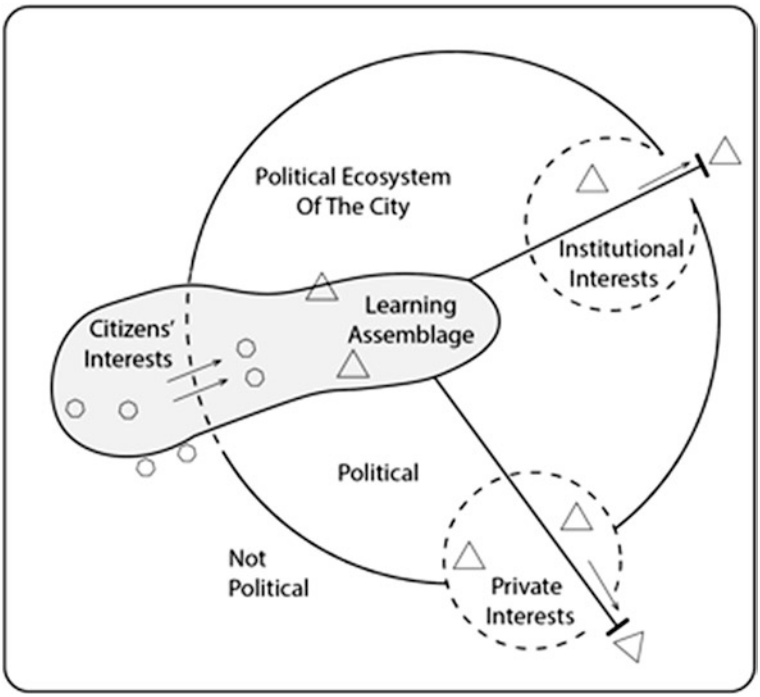

Fig. 7.2 Model of democratically legitimate urban planning

Second, the enrolment of the DD within the *antiprogramme* of those who disagree with particular political decisions affecting the city can be understood as a power reconfiguration strategy. I have defined the DD deficit as the invisibilisation of the necessary tools to achieve political goals, resulting in the perception that a *formally* legitimate democratic process lacks *substantive* democratic legitimacy. There is nothing that differentiates the DD from other actors involved in the assemblages making up the city. The DD is just another mediator in charge of connecting different urban assemblages to generate the city landscapes that we experience every day. Its role in the network is to hide the strategies and materials needed to assemble it. Therefore, whenever the DD is said to be acting, the flow of power through the network deployed to produce the city becomes opaque and, as a result, some of the actors involved are incapable of following the development of new connections, which also makes it

kurath@arch.ethz.ch

impossible for them to understand why new entities are associated and gain the ability and formal legitimacy to materially modify the city. Empirically, making the mediation tools invisible produces the feeling that citizens have not decided on the use of the necessary tools to achieve the deployment of a network or the displacement of political issues.

From the perspective of those interested in its ability to make the decision-making process obscure, the deficit is enrolled with the aim of maintaining the appearance of a *formal* exercise of democracy, while at the same time achieving a democratically questionable production of urban space (in *substantive* terms). At the same time, the groups opposing this style of urban planning can enrol the deficit to acquire political leverage, since denouncing an inadequate exercise of democracy puts the development of the network in the spotlight, turning it less opaque. As a consequence, the DD can become a tool to achieve re-distributions of power, affecting all the actors involved in a GN. By triggering a discussion about democracy's failure to translate citizen's interests, they manage to challenge the place assigned to them by other actors, along with the scope of their actions and decisions. I have suggested that local authorities can enrol the DD as an effective tool to produce a specific kind of city, namely, one that works particularly well to allow the flow/fixation of capital to benefit current powerful actors. Conversely, for some groups of organised citizens, the DD can become a tool that allows them to force their way into fora to which issues of their interest have been displaced. Furthermore, it also allows the interested public to bring new elements to the decision-making process. This strategy effectively counteracts a popular trend in the political dynamic of European local governments in which citizens are not allowed to join certain discussions, in addition to some subjects not being discussed at all. In both cases, the presence of the DD is not accidental but the result of a strategic decision.

Third, it is in the space of the city what powerful actors use to sustain in time their economic, political and symbolic power. It is also this materiality that is used by other actors to contest the asymmetries. Some urban struggles (such as the one presented in the case study) can be understood as attempts to dissolve the connections between the materiality of the city and capitalism, inequality, social injustice and exploitation, by developing instead connections with the ideas of communitarianism,

kurath@arch.ethz.ch

equality and fairness. Even though political processes in Western Europe are described as de-politicised by managerial practices, the city seems to retain the capacity to organise public discussions around its materiality, becoming a tool to reintroduce conflict where it seemed to be absent, and opening the doors of discussion fora that seemed to be unreachable. Gentrification, the mercantilisation of space, spatial justice and urban planning in general cannot be successfully discussed in public fora without being previously connected to situated political struggles that are organised around specific urban spaces.

Finally, the Madrid case study suggests that the strategies to contest asymmetries of power in the process of organising public life seem to be more efficient when at least part of the struggle occurs within the realm of institutions. Despite the superficial nature of the participatory mechanisms available to them, Espacio Vecinal Arganzuela managed to politicise, via its use of urban space and its participation in institutional dynamics of civic involvement, subjects that had been previously absent from the political discussion in the city. This finding appears to substantiate Chantal Mouffe's advice to continue trusting in democratic institutions, despite their recurrent failures (2005a, b).

Notes

1. Available online: http://evarganzuela.org/eva/something-wonderful-is-happening-in-madrid-in-spite-of-madrid/
2. Nueva Tribuna, "El Mercado de Legapi: Una decision a espaldas de la ciudadanía, pero a costa de sus bolsillos". *España*. Nueva Tribuna, 31 March 2015. Web. August 2015.

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kurath@arch.ethz.ch

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Guillén Hiram Torres Sepùlveda is a PhD student at the University of Amsterdam, within the DATACTIVE research group. His PhD thesis focuses on how government institutions resist citizens' attempts to hold them accountable through the use of Public Sector Information or Open Data.

kurath@arch.ethz.ch

8

Master Plans as Cosmograms: Articulating Oceanic Forces and Urban Forms After the 2010 Earthquake and Tsunami in Chile

Ignacio Farías

The Tsunami as an Urban Cataclysm

On February 27, 2010, at 3:34 a.m. mainland Chilean time, a massive earthquake of 8.8 degrees on the Richter scale shook the country. It was the sixth largest earthquake ever measured worldwide. The epicenter was only a couple of kilometers away from the coastline causing a tsunami. Waves up to 12 meters high started reaching seaside settlements only 15 minutes after the earthquake and they continued doing so for several hours. Five cities with populations of over 100,000 inhabitants, 45 with over 5000 inhabitants, and around 1000 towns and settlements were declared by the government to have been seriously damaged, especially in coastal areas. According to official estimates, around 370,000 households, 4538 schools and 57 hospitals required rebuilding or repair work. The total damages incurred reached 30,000 million dollars.

On *27F*—this is how Chileans call this tragic event—there was a veritable cataclysm. The term comes from the Greek *kataklysmos*, whose

I. Farías (✉)
MCTS, TU München, München, Germany

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kurath@arch.ethz.ch

original meanings are deluge, flood and inundation or, to be more precise, to wash down, to stir something with water. Cataclysms are sudden and violent events in which a world disappears (as in the case of Atlantis) or transforms (e.g. the Biblical flood myth of the universal deluge). However, they are not necessarily mythical events: earthquakes, tsunamis, volcanic eruptions, floods, torrential downpours and fires may also be considered cataclysms. Apart from the scale of destruction, it is decisive that the event calls into question the principles and premises which articulate the worlds within which human and nonhuman entities coexist.

In this sense, the *27F* cataclysm was not so much due to the magnitude of the earthquake as much as the capacity shown by the tsunami to problematize the way in which cities and other settlements on the coast are built and regulated in Chile. Indeed, the 2010 earthquake did not constitute a particularly radical or unexpected disruption. From when they are young, people in Chile learn that they live in one of the most seismic regions in the world, they hear stories about past earthquakes and they practice and internalize the recommendations to protect themselves in case such an event occurs in the future. In national life, earthquakes are geological forces that are well represented and duly considered within the political-legal frameworks and the media. The earthquake that destroyed Talca in 1928 was of key importance for the development of what has become one of the most advanced anti-seismic building codes in the world. In this context, the *27F* was neither a surprise nor a shock, but rather, a further "trial of force" (Latour 1987) for the existent organization of human life in the midst of tectonic forces. Interestingly, such organization has not involved significant city-wide plans or interventions. As earthquakes threaten human life by destroying buildings, it has been at the building level that Chile has managed its coexistence with earthquakes, through anti-seismic building regulations.

The capacity of the tsunami to call into question the dominant urban planning model in the country was rightly rooted in a change of scale: from the building to the city. As Pablo Allard, head of the Interministerial Reconstruction Office, explained:

> In terms of the resistance of the buildings constructed, Chile was ready for a seism [earthquake] of this magnitude, very few of them failed. Yet, what

kurath@arch.ethz.ch

> nobody considered, was that we did not have any norm for building in zones at risk from tsunamis. We are a coastal country and the tsunami risk maps were not considered relevant in our Planning Regulations, we were a country that was turning its back on an imminent risk, or that had ignored it in the territorial planning instruments, in our way of making cities. (Interview with *Diario Financiero*, July 18, 2011)

Perhaps because these events happen on the coast, far from the center of scientific and political representation, the interior where Santiago de Chile is located, tsunamis have been difficult to represent—not just in the sense of recognizing their occurrence (Farías 2014), but also insofar as taking them into account in construction codes, territorial planning and regulations on the use of land is concerned. But the 2010 tsunami brought a radical change with this; as it demonstrated the possibility of enormous masses of water interacting with entire cities it made apparent the need to come up with an urban design response, with an answer at the level of cities. Not only did it make it clear that tsunamis are crucial actors which must be taken into account in coastal cities and settlements but it also posed a new governmental problem: how to tackle these overwhelming oceanic forces.

As a result, the reconstruction process did not involve a recovery program as much as one of redesign, whose purpose was to rethink and redefine the way in which the relationship between cities and tsunamis should be articulated. The main instrument to undertake this task were the so-called PRESs (*Planes maestros para la Reconstrucción Sustentable*, Master Plans for Sustainable Reconstruction), which brought together two types of expert knowledge and practice which had not been considered in urban planning for decades: geographers who were experts in oceanographic modeling and architects who were experts in the design of the constructed environment. Their involvement implied a noteworthy shift if one considers, first, that until 2010 the risk of tsunamis was not legally relevant for territorial planning; second, that at least since the decade of the 1970s, Chilean urban policy was almost exclusively concerned with setting incentives and restrictions for the private sector, thus leaving the city in the hands of economists and jurists; and, third, that the PRES was introduced without it being a legally binding instrument for territorial planning.

kurath@arch.ethz.ch

It is crucial to study the practice of drawing up the PRESs, not just for the reasons mentioned above. Through the PRESs, the actors involved were involved in nothing less than the very definition of what constitutes an urban world, proposing and specifying the details of possible relations and articulations between human and geological forces and processes. Accordingly, this article proposes to study the drawing up of these master plans as a "cosmopolitical practice" directed at building a world in which human and nonhuman actors in different coastal settlements, including tsunamis, may coexist. To do so, I will proceed as follows. Section 'Urban Theory and Cosmopolitics' presents the theoretical-conceptual groundwork that makes it possible to conceive the relationship between cosmopolitics and urban planning. This section proposes to understand PRESs as "cosmograms" open to re-interpretations, negotiations and conflicts around the construction of a common world of cohabitation. Section 'Cosmogrammatic Operations' analyzes some of these PRESs in terms of what I call cosmogrammatic operations. Specifically I focus on three such operations: territorialization, classification and commoning. The article ends with a general reflection about the type of geo-hydro-urban articulation proposed by the PRESs.

Urban Theory and Cosmopolitics

At least since the publication of Ash Amin and Nigel Thrift's *Cities: Reimagining the Urban* (Amin and Thrift 2002), a new theoretical program in urban studies has emerged which, through the concept of the *agencement* or assemblage (Farías 2009b), breaks away from the most important research traditions in this field on some key points: with critical geography and its emphasis on the city's political economy (e.g. Harvey 1985), with urban anthropology and its focus on symbolic imaginaries and spatial tactics of city dwellers (e.g. Hannerz 1980), and so on. Inspired by science and technology studies (STS), which conceive the social as a matter of hybrid associations between human and nonhuman entities (Latour 2005), urban things (practices, infrastructures, events) are conceptualized as spatially and temporally distributed assemblages, and the city as a multiplicity of urban assemblages. This implies, first,

kurath@arch.ethz.ch

moving beyond classic a priori divisions between types of users and producers of urban space according to which the "strategies" of experts and other actors, who hold the power to intervene (in) the city and the "tactics" of noncompliance, resistance and subversion that characterize users, residents and citizens' movements, would constitute fundamentally different types of social action (De Certeau 1984). Second is the questioning of anthropocentric readings of urban life, in order to pay attention to the capacities of nonhuman entities to resist and enable ways to lead and enact urban life. In this sense, the properties, tendencies and capacities of the materials, objects and technologies that shape the city are not subordinated to the interests, intentions and decisions of human actors, as if they were mere tools, trivial machines or material expressions of human intentions. Finally, it is the understanding about the city as a multiplicity that is unceasingly created, assembled and enacted in different places (Mol 2002). This multiplicity is related to the fact that cities are never finished or completed: urban reality is always being made or assembled in multiple places and processes.

This "assemblage urbanism" (McFarlane 2011) also offers a new perspective concerning the political character of urban processes. It neither seeks to unveil the ideological projects of the dominant classes through a critical posture, nor does it seek to chart the route toward an emancipatory urbanism (Brenner 2009). From this perspective, the fundamental political problem does not just concern the struggle between different social groups or their resistance to the logics and contradictions of capital, but rather it pertains to ontological questions concerning the form into which urban worlds are composed (Farías 2011a). As a key site for the articulation of multiple heterogeneous assemblages (e.g. Ureta 2014), such an understanding of urban politics involves playing closer attention to (a) the more-than-human nature of the objects of dispute, (b) the heterogeneous forms of representation involved, as well as (c) the cosmopolitical proposals and consequences of urban designs.

With regards to the first element, it appears appropriate to follow the distinction drawn by Latour between *Realpolitik* and *Dingpolitik* (Latour 2015). The notion of *Realpolitik* imagines politics as grounded in a conflict between the worldviews, values and interests of individuals, groups, social classes, corporations and governments—a politics which only

kurath@arch.ethz.ch

includes humans and which revolves around social issues. But if, for instance, we pay attention to the numerous socio-technical controversies about urban infrastructures, environments and planning regulations that are constantly mobilizing an important number of citizens' organizations, neighbors alliances and activist groups (Tironi 2012), urban politics gets a quite different outlook. Drawing on Latour, it becomes possible or even necessary to talk about a *Dingpolitik*, of politics which revolves around "things", that is, problematic socio-material assemblages within which the distinction between what is human and the nonhuman is fluid and negotiable. In this sense, the objects of urban politics are not equivalent to screens upon which conflicts between social groups or interest groups are projected; rather, it is the emergence of problematic things that oftentimes enables in the first place the formation of affected or concerned groups (Marres 2007).

Such an object-centered politics underlies the master plans for urban reconstruction, thus highlighting a second key issue: that a *Dingpolitik* entails a heterogeneous politics of representation, as representation takes on different forms (Latour 2015). Indeed, various STS authors have demonstrated that a strict analytical separation between politics, science and art as three autonomous and self-referential social spheres does not allow an understanding of the politics of representation of complex and problematic objects in socio-technical controversies. Andrew Barry (1999) has shown that scientific and political demonstrations do not just share common origins and logics, they also often find themselves intertwined in contemporary techno-political life. Caroline Jones and Peter Galison (1998) have explored the similarities and entanglements between artistic and scientific representations, concluding that they constitute regimes of knowledge which cannot be studied independently. Similarly, Ola Söderström has demonstrated how techniques for the visual representation of urban reality, far from being neutral, "synthesize the city in terms of material objects or of individuals who are treated as objects" (Söderström 1996: 275).

Accordingly, only if one imagines politics as dialogical process aimed at achieving consent, would one focus on the procedures that enable some (experts, politicians, investors) to speak in the name of others. From this viewpoint, the political problem of representation in the

kurath@arch.ethz.ch

drawing up of master plans would just concern the processes through which citizens directly or indirectly exercise their right to speak, express opinions, evaluate and decide. Yet, as STS literature suggests, the politics of representation that shapes master plans is much more complicated than this. Issues concerning traditional political representation struggles are matched and entangled with the techno-scientific representations through which the capacities of nonhuman entities and processes to intervene urban worlds are modeled, evaluated and presented. Furthermore, the master plans are shaped by a number of aesthetic considerations and operations, such as the precise use of graphic design and photo-realist visualizations, which seek to capture an audience by affective means. Master plans thus are made up of a complex web of different forms of urban representation.

Hence, what is ultimately at stake here is the search and provisory articulation of a common world of urban cohabitation, of an urban cosmos that does not just set the terms for the coexistence among individuals and human populations but also of different nonhuman entities. In this sense, it is an urban cosmopolitics, in the extended sense suggested by Stengers (2005) and Latour:

> The presence of cosmos in cosmopolitics resists the tendency of politics to mean the give-and-take in an exclusive human club. The presence of politics in cosmopolitics resists the tendency of cosmos to mean a finite list of entities that must be taken into account. Cosmos protects against the premature closure of politics, and politics against the premature closure of cosmos. (Latour 2004: 454)

Understood as "the building of the cosmos in which everyone lives" (Latour 2007: 813), the notion of cosmopolitics includes different ways of doing politics. In the account offered by Latour, cosmopolitics involves at least five modes of politics concerning: the subtle arrangements of technoscience (Beck 1993), the formation and mobilization of issue publics (Dewey 1927), the exercise of sovereignty (Schmitt 2013), deliberation in assemblies (Habermas 1987), and the operation of governmental apparatuses (Foucault 2007). The key issue, Latour (2007) observes, is that all these forms of thinking and doing politics have consequences on the way in which common worlds are constructed.

kurath@arch.ethz.ch

Accordingly, it is important to distinguish the task of describing and analyzing the cosmopolitical *consequences* of such versions of politics from the cosmopolitical *proposals* developed by Stengers and Latour on how to compose the common world. Stengers' (2005), for example, is an ethico-political proposal that seeks to enable practices that are committed to what is unknown and excluded from the common world, as well as to an *idiotic* doubt which, conversely to the Cartesian methodical doubt, does not seek to establish firm and definitive ontological bases but, rather, to slow down thought and decision-making, for the purpose of enabling an ontological opening of the world we share. In many senses, the master plans for urban reconstruction drawn up in Chile cannot be understood as examples of such a proposition. In fact, instead of the slowing down of thought, the emergency situation was enacted as requiring urban planning to speed up thinking and decision-making. Thus, far from opening up spaces for idiotic doubts, urban planners proposed to save time by taking the risk of quickly making urban design proposals. Hence, in practice, citizen participation followed the traditional model whereby experts explain the projects and await suggestions or objections voiced by citizens.

However, the master plans must be studied paying attention to the inherent cosmopolitical consequences of the urban reconstruction projects they propose and "the agonizing sorting out of conflicting cosmograms" (Latour 2007: 813). The concept of cosmogram, which Latour refers to, was coined by John Tresch in his work on technological worldpictures (Tresch 2007). Cosmograms are visual representations of the elements of the cosmos and their relationships. Distinct from the notion of worldviews or cosmologies, cosmograms are neither shared nor complete representations but rather partial images inscribed in material objects that circulate in public spaces, which leaves them exposed to criticism, additions and replacement by other cosmograms. The relevance of the idea of a cosmogram for the study of the master plans is thus evident, as they are critical to articulate proposals on how to compose the future urban world. Master plans thus are to be conceptualized and analyzed as urban cosmograms, that is, as diagrams of future urban worlds that define the entities and relations that are deemed valuable and possible and distinguish them from those which are not.

kurath@arch.ethz.ch

Cosmogrammatic Operations

To be more accurate, it is of key importance to begin with the distinction proposed by Tresch (2007) between "cosmic things" and "cosmograms". The former are ordinary objects that carry a world along with them. Tresch elaborates on cosmic things by using Heidegger's classic example of the jug, whose being cannot be reduced to its existence as a physical object, as a handy tool or as a ritual object but rather as a "thing" which summons and expresses the way in which a human group relates with itself and with other entities in the world. Tresch observes:

> The technological object may be a mere tool. Approached with the proper receptivity, however, a bridge, a subway car, a steam engine, a synthesizer, a washing machine, a gun, a standardized fruit fly, or a genetically modified mouse can reveal the ways in which individual things and the world humans share with them are made present. (ibid.: 91)

Instead, cosmograms can be symbolic objects, architectural works or visual representations that have been created for the purpose of making apparent what is only left implicit in cosmic things. The examples which Tresch provides include Tibetan mandalas, mosques, Christian allegories about creation, Newton's *Principia*, encyclopedias, maps of university campuses, search engines, and so on. What defines cosmograms is their capacity to constitute a whole without this meaning that they offer a totalizing or completed representation.

The list of examples suggested by Tresch also highlights that the ways in which this totality is invoked; that is, how different cosmograms trace the contours of the world, can vary significantly. Accordingly, and if, as Tresch suggests, our task consists in studying "the practices and objects that make a cosmos visible" (ibid.: 99), then it is necessary to specify for each of the cases the cosmogrammatic operations through which the cosmos is articulated. Through this term, cosmogrammatic operations, I do not only wish to refer to moral grammars that, based on differing notions of the common good, articulate the composition of the common world (Thévenot 2007) but also to the production of diagrams. In an article on tourist maps (Farías 2011b), I drew a distinction between four

kurath@arch.ethz.ch

diagrammatic operations: extending matter, edging experience, placing objects, and folding displacements. It is through these operations that a tourist world is articulated in tourist maps. These are not representational operations of a space that has already been constituted; rather these are performative operations which co-produce map and territory. In a similar vein, it is necessary to identify the cosmogrammatic operations by means of which master plans and urban worlds are co-constituted. Without seeking to establish a correspondence with the operations identified for the tourist maps, the following analysis proposes to distinguish three key cosmogrammatic operations: territorialization, classification and commoning.

Territorializing

The region of Biobío, with the second largest population in Chile, was one of those most affected by the tsunami. Unlike what happened in other regions, the *Intendencia*, the state's regional administration, created an Office for the Reconstruction of the Coastline tasked with drawing up master plans for 18 coastal locations. In spite of significant differences in size, the scale of destruction, socioeconomic profiles and local cultures, the common goal for these settlements was to make them resilient to future tsunamis. Two studies on tsunami risk that considered the effects of future mitigation works, commissioned by different governmental departments to two universities, were key for the definition of risk areas. As Javier Wood, former Head of the Urban Development Department, would explain, these studies "feed us, to be able to designate new risk areas […and to] define the 'red line': you must not build here; here we need mitigation measures; here you can build if certain specifications are met" (Interview, April 5, 2010). Drawing such red lines involved a process of territorialization that is central to the master plans' cosmograms. This is not a trivial or unequivocal operation, considering that it implies translating possible future events into spatial limits, transforming estimates into territories. Two aspects of the territorialization of the risk of tsunamis are particularly noteworthy.

kurath@arch.ethz.ch

First, the notion of risk used in these studies does not simply reflect the likelihood of the occurrence of a destructive natural event (a question that, as we shall see later on, is not so simple); rather it also incorporates an estimate of the vulnerability levels of the exposed human settlements (Arenas et al. 2010). Hence, by definition, risk—and the need to carry out expensive risk studies—only exists in those coastal areas in which the presence of vulnerable human settlements is ascertained. However, what counts as a human settlement in a coastal area? The team from Biobío University that was responsible for one of the commissioned studies began its work using an unequivocal criterion: coastal human settlements had to have more than 14 houses and be below 20 meters above sea level. Thus, the "coastal" category did not just include locations which were right in front of the sea but also all those which were below 20 meters above sea level, including some which were up to 5 kilometers away from the coast. At the same time, houses and hamlets which were only a few meters away from the sea but which did not have 14 buildings were not considered in tsunami risk analyses. Forty-eight coastal locations in the Biobío region fulfilled the criteria although, as the general coordinator of this study explained later, these criteria only worked as "a general rule. In practice, it [the assessment] was done case by case" (Interview, August 4, 2010). Indeed, it was only after visits in the field that the team made decisions about the inclusion or exclusion of locations, and, to do so, it relied on its own estimates of the economic and tourist potential of each of the locations. Around five of them ended up being excluded using this procedure, insofar as they were so severely destroyed that the possibilities of recovery were deemed too small. For the rest tsunami risk studies were done, but for 25 localities no reconstruction master plans were drawn up. Hence, in practice, vulnerability was not solely defined by exposure to overwhelming hydrological forces; rather, it was mediated by estimates and evaluations about what constitutes a coastal settlement and its prospects for future development.

Second, the studies on the risk of tsunamis had to account for the deep uncertainty about the probability of the occurrence of future events that are dependent on geological processes whose dynamics and interconnections are beyond the scope of the descriptive variables and temporal scales of the predictive models in use (Morton 2010; Farías 2014). In practice,

kurath@arch.ethz.ch

this uncertainty condensed into the following question: "What scenario must be considered to tackle the menace of a tsunami? The probable event or the worst-case scenario?" (Lagos and Cisternas 2008: 1–8). According to the cited authors, who were also the people made responsible for modeling the risks of future tsunamis in Chile, the answer is clear: coastal settlements have to prepare for the worst-case scenario, as there is insufficient evidence to establish the relationship between the magnitude of an earthquake and that of a tsunami in an accurate and reliable manner. For example, although the tsunami of 2010 was not caused by the worst possible earthquake (with a magnitude above 9 degrees on the Richter scale) but by the most likely event (less than 9 degrees), it nonetheless generated a tsunami whose magnitude was equivalent to that of 1960, when the worst earthquake ever recorded occurred. To the above, one must add the problem that the historical record of prior floods is very poor. To tackle it, a "detectivesque investigation" (ibid.: 4), including rummaging in the depths of administrative archives and personal memoirs, becomes necessary to reconstruct the events from the past. In this context, the 2010 tsunami became an important source of information about the correlation between the magnitude of the earthquake and the flood level. Nonetheless, and in spite of the new measurement and visualization technologies, the work of tracing the topographic profiles of the flooding required a manual triangulation using multiple sources of information: "Using surveying equipment […] we measured the height of the tsunami wave and traced topographic profiles of the inundation area. Using marks left by the main tsunami flow on houses and buildings and tree damage as indicators of water level, evidence of the effect of the tsunami on the coastline was duly recorded" (Arcas et al. 2010: 30). Even so, it was not possible to find unequivocal evidence of the height of the flood everywhere, especially in areas which were completely destroyed and where that kind of marks could not be found. The uncertainty concerning the worst-case scenario also increases when one considers that the magnitude of the tsunami basically depends on the morphology of the seabed and the coast, which in some sectors experienced morphological changes produced by the earthquake. Hence, the territorialization of the tsunami risk could not be based on probabilistic models because, in view of the lack of reliable information, "a map which 'spatialises' a probable event may underestimate the real dangerousness of

kurath@arch.ethz.ch

future events" (Arenas et al. 2010: 5). Instead, the territorialization of the risk rested on deterministic models based on the "worst credible event" (ibid.: 5), that is, the "worst known scenario" (ibid.: 6).

Paying attention to the methodologies employed to draw up the maps of tsunami risks makes it possible to account for the practical assemblage of scientific facts and of the complex processes of "black-boxing" which are necessary to transform extremely heterogeneous collections of historical, topographical, statistical, ethnographic data as well as legal and political definitions into the thin "red lines" which define the risk areas. At the same time, and insofar as these scientific productions are incorporated into the master plans, they operate cosmogrammatically by shaping the future urban world. In this sense, it is not by chance that the thin red lines which mark out the tsunami risk areas would often transform into matters of concern and dispute between planners, local residents and the real estate sector.

Classifying

The capacity of such territorializations to redefine the world and, in consequence, trigger new questions and controversies was particularly manifest around the issue of the land uses to be permitted or prohibited in the risk areas. Suddenly, countless actors appeared to have something to say: experts from the United States Geological Service recommended prohibiting any kind of buildings in the risk areas, the central government suggested that their residential use be forbidden, journalistic reports recommended following international experiences using tsunami-resistant homes, and so on. In a majority of cases, in the end, it was the local and regional planning teams, in consultation with the local populations and administrative authorities, which had to decide what uses—and, hence, what forms of urban life—would be allowed or forbidden in the risk areas. In this process, a different kind of cosmogrammatic operation was carried out, as it was directed at distinguishing those entities and activities in relation to which there is a common duty of protection from those which do not involve any common interests and may therefore, if they so wish, be exposed to the risk of their destruction. In this way, rather than territorial limits, the process involved tracing ontic limits,

kurath@arch.ethz.ch

classifying human and nonhuman entities as being of common interest or not. As a result, apart from the techno-scientific visualizations of future risks, the master plans were also molded by political and economic considerations regarding what defines the common good. The comparison of three different ways of tracing these limits enables an understanding of the deep interconnection between cosmopolitics and moral grammars of the common.

First, the Chilean Chamber of Commerce for Construction (*Cámara Chilena de la Construcción*, CChC) suggested, in various documents and meetings with government authorities, that the state should be responsible for providing and making available any relevant information about risk areas, so that private actors could make informed decisions about the costs and risks of setting up in such areas. From this perspective, a prohibition of positioning in risk areas would only be lawful for public buildings, as they are third-party goods which belong to all Chileans, as well as for the necessary services to safeguard the population's lives in case of an emergency, that is, hospitals, fire services, police stations, military establishments and others. However, as long as the risk concerns private goods, whose loss does not represent an economic burden for the state, the risk areas should remain free from any prohibitions. From this perspective, the fundamental criterion which serves as a starting point for the classification of the entities which make up the common world is its property status, whether it is public or private, in such a way that any kind of urban life and practice which relies on private goods should not be considered as being a common interest. In spite of there not being any master plan that actually followed the recommendation by this association of building companies and estate agencies, this is an important actor which has a strong voice in the debate among experts.

A large majority of the master plans introduced prohibitions for the residential use of high-risk areas as well as requirements of high building standards for areas of lesser risk. The logic which underlies these prohibitions could not have been in greater contrast to the neoliberal grammar of the CChC as it assumed that people experience a deficit of individual autonomy and ability to take care of themselves when dealing with life-or-death interactions with tsunamis and so need to be cared for by the state. More specifically, prohibitions for residential uses are justified

kurath@arch.ethz.ch

with references to the daily biological cycle of human bodies, whose vulnerability and ability to react in emergency situations changes radically from the day to the night, when they are sleeping or when it is dark. In this way, considering the fact that human populations are not exactly the same type of entity throughout a single day and that, even with a tsunami alert system which works, they cannot be expected to react adequately, the master plans generally prohibited or significantly restricted residential uses in high-risk areas. In these cases, it was not the relations of ownership connecting individuals with certain buildings that defined what belonged to the common world that must be protected but rather various forms of interaction with overwhelming geological processes. Hence, most master plans introduced a classification of the entities populating the urban cosmos based on a distinction between moments *when* individuals' decisions turn into issues of common interest, passing to become the state's responsibility, and moments *when* they may be viewed as private matters of individuals who are responsible for themselves.

A third way of qualifying urban entities and activities as being of common interest was practiced in the Juan Fernández island. The key distinction agreed by planners, local politicians and the community for regulating tsunami risk areas was between passive and active investment capitals. In drawing up the master plan, they avoided localizing passive capitals in risk areas, that is, urban and residential developments which do not produce revenues, such as homes, schools, public buildings, because it was deemed that their destruction would involve a pure economic loss. Instead, active capitals, regardless of whether they were residential or not, public or private, such as restaurants, bars, shops, sport clubs and even hotels, were allowed in the risk areas because they would be businesses in which investments are recovered in just a few years. Until the occurrence of a destructive event, it was pointed out, the capital investment would already have been recouped. It is important to note that this way of classifying entities and activities of common interest was based on the condition that safeguarding human lives would not be problematic if there was a suitable alert and evacuation system. This case is interesting because insofar as the common good is associated with the economic prosperity of the community as a whole, the cosmogrammatic operations of the master plan are directed at protecting public and private investments alike.

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In the three cases we have considered, the classification of entities and activities are based on binary ontic limits to differentiate what is common interest and what is not. Such boundaries play a crucial role for the progressive composition of a common world. As stated by Nigel Thrift, "many modern spaces are spaces in which boundaries are drawn quite strictly and are drawn strictly not just to keep people out, but also to keep people happy within. This is why I think that Peter Sloterdijk's work on "worlding" does make some kind of sense" (Farías 2009a: 118). In effect, classifications based on the tracing ontic boundaries constitute a key cosmogrammatic operation of the master plans, as it produces common definitions of the values which must structure the future city.

Commoning

The cosmogrammatic operations of master plans went beyond the definition of territorial or ontic boundaries for a future common world. A key operation was also to define in as concrete a way as possible what the "common things" were to be. The master plans proposed whole sets of urban works and infrastructures that would function as the cornerstones of the future city: public spaces, green areas, service buildings, infrastructure, museums, and so on. Accordingly, what sets master plans apart from other territorial planning instruments were precisely these detailed descriptions of the things that should compose a common world of cohabitation.

In fact, since its origins, the master plan was an object-oriented instrument. In his classic book *The Master Plan*, the influential North American planner and jurist Edward Basset argued that master plans should define the exact localization of future public works. In order to establish what type of works are objects for the master plan, Basset set three criteria: that they be works which have an impact on the use of land, that they involve uses for the community and, finally that they be works which are visually representable on a map:

> If it cannot be shown, it is not one of the elements of a plan. It's something else. For example, a construction code cannot be shown in a plan. Hence,

kurath@arch.ethz.ch

> it is not part of it. Private homes cannot be shown in a master plan. Hence, they are not a part of it. (Bassett 1938: n.a.)

Two key propositions derive from Basset's take on master plans. The first is that for Basset the master plan is neither a prediction nor an image-objective but rather "actions that must be taken by a government to achieve a defined objective" (Dunham 1958: 171). It is an instrument of territorial planning which does not seek to indirectly guide urban development by introducing incentives and restrictions to the market forces but rather to design the specific arrangements that should compose the future city. Basset justified the necessity of visualization by pointing out that issues of localization are key to maximizing the common good, far above matters such as the investment cost or the levels of user satisfaction. He argued that it is only possible to ensure that the city will grow in a coordinated and integrated manner through decisions on the localization of public works and services. The second point is that according to Basset the master plan is not a complete or totalizing instrument, as it is only concerned with those things that are classified as common.

To a certain extent, the master plans drawn up in Chile reproduce Basset's vision, as one of their main concerns was the exact localization of the urban works necessary for constructing resilient cities. The main difference was that in the Chilean case the master plans did not only include works financed using public funding but also by the private sector, whether this was through concessions, public-private partnerships, donations or privatizations. However, even in such cases, the works included in the master plans were those defined as being in the common interest, that is, works of public impact and for public use which cannot be conceived as independent objects, isolated or self-contained, as they are urban works that bring a world along with them, and also articulate other spaces, activities and urban entities. Accordingly, commoning, defining certain things as common, is a third cosmogrammatic operation through which the master plans set forth proposals for urban worlds. This was particularly evident in the case of the PRES of Constitución, which included over 60 integrated projects, a sizeable part of which depended on the realization of a specific project: the Constitución River Park.

kurath@arch.ethz.ch

Constitución, a city with 50,000 inhabitants located on the southern bank of the Maule river estuary, was one of the most severely destroyed by the tsunami, which surged through the estuary heavily destroying housing and infrastructures on the riverside. The team which drew up the master plan sought to propose a tsunami mitigation work that could be integrated into the city, contributing to an overall improvement in the quality of life. The option of building a wall or other containment works was early on dismissed, as also the inevitable deterioration over time of this kind of engineering works represented an even greater danger. Following the premise that when facing geographical threats the solutions must also involve the city's geography, the team proposed the construction of a park with trees capable of reducing the speed of a tsunami and of lessening its impact on the city. Apart from redefining the city's relation with future tsunamis, the park would be crucial to resolving other urban problems. First, the park would entail doubling the per capita rate of the city's green and recreational areas. Second, the park would offer an answer to the voices of residents who pointed out that the city's greatest asset were its natural heritage and its relationship with the river because it involved transforming the river shore that had previously been privatized into space to which the public has access. Third, the park was to be designed in such a way as to be able to function as an unloading area for a canal which crosses the city, thus decreasing the floods which occurred every two or three years due to excessive water volumes. Fourth, insofar as the park's design was meant to include a new seafront avenue which would reach a large cellulose factory adjacent to the city, the park would make it possible to resolve the historic conflicts between resident and the factory due to the circulation of heavy vehicles through the city center. These and other aspects enabled the definition of the park as the most important new common thing that would shape the future Constitución. These aspects acquired also high relevance, when it came to justifying the park in front of protests by landowners and fishermen who had to be expropriated for its construction. In fact, sheltered by the logic of the common good, the debate surrounding the park and the subsequent vote by citizens on its realization made it almost impossible for the outcome not to be its approval, which was achieved with almost 90% of votes in favor (for a detailed analysis of this case, see Tironi and Farías 2015; Farías 2016).

kurath@arch.ethz.ch

Master plans do not merely define a common world through the territorialization of the tsunami risk or the classification of different types of entities and activities as being of common interest or not. Another cosmogrammatic operation is that of commoning, that of rendering specific elements of an urban world, such as the park, into common things, commons that articulate a collective by affecting and redefining the relationships between heterogeneous urban entities and processes.

The Anti-tsunami City: On Geological Urbanism as Interaction Design

The tsunami which razed cities and other coastal settlements to the ground in the south-central zone of Chile raised a cosmopolitical problem for urban planners and designers which consisted in how to recompose the urban world while taking into account the overwhelming force of such geological processes. Cosmogrammatic operations consisting in territorializing, classifying and commoning were crucial to introduce the "tsunami variable", as some of the experts involved term it, into the master plans for sustainable reconstruction (PRESs). In fact, in practically all the master plans drawn up for coastal settlements the notion of sustainability was mainly used as a synonym of tsunami-resistant cities. Although these plans incorporated measures to respond to other risks and, in some cases, even proposals for the sustainable treatment of domestic and industrial waste or to reduce emissions, the fundamental question was how to organize the inevitable coexistence between cities and tsunamis.

It is important to consider the geo-urban articulation proposed in the master plans in the light of other forms of geo-urban articulations discussed in contemporary literature. I would like to highlight two key contributions to this incipient way of conceiving the city. On one hand, Manuel De Landa has suggested understanding the emergence and history of urban assemblages as having been enabled by processes of "mineralization" and "geological infiltration" (De Landa 2000: 26, 27). Setting off from the premise that cities are human exoskeletons made up of minerals such as stones, bricks of sun-dried clay, steel and glass, De Landa observes that the most important urban and architectural

kurath@arch.ethz.ch

revolutions—those moments in urban history in which the form and scale of cities and, consequently, of the human ways of cohabitation changed radically—were made possible by geological infiltrations, that is, by the incorporation of new minerals to existing urban assemblages. On the other hand, Nigel Clark (2014) has suggested exploring the way in which humans, through the development of mechanisms to contain fire, ranging from the first furnaces to the combustion engine, have been capable of replicating volcanic processes which produce lava and magma and, hence, new materials, on a small and controlled scale. It is through these techniques that humans have managed to manipulate the properties and composition of different material until they created, among several other things, the mineral compounds required for the construction and transformation of cities. Thus, Clark's work does not just point out the geological infiltration into urban assemblages, but it also focuses on the miniaturization of and experimentation with geological processes that would otherwise be uncontrollable.

The works by De Landa and Clark make it possible to establish a clear contrast with the geo-urban articulation proposed in the master plans. The most important difference is that the latter do not propose an *incorporation* of the tsunami into the urban assemblage, neither in the form of a geological infiltration nor through a controlled replication; rather, they design the *interaction* between tsunamis and urban assemblages. In this sense, the master plans assume the prevalence of an irreconcilable and incommensurable ontological difference between tsunamis and cities (Tironi and Farías 2015). It is obvious that the enormous masses of water, land, rocks and sediments which constitute tsunamis do not have the capability of integrating into urban assemblages but, rather, only to disassemble what has already been assembled. To put it otherwise: the master plans assume that there is no way for cities and other coastal settlements to establish a relationship of "co-functioning", "sympathy" or "symbiosis" with tsunamis, to use three notions through which Deleuze describes the notion of assemblage (Deleuze and Parnet 1987). And they also understand that there is not any manner whatsoever in which their interaction may be definitively avoided. In fact, the different cosmogrammatic operations analyzed above do not attempt the impossible, which would either be to incorporate the tsunami as a force which shapes the city or to

kurath@arch.ethz.ch

keep it outside the urban assemblage but rather to draw up the terms of such an interaction.

In this context, we have to consider the idea outlined by some architects and urbanists of reconstructing cities with an "anti-tsunami DNA". Beyond the organicist metaphor which equates the city to an organism and which portrays the task of urban planning as a modification of its genetic code, the city with an anti-tsunami DNA is that whose form makes it resilient to the inevitable future interactions with tsunamis. As the cosmogrammatic operations analyzed above suggest, tsunami resilience is not solely based on keeping certain entities and activities beyond its reach but rather also on modifying the way in which the tsunami enters the urban space. In fact, the Constitución River Park is not designed to contain or redirect the tsunami but rather to mitigate its force, reduce its speed and smoothen its entry into the city. In this sense, it entails an attempt to transform a wave into a flood with which the city's residents may interact in ways that are not necessarily lethal. In this sense, the master plan does not just attempt to govern human populations and activities in order to reduce their exposure to a deadly risk but also to govern tsunamis, in order to soften their behavior in the city. Hence, returning to the contrast proposed with other geo-urban articulations, it is possible to conclude that the proposed urban cosmograms in the master plans outline an articulation of the city with tsunamis which, rather than involving infiltration and experimentation, seeks to civilize its savage manners.

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kurath@arch.ethz.ch

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Ignacio Farías is Assistant Professor at the Munich Center for Technology in Society and the Department of Architecture of the Technical University of Munich. His research interests lie at the crossroads of urban studies, science and technology studies and cultural anthropology. His most recent work explores the politics of urban disruptions, from disasters to noise, as well as current experiments in technical democratization. Together with Anders Blok, he has recently co-edited *Technical Democracy as a Challenge to Urban Studies* (City, 20(4), 2016) and *Urban Cosmopolitics: Agencements, Assemblies, Atmospheres* (Routledge, 2016).

kurath@arch.ethz.ch

Part IV

Assembling Planning Practices

kurath@arch.ethz.ch

9

Re-Assembling a City: Applying SCOT to Post-Disaster Urban Change

Anique Hommels

Introduction

On May 13, 2000, a huge explosion that occurred in a fireworks storage facility in Enschede had disastrous consequences. A residential area, close to the inner city, was destroyed, and 22 people were killed. Immediately after the disaster, the planning of the rebuilding began to take shape, and over the past 15 years, a new neighborhood, Roombeek, was constructed.

After a disaster, the future of the city is open and uncertain—there is a need to improvise. In such situations it becomes clear how cities respond, how resistant to change they are, and how resilience gets socially and materially constructed. In that sense, a disaster can be seen as an experiment to test the resilience of a city and rebuilding processes as a laboratory for urban innovation. An urban disaster, presumably, increases the stakes, sensitivities, and tensions involved in such a delicate material-political undertaking. Yet, at the same time, disasters create a "sense of

A. Hommels (✉)
Department of Technology & Society Studies (FASOS), Maastricht University, Maastricht, Limburg, The Netherlands

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kurath@arch.ethz.ch

urgency" that can easily be used or abused by actors to speed up decision-making processes and to force far-reaching urban transitions upon the disaster survivors.

To study the socio-material "re-assembling" of Roombeek in detail, I will use the Social Construction of Technology (SCOT) approach developed by Wiebe Bijker and Trevor Pinch (1987, 1995, 2010). I will look at the negotiations during the rebuilding process in Roombeek by analyzing which relevant social groups were involved in the planning of the new neighborhood and how they interpreted the post-disaster city. Which meanings did they give to the urban artifact after the disaster? Which implications did this have for the planning choices made in the rebuilding process? How did their framings of the post-disaster city materialize in the rebuilding efforts?

SCOT has been applied to cases of urban planning and rebuilding before. Aibar and Bijker (1997) analyzed the case of the extension of Barcelona. Hommels (2005) used SCOT to understand the problem of urban obduracy: why it can be so difficult to change embedded urban sociotechnical structures. This case study builds on this literature and on more recent STS literature on resilience and vulnerability (Hommels et al. 2014). It tries to relate SCOT analyses of sociotechnical change in cities to scholarly insights about the role of innovation in post-disaster situations.

In the next section, I will discuss literature on innovation and disaster. I will argue that a more empirical approach that is based on the SCOT approach is needed to understand how innovation works after a disaster. Next, I will present the case of the rebuilding of Roombeek. I will present two technological frames that emerged in the post-disaster negotiations about the physical planning of the neighborhood. I will show how the eventual integration of these frames and the resilience rhetoric that was used contributed to a speedy planning and rebuilding process.

Disaster and Urban Innovation

Cities are huge sociotechnical artifacts—"seamless webs"[1] of material and social elements. Dense concentrations of infrastructure and people are tied together in cities as they are "constituted out of the flows of energy,

kurath@arch.ethz.ch

water, food, commodities, money, people and all the other necessities that sustain life" (Harvey 2003, p. 34). Cities are simultaneously vulnerable and resilient. Over the past decade, sociologists, philosophers, geographers, and historians studying cities have argued that cities have become highly vulnerable. Urban scholar Mark Pelling (2003) has argued that "Cities are increasingly becoming the locus of risk" (p. 14). And the neo-Marxist geographer David Harvey stressed that "cities are vulnerable forms of human organization. (…) In recent times, the extraordinary growth of cities through the world, seems set to override catastrophes, losses, indignities and woundings, no matter whether externally visited or self-inflicted. (…) Cities in their capitalistic form are hyper-active sites of creative destruction" (Harvey 2003: p. 25).

However, at the same time, it has been argued that cities are among humankind's most durable and resilient constructions (Haas et al. 1977). Cities are likely to endure despite disasters of various kinds attacking them. They tend to be rebuilt after a disaster, and a complete abandonment or relocation of a city in a post-disaster period is very rare. Urban geographer Nigel Thrift argues that "it has become increasingly clear that cities are actually extraordinarily resilient: they routinely bounce back from accident and disaster" (Thrift 2005: p. 343). Urban planning scholars Lawrence Vale and Thomas Campanella (2005) argue that "although cities have been destroyed throughout history—sacked, shaken, burned, bombed, flooded, starved, irradiated and poisoned—they have, in almost every case, risen again like the mythic phoenix" (p. 3).

These examples show the ambiguous character of the city as a vulnerable and resilient or durable artifact. Depending on one's perspective, the city can be seen as a risky place but also as an innovative breeding ground. Vulnerable places also provide opportunities for innovation because of the flexibility and openness they seem to foster (Bijker 2006). Thus, vulnerability is not only or purely negative. Some vulnerability is necessary to allow for learning and adaptation in a society: "Once properly addressed, such vulnerability with accompanying coping mechanisms may yield a more flexible and resilient society than one that tries to avoid all vulnerabilities" (Hommels et al. 2014).

This argument finds resonance among historians of technology who claim that specific innovations emerged in the aftermath of a disaster.

kurath@arch.ethz.ch

Derek Keene (1999) argues, for example, that the Great Fire of London (in 1666) resulted in urban innovation in the sense that new knowledge about fire risk was acquired. Furthermore, London was rebuilt in a way that fitted the practical needs of the time much better and that played a crucial role in the revitalization of the city as a place of business. Similar conclusions are drawn by urban historian Dieter Schott (2002) writing about the nineteenth-century fires in the German city of Hamburg. After a fire in 1842 "Hamburg's leaders turned the state of emergency into an opportunity to become the first city on the continent to install a comprehensive water and sewage system" (p. 187). As a result, "Hamburg became the vanguard in urban water management for many years to come, almost 30 years before a similar system was built in Berlin" (p. 187). Schott concludes that the willingness of the city leadership to innovate can at least partly be attributed to the disastrous consequences of the fire. "The great fire of 1842 served as a motivating and encouraging example of how the destroyed city rose like a phoenix to embark on far-reaching modernisation projects" (p. 203). Also a cholera epidemics in 1892 in Hamburg gave rise to political and technical reforms, including a modernization of urban planning procedures (e.g. new, more inclusive rules for election and a sand filter).

The positive and innovative implications of otherwise mainly negative and catastrophic events brings some scholars to the observation that destroyed cities are in fact excellent "laboratories" for the testing and evaluation of new urban models (Yerolympos 2002: p. 223). Disasters create room for change, improvisation, experiment, creativity, and, thus, for innovation. In this way, urban vulnerability is not to be considered as purely negative. This also applies to more recent catastrophes such as the September 11 attacks in New York. According to Assem Inam, "After September 11 New Yorkers were surprised to discover new view corridors that had been blocked for decades by the WTC. Suddenly, they could see the Winter Garden from Broadway and Battery Park City no longer seemed so isolated. There was a tremendous opportunity to rebuild Lower Manhattan into a more attractive and humane neighbourhood" (Inam 2005: p. 200). And historian of technology David Nye convincingly

kurath@arch.ethz.ch

shows that electricity black-outs in American cities were not only negative, disturbing events but also allowed for improvisation because they "redefined the potential uses of public spaces" (Nye 2010: p. 81). People were sitting or lying on the sidewalks and new social interactions occurred because people realized that, now that they could not fall back to their normal routines, "a blackout provided new possibilities" (p. 82).

Other scholars have more critically engaged with the issue of disaster and innovation and have argued that disasters have an important political dimension. Disasters have been abused by politicians and other people in power, to create opportunities for political experimentation and socioeconomic reform (Gunewardena and Schuller 2008). Naomi Klein's book *The Shock Doctrine* (Klein 2007) argues, for instance, that powerful forces use disasters to turn countries into radical neoliberal capitalist regimes. She calls this "disaster capitalism." Similarly, Kevin Rozario, professor of American studies, argues that in the United States "calamities are instruments of progress" (Rozario 2007) p. 20). He claims that "disasters have been laboratories for social reform. They have allowed American leaders to introduce extraordinary, and sometimes severe, policies in the name of necessity—dynamiting private property, executing looters without trial, subsidizing housing, instituting price controls, administering compulsory vaccinations, and generally expanding the powers of government in ways that helped to redraw the boundaries of public and private jurisdiction" (Rozario 2007: p. 23). He also makes a connection between disasters and the interests of capitalism: "Significantly, most of these innovations have served the interests of multinational corporations" (p. 25).

The literature on disasters and innovation can thus be divided in two parts: critical scholars such as Klein and Rozario claiming that disasters are typically abused by those in power to bring about social and economic reform, and urban historians and historians of technology who empirically illustrate how disasters resulted in positive urban innovations and creativity. Both strands of literature argue for a clear link between disasters and innovation. What lacks though is a micro-level analysis of how societal actors shape urban innovation through a discursive framing of the post-disaster city.

kurath@arch.ethz.ch

Analyzing Post-disaster Rebuilding: A SCOT Approach

Building, rebuilding, and unbuilding[2] processes can be studied through the eyes of the actors involved in them, by studying the meanings they attach to the city and to specific urban artifacts. To analyze these meanings, discussions, and negotiations in the case of the post-disaster rebuilding in Enschede, I have primarily analyzed documents that were produced during the rebuilding process between 2000 and 2010: town planning proposals, minutes of meetings of the city council, reports of public consultation meetings, and newspaper articles. These documents were selected from the archives of Enschede's department of urban development and town planning and from the historical city archive (sources before 2000). Furthermore, I studied magazine and newspaper articles on the rebuilding of Roombeek, often written by architecture critics in professional magazines for architecture and town planning. Finally, I conducted 12 in-depth semi-structured interviews with key actors in the rebuilding process. I interviewed politicians, project office employees, people involved in the public participation process, survivors, and town planners. All interviews were recorded, transcribed, and analyzed. The interviews took place in 2010–2013.[3]

A SCOT analysis starts with the identification of relevant social groups that interact around a certain technological artifact. Relevant social groups can be distinguished based on the meaning they give to the artifact. In this case, the artifact is the city itself: the post-disaster city. Following Hommels (2005) and Aibar and Bijker (1997), I argue that cities themselves, as sociotechnical ensembles, can be the unit of analysis in a SCOT analysis. Cities, understood as large "seamless webs" (Hughes 1987), of social and technical entities, can be analyzed with the same conceptual tools as have been used in STS to study the construction and development of artifacts such as bicycles, transport systems, and refrigerators (Hommels 2005).

Based on interviews and an analysis of relevant documents that were produced during the rebuilding process, I was able to identify two major relevant social groups in the debates about the rebuilding of Roombeek:

kurath@arch.ethz.ch

(1) the survivors who (initially) interpreted the city as vulnerable and wanted to stick to the past. This group of people consisted of citizens who lived in the destroyed area before the disaster or who became actively involved in the rebuilding process, and (2) people who viewed the city as resilient and able to bounce forward to a better state than before the disaster. This position is represented by the rebuilders, for instance planners, mediators, architects. These two groups played a major role in the debates and choices made in the post-disaster urban planning.[4]

I will argue that when the interactions around the rebuilding of the city after the disaster started, two technological frames were built up around the post-disaster city: a survivors frame and a rebuilders frame. These frames consisted of the problems that were identified, the solutions the groups prioritized, their feelings and emotions, and the methods and practices. I argue that these frames shaped the process of post-disaster urban sociotechnical change. Wiebe Bijker introduced the notion of technological frame to understand the way in which interactions between members of relevant social groups are structured. The social construction of an artifact (in this case: the post-disaster city), the formation of relevant social groups (survivors and rebuilders), and the emergence of technological frames (the resilient city and the vulnerable city) are linked processes. Technological frames help to understand the stability of a technological artifact and can also account for its (potential for) change. Once a technological frame is established, it will guide the ways of thinking and interacting between actors. This will have a stabilizing effect on the interactions: not everything is possible anymore. A high inclusion of actors in a certain technological frame may thus lead to "closing-in obduracy." In such a situation, the technological frame structures the thinking and interaction to such a large degree that it is difficult for actors to escape from it. Closing-out obduracy occurs if actors are not at all guided by a technological frame. Then the technology typically presents a "take-it or leave-it" choice to them (Bijker 1995).

In the case of Roombeek, I identify two technological frames that took shape in the first years after the disaster: the survivors frame of the vulnerable city and the rebuilders frame of the resilient city. In the next section, I will describe these two frames, and how they structured the debate about the rebuilding of Roombeek.

kurath@arch.ethz.ch

The Survivors Frame: The Post-disaster City as Vulnerable

In a book on the rebuilding of Roombeek it is suggested that Roombeek was constructed on the day the disaster wiped it away. By this, the author means that Roombeek was not a socially cohesive area with a clear distinctiveness before the disaster. In fact, it was an urban area consisting of a number of small, scattered neighborhoods without a clear identity and without much common ground. In the first few months after the disaster, people who lived in this area and who lost their houses and personal belongings tended to speak with some nostalgia about their former neighborhood. According to a consultant who was hired by the city of Enschede to help thinking about the future of the post-disaster neighborhood, people wanted to have their old neighborhood back and the feelings associated with it (Interview 9). In their attempts to "materialize" this feeling, the Association of Survivors of the Disaster stressed the importance of keeping the existing street patterns in place, keep the street names, and to re-use old buildings as much as possible (Interview 11).

In 2000, five months after the disaster, a program for the social rebuilding of the city after the disaster was presented by the city of Enschede.[5] In this report, it is acknowledged that the city has not only suffered from material damage but also from social and emotional damage. "Socially, the city has taken a big step backward" (p. 3). The report emphasizes that the disaster has damaged the feeling of safety and security of the citizens of Enschede. They no longer trust the official institutions and this applies to the urban and national government in particular (p. 7). Therefore, one of the starting points for the rebuilding process was that the trust of citizens in the city government had to be restored (Interview 5, Professor of Public Administration, Twente University; Interview 1, Programme Manager Roombeek 2005-present). A former director of the Project Office in charge of the rebuilding process calls this restoration of trust in politics a "secret mission" of the process (Interview 3).[6]

According to a professor of Public Administration specialized in public participation in urban policy, an attitude of the city government like "let's clean up this mess" would be very detrimental to the rebuilding process (Interview 5). Therefore, a procedure was chosen in which citizens, and

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the survivors of the disaster in particular, were actively involved in discussing and negotiating the rebuilding plans. The rebuilders believed that an extensive form of public participation would be the best way to restore trust in the urban government. Citizens were redefined as "resilient survivors": as people who, despite being harmed by a disaster, could seize the opportunity to reshape their own neighborhood.

In this frame, the rebuilding process is seen as "therapy" for the survivors of the disaster. According to the town planning supervisor of the rebuilding process, actively involving the survivors "was of course an ideal vehicle for psychologically overcoming the disaster. It had a therapeutic effect that I am absolutely convinced of" (Interview 7). The former chair of the Association of Survivors of the Disaster shares this viewpoint: "If you exclude people from the process, they risk getting stuck with their trauma. The rebuilding process has worked as a therapy (…)" (Interview 11; also Interview 12) According to him, the survivors actively called upon Pi de Bruijn, the town planning supervisor, to take a double role in the rebuilding process: as "builder" and as "healer." He had to "materially" heal the open wound in the city and, simultaneously, "psychologically" heal the injuries of the people of Roombeek. This idea of town planning as a therapy was also recognized by another survivor of the disaster, the chairman of a local neighborhood association and member of the Platform Rebuilding Roombeek: "One of the personal reasons to participate in the rebuilding process was to actively engage with the disaster psychologically" (Interview 12).

To facilitate the involvement of survivors in the rebuilding, the rebuilders did three things: first of all, survivors were offered the right to return to their neighborhood. Second, they invited everyone to a series of meetings (public hearings) to discuss ideas and plans. Two types of participants were invited to the public hearings: (1) people who lived in the Roombeek area itself and were directly affected by the disaster (inner ring) and (2) people living in adjoining streets and areas nearby who were also affected by the disaster (outer ring; Denters and Klok 2010). Third, they introduced the idea of "co-building." This means that citizens (survivors of the disaster getting priority) could buy their own piece of land in Roombeek and develop plans for how their new house should look like. Some conditions were set, but people could, in fact, design their own house and choose their own architect.

kurath@arch.ethz.ch

Denters and Klok (2008) argue that for "effective public participation" three ingredients are necessary: (1) every survivor needs to get appropriate opportunity to share his opinion about the rebuilding, (2) the voice of the participants is representative for the views of the victims, and (3) the results of public participation are leading for the contents of the new plans. They consider the participation process in Roombeek "a remarkable success." The key to the success of the participation in the rebuilding is that the rebuilders made a first priority of consulting the survivors—thereby generating a wide public support. They conclude that "the rebuilders were successful in achieving widespread and representative public participation in the postdisaster reconstruction process" (Denters and Klok 2010: p. 599).

This participative way of working combined with co-building was new for the Netherlands and is referred to as "unusual" and "innovative" (Colenbrander and Lengkeek 2008). Not only the procedure was called innovative, the resulting urban design was also seen as new. The Netherlands has a tradition of top-down town planning where the (local) government has a heavy responsibility. Since the 1960s, many new neighborhoods have been planned in accordance with a top-down-designed master plan that had gone through the official steps in the local political arena before it got officially approved. This often resulted in quite standardized and monotonous neighborhoods, with huge numbers of similar houses. In contrast, the approach in Roombeek, starting from the ideas and preferences of the citizens, resulted in a huge diversity in terms of types of houses and their architecture.

Indeed, the public participation process in Roombeek after the disaster contrasts sharply with the lack of direct involvement of citizens in the plans for Groot Roombeek that were presented just before the disaster. A town plan, developed by Riek Bakker, went through a public consultation process and was approved by the city council of Enschede, just a few months before the disaster. Pi de Bruijn, the town planner in charge of the rebuilding of Roombeek after the disaster, based his structural plan for Roombeek on more than 5000 ideas, wishes, and suggestions generated through a public consultation process (Idsinga and Oosterheerd 2007). About 400 out of 520 houses for private owners would be realized by co-building (Snellenberg 2010).

kurath@arch.ethz.ch

To sum up, in the months after the disaster, in their interactions around the post-disaster area, survivors constructed a technological frame in which they framed their old neighborhood is somewhat nostalgic terms, as an area they want to restore, preserve, and return to. This resulted in proposals and solutions such as the right to return to their neighborhood after its rebuilding and the preservation of the existing street patterns, street names, and old buildings. Mistrust in the (local) government played an important role in the survivors technological frame. The acknowledgment of this feeling resulted in a public participation process in which the city government played a role at the background, and that was largely carried by a town planning supervisor who was selected by the citizens. In this frame, the rebuilding process is considered as a "therapy" by the survivors: an active involvement in the material rebuilding of the area would help to heal not only the wound in the city but also the psychological injuries of the survivors themselves.

Rebuilders Frame: The Post-disaster City as Resilient

After the fireworks disaster in Enschede, the city was presented as a city that survived multiple disasters in its history over the past 150 years. According to some recent newspaper articles in the Dutch national press, Enschede is a "city on the rise." In a newspaper's "city special" about Enschede, it is argued that a history of urban disasters, including fires, war bombardments at the end of the Second World War, the decline of the textile industry in the 1960s and 1970s, and the fireworks disaster had a huge impact on the city of Enschede and its citizens. Enschede is presented as a city that survives: "Enschede has, throughout the centuries, shown a lot of resilience. Every time, the city has come out of it in a better shape" (Colijn 2012). The decline of the textile industry in the 1960s and 1970s is also mentioned as an example of a really tough time for Enschede: "Yet the city was able to rise again, as it had done a number of times before" (Colijn 2012). Roombeek is mentioned as one of the new assets of the city. This new neighborhood, combined with a renovated city center, and the successes of the local soccer team FC Twente,

kurath@arch.ethz.ch

led the journalist to the conclusion that Enschede anno 2012, "has the right to be proud again."

A similar point is made in another newspaper article (Burghoorn 2011): "Enschede used to be a ridden down end station of the train and the A1 highway. Yet the city has risen" (Burghoorn 2011: p. 2). This article argues that the phoenix, the mythical bird that rises from its own ashes, is an appropriate symbol for the city. The journalist also refers to the city fire of 1862 and the 1943–1944 bombardments by allied forces because they incorrectly assumed they were already in German airspace. The collapse of the textile industry in the 1960s with the resulting mass unemployment is seen as the next disaster Enschede had to recover from. And then finally there is the fireworks disaster of May 13, 2000. Enschede as it is today is the product of multiple disasters, followed by strong attempts to recover, which is the message of these newspaper articles.

A similar framing of the city can be identified in my interviews with key actors involved in the management of the rebuilding process, the group I call "rebuilders." According to a former director of the Renewal Roombeek Project Office (2000–2004), "Enschede has known multiple disasters. The second world war for instance. After this, Enschede build the 'Boulevard' a major road through the city" (Interview 3). Moreover, after the decline of the textile industry, the University of Twente was established. He draws a comparison between Enschede and Rotterdam after the Second World War. He argues that "almost everyone agrees that Rotterdam improved after the rebuilding process that was necessitated by the war bombardments. The [Enschede] disaster has been used as a push for the image of the city. It has meant a lot for the future possibilities of the city and Roombeek has now become a popular part of the city" (Interview 3). A Roombeek community worker refers to the same narrative when he says:

> The city has risen like a phoenix from its ashes…. A lot of things happened to this city. There has been war, it burnt-down, the decline of the textile industry. But it started all-over every time. I believe it happened 3 or 4 times to this city. That is very remarkable. It is part of the city's DNA-profile. (Interview 10)

kurath@arch.ethz.ch

The phoenix as a symbol of urban resilience emerged in the discourse a few years after the disaster, when the rebuilding started to materialize. This symbol was shared by journalists, residents, and rebuilders. Yet, others have argued that using the phoenix as a symbol for the city of Enschede can be risky from the point of view of city marketing. This icon might scare people and give the city an image of perpetual disaster (Interview 1, Programme Manager, Roombeek, 2005-present).[7]

Besides its important symbolic function, the phoenix myth also materialized in the commemoration of the disaster. It is telling that in the "silent room" in Roombeek where victims of the disaster are commemorated, a representation of a phoenix in colored glass is displayed on the wall (see picture 1). Journalists writing about Enschede and managers involved in the rebuilding of Roombeek invoked the phoenix metaphor to frame the end result of the rebuilding process in positive terms: the current new neighborhood is much more attractive and "trendy" than the neighborhood as it existed before the disaster. In that sense, this framing of the disaster played a clear political role: Enschede has recovered from disasters in the past and will continue to do so after this one and in the future. This is a message to the citizens of Enschede to embrace their faith and accept the brighter future that the rebuilding of Roombeek has brought to them.

This frame of "disaster as an opportunity for innovation" was also emphasized by the project director of Rebuilding Roombeek between 2000 and 2004: "The mission of the rebuilding process was to rebuild the city and make it better than before. We wanted to use the disaster as a source of power: The disaster as an opportunity for the city" (Interview 3). A bit more than a year after the disaster, he noted down: "To the victims and citizens it has to be conveyed clearly that Enschede ambitiously aims at giving an impulse to the city and making it possible for the city to overcome the negative effects of the disaster and to make sure that the city can retake its course better than ever" (May 30, 2001). The draft program for the rebuilding of Roombeek of May 2001 stated that "unintendedly and unexpectedly, the fireworks disaster provides the opportunity to give Enschede an impulse in quality"[8] (p. 11). The redevelopment of this area could give Enschede a new, stronger position regionally, as well as

kurath@arch.ethz.ch

nationally and internationally. In his foreword to a document of 2005 that summarizes the lessons learnt from the disaster, he wrote:

> The fireworks disaster of May 13, 2000, has caused a lot of suffering and damage with the people who lived and worked in the area. Yet, the disaster also shaped a climate in Enschede in which numerous possibilities emerged that under normal circumstances would have proceeded a lot slower or would have ended up in complicated compromises. As a result, the rebuilding of Roombeek has become a laboratory for innovations in urban policy and city development. (Wigboldus 2005, p. 7)

Although the technological frame of the rebuilders was mainly characterized by this story of progress, survival, and resilience, the role of the past also played a key role in their frame. According to Roombeek's town planning supervisor, the preservation of old buildings was crucial in his idea about the rebuilding of Roombeek:



Fig. 9.1 Phoenix in glass, artist: Brenda Bleijenberg (reproduced with permission). Picture taken by M.J.M. Hommels-Bruijnzeels

kurath@arch.ethz.ch

> Enschede has demolished almost everything of 30 years and older. What a shame! Also in places where this was not necessary at all. So I thought: Every building that has survived the disaster will stay put. (…) Demolition is a form of suicide. You kill your ancestors by removing everything that is of a certain age. How stupid! (Interview 7)

To sum up, in the framework of the rebuilders and their supporters (such as journalists), the post-disaster city is interpreted as resilient. They view the disaster as an opportunity to improve the neighborhood and make it better than before. In their plans, they emphasize the importance of staying in touch with the past. This closely resembles the survivors' technological frame. Yet, invoking the past in this technological frame does not have the same emotional meaning as in the survivors frame. It is more related to a strong positive evaluation of the urban past, historicity in cities, and the preservation of urban industrial heritage. In the next section, I will analyze the dynamics between the two technological frames, illustrate how the two groups of rebuilders and survivors succeeded in integrating their two respective frames, and how that subsequently shaped the material rebuilding of Roombeek.

The Dynamics Between the Two Technological Frames

Bijker (1995) describes three configurations in which technological frames are linked to specific forms of (urban) innovation. In a situation in which no dominant technological frame plays a role, different uncoordinated innovations, supported by different social groups can take place. In the situation where one technological frame dominates the interactions, Bijker argues that one dominant group can insist on their problem definitions and solutions and will therefore strongly influence the innovation process. In such circumstances, innovations will be conventional. In the third configuration, two frames dominate. This, I argued, is the situation in post-disaster Roombeek. In this situation, "arguments that carry weight in one of the frames will carry little weight in the other" (p. 276). In this situation, solutions will be sought that can be accepted

kurath@arch.ethz.ch

Table 9.1 Summary of the two technological frames

Survivors frame of vulnerability	Rebuilders frame of resilience
– Return to the old neighborhood – Rebuilding as therapy – Don't trust urban government – Right to return – Keep old street patterns and re-use old buildings	– Make the neighborhood better than before – Disaster as an opportunity – Stay in touch with the past: don't commit material suicide – Aim at urban innovation – Keep street patterns and textile industrial heritage

in both frames, and are therefore "doubly conventional" (Bijker 1995, p. 279). However, in this case, of urban sociotechnical change in a post-disaster context, the two technological frames integrated relatively easily, and I argue that the resulting urban assemblage was not conventional but rather innovative.

Although the two groups are quite distinct in the discourses they developed to make sense of the disaster and what should happen next (see Table 9.1 for a summary of both technological frames), the two groups found common ground in one main element of their frames: the wish to stay in touch with the past was voiced in both frames.

For the survivors "staying in touch with the past" was connected to their desire to revive their neighborhood as it existed before the disaster. They proposed to keep the same street pattern, street names, and to preserve old buildings. The rebuilders successfully translated this same desire in a resilience and innovation discourse: "The occurrence of the disaster, how pitiless it may sound, may not only imply a rebuilding of the old, but also chances and perspectives for a different future" (p. 11). And, "the history of the neighbourhood does not end with the disaster. The rebuilding has to become the next episode in its life story" (p. 24).[9] The rebuilders sought to materialize this frame by trying to make sure that both the far and the recent past remained visible and tangible in the new neighborhood. That meant, for example, that reminiscents of the textile past were preserved (e.g. factory buildings).

The creation of linkages between the past and the (improved) future thus materialized in concrete buildings and spatial plans in Roombeek. For example, the Roozendaal building, a former textile factory, was transformed into a museum about the (natural) history of Twente and its

kurath@arch.ethz.ch

textile industry. A water tower of a former textile factory of the Menko Company became an apartment building, and a huge building that used to function as a storage place for cotton gets a new life as an art museum. Furthermore, old street names remained and a former water course (used to clean cotton), "the Roombeek," was restored and made clearly visible in the landscape of the new neighborhood.

These "urban innovations" did not go unnoticed in the rest of the Netherlands. Roombeek received a national prize in 2007, The Golden Pyramid. This prize is awarded by the state for "excellence in commissioning work in architecture, urban design, landscape architecture, infrastructure and physical planning."[10] Rather than awarding architects or urban planners, this prize is meant for building clients (such as municipalities or housing corporations) to acknowledge the importance of their inspirational work for the quality of spatial planning. The jury report of the Golden Pyramid states that Roombeek has been successful in connecting past, present and future. "As a sign that the past should not be wiped out, but can be a source of power for the future. Not only for the neighborhood and its residents, but also for the city in its entirety" (p. 5).

Some architecture critics have attributed the success of the rebuilding in Roombeek to the disaster itself. For example, Colenbrander and Lengkeek argue that it is usually quite difficult to change a city, "but not under these circumstances: evolution gives way to revolution which makes a big leap forward possible" (Colenbrander and Lengkeek 2008: p. 9). They stress the innovative character of post-disaster Roombeek and label it as "an emblem for a *new kind of planning*" (Colenbrander and Lengkeek 2008: p. 5, my emphasis). The disaster, in this frame, created several opportunities for the city. It could reinvent itself as modern and trendy and take advantage of the possibilities that its industrial past offered. Moreover, new architectural quality was added to the city. Thus, the framework of opportunity and resilience was created by the managers involved in the rebuilding of Roombeek, to pave the way and create political momentum for some more radical architectural innovations in the rebuilding process. Innovations were discursively linked to new, modern interpretations of old buildings that were defined as characteristic for Enschede's industrial past and Roombeek in particular. These narratives, in turn, materialized in the preservation and re-use of old textile factories, chimneys, and towers as museums and apartments.

kurath@arch.ethz.ch

Conclusions: Vulnerability, Resilience, and Urban Innovation

The disaster of May 13, 2000, caused a huge shock effect in the city of Enschede. Yet, soon after the dust had settled, two distinct technological frames emerged in which Roombeek and the city of Enschede were presented as resilient and able to bounce forward and as vulnerable and in need of bouncing back. Urban reconfiguration processes are usually highly contested and typically turn out to be time-consuming efforts (Hommels 2005). An urban disaster, presumably, would only aggravate the sensitivities and tensions involved. And indeed, in the case of the rebuilding of Roombeek, many actors (city government, survivors, architects and planners, journalists, city council members) and diverging stakes were involved. Debates and negotiations took place in the political arena of the city council, in several public hearings where citizens could participate in the planning process and in the interactions between the citizen associations and the Project Office. Yet my analysis of the case also shows a remarkable speed of the decision-making and rebuilding process and eventually quite some consensus about the urban changes that were proposed emerged. How can this be explained?

Based on my case analysis, I argue that the success of the rebuilding efforts in Enschede depended greatly on the dynamics between, and the transformative capacity of one of, the two frames of the post-disaster city that were constructed after the disaster. By absorbing some crucial elements of the survivors frame, the resilient city frame succeeded in bridging some crucial tensions in the post-disaster city: between vulnerability and resilience and between a disastrous past and a bright future. Town planning became defined as an instrument for healing wounds, a socio-technical therapy. In this way, the catastrophic event did not only reveal the vulnerability of the city but was also redefined as something positive: as a catalyzer for urban innovation. Arguably, a positive, uplifting narrative that stresses resilience serves this goal of urban recovery better than a purely pessimistic discourse based on a negative interpretation of vulnerability.

By rhetorically connecting disaster and vulnerability with resilience, optimism, and the future, narratives of resilience nicely reflect

kurath@arch.ethz.ch

the double character of the city as sketched in the scholarly literature. The strength of this rhetorical connection is that it allows politicians and other people in power to move forward with their plans without neglecting the grief that the disaster has caused and the often strong preference among victims toward rebuilding exact copies of devastated places. Connecting vulnerability to the idea of progress and change, and resilience to victimhood and the past, proves to be a powerful discursive tool that, as this case has shown, can indeed serve the interests of a wide variety of actors involved.

Technological frames of resilience serve a double goal of not only empowering the city, the victims of disaster, and innovating the city, but also of restoring the legitimacy of urban governments after a disaster. Therefore, it is important to remain critical in any analysis of framings of resilience and the ways in which connections between vulnerability and resilience are drawn by key actors in the aftermath of a disaster. Different social groups give different meanings to the disaster and to the rebuilding effort. As I have shown in this chapter, some of the elements of the technological frame of resilience resonate other post-disaster meta-narratives. Nevertheless, the ways in which these frames eventually materialized in concrete planning choices, institutional arrangements for involving citizens, and the use of symbols were very locally specific and context bound. Because such technological frames channel the rebuilding efforts in a certain direction and create stability after they have gained dominance in the negotiations about urban space, it is important to take them seriously in any analysis of post-disaster urban rebuilding.

Interviews

1. Programme manager, Roombeek, 2005-present, Enschede: June 1, 2011.
2. Project manager, Roombeek, 2004-present, Enschede: May 31, 2011.
3. Former director, Project Office, rebuilding Roombeek, 2000–2004, Lonneker: September 27, 2011.

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4. Professor of City Marketing, Twente University, Enschede: May 30, 2011.
5. Professor of Public Administration, Twente University, Enschede: May 30, 2011.
6. Archivist and city historian Enschede, Enschede: September 25, 2011.
7. Town planning supervisor, rebuilding Roombeek, Amsterdam: August 19, 2013.
8. Member of the Enschede city board responsible for Roombeek, Tiel: August 14, 2013.
9. Process facilitator, citizen participation, Roombeek, Deventer: June 24, 2013.
10. Community worker, Roombeek, Housing corporation, De Woonplaats, Enschede: September 24, 2013.
11. Former chair of the Association of Victims of the Enschede Disaster, 2000–2003, Enschede: September 24, 2013.
12. Member of the Platform Rebuilding Roombeek, Chair of the Association of Neighbors, Schurinksweide (Roombeek), Enschede: September 24, 2013.

Notes

1. Hughes (1987, 1988).
2. See unbuilding cities.
3. The names of the interviewees are anonymized. See the appendix for a list of interviewees.
4. A third group of actors that played a role in starting the debate was the city leadership of Enschede. They were important from a political point of view but did not strongly influence the decision-making about the rebuilding plans.
5. Plan van aanpak. Programma voor de sociale wederopbouw van de stad naar aanleiding van de ramp. 13 October 2000. Gemeente Enschede. (Archive Dienst Stadsontwikkeling).
6. A report by Klok et al. (2004) concludes that the disaster has not greatly damaged the trust of citizens in the rebuilding process or in the city government. The draft plan for the rebuilding of Roombeek (vooront-

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werp) has generally been received positively by the citizens, but this has not increased trust. Rather, the authors conclude that this positive evaluation has not further decreased trust.

7. The metaphor of the phoenix plays a crucial role in this narrative of resilience as well as in other urban rebuilding discourses. Maarten Hajer (2005) shows how in the process of rebuilding Ground Zero, the phoenix metaphor was invoked by ambitious designers and architecture critics, to plea for "a more daring, innovative direction" (p. 453) for the plans.
8. Draft program for the rebuilding of Roombeek [Conceptprogramma wederopbouw] (May 2001). Archive Dienst Stadsontwikkeling Enschede.
9. Conceptprogramma wederopbouw. Archive Dienst Stadsontwikkeling Enschede.
10. http://www.goudenpiramide.nl/english-summary/gouden-piramide Retrieved September 12, 2016.

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kurath@arch.ethz.ch

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kurath@arch.ethz.ch

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Anique Hommels is Associate Professor of Science, Technology and Society studies at Maastricht University. She is the author of *Unbuilding Cities. Obduracy in Urban Sociotechnical Change* (2005, MIT Press) and co-editor of *Vulnerability in Technological Cultures. New Directions in Research and Governance* (2014, MIT Press).

kurath@arch.ethz.ch

10

Performing Urbanity: An Inquiry into the Modes of Knowing the City

Julio Paulos

"For the semiotic approach tells us that entities achieve their form as a consequence of the relations in which they are located. But this means that it also tells us that they are performed in, by, and through those relations. A consequence is that everything is uncertain and reversible, at least in principle. It is never given in the order of things." (Law 1999: 4)

Introduction: Inquiring Urbanity

The above citation from John Law presents two key insights. First, relations are continually in the making. Second, knowledge must be performed or enacted to generate 'order'. Contrary to Michel Foucault, who in *The Order of Things* refers to ordering mechanisms as *'epistèmes'* or *'knowledge dispositifs'* (Foucault 1966), actor-network theory (ANT) claims that actions and knowledge are irregular categories and derive from situations while they are being applied (Latour 1999a; Law and Lien 2013). Similarly, Bruno Latour claims that knowing, like any other

J. Paulos (✉)
ETH Wohnforum – CASE, ETH Zurich, Zurich, Switzerland

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kurath@arch.ethz.ch

human activity, is embedded in practice (2013)—or in Law's words: "theory is embedded and extended in theoretical practice" (2013). Thus, to inquire urbanity is to question how its existing and emerging phenomena are *localized*, *re-distributed* and *connected* (Latour 2005).

Prior to addressing this *'Latourian'* triad establishing the majority of the chapter's empirical argument, it is beneficial to understand the earlier proposed preposition relating to urbanity—namely *inquiring*—to substantially argue the reason behind focusing on STS (as a broad disciplinary field) and the pragmatic approach of ANT (as a methodological advancement) to analyse planning knowledge and practices, and more largely, to question standardized theories in urban studies.

With no attempt at joining the debate initiated and largely discussed in CITY (Brenner et al. 2011; Farías 2011; McFarlane 2011a) on the application and contribution of assemblage thinking to urban studies, this chapter agrees with the idea for a "more open and explorative engagement with the world" (Farías 2011: 365). As Farías suggests succinctly, "inquiry is not critique" (ibid.: 365). Rather than addressing the shortcomings of critical thinking in urban studies (Farías and Bender 2009), this contribution shares STS principles, and particularly, the call made by ANT scholars in the attempt to move beyond a consistent and dogmatic theory (Law and Hassard 1999).

ANT is treated not as a theory but rather a rough delineation of an analytical agenda on the process of research (Latour 1999b ; Mol 2010). In addition, it is difficult to consider it a method since there are no clear applicable guidelines on how to use its premises (Law 2002). Vicky Singleton and Jon Law propose to look at ANT as a "sensibility" (Singleton and Law 2012: 2). Perhaps then, ANT is better thought of as a "sensibility to the *materiality*, *relationality,* and *uncertainty* of practices"; it can then be understood as a claim to ask "*how* it is that people and animals and objects get assembled in those practices; and as a way of *mapping* the relations of practice" (Singleton and Law 2012: 7).

ANT is precisely affluent for its empirical accounts (Law and Singleton 2012; Law 2007). It thinks of theory from qualitative accounts as an empirical outcome (Law and Singleton 2012) while addressing its object of study as an ontological problem (Mol 1999,

kurath@arch.ethz.ch

2003). This chapter follows a similar ANT reasoning, or "sensibility" (Singleton and Law 2012), in order to question how a phenomenon such as urbanity gains momentum during a particular event so as to stabilize and structure accounts into 'solid' and 'irreversible' facts (Dewey 2008; Schön 1992).

As previously stated, ANT is "descriptive rather than foundational in explanatory terms", and thus does not provide a 'reliable' account. In order conform to the ANT approach, this chapter describes urbanity as "empirically-grounded practices" (Law 2007). The ethnographic episode introduced in the empirical section shows how facts are "continuously generated effects" (Law 2007) deeply correlated to, and embedded in, concerns of capacity, identity and responsibility (Suchman 2000, 2007, 2011).

This brings forth the core argument of the chapter—to precisely investigate the progressive and successive moments of valuation, blurring and justifying the interface between matters of concern (Latour 2005) and modes of knowing (Law 2015). In other words, exploring a given situation and discussing by which means 'facts' circulate, how they are 'valued' as scientific references and how they 'converge' into statements of certainty (Latour 1993, 1999a).

The Study of Planning as a Tool for Urban Analysis

Planning is visible yet invisible. The idea behind this is the unobtainable account of what is planned or not when looking at urban territories, infrastructures or logistics (Star and Strauss 1999). In Western society much is planned, but the question remains *who* is behind the planning, and if there is a homogeneous form of knowing the city. State planning has decreased in importance, but it is too simplistic to state that cities are designed by the *invisible hand* or private investors. Of course formats and mechanisms are installed favouring and facilitating urban developments and public-private collaborations—observable in governance paradigms allowing for such understanding showing the existence of a formal assembly opening the exchange between a plurality of urban professionals and stakeholders.

kurath@arch.ethz.ch

STS primarily takes the position of how urban and infrastructural artefacts are framed as technical devices, blurring the interface between strategic interests and political issues (Winner 1980; Lachmund 2013; Farías and Blok 2016a, b). Particularly, Blok and Farías give an essential overview and open the outlook of the relevance of STS to study urban life and knowledge. Contextualizing previous STS work *on* and *in* the context of cities, they propose three "avenues": (1) how STS has managed to unpack the techno-scientific objects and practices overlooked by urban studies (ibid: 2–6), (2) how STS challenges conceptual understandings of what buildings do (ibid: 7–11) and (3) how STS extends the very object of urban studies by asking new ontological questions discussed in the debate around assemblage urbanism (ibid: 11–14). In their concluding thoughts, Blok and Farías point at two "lacunas" of STS engagements in the city (ibid: 15). The first invites scholars to question the global urban hierarchies and the problem of urban difference. The second calls to reconsider the formation of urban knowledges. It is precisely these *'worlds of urban knowledge and practice'* this chapter aims at capturing.

'City in the making' refers and relates to Hermant and Latour's core argument stating the invisible is often materialized in our everyday practices, infrastructures and surroundings. In their work, *Paris: Ville Invisible* (1998, 2009), both take us on an exploration of different sites of invisible work that 'make up' Paris—the city of lights. Readers are invited to rethink their presumed idea of Paris via text and images navigating them through the many layers of the city that make it so difficult to embrace or sum up (see Callon 1987).

At first, the photographic inquiry takes the reader to arenas not usually acknowledged: for example, the police office, water services, the periphery. This allows for a consideration of the importance of the mundane, of ordinary objects, and urban furniture providing the material-semiotic frame of everyday life (Latour 1992). Thus, the urban is conceived as an inherent and acted category in everyday practices. However, what is considered urban is a matter of definition. Much research and work is devoted to analysing urbanization as a process in relation to society (Brenner and Schmid 2015). Therefore, the 'social' and the 'urban' seem intrinsically

kurath@arch.ethz.ch

intertwined. The result is an explanatory move explaining the social through the urban and vice versa.

These causal reasoning leads to a look at the explanatory of the urban and the social (Latour 1988b). This distinction also appears in Michael Guggenheim's *Im/mutable im/mobiles* when drawing on the debate of assemblage urbanism in CITY used to introduce the original ideas of technologies in ANT (Guggenheim 2016). Guggenheim classifies two opposing sides as being (1) critical studies and (2) the socio-materiality corner. To circumvent the ubiquity or redundancy of explanatory impasses, he underpins the importance of analysing technologies so as to understand the changing morphologies of socio-materialities (2016: 66).

Considering Hermant and Latour's work, this chapter emphasizes the importance and relevance of questioning the dioramas behind the representations and perspectives experts and laypeople have on the urban. How is the urban negotiated, produced and maintained to provide us with functional entities and infrastructures? Latour's *Aramis, or Love of Technology* investigates this discrepancy between project conceptions and implementation. Particularly while inquiring into 'hidden' agendas, Latour problematizes the manifold trajectories and failed projects that technological innovation brings (Latour 1996). The argument put forth is that technology fails because the different actors do not manage to sustain Aramis through negotiation and adaptation to a changing social situation. The analytical take suggested by Guggenheim considers the technologies stabilizing and maintaining the city as socio-material assemblages (2009b, 2016). Planning is not an entity directly impacting cities. The distance between planning—as a concept, discipline and expertise—and the socio-material stability of the city leaves room for city knowledge to unfold (Guggenheim 2009a; Guggenheim and Söderström 2009).

Situating Planning Knowledge

This section looks into not only where to situate the 'worlds of urban planning knowledge' but also how to capture knowledge in order to transform the outcome of certain planning situations and align interests

kurath@arch.ethz.ch

(Clarke 2005; Farías and Wilkie 2015; Harraway 1991; Law and Mol 2001; Suchman 2000). To situate planning knowledge is to inquire into the particular configurations, formats and operations allowing for it to be generated, established and re-distributed. The technical and political forms of knowledge deployed in planning relate to, and apply upon, its objects by designing, regulating and defining them (Cussins 1996; Suchman 2007). Simultaneously and symmetrically, the objects 'react' to this knowledge in diverse ways: plans are realized, public spaces are used, people move, the built environment expands and cities grow (or decline). Like 'the social', 'the urban'—or urbanity—does not exist as such; it comes into being by attribution. The practices in which these attributions are made are, among others, political and sociotechnical discourse-practices. 'The urban' is constituted and assembled by multiple heterogeneous sets of human and nonhuman actors enacted at a plurality of sites, and this chapter looks into the expert arrangements asking where planning is *acted* and the *existence* of urbanity in these configurations.

Knowing Practices

The politics and cultures of modernity, influenced by advancements of STS, are at the centre of science studies (Jasanoff 2004) questioning the logics and relationships of the world by analysing the phenomena arising at the nexus of science, technology, culture and power. The emerging field of STS has adopted as its foundational concern "the investigation of knowledge processes in all their complexity" (ibid: 2). Contemporary STS has been studied as a heterogeneous and fragmented practice rather than a unified and universal discipline. This challenges the thesis of one form of knowledge (Knorr-Cetina 1981). More precisely, the complex knowledge texture of STS expresses the importance of "magnify[ing] the space(s) of knowledge-in-action, rather than simply observe[ing] disciplines or specialities as organising structures" (Knorr-Cetina 1999).

ANT often omits intellectual origins that are essential in the argumentation of this chapter. With no aim to provide a historical account of the origin of STS, or a chronological or even topological report of ANT's academic and intellectual trajectory, it is important to understand the

kurath@arch.ethz.ch

motivations that have led the field of science studies to emancipate and inquire scientific knowledge as a constituent element of what is known and studied as modern society. The present distinction made between ANT and STS is purely analytical and serves to contextualize and clarify some of ANT's (stated by Law [2007] as a "diaspora that overlaps with other intellectual traditions") often misinterpreted legacy.

Re-ontologizing Planning Knowledge

The philosophical distinction made between epistemology and ontology as an act of boundary-making (Suchman 2011) requires "an attentiveness to the reiterative, material-discursive practices through which object boundaries are drawn, and to the constitutive relations—and exclusions—that boundary making enacts" (ibid: 22). In this case, urbanity as an epistemic category is merged and entangled in a variety of practices and ontological understandings, meaning that these boundaries are made to count as multiple and differently enacted knowledge.

It was briefly discussed how ANT works *in* the world. The "sensibility" of ANT for the *heterogeneity* of webs and its interest in *specificity* are two corner points of entry for the study of urbanity in this chapter. Urbanity is investigated as a heterogeneous phenomenon in a particular situation. However, it is precisely ANT's obsession with *the particular* that leads towards *multiplicity* (Law and Singleton 2012; Mol 2003). In *The Body Multiple: An Ontology into Medical Practice* Anne-Marie Mol explores how objects are *enacted* in medical practices. Mol attends to *enactment* rather than knowledge suggesting the move away from epistemology as advantageous: "what we think of as a single object may appear more than one" (Mol 2003: Preface).

The analytical move and preoccupation of (post-)ANT (Gad and Jensen 2010) scholars emphasizes the importance of understanding how relations, practices and materials are working *on* the world (Law and Singleton 2012: 14). It is precisely this view the chapter adopts when inquiring urbanity: how is urbanity enacted and how does it perform in recursive patterns during planning processes? The chapter therefore adopts the repertoire of *performativity* (Callon 2007, 2009) as an analytical

kurath@arch.ethz.ch

concept borrowed and derived from the late ANT studies on markets (Callon 1998). Primarily, it attempts to consider the meaning of being performative, and more precisely, how urbanity can be performative, as it, or the representation of urbanism, performs, shapes and formats urban planning. This invokes a move to consider urban planning, and more widely urbanism, not as a form of knowledge but as a "set of instruments and practices that contribute to construction of urban settings, actors, and institutions" (Callon 1998b; MacKenzie et al. 2007). The use of the term *urbanism* refers to the full range of disciplines, specialities, technologies and forms of knowledge with which urban protagonists are equipped with.

Finally, the ANT lens is adjusted and complemented with recent advancements from the pragmatic sociology (Boltanski and Thévenot 1991; Hennion 2013; Thévenot 2006). The recent developments are not considered isolated from the intellectual trajectory of ANT but rather a symmetrical, parallel and complementary (mutual) programme (Guggenheim and Potthast 2012). This analytical displacement to a more issue-oriented consideration of associations, through the lens of mediations, rather than classic object-centred views, allows for a fine-grained understanding of how attachments are constructed and values attributed (Gomart and Hennion 1999).

Performativity

"Non-humans actively participate in collective action: they influence it, redefine it from the inside, and generate changes of direction and trajectories" (Callon 2009: 24). The key notion of ANT is the symmetry between human and nonhuman actors. According to Latour, "objects too have agency" (2005: 63). However, this claim has generated some prominent debates in the social sciences (Baiocchi et al. 2013; Nimmo 2011; Sayes 2014) and even in planning theory (Rydin 2014). Even within the recognized ANT community, where symmetry is acknowledged, a general uncertainty prevails about its applicability in terms of methodological implications (Nimmo 2010; Sayes 2014). Nimmo argues that *"agency does not exist as such"* (2010: 96). He eloquently and accurately points out

kurath@arch.ethz.ch

the detail that nonhumans are generally 'othered' while still 'making a difference' being incorporated into networks of discourse-practices. They usually function as 'objects', 'things' or 'instruments' of human agency, but they do have effects that favour or undermine processes stabilizing or disrupting standards of conduct.

While elaborating on *performativity*, Callon states that STS has shown that the "signification and effectiveness of scientific statements cannot be dissociated from the socio-technical arrangements involved in the production of the facts that those same statements refer to" (Callon 2009: 18). In short, "statements are indissoluble from all the devices that cause the entities they talk about to exist, actually to act" (Latour 1999a). Relying on the repertoire of *performativity* allows, in this case, for an assessment of how urbanity actually *exists*. "Existing is acting" (Callon 2009: 19), and, thus, urbanity is also primarily performed by its urban professionals and expert systems.

The notion of *performativity* enables to analyse how well-designed interventions and practices produce events (MacKenzie 2003). It is precisely these events that are at the origin of the production of facts. In other words, there are "no effects of knowledge without well-designed interventions" (ibid: 19). Bringing forth this repertoire allows for a mutual and symmetrical appraisal of the planning activity. It avoids the traps of 'determinism' and moves beyond the object–subject reductionism (Metzger et al. 2014) dominating social sciences and urban studies.

From Translations to Inscriptions

ANT's most prolific, and widely (mis)used, analytical concepts studying relationality and productivity are the metaphoric notions of *translation* and *ordering*. Both are inspired by French philosopher Michel Serres. The dichotic figure of order/disorder used in his works helps clarify how patterns generally benefit from *interruptions*, and inversely, how *disruptions* go hand in hand with the applicability of stability. These exact successive steps of how things are ordered is called in ANT—with regards to Serres metaphoric figure of traduction—a *translation*. Translation has thus two complementary implications: again with reference to Serres, translation

kurath@arch.ethz.ch

or *equivalence* refers to *betrayal*. Merging or bringing several entities together implies the partial loss of essence of the later on (Latour 2011). With this in mind this chapter accounts how urbanity is being 'translated' from a undefined concept to a commonly elaborated fact through a constant reference of a heterogeneous group of actors who constantly refer to urbanity as an innovative and qualitative reference in order to argue and negotiate interests in relation to professional or private inferences.

As Latour states in *Science in Action* (1988a: 19), "we need others to help us transform a claim into a matter of fact" (Latour 1988a: 108). Latour relies on empirical accounts to show how interests are translated and discerns how interruptions are circumvented. By inferring how *detours* (Latour 1988a: 111) are used to proof the set goals, results and conclusions, he points out the precariousness and insecurity of translation and its need to include other actor networks in the formation and stabilization of scientific truths. A detour could be seen not only as an *enrolment of* interests but also as a *displacement* of tactics. The former means that through a successive becoming, actor networks become aligned when interests are reshuffled and recomposed (Latour 1988a: 110–114). The latter gives insight into how transformations of strategies, that is, goals, groups or perceptions, can verify and certify evidence (Latour 1988a: 114–119). The work of *purification* inverts the metaphor of visibility; in other words, a shift is nothing less than a drift in need of 'cleaning' as it is important to render the detours invisible. This chapter will look at how commonly elaborated 3D architecture models are used as physical evidence of urbanity allowing to forget about previous disagreements.

Circulating References

ANT dismisses the distinction between global and local and the 'macro' and the 'micro'. This dichotic distinction, repeatedly made in the social sciences and humanities, between situation and context, the 'here' and 'there', does not hold up in ANT's reasoning. Adopting an ANT sensibility, with a core premise of 'following the actors', is thus acknowledging

kurath@arch.ethz.ch

that the protagonists lead one towards and to invoke their contexts. In proper ANT reasoning, it is legitimate to say the whole world is present at the later-mentioned planning workshop. While looking at relations, materials and processes, they (protagonists) spread everywhere. However, even inside the 'micro', as a participant observer one must be aware of getting dragged into the 'macro'. Taking example of the soon to be discussed planning workshop, many allusions are made to the urban development plan as a strategic instrument. Although not physically present during the workshop, and not legally binding, it plays out as a structuring and ordering role in argumentative constraints in the protagonists' discursive frameworks.

Latour's exploration in *Pandora's Hope*—where an investigation into the sampling of soil in the Amazonian forest is made" (Latour 1999a: 24)—has inspired the ways urbanity is (ontologically) constantly oscillating in its operative and formatting nature: first as a fact, then as a reference, concern or value. Not confined to a laboratory, Latour assumes and suggests how objects go back and forth, interfering in the production of certainty. It is important here to note that the 'passages' pinpoint what counts and comes to count as a scientific reference (Moser and Law 1999). The analytical choice to focus on urbanity is interesting but may appear oblivious: why do we set the focus on this particular specificity and not on the actual idea of the urban project, which was after all the object of the consortium. Telling this story and portraying this scene is also working on the world. "Ethnography is always about contexts" (Law and Singleton 2012: 9).

From Matters of Fact to Matters of Concern

"Groups are made, agencies are explored and objects play a role" (Latour 2005: 87). This is the introduction given by Latour setting the fourth source of uncertainty in *Re-assembling the Social*. This is relevant as it helps not only situate how socio-material assemblages take shape and how innovation occurs but precisely how they come to matter. Thinking about matter from an ANT sense is implying the socio-material becomings,

kurath@arch.ethz.ch

as much as asking how innovation stabilizes into a state or mode of knowing. A frequently used concept—the *black box*—is another way of explaining how heterogeneous associations are translated into something simple or the mundane. The notion of translation is rather important in this context as it explains how a set of actors or a web of objects align into new associations, for which in this circumstance we are obliged to follow. As will be presented, it is the relations between architects, zoning codes, planners, models and urbanists and how they are inscribed in an operative or 'mattering' network that 'matters'. For instance, the fact that meetings or workshops are considered the appropriate format for making decisions on planning issues should be questioned by the boundaries that make up its matters of fact. The question then remains: how should matters of fact be studied as they are unified into opaque and solid scientific certainties and machineries?

It is by probing into this argument that ANT points towards the study of controversies as a way of questioning unity and objectivity. By moving slightly closer to where agencies are made the many folds of objectivity become clear (Latour 2005: 112). In *Politics of Nature, Latour* exposes the second and extended empiricism of ANT by stating it "is not interested only in freeing human actors from the prison of the social but in offering natural objects an occasion to escape the narrow cell given to matters of fact by the first empiricism" (Latour 2005: 114). Rather than recognizing scientific facts with a Kuhnian lens, ANT accompanies Ludwig Fleck's reasoning to look into *how* events emerge by the notion of a 'thought collective', as opposed to what conditions or limits the production of facts (Latour 2005: 113). Thus the interest here, according to Latour's reading of Fleck, lies in the event that allows to overcome the "symmetric limits" of sociology and science studies (Latour 2005: 113). In other words, the focus on the event combines an understanding of the emergence of fact with its needed approval by a larger collective within a designated thought style (Latour 2005: 113).

By demarcating from those matters of fact that leave no trace as they become solid and opaque (Latour and Woolgar 1986), ANT's obsession is directed to a second empiricism by studying the matters of concern (Latour 2005: 110).

kurath@arch.ethz.ch

> This is exactly what the fourth uncertainty wishes to thrive from: the mapping of scientific controversies about matters of concern should allow us to renew from top to bottom the very scene of empiricism—and hence the divide between 'natural' and 'social'. A natural world made up of matters of fact does not look quite the same as a world consisting of matters of concern and thus cannot be used so easily as a foil for the 'symbolic-human-intentional' social order. This is why what could be referred to as the second empiricism doesn't look at all like the first: its science, its politics, its aesthetics, its morality are all different from the past. It is still real and objective, but it is livelier, more talkative, active, pluralistic, and more mediated than the other. (Latour 2005: 114–115)

Introducing matters of fact is a move away from the study of metaphysics as carried out by science studies towards an ontological inquiry—a move away from the studying representations towards an inquiry into 'what the *real* world is *really* like' (Latour 2005: 117; original emphasis). However, by adopting an ontological approach the risk of a binary challenge between the unity of natural sciences and the multiplicity of the social sciences is brought forth. ANT wishes to make untenable this divide, so that "there's unity and objectivity on the one side and multiplicity and symbolic reality on the other" (Latour 2005: 117). Therefore, a look into controversies themselves, rather than ontologies, allows for an account on how issues are being disputed.

Mapping the Trajectory of Issues

The focus on issues is an extended move to discern the different framings of how concerns come to matter. Simultaneously, it invites to understand how displacements (of politics) bring with them problems of arrangements and representation (Marres 2005: 5). Adopting an *issue-oriented* approach elaborates the spectrum of relational inquiry not necessarily with a wider outlook but more so suggests an inquiry into the articulations of controversies and their displacements (Laurent and Tironi 2015). Marres takes this "relative optionality" as core argument to trace the trajectory of issues in terms of democratic deficits. Her analysis discusses

kurath@arch.ethz.ch

how politics are being displaced to meet new logics, all the while noting that these shifts leave open new deficits in democracy (Marres 2007). Democracy in this case is not to be understood as a stable and bound category but rather as something that must be explained by the *multiplicity* of sites and framings that it comes to endorse.

Urbanity—as shown in the case—moves through different stages of problematization in size and seizure. Certain features of urbanity are taken as discursive arguments in the presentation of the land to develop. They successively enter different frames, are displayed by means of recursive scales and are used to fit purposively the right epistemic references. The controversy therein lies in the discussion of density and structural use. The present actors have different opinions on the subject matter and claim their interests by relying on arguments that underpin their expertise. The interest of the developers clearly lies in the maximum use of land, while the public planners pay much more significance into the 'quality' of allotment. In between the extremes of the private-public divide, the 'neutral' (commissioned) experts allocate the concerns towards their domain of expertise: traffic, landscape, design and built texture.

An *issue-oriented* inquiry recalls an implicit consideration of publics according to Marres. Instead of mapping the controversies, the analytic mantra invites to follow the trajectory of the issue in question. In the described case, the experts are simultaneously considered as the public and vice versa. The transitions in role and distributions in the time/space of responsibilities illustrate well how urbanity is not only used as a signifier but that it also has a performative role when it is enacted through an expert claim. This expert claim perpetually makes use of urbanity in reference to other techno-legal, procedural or political devices, which are needed to back up expert claims as validated supports.

What is interesting to note is that all present parties agree on the qualitative requirements of generating a high-standard (urban) site. Without precisely presenting their socio-material or technical characteristics, the norms, such as liveability or sustainability, operate as concerns that flatten the use–density controversy. Concerns turned inquiries change experts into publics of their own future 'product'. The qualitative characteristics, such as liveability and sustainability, come to matter during the process; first, through the hands-on manipulation of objects; second, by issuing a shared vocabulary; and finally, by juxtaposing the issue into a

kurath@arch.ethz.ch

certainty. By invoking panoramas of urbanity allowing for the protagonists to enact the issues of liveability and sustainability into a formula that must be solved, a shared interest is communicated not merely via discourses or images but much more through attachments (Hennion 2015).

Going further than the use of urbanity for re-framings is its proficiency to perform the state of issues. Using the metaphor of the trajectory, urbanity as a notion does not amplify during the course of the planning retreat. It is clearly always present by virtue of the outcome being an 'urban site', but it is also constantly reappearing as a punctual or successive panoramic, linguistic or imaginary figure that functions towards concerns and mistakenly is considered as fact. The role of urbanity varies and operates in different registers. In the case of the rezoning procedure at hand, the observer is able to note also how wider notions of nature and the environment enter into the equation of urbanity and reassemble the problem-setting of the rezoning application. The convergence of multiple concerns around the issue relies on the acknowledgement of expertise and the allocation of responsibilities (Callon et al. 2009).

Planning in Action: Uncertainty, Choreography and Technologies

At the beginning of this chapter, Latour's analytical configuration in *Re-assembling the Social* (2005) was referred to. Partially preoccupied with providing an overview on the becomings (and difficulties) of ANT while corroborating his argumentation to the different stages of how common worlds are being composed, Latour suggests three moves to render the social as traceable once again.

Thinking in terms of associations, the entangled sources of uncertainties must be inquired by *localizing the global*, *redistributing the local* and *connecting sites*. Following these three takes allows to trace how urbanity is being problematized as an imminent matter of concern during a rezoning procedure; how it is being allocated, mediated and de-centred into expert roles/practices; and finally, how it is filled, deployed and co-articulated with meaning (and scientific value) in a given format resulting in the production of a quasi-legal document.

kurath@arch.ethz.ch

To denominate the term *in action* reflects the analytical potential and essential edge as to how it is possible to actively render and account for the multiple ways planning practice is negotiated, translated and enacted. Above all, the analytical framework initiates the discussion around the politics of knowing cities, thus alerting us to the consequences of its '*durability after foundation*' (Callon 1980, 1986, 1991; Law 1992). By unpacking the planning practices along the three analytical axes, the aim is to shed some light on the modalities of *epistemic configurations*, *material arrangements* and *discursive modes of ordering*.

In order to do so, the case study outlines and deliberates the associations and asymmetries by drawing together three repertoires. First, the attempt is directed towards the *modes of knowing* and the sources of uncertainty that co-shape knowledge claims. In this setting, the focus lies particularly on the performances of incorporated and enacted competencies situated (and distributed) in action and cognition. Second, the ontological *choreography* of objects participating in the course of action and the role of artefacts in framing the planning dialogue is complemented through an analysis of issues that create referentiality. Finally, planning *technologies* consider how expert knowledge associated with a material setup, characterized by their practical purpose, organize the politics of planning. Therefore, the reassembling of diverging statements to an alienated set of measures is ready for implementation.

These three diagnostic moves structure the outline of the analysis; first by invoking how the city is being enacted by a set of protagonists—although the action occurs behind closed doors and an investigation into how the different discursive, material, technical, legal and cognitive elements will invoke a territorial logic. Second, the symmetrical interaction between nonhuman actors and human actors will be markedly analysed. Finally, despite the difference in opinions and interests, the gradual illustration of how priorities are being formed and converged will be presented and discussed.

The empirical evidence portrayed in this periodic vignette illustrates how urbanity, as an epistemic reference, can be methodologically and empirically approached. As previously stated, the emphasis of this evaluation therein lies on the multiplicity and *modalities* of the planning exercise,

kurath@arch.ethz.ch

or in other words, by which (per)formative characteristics planning is being understood, negotiated and carried out in the given situation.

Enacting the City

The promoters 'XY' have the option to buy land in a peripheral district of Vienna situated in one of the target areas of the municipal urban development plan. The promoters have requested a rezoning application—also of interest to the city administration and planning department. Due to recent changes in the format of the planning process, the promoters have the choice to apply for either an intensive planning workshop or a discontinuous procedural planning series held in different sessions over a lengthened period of time. In the end, they decide to carry out an intensive planning workshop and commission an architect suggested to them by one of the municipal planners to coordinate it. The initial constellation of participants could be described as reserved, distant and slightly mistrusting.

With participants sitting around a table, the commissioned architect presents, in great detail, a previous study trip made by an advanced urban design class from Columbia University in this very area. Following this presentation, those in attendance have a chance to introduce themselves. In total there are ten participants: two promoters, two municipal planners, a landscape architect, an urbanist/architect, a traffic planner, the commissioned architect and his assistant.

An important detail to note is the absence of a few key actors. There is no representative of the local district. The local politicians have explicitly expressed their resentment regarding any type of further private constructions in their district, bringing forth the argument of the already overloaded traffic during peak hours and lack of parking infrastructure readily able to receive daily commuters from the lower regions of Austria. The mutual misunderstanding between the local and municipal authorities becomes apparent here. Both sides, the local and municipal, have assigned each other the responsibility for this insufficiency. Another absent representation is a delegate from the Viennese Affordable Housing Trust Fund—an owner of a small piece of land in the respective area and key

kurath@arch.ethz.ch

stakeholder (given the fact that housing development projects in Vienna are required to respect the regulatory percentage of affordable housing to keep balance and regulate free market dynamics). The promoters and the Housing Trust Fund had initially agreed on a deal; however, they cancelled at the last minute without explanation, apart from alluding the undertaking was moving at too fast a pace. Despite these minor inconveniences, the group of participants decided to maintain the agenda previously established with the Trust Fund (prior to their withdrawal).

What follows is a discussion on the different hazards and hypothetical complications, which are laid out by drawing worst-case scenarios and discussing possible indicators, causes or motives for failure. On the list of priorities are topics on budget, building dimensions and related public and private infrastructures. The participants begin to engage more actively. They stand when their turn to contribute as designated experts in their respective field approaches. Their presented statements make their subjective, professional, but also collective projections, and ethics visible and gradually begin to shape into a common discourse. Concerns are discussed on different scales, touching various thematic implications, and prepared to be shaped into facts.

Almost each participant attempts to claim the pre-eminence of their position and field of expertise by stressing the significance of particular viewpoints. The two investors stress a desire to develop housing for a specific target group alluding to the high quality of their brand, thus claiming a chosen amount of land for the private housing market. Immediately, the planner vehemently disagrees with this declaration and argues that the confined area will make for a very densely built environment. The landscape architect notes the preservation of some natural green space as a potential asset and argues in favour of the conservation of trees that block unpleasant wind streams in order to prevent a massive investment into artificial green space. The urbanist draws into attention the neighbouring areas in order to maintain a cohesive built environment in line with existing spatial arrangements. The traffic planner joins in, and with regards to the previously raised demands of implementing functional road infrastructures, points out the advantage of the nearby metro connection. As the various insights are shared and discussed, a complex

kurath@arch.ethz.ch

and multi-scalar formulation of the problem is starting to form. Through action and cognition, as will be discussed, the multiple configurations will take shape and reshape in successive stages and moments.

Planning in a Material World

To emphasize and articulate their arguments, the participants use plans, financial studies, and statistics, personal and/or international best case projects, quality warranties, and videos and pictures. All these artefacts, attributed as characteristic utensils of their respective professions, attempt to persuade the best possible outcome and unique solution. Objects and materials—be it discursive, visual or symbolic—operate and have considerable agency in the enrolment and alignment of the collective becoming. The workshop stages the ideal framework for displaying and providing all required artefacts the planners and architects implicitly consider as their tools. Throughout the course of the workshop, the participatory observation helps to illustrate how nonhuman elements can mobilize through informal ways in inter-subjective and inter-material relationships.

The conditions 'at work' are important to the procedure and for the outcome. The setting and physical arrangement of the room recreates a perfect model of an urbanist's studio. The participants feel valorized by the setup—with regards to their professional codes—as opposed to the conventional bureaucratic and municipal surroundings. The different objects have divergent performative impacts on the participants. Architectural models and all sorts of plans (be it maps, statistics or historical references) are hanging on boards surrounding the round table. A projector successively displays pictures from the field excursion repeatedly illustrating a few designs created by the urban design students. All these elements, coupled with continuous expert-driven narratives on urban trends and the mutual exchange of insights, invoke a territorial logic and identity of place.

A resolute moment is the simulation of an architectural competition. The experience turns the protagonists into active and crafting model

kurath@arch.ethz.ch

builders. This architectural playground has the participants divide into three groups (all with diverse backgrounds). The task is to build a maquette with equal cubic capacities on a provided map rendering of the site. Already the atmosphere becomes less formal, and the participants leave the table and spread out in the room. The occurring interactions are not only visual and discursive but also take into account all the present material elements. This momentum adds variety to the previous rhetoric and visual exchanges and turns from a course of action into an intersubjective and tangible operation. The degree of attachment is practical, manual and palpable. This additional level of active involvement converges the previously subjective interests into a more collective alienation.

Through the manipulation of objects, the actors become affected and personally involved, rather than solely professional, which triggers shared views and rearticulates the configuration of attachment, at first to their 'product', then to their group partners and lastly towards the area of study—geographically distanced yet mentally, discursively and visually imminently present. Following the simulation of architectural critics, a phase of evaluation integrating the favourable features of the models emerges. This moment of reconstruction is accompanied by a growing concern by the participants with their model rather than the initial project or their professional status. By the end of the first day, and based on a general assessment, one model has been selected with an inclusion of constructive outcomes of the three project typologies. Now, a more concrete issue instigates discussion. At their turn, each expert uses his or her expertise and expresses a statement of certitude on one of the materially enacted models recently fabricated. The chosen architectural model represents also the alignment and process of a collective becoming and a merging of views. It is used as the foundations for the yet-to-be-defined zoning; be it pragmatic traffic infrastructure, definition of open spaces or the attribution of building plots. By now, all the actors feel represented and are able to relate to this commonly elaborated architectural arrangement. The common modalities of action and merging of insights within the model has established a link and reconfigured the initial posture with new properties.

kurath@arch.ethz.ch

Ordering the Ordinary

The final activity consists of drawing the location of buildings on transparent paper and discussing possibilities that conceptualize and revolve around similar urban topics related to one another's expertise and embodied concerns. The atmosphere still remains informal, and together with a common sense of responsibility, is operated in the procedure of enactment. The model—a product of everyone's material participation—is considered a given certainty. It is a best-case scenario and exists as an object of both knowledge and intervention, as planned or designed. The transition from the three-dimensional model towards a two-dimensional regulatory plan marks the graded transition back into the original intent and crux of the workshop, namely, the definition of parameters to define a feasible draft for a rezoning blueprint.

The final day of the workshop is reserved for a summary of the obtained results. The commissioned architect projects the drafted layout, and assisted by the planner in charge, the outcome is commented and opportunities and threats are openly discussed. The previously unattended to details needing to be fixed before the conclusion of the workshop are being noted as pressurized elements. Once again, all participants sit around the table and the discussion regains a serious tone. The most significant conclusion from the final discussion is the extensive negotiation of condensed technical properties, such as water drainage, main axes, traffic routes, addresses, general recreation areas and fire service access. Everything happens in a moment of pressure. The developers want to be assured that the capacity and density of the building masses on the model correspond to the maximum capacity they are entitled to.

These resulting plans can be identified as statements of certainty and representations of the result of the relentless enacting in socio-material agencements of the participants with respect to their convictions and competencies converged through successive moments. However important to note is the human actants are not the only ones engaged in this elaboration—the so-called nonhuman or material element participates equally in the collective action. It influences the process, redefines it from the inside and generates changes of direction and trajectories.

kurath@arch.ethz.ch

This 'enchantment' with urban design captivates the core argument of this chapter, namely, that the *vague* character and object *deficit* of the planning expertise allow for a *multiple* enactment of the profession, all while benefitting from a stable and indicative category. This goes even further, stating that there appears to be an identity crisis *within* the profession allowing for this sort of *external* representation.

By missing a poignant object of study, the emphasis is laid on the normative problematization and repetition of subjects, as for the example of a necessity to think smart, plan, dense and/or build sustainably. The emergence and stabilization of such rationales dictate behaviours, co-shape new expectations and co-produce new policy strategies as they travel. Imaginaries are purposely left out of this discussion, although expectations in urbanism and planning usually invoke visual elements of scenarios that are yet to come. The expectations are here to be understood as retrospective and prospective variables to innovation. This means that when innovative features, in a disciplinary field such as planning, turn into assets, the actors immediately and subjectively relate those innovations to their own attachments of expert identity.

Conclusion: Towards a 'Refiguration' of Planning's Urbanity?

The presented ethnographic report of a planning workshop dissects the relational and heterogeneous planning-network in play. The analysis is to be considered as a field test graphically describing the collected proceedings and circumstances without intention of displaying general causalities (Blok 2010; Kenney 2015). More precisely as it explores and 'uncovers' the implicit and explicit controversies of the normative and deliberative planning activity appearing throughout the workshop, it questions the epistemological production of knowledge in planning practice—notably the co-production of knowledge (Jasanoff 2004)—by addressing the emergence, trajectory and stabilization of zoning-related phenomena at stake during the planning process.

Urbanity calls for a profound relational reconsideration. The reasoning behind this is threefold. First, objectivity is an affair of perspectives. Thus,

kurath@arch.ethz.ch

knowledge is never factual but follows an operating modality. This means that in a first instance, there is no 'pure' form of knowledge, and any *mode of knowing* related to a subject matter is always implicated in ordered networks. Second, the pertinent framings that come to stabilize the operating principles in networks should be questioned. This is in part due to the fact that the production of knowledge is grounded and performed in various sociotechnical arrangements. Last, to explore a mode of knowing requires an investigation of how *facts* can be displaced from one framing to another to act as valid statements. Following the premise of this book, by rethinking planning, the epistemic machineries that come to frame urbanity are also reconsidered, all while inversely asking how planning practices endorse urbanity. Subsequently, *how* urbanity becomes relevant in planning practices is put into question—how the sites, operations, formats and framings allow for urbanity to be deployed as a matter of concern. Finally, it must be examined if and how urbanity can be performed as a scientific fact while remaining a widely elusive phenomenon.

The situated analysis refers to three complementary elements. First, by action and cognition, multiple configurations take shape and reshape in successive moments. In other words, a common problem emerges through the intention to introduce qualitative features into the ways of planning by referring to epistemic references such as liveability, quality and sustainability backed up by epistemic devices such as figures, models and other representations. Second, through the manipulation of objects actors learn how to be affected and personally (not just professionally) involved, which allows for a shared view rearticulating the configuration of attachment, at first to their 'product'; second, to their group partner (intersubjectively); and finally, towards the area of study/project that is geographically far, but mentally, discursively, visually and visually imminently present. These plans can be understood as statements of certainty and representations that are largely the result of the negotiation of experts/stakeholders enacting in socio-material assemblies and respective to their convictions through successive moments.

Viewing planning through a hybrid lens underlines the contingency and uncertainty of the planning project and makes observable the interrelation between planning cultures, techniques, expertise and politics (Callon et al. 2009). The interdisciplinary field of STS allows for an examination of planning processes from a relational perspective. However, this

kurath@arch.ethz.ch

relational attribution (and distribution) of planning expertise favours an open-ended understanding of the discipline and calls into question an internal need for boundary-making (by planners themselves) who preferably enact the profession as a design discipline holding onto material and visual artefacts.

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kurath@arch.ethz.ch

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Julio Paulos is a PhD candidate at the ETH CASE (Centre on Society, Architecture and the Built Environment) in Zurich and an assisting researcher on the project *Rethinking Zones: A Comparative Study of Planning Cultures*. He conducts ethnographic research on situated planning practices by examining the heterogeneous relations of 'city-making' in order to understand how epistemic arrangements and sociotechnical framings contribute to the formation, displacement and translation of planning issues.

kurath@arch.ethz.ch

11

Planning Ecologies: Issue Publics and the Reassembling of Urban Green Trajectories

Anders Blok

Introduction: Planning Ecologies in Hong Kong

The office of Designing Hong Kong—a small non-profit organization dedicated to the search for more sustainable living in the city—is located in an old converted warehouse building in Quarry Bay, east of the central business district. When I visit in March 2015, a yellow umbrella symbol attached to the front door signal support for the city's student-driven pro-democracy movement. Inside, two staff members are busy attending to the day-to-day affairs of the office's well-known co-founder and CEO, Paul Zimmerman, a Chinese citizen of Dutch descend, elected local district councillor and long-time expert activist in the city's planning politics.[1] From his Designing Hong Kong platform, Zimmerman stays connected to the city's vibrant scene of local politicians, professional urbanists, environmental groups, and grassroots activists. Over time, the office has picked a shifting set of campaigning issues, from nature

A. Blok (✉)
Department of Sociology, University of Copenhagen, København, Denmark

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kurath@arch.ethz.ch

conservation to minibus infrastructure upgrading, all with a view to placing sustainability higher on the planning agenda.

Amongst stacks of documentary materials, the office contains an archive of critical engagement in specific planning processes, including the one I have come to learn about: the reclaimed waterfront site of Kai Tak,—since 1998 a well-known 'battleground' (Ng 2010) for planning politics in the city. A former airport, the Kai Tak site has been lying dormant as a quasi-empty place of reconstruction for years, steeped in controversies and changing zoning plans, while abstractly envisaged by the city's executive-led government as an important 'green' development for the future. The Designing Hong Kong archive contains multiple traces of this contested history: flipping through planning documents, consultancy reports, campaign materials and media clippings—much of which is annotated by Zimmerman's own handwriting—one gains a sense of the many layers of shifting issues, settings and institutional coalitions through which 'planning' is both performed and contested as a situated material practice (see Fig. 11.1).

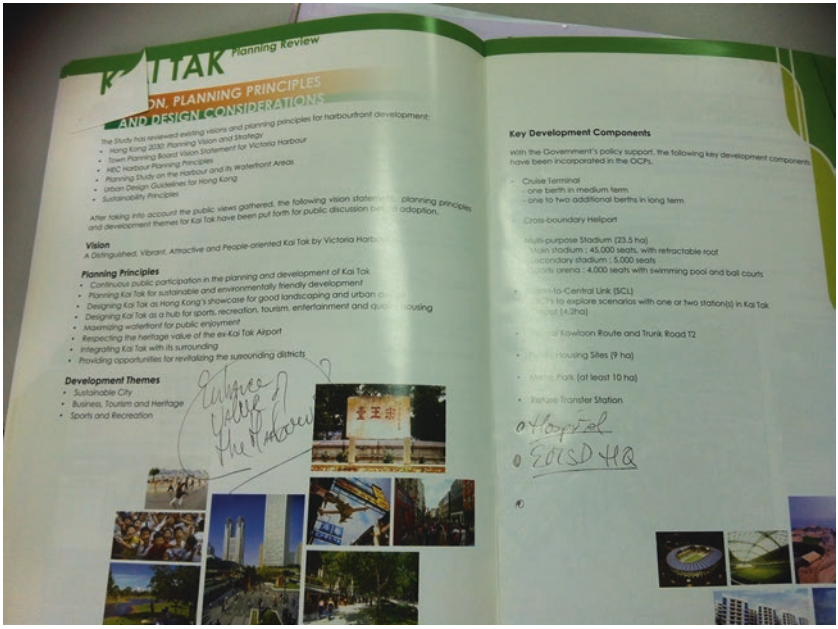

Fig. 11.1 The little tools of planning performance and contestation (photograph by author)

kurath@arch.ethz.ch

In this chapter, I deploy the Kai Tak site in Hong Kong as a case study in order to suggest how a pragmatist issue-centred approach to politics—as developed around actor-network theory (ANT)—helps bring the contested trajectories of urban planning into focus for science and technology studies (STS). While STS has by now been brought into fruitful conversation with urban planning in terms of its material practices and the importance of nonhumans (as witnessed also in this volume), discussion so far, I argue, has tended to downplay the question of how STS may *also* help rethink the core political forms and institutional topologies of contemporary planning. Addressing in particular the question of the *boundaries* of formal planning vis-à-vis public-political practices of activist engagement, I hope to show that pragmatist-informed ANT work on 'issue publics' (e.g. Marres 2007) has much to offer when it comes to rethinking and reassembling key questions of the sites and practices of urban planning as material politics.

In what follows, I develop these claims by way of a (quasi-)ethnographic study into 20 years of planning controversy, as seen from the vantage point of emerging concerned publics in Hong Kong and their attempts to influence the trajectories of formal planning of the Kai Tak site in this semi-democratic polity. Over the years, as I will show, shifting public assemblies of urban professionals, non-governmental organizations (NGOs), civic experts, artists and local citizen groups have raised a variety of ecological concerns with the way this officially 'green' and 'sustainable' project has developed. Tracing these ecological issue trajectories in and across Hong Kong help bring to light, and allow us to further theorize, the way publics coalesce to contest and reshape the very political form and content of official planning practices, sometimes indirectly and sometimes in dramatic, polity-transforming ways.

As should be clear, the notion of ecology used in my title thus deliberately plays a double role. On the one hand, this chapter concerns itself thematically with the way a range of urban ecological issues, from climate change to harbour preservation and river restoration, become the subject of material-semiotic translation within and at the margins of urban planning, taking Hong Kong and Kai Tak as illustrative cases.[2] On the other hand, ecology is deployed here also in a more analytical and extended sense, in order to suggest a picture of urban planning practices as set within an inherently distributed, relational, materially heterogeneous, yet

kurath@arch.ethz.ch

also power-asymmetrical urban topology. This usage, as I will elaborate, follows earlier debates in STS on the properties of knowledge and technology in general (e.g. Star 1995) as well as allows a partial reconnection with a much wider history of urban studies (e.g. Abbott 2005).

Hong Kong, I want to argue, provides an interesting and non-obvious setting in which to test the argument on issue publics in urban planning, in part because the *democratic* nature of planning practices cannot be taken for granted in this postcolonial context (Ng 2005). At the same time, it is commonly held that planning practices in Hong Kong have been undergoing important changes in the period under study, with 'civil society' seen as rising to counteract the otherwise hegemonic roles of the private sector and the executive-led government in place-making processes (Tang et al. 2000; Gouldson et al. 2008; Ng 2011, 2014b). Indeed, I would argue, the Kai Tak waterfront redevelopment process provides an important prism into the contentious situated realities implied by such general assessments. As I will explain in more detail in the methodology section, my analysis in what follows builds on one-and-a-half month of fieldwork in the city, including analysis of planning documents, site visits, casual conversations, as well as nine more formal qualitative interviews with key civic and professional actors in the Kai Tai process.

The chapter proceeds as follows: in the next section, I provide a fuller theoretical account of the ANT take on issue publics and how it matters to STS work on urban planning, as well as placing this in conversation with earlier work on ecologies of knowledge. I then outline the methods and methodology of the study, before turning to analyse three overlapping yet distinct trajectories of public contestation around ecological issues in the planning of Kai Tak. In conclusion, I summarize what I take to be the key analytical lesson, in terms of redrawing the very boundaries of what counts as 'planning' in STS and beyond.

Theoretical Framework: STS, Planning, and Issue Publics

The present inquiry seeks to explore a certain intermediary zone between two main emerging strands of STS engagement with the city and urban planning. On the one hand, ANT-inspired work on urban assemblages (e.g. Farías

kurath@arch.ethz.ch

and Bender 2010) has made significant contributions over the past years to rethinking the ontology and politics of the city *in general*. However, when it comes to the specificities of urban planning as a set of material practices and institutional topologies, assemblage urbanism has so far made comparatively sparse contributions. On the other hand, STS-inspired work dedicated to worlds of urban planning has tended overall to adopt more analytically confined strategies, showing the need to bring technological frames (Aibar and Bijker 1997) and nonhuman actants (Rydin 2013) into planning. Such work, however, sidesteps important dimensions of what STS might do to planning theory, leaving—as I will argue—more fundamental questions of the techno-politics of urban planning unexplored.[3]

There are of course exceptions to this rule. Gomart and Hajer (2003), in particular, explore the planning of Hoeksche Waard, an island south of Rotterdam, and frames this in terms of what STS contributes to the empirical study of politics. Here, the authors inquire into the specific and distributed practices through which planning politics is enacted and contested. Alongside more formal settings of administrative and expert deliberation, they stress the key role played in this case by an ad hoc civic design collective, of landscape architects and others, when they staged a concrete design intervention in the area. This intervention, in turn, spurred interest and opposition amongst local residents, who organized regional debates and eventually formed a wider public bringing shared cultural ideas about the place and its future to the political table. As such, the study usefully brings out the cross-setting, lay-expert and meandering qualities of contemporary planning politics. However, this specificity remains also somewhat under-articulated, in light of the authors' aim to generalize their findings to the level of politics *as such*.

In related ways, the planning study by Leino and Laine (2011) on civic participation in the enactment of a traffic master plan for the centre of Tampere, Finland, comes close to the analytical agenda pursued in the present chapter. In critiquing the highly circumscribed nature of formal institutional participation procedures, the authors seek to bring attention to a different form of public involvement in planning politics, one centred around the *trajectory* of political issues at stake in the planning process. Invoking the work of Bruno Latour and Noortje Marres, and seeking to bring this into planning studies, their key contention is that "the processes of issue formation which cut across the boundaries between

kurath@arch.ethz.ch

institutions require more attention, especially from the participatory perspective" (ibid.: 92). As I expand on below, this statement might double also as a motto for the present chapter. However, in empirical terms, Leino and Laine's choice to focus only on two settings—a civic group and the mass media—and one issue trajectory ends up unnecessarily constraining the full deployment of such an analytics.

In the wider STS context, arguably the key elaboration of the notion of issue publics comes from Noortje Marres (2007), whose work has been instrumental in linking ANT concerns with politics explicitly to the American pragmatist tradition. In her rereading of John Dewey's classic *The Public and Its Problems* (1927), Marres stresses what she dubs his 'socio-ontological' view of the issues of politics. On this view, people only become involved and form public associations when political institutions prove unable to settle the problems that affect them. This key idea entails the notion that a pivotal democratic moment of politics is the moment of *issue articulation*. As Marres stresses (2007: 773), 'publicizing' an issue, that is, articulating a public-political affair, "renders explicit […] the mutual exclusivities between associations that different constituencies bring to a controversy, and which are caught up in the matter at stake." STS, she suggests, is well suited to grasp the multifaceted and heterogeneous nature of the 'associations' implicated in controversy—giving rise to a distinctly *material* view of issue publics.

While this ANT-pragmatist approach is yet to be brought into full conversation with urban planning theory, I want to briefly suggest three key implications that seem to me to warrant further attention. First, by highlighting the way issues 'overflow' institutions and engender new forms of public involvement, the approach inherently entails a challenge to and redistribution of the lay–expert boundary arguably framing much planning theory and practice. Manuel Tironi's (2015) work on 'modes of technification' and processes of 'expertisation' amongst urban activists in Santiago de Chile goes a long way in making this implication active for planning studies. In reference to Marres' work, Tironi (ibid.: 83f) notes that the activists' capacity to articulate issues and to publicly problematize particular objects of planning requires a certain strategic and technical proficiency. Amongst activists, he stresses, this technical proficiency is not simply directed at the matters already identified by the planners;

kurath@arch.ethz.ch

rather, citizen organizations *enrich* the range and technicality of issues under debate, opening new avenues of contestation.

Implicit in this argument, and indeed in the arguments of Marres, lies a second key implication: a dedication to the importance of issue publics necessitates an inherently *agonistic* view of planning politics as revolving around contestation, controversy, and conflict. By definition, in the ANT-pragmatist approach, an issue public arises around a shared concern with the non-handling of experienced problems by formal political institutions, and public issue articulation happens in part by way of contesting already established institutional framings and commitments. As such, the ANT-pragmatist approach joins wider conversations in political theory and planning studies on the democratic importance of value-pluralistic communication and encounter across conflicting rationalities, interests, and practices (e.g. Mouffe 1999; Pløger 2004). In particular, Deweyan pragmatism adds a specific twist to this agonistic argument, in stressing how agonistic issue publics are always engaged in the experimental search for the *reinvention* of institutional designs—a point made vivid, arguably, in the urban setting (Barnett and Bridge 2013).

This leads then to a third implication, arguably the least explored in STS and planning discussions so far—and ultimately the direction in which my notion of planning ecologies is heading. At stake here, basically, is the question of how to conceive the very territory or *topology* of contested associations within and onto which a plurality of issue publics come to co-emerge as part of any specific process of urban planning. At a minimum, this topology should be thought of as at once spatial, or rather emplaced, in the sense that what is at stake is a concrete urban site, and at the same time as constituted by multiple (non-site-specific) sociotechnical and cross-institutional associations, each tied to specific issue trajectories. From within recent STS work, the notion that suggests itself is that of urban *assemblages* (Farías 2011), whereby the urban is seen as processes of heterogeneous associations of the social and the material, the technical and the political. While what I propose is generally aligned to this, the notion of assemblage, however, is also not without its own challenges, arguably, when it comes to articulating the inter-topological (or 'inter-assembled') dynamics of specific urban sites (see Blok and Farías 2016, for a discussion).

kurath@arch.ethz.ch

In this context, thinking in terms of planning *ecologies* represents not so much an alternative to assemblage as a certain layering of analytic commitments that extends backward in time, in STS as well as urban studies. First, as concerns STS, Susan Leigh Star (1995) in particular opted for the term 'ecologies of knowledge' not to challenge ANT commitments—indeed, she wrote, "by *ecological* we mean refusing social/natural or social/technical dichotomies" (ibid.: 2)—but rather for the term's locative and topological connotations. Knowledge ecologies, she argued, are locations in space and time, to do with work and its organization, and while such organization may indeed obtain assemblage-like qualities, Star (ibid.: 27) cautioned against the tendency (of some ANT) to think of networks as 'seamless webs'. Ecologies, then, were her way of talking about the spaces *between* the filaments of the knowledge network, including the seams and boundaries that constitute its contours; boundaries, for instance, between more or less powerful professional groups and more or less visible organizational work routines.

In short, I argue with Star that the notion of planning ecologies is well suited to focus on the *dynamic boundaries*—and the alliances and contestations that work across them—in a distributed, materially heterogeneous, yet power-asymmetrical topology of multiple institutions and issues publics. While eschewing its purely metaphorical use of socio-ecological thinking, this also allows, as noted, a partial reconnection with the much longer history of urban studies embodied in the Chicago School tradition. Indeed, my argument around planning ecologies is inspired in part by the work of Andrew Abbott, present-day heir to the Chicago School of sociology, in terms of what he dubs 'linked ecologies' (2005). To paraphrase Abbott's argument (ibid.: 247), it seems reasonable to think that the associations active in urban controversies themselves work as *issue-specific alliances* (linkages) across loosely connected urban ecologies of formal planning institutions, professional bodies, real estate agencies, civic associations, and so on.[4] To take an STS interest in planning ecologies, then, is to ask questions about the practical, situated, and material-semiotic ways in which such alliances are forged—and contested—by issue publics, working at the fringes of formal planning institutions. This is the exploration I engage in next, in turning to the Hong Kong setting.[5]

kurath@arch.ethz.ch

Methodology: Locating Planning Conjunctures in Hong Kong

My discussion so far has the drawback of engaging the notions of planning ecologies and issue publics in the *abstract* rather than in their fully located and situated realities. However, as already noted, my interest in these concepts—and, indeed, the notion of planning ecologies itself—stems from work undertaken in Hong Kong, focused on a specific history of planning controversy over (un-)sustainability in the Kai Tak waterfront site. As always, then, my endeavour in this chapter seeks to bring the conceptual and the empirical into mutual variation, in an attempt to push STS in new directions (Jensen 2014).

Overall, work in assemblage urbanism has tended to foreground the use of fine-grained ethnographic techniques in attempts to bring attention to the 'messy conjunctures' (Rankin 2011: 564) of everyday life and political-economic institutions in the city. My own work in Hong Kong follows broadly in such footsteps, although it redirects attention specifically to the question of how issue publics intersect with actual planning practices. Given my initial interest in elucidating the specificities of how climate risks come to be mediated through urban planning processes, the supposedly 'at-risk'—from sea-level rise, storm surges and so on—waterfront site of Kai Tak suggested itself as a suitable focus of inquiry. This initial choice, however, also came with certain constraints and demands on research, given the way this locally prominent site had already accumulated a long history as a planning 'battleground' (Ng 2010).

My initial research on Hong Kong deployed various digital methods (Rogers 2013) and resources, including websites and documents, in order to yield a *situational mapping* (Clarke 2003). This method lays out the fullest possible range of socio-material elements and relations implicated in the planning situation at hand, working across multiple sociotechnical arenas, and thus arguably embodies a distinctly ecological sensitivity. As it turned out, explicit debate on climate mitigation and adaptation had been sparse for Kai Tak; at the same time, however, it became equally obvious that the site was indeed a multi-front battleground when viewed in a wider sense of 'green' or environmental sustainability. Hence, I decided

kurath@arch.ethz.ch

to encompass a wider range of planning 'ecologies' (in the double sense) for my ethnographic work. Moreover, I started to organize this work temporally, by way of paying particular attention to those moments in issue trajectories where points of alliance or contestation were forged between (emerging) issue publics and formal planning institutions. This yielded a list of key implicated civic organizations, including Designing Hong Kong, which would eventually (and not without some luck) become my base and prime source of archival knowledge during fieldwork. From here, I sought out other key actors for formal interviews, including public academics, civic activist leaders and NGOs (four in total), architectural and engineering consultants (three), and planners in institutional positions within the executive government (two).

Moreover, working in a postcolonial setting and one in which the (non)democratic qualities of urban politics was itself highly contested, I was particularly aware of the need to acquaint myself with what Colin McFarlane (2010) dubs the 'local theory culture' associated with urban planning in Hong Kong. For this purpose, the sophisticated work of Mee Kam Ng (2005, 2008, 2010, 2011, 2014a, 2014b, 2015), herself a longtime planning scholar and engaged public intellectual, became an invaluable source of comparative insight. Reflecting on her US training and return to the planning scene of Hong Kong in the 1990s, for instance, Ng (2015: 21) notes how the "vocabularies such as community empowerment and dialogue in planning practice that I had learned at UCLA become dangerous, alien language when spoken in the context of Hong Kong." At the same time, Ng's own critical practice exemplifies the way in which, as I also learned, academics and other public intellectuals play crucial roles in the issue publics of Hong Kong, in attempts to re-problematize, on environmental and other grounds, an otherwise top-down, social engineering–like politics of redevelopment plans from the executive-led government (Ng 2014a).

In short, the empirical analysis that follows has itself come together (indeed, been assembled) from quite variable sources and materials. While this is obviously true to some extent of all empirical research in STS, planning and beyond, I stress how research into planning ecologies attenuates such heterogeneity in research practice, in working

kurath@arch.ethz.ch

across multiple arenas, practices and temporalities. In the end, my methodology amounts to what one might call an 'assemblage ethnography' of urban planning. This approach, I suggest, is particularly well suited to tracing the fate of contested planning issues across otherwise often taken-for-granted boundaries—the empirical task to which I now turn.

Empirical Analysis: Urban Green Publics in Kai Tak Planning

These years, official planning discourses in Hong Kong consistently highlight the 320 hectares Kai Tak project as aiming for 'sustainable' and 'green' urban development, considered as integral to the planning vision of a "distinguished, vibrant, attractive and people-oriented community by the Victoria Harbour".[6] In a city otherwise marked by a sharp topographic boundary between high-density built-up areas and surrounding natural landscapes, the greening in question for the Kai Tak site is at once literal and more abstract: alongside tightened environmental standards, medium-density zoning plans will allow for (what locally counts as) ample green spaces and parks as well as waterfront promenades. Such features, indeed, immediately stand out from architectural models and projections widely in circulation (see Fig. 11.2).

The green framing of Kai Tak, however, should itself be seen as an evolving result of how this government-led project, under the executive auspices of the powerful Civil Engineering and Development Department (CEDD), has met with various kinds of public-professional contestation ever since its inception in 1998. Accounts of this history already exist, highlighting in particular how early plans for large-scale land reclamation—the first studies and projections were in the range of an additional 300 hectares—gradually grew smaller until finally being shelved entirely in the face of strong public resistance (see Lee et al. 2013, chapter 3). However, while important, this anti-reclamation struggle represent only *one* trajectory of how urban green publics have emerged to contest aspects of the formal planning process and set in motion substantial and

kurath@arch.ethz.ch



Fig. 11.2 Architectural model projection of the green Kai Tak (photograph by author)

institutional rearrangements. Moreover, studies so far remain vague when it comes to the exact modes of technified activism employed by these issue publics.

In what follows, I provide brief accounts of three distinct urban green publics and their associated issue trajectories in the planning ecology of Kai Tak: the above-mentioned anti-reclamation struggle, the attempt to revitalize and restore the Kai Tak river, and the interference with building regulations allowed by way of scientific and activist attention to air ventilation. In each case, my account juxtaposes the discursive and material practices of key civic actors, focusing on how they have endeavoured to articulate and link issues to critical effect vis-à-vis formal planning settings. While far from exhaustive, the three trajectories presented here arguably capture core aspects of this contested history—while also lending themselves to more analytical observations on the work of urban issue publics.[7]

kurath@arch.ethz.ch

From Anti-reclamation Struggle to Bounded Experimentation

If there is one planning controversy that may be said to have exerted city-defining effects in Hong Kong over recent years, it would be the political struggles associated with the so-called anti-reclamation movement since the 1990s (Ng 2008, 2010, 2011). Under British colonial rule, government-led land reclamation between 1959 and 1983 had tripled the size of urban land in Hong Kong, in ways that visibly mark the urban fabric. During the 1990s, however, further land reclamation plans became hugely contentious in both public and legislative settings. In particular, a sizeable professional-led social movement—spearheaded by Winston Chu, a lawyer by training and founder of the Society for Protection of the Harbour (SPH)—arose to challenge the government in a series of high-profile court cases, arguing for the preservation of Victoria Harbour as a natural and cultural heritage. Such efforts culminated when, in 2003, the High Court ruled that the Town Planning Board (TPB) had failed to comply with the new Protection of the Harbour Bill, passed in the Legislative Council in 1997, since its reclamation plan for Wan Chai failed the test of an 'overriding public need' for more land reclamation. Meanwhile, SPH had secured more than 300,000 supporting signatures for its 'Save our Harbour' campaign.

Due to its timing, such changes in cultural sensibilities and legal practice came to intersect forcibly with the planning of Kai Tak. When the first Outline Zoning Plan (OZP) for the redevelopment of Kai Tak was publicized (or 'gazetted', in local parlance) in 1998, it attracted over 800 objections for its massive reliance on additional land reclamation. Over the years, and through several steps of re-planning and re-zoning, this eventually changed into the current statutory plan, approved by the TPB in 2007 and based on the existing land mass, with no new reclamation. This dramatic change, importantly, was facilitated by an institutional innovation in public planning in Hong Kong: in 2004, the government responded to increasing pressure by setting up the so-called Harbourfront Enhancement Committee (HEC), an advisory council based on strong participation from civil society and professional bodies, including a few environmental NGOs. While endowed with no formal decision-making

kurath@arch.ethz.ch

power, the HEC subcommittee on Kai Tak effectively took over the task of re-planning the site under a 'no reclamation' starting principle.

The HEC is widely hailed in Hong Kong planning circles as a successful consensus-building effort, and even critics like Mee Kam Ng (2015: 22) appreciate it as an "experiment in collaborative planning". However, the underlying anti-reclamation trajectory also had the effect of making the HEC subcommittee the primary setting in which various *other* controversial design issues for Kai Tak, with potential ecological implications, would be discussed and settled. Foremost amongst these was the decision, first brought up around 2001 by the government, of placing Hong Kong's new cruise ship terminal at this former airport landing strip, thereby utilizing the peculiar land shape of the area. This proposal immediately split civil society organizations in two camps: whereas anti-reclamation groups like the SPH was in support—since it would help enshrine the maritime identity of the site—others, including environmental groups and design activists such as Paul Zimmerman, argued against it on grounds of increased pollution, the heavy traffic infrastructures needed and resultant decrease in public access to the waterfront. Gradually, then, issue alliances built up between activist-professional actors around the anti-reclamation cause started morphing into a more fragmented issue ecology, yet one that is still housed mainly within the HEC.

Since then, civic opposition to the detrimental environmental effects of the cruise ship terminal has taken on a characteristic form, manifesting what one interlocutor, based in the well-connected Civic Exchange think tank, literally described to me as an 'ecosystem' of advocacy work. Along one route, Designing Hong Kong and like-minded groups has been pursuing an activist politics of design intervention, challenging engineers in the CEDD to justify their heavy-handed road-building practices by mobilizing translocal models (taken in part from Singapore) of more sustainable, livable, and nature-friendly waterfront spaces.[8] Meanwhile, several environmental groups challenge the air pollution implications of the Kai Tak cruise ships in complementary ways: whereas Civic Exchange mobilizes their expertise to suggest changes in fuel sources and power supply, Friends of the Earth has been conducting more activist-like campaigns to bring public attention to the detrimental local health effects of increased pollution. Such efforts, however, meet with only limited response from

kurath@arch.ethz.ch

the government. Indeed, the participatory trajectory of harbour contestation arguably proves double-edged for the activists: while providing a platform for the articulation of issues, to the government, the HEC has now settled Kai Tak plans in a 'consensual' way.

River Restoration: Engineering Limits to Civic Re-imaginations

In this whole trajectory of anti-reclamation and waterfront contestation over Kai Tak, climate-related issues of rise in sea level and storm surges have been conspicuously absent. In an indirect way, however, concerns with climate adaptation have instead come to intersect with what is now widely perceived, amongst engaged activists, as the main 'green' issue for the site: the issue of how to ecologically restore the so-called Kai Tak 'nullah' (drainage canal) into a full-fledged, biodiversity-rich urban river. Constructed during the Japanese occupation of Hong Kong in the 1930s, the Kai Tak nullah nowadays form an important part of Hong Kong's storm-water drainage and flood protection infrastructure, chiefly because two-thirds of the city's upstream storm water is being channelled here from the dense inland district of Mong Kok. Meanwhile, from having been widely considered a public nuisance in the 1970s and 1980s, with dirty industrial discharges creating a permanent foul smell for neighbouring residents to endure, the nullah in recent years has attracted more positive attention for its social and ecological potentials.

When, in 2006, the governments' responsible Drainage Services Department (DSD) announced their intention to cement over and thus cover up several of the city's many nullahs, including the one in Kai Tak, a range of initiatives in different places started to emerge in order to challenge this techno-political commitment. Meanwhile, in Kai Tak, civic ecological efforts had been initiated already around 2001 by Wallace Chang, a professor of architecture at the Chinese University of Hong Kong (CUHK), mobilizing local community support around a vision of cultural re-imagination. Hence, in 2007, the so-called Community Alliance on Kai Tak Development, an ad hoc group of activists and local residents under Chang's leadership, held a small naming ceremony

kurath@arch.ethz.ch

where they reclaimed the nullah from the DSD authority under the new imaginary of 'Kai Tak river'. *As* a river, the group argued, this stream of water would change its local position and relevance: it would become a place of social interaction and recreational activity, as well as attracting a richer plant and animal life. In order to promulgate this vision, the Alliance started building up ties to more than 20 elementary schools along the waterway, engaging pupils and teachers into collective exercises of re-imagining the local landscape by way of drawings. Later on, around 2009, a series of seminars and cultural interventions by designers and artists were staged in the area—including acts that placed a few 'green' public artworks *inside* the nullah's fenced-off parameters.

Much of this emerging imaginary hinges on the notion of materially changing the interface between city and water: by lowering the cemented walls of the canal on some stretches, and by partially removing the fences, the actual water would become accessible for public contact. Meanwhile, by keeping the surrounding area relatively open, green and undeveloped, natural water-absorption capacities would be enhanced. This entire notion, however, has proven untenable with the government officials, whose overriding engineering-based concern with structural flood protection and safety standards has so far hindered much actual ecological restoration from happening. Instead, by 2011, the Legislative Council provided the DSD with a multi-million budget to re-engineer the Kai Tak nullah, in order to make it considerably wider, enhance its storm water capacity and thereby perform according to a stricter standard of flood protection, capable of withstanding all but a calculated 1-in-200-year event (up from 1-in-50-years). The extent to which this upgrading of the risk protection standard relates to projected climatic changes is difficult to gauge from publicly available material, yet as one activist interlocutor noted, the engineers surely know that this may well be "their last chance to get some serious flood control into place".

To the civic-professional activists, however, this kind of response only serves to make vivid the limited space left open by the engineers for testing out more sustainable alternatives. Moreover, such discontent finds allies well into the governments' own ranks: in interview, officers from the Architectural Services Department (ArchSD), involved in public space provision for Kai Tak, admitted to facing severe problems in

kurath@arch.ethz.ch

getting their professional viewpoints—and support for more open public access to the waterway—taken seriously by the engineers in DSD and CEDD. Meanwhile, the new winning entry of a landscape architecture competition for the river carefully balances these opposing forces, and Chang and his Alliance keep up their lobbying efforts even in the face of serious setbacks to their vision. The issue of ecological river restoration in Kai Tak, in short, has turned into a different kind of frontline, one premised on competing activist and professional claims to expertise. As one Civic Exchange analyst commented, at least local people and urban designers are now brought into the conversation; "this is totally different" from what the government used to do, "which was basically engineering, engineering, engineering".

Air Ventilation Models as Critique of the Building Economy

Hong Kong, if anything, is known for its tall buildings and high urban density. In Hong Kong, land is always at a premium, and the land and property markets are amongst the most important vehicles of local wealth generation. Moreover, since the government owns most of the land in the city-state, which it leases out through sale of land-use rights in order to generate government revenue, this building economy is very much a *political* economy, well known for its vested interests in land-related development models (Ng 2005). As one informant would put it to me, "the government always starve for land", which they will say they "need to build more housing". Against this backdrop, it comes as small surprise that land-use planning for the Kai Tak area—which, after all, represents a unique opportunity to turn an attractive piece of unused inner-city land into new urban waterfront developments—should be a highly contested issue. What is perhaps more surprising, however, is the *form* in which such contestation is conducted; a form which includes, as a central principle, models and considerations over air's circulation and ventilation.

In the mid-2000s, a new critical term entered the vocabulary of urban activists in Hong Kong—'wall-like buildings'—coined by the founder of Green Sense, a civic group focused on environmental issues. Together

kurath@arch.ethz.ch

with architects and planning professionals, Green Sense developed a set of indicators to describe how urban mega-building projects become 'wall-like estates', blocking the physical and visual accessibility of their hinterlands while also seriously reducing natural air ventilation, thus contributing to heat island effects and intensified ground-level air pollution. Immediately, the term became part of local struggles for partial rezoning—away from residential and over to open space or community use—of the ultra-high-density plans underway for the West Kowloon waterfront district, like Kai Tak a well-known planning battleground. Such civic requests, however, were eventually refused by all formal channels, including the TPB, local courts, and the Lands Department in charge of the Building Ordinance, the key legal mechanism for setting and enforcing building-density limits in Hong Kong (Ng 2014b).

In Kai Tak, due in part to a different morphology of the site, a related but distinct dynamic of contestation has been unfolding, one centred more on science-based models of air ventilation and less on embodied opposition from neighbouring residents. The key notion on which such contestation hinges is that of the plot ratio: a simple guideline, enshrined in building regulations and numerically expressing the relationship between maximum ground coverage and allowable building heights within a threefold categorization of lowest-, medium- or highest-density areas. For Kai Tak, the renegotiated 2007 statutory plan specifies a general commitment to medium-density plot ratios for residential zones, meaning roughly that buildings should be 20 to 30 stories high with a maximum ground coverage in the range of 50 per cent. In the Hong Kong setting, this would represent a relative novelty, allowing for more ample open and green space provision than probably anywhere else in the inner city. This commitment, however, is itself the result of a certain process of reassembling planning practices, and it remains subject to contestation since plot ratios are in principle a matter of *political* and not just planning-related negotiation.

The key intervention in Kai Tak plot ratios has come via work undertaken by Edward Ng, a professor of architecture at CUHK, and mobilized as part of the way new guidelines for assessing air ventilation issues became part of official planning standards and guidelines around 2006.

kurath@arch.ethz.ch

According to several informants, this change of guidelines was itself the result of strong public and political concern with the adverse health effects of polluted and non-ventilating air, following the 2003 severe acute respiratory syndrome (SARS) outbreak in Hong Kong. Due to timing, Kai Tak became the prime real-world case on which the new planning tools were tested out, resulting in several important—if perhaps publicly less visible—changes to the statutory plan: in general, plot ratios came down from 8 (higher) to 5 (medium), more open and green space coverage was provided for, streets were realigned with prevailing wind directions, and some bulky traffic infrastructures were removed or replaced to not block wind circulation in the area. In this way, the infusion and upgrading of science-based models and assessment tools into planning processes managed to accomplish for Kai Tak what environmentalists and local residents failed to achieve in West Kowloon, that is, an effective critique of the usual modus operandi of the Hong Kong building economy.

This accomplishment, however, has since come under political pressure. In recent years, amidst heated public debate, the government has decided to notch up the plot ratio provision for Kai Tak, in a move which environmental groups and design activists fear may jeopardize green space provision and general liveability in the area. As one analyst in Civic Exchange put it, "the economy is very different now from when they started [Kai Tak] in 2006, when people were still worried from SARS", and, he continues, the heat island effect is "not the governments' main concern". At stake here, moreover, is the well-known gap between plans and their realization: since air ventilation assessments and provisions remain only weakly enforced by the Lands Department vis-à-vis property developers, and since the public enjoys few rights in regard to such backroom negotiations, activists continue to exercise vigilance over how this political economy will unfold in Kai Tak. In terms of activist tactics, however, new technical standards of air circulation assessment provide yet another leverage with which to tap into wider public concern with air pollution and its adverse health effects—a concern which, as several environmental groups related in interview, continues to prevail in the public imagination over the more distant 'carbon angle'.

kurath@arch.ethz.ch

Conclusion: Redrawing the Boundaries of Planning With(in) STS?

By way of summarizing, this chapter has attempted to bring the contested trajectories and ecologies of urban planning into view for STS, by deploying an adapted version of the ANT commitment to analysing issue publics. STS and ANT, I argue, have made valuable strides to place technologies and other nonhumans centrally in planning and to rethink cities along more materially heterogeneous lines. However, when it comes to re-conceptualizing urban planning as a set of contested material-semiotic practices, activist-expert intersections and boundary-crossing institutional topologies, much work still lies ahead. In proposing the notion of planning ecologies, I seek to bring attention to how multiple concerned issue publics—themselves constituted by quite 'technified' (Tironi 2015) forms of activist-professional engagement—emerge, intersect with and seek to contest the boundaries of formal planning institutions within specific planning processes. As such, the term is meant to spark further conversations on how the resources of STS may be deployed to destabilize and reassemble, in more fundamental ways, the very techno-political form of urban planning.

The particular case at hand, that is, planning contestations over the Kai Tak waterfront site in Hong Kong, clearly reflects in part its own specific historical, cultural, political, and planning-professional urban setting. However, the three 'green' issue trajectories highlighted by my analysis are also meant to lend themselves to more general reflection on the conditions and political fates of urban issue publics. Hence, anti-reclamation struggles in Hong Kong may be said to exemplify a trajectory of strong and morally infused public opposition, followed by official accommodation in the shape of both substantive re-planning and institutional experimentation. As noted, however, the democratizing effects of this institutional experimentation proves ambivalent, since the new and more participatory setting (the Harbourfront Enhancement Committee) ends up both enabling *and* constraining further activist efforts of issue articulation. Meanwhile, the trajectory of Kai Tak river restoration exhibits an activist politics of professional urban expertise, where issue-specific alliances amongst architects inside and outside formal planning settings challenge, without in any way overthrowing, an institutionalized power

kurath@arch.ethz.ch

of engineering-based techno-politics. Finally, mobilizations around air ventilation can be said to show how technoscientific and local urban knowledges may work in tandem—although in ways not formally connected—to make room for new concerns in planning practice, such as heat island effects, which might otherwise remain unaddressed.

Just as the fate of the Kai Tak site remains to a large extent unsettled and open-ended, the same might be said for the place of STS in urban planning research and practice (a recurring theme, indeed, in the present volume). It is my contention that, as an intellectual and engaged practice, STS is well placed to perform the kind of critical-constructive interrogation and redrawing of the very *boundaries* in and around urban planning that this chapter has attempted to exemplify. Perhaps uniquely so, an STS sensibility invites us to remain equally or symmetrically committed to *both* sides of a range of (imagined) dualisms otherwise entrenched in this domain, including not just those of social versus material or technical versus political but also, importantly, those of lay and expert knowledge, formal and informal work practices, and professional and political modes of engagement. In its ANT inflection, moreover, STS provides a distinct take on the *democratic* challenge of urban planning, one that emphasizes the crucial roles of public contestation and issue articulation in the settling of those techno-political issues of urban life to which planning is dedicated. As this chapter hopes to have indicated, this inflection remains equally relevant as a critique of formal participation in nominally democratic settings *and* as a tool for interrogating how planning under executive-led conditions of strong government nonetheless exhibits its own democratic moments.

Notes

1. Unless otherwise stated, actual names rather than pseudonyms are used for people and organizations in this study. This reflects in part the wishes of my informants, who are all publicly recognizable figures in Hong Kong.
2. In case study terms, it should be noted that the research reported in this chapter forms part of a broader, comparative study into the way climate adaptation issues are mediated through contestations over waterfront redevelopment projects in four major world port cities in East Asia and Europe (Yokohama, Hong Kong, Rotterdam and Copenhagen).

kurath@arch.ethz.ch

3. The author of this chapter is himself a contributor to debates on urban assemblages. See Blok and Farías (2016) for a recent statement on the cosmopolitics of urban assemblages as a general approach to urban studies.
4. Here, it also becomes clear that my usage differs from Isabelle Stengers' (2005) notion of ecologies of practice.
5. In this context, my notion of planning ecologies bears a certain resemblance to recent work in planning theory that engages with Peter Galison's STS notion of the trading zone (see Mäntysalo et al. 2011). However, in my view, such work has so far bypassed the critical question, which is how trading zones in planning come to be *delimited* (to specific "stakes" and "stakeholders") and, in turn, how (issue) publics work to redo such delimitations.
6. Quoted from the Kai Tak Development (KTD) project's official website: http://www.ktd.gov.hk/eng/overview.html.
7. In general, my attention to "green" issues means that I downplay the way Kai Tak, like most urban development in Hong Kong, is simultaneously implicated in controversies over gentrification and social housing provision.
8. This kind of inter-referencing in pursuit of "global" models and standards forms part of what Ananya Roy and Aihwa Ong (2011) dub "worlding", an important practice amongst contemporary urban planners and activists alike.

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Anders Blok is Associate Professor of Sociology at the University of Copenhagen, Denmark. His current research looks at the urban politics of climate change in East Asian and European world cities. He has written widely on issues of urban studies, science and technology studies (STS), environmental sociology, and social theory. Recently, he is the co-editor (with Ignacio Farías) of *Urban Cosmopolitics: Agencements, Assemblies, Atmospheres* (Routledge 2016).

kurath@arch.ethz.ch

12

Saving Schools: Vacancy, Ruin, and Adaptive Reuse in Detroit

James Macmillen and Trevor Pinch

Introduction

In 2000, almost 163,000 pupils were enrolled in Detroit's 288 public schools. Fifteen years later, after protracted budget crises, competition from charter schools, and a population exodus from Detroit, enrolment stood below 48,000—a fall of 71%. The resulting decrease in per-pupil state revenue crippled Detroit Public Schools' (DPS) ability to sustain operations. By the end of 2015, DPS had closed almost 200 of its 288 schools. Forty-five of the closed schools were demolished, thirty-eight were sold to charter schools, and thirty-two were reused, becoming apartments, community centers, or churches. Eighty-one remained vacant,

J. Macmillen (✉)
Department of City and Regional Planning, Cornell University, Ithaca, NY, USA

T. Pinch
Department of Science and Technology Studies, Cornell University, Ithaca, NY, USA

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kurath@arch.ethz.ch

looming over Detroit's neighborhoods in various degrees of ruination and decay (Grover and van der Velde 2016).

In October 2014, in lieu of an unpaid $11.6 million electricity bill, DPS agreed to transfer fifty-seven of the vacant schools into City of Detroit ownership. The deal enabled the City to incorporate the schools into the Mayor Duggan's blight elimination agenda. Most of the fifty-seven school buildings would be demolished. However, the Mayor also pledged to preserve some schools for future reuse. "The day is going to come," Duggan said, "when people move back into the city; if the building is structurally sound, it is more appropriate to secure it than to demolish it" (Zaniewski 2014).

In this chapter, we examine how a small team of urban planners attempted to put this idea into practice. We focus on a day-long site visit that the planners undertook in July 2015. One by one, the team visited what promised to be "the best thirteen" of the fifty-seven schools—those reputed to be the most secure and with the greatest potential for adaptive reuse. The City's planning director even came up with an acronym for the potential scheme: "SAVED"—"Schools Adapted for Vital Enterprise in Detroit" (Fig. 12.1).

One of us, Macmillen, accompanied the planners on the tour. Our chapter sits within his broader ethnographic research that examines how Detroit's planners relate to "the future" in the course of their work—through their everyday predictions, imaginations, strategies, hopes, and fears.

The question of what urban planners actually "do" is the subject of discussion within and outside the profession. Formal definitions of "planning" tend to emphasize two distinctions from related academic and professional fields. First, unlike geography or sociology, planning implies the transference of accumulated knowledge into action. Second, unlike economics or public policy, this action tends to have an explicit spatial focus and range ("neighborhood," "urban," "regional," etc.) and is concerned with the redevelopment of the physical environment (see Hall and Tewdwr-Jones 2011). Others supplement this basic definition with a humanistic framing. Forester's (2009, p. 6) understanding of planning as "the organization of hope," for example, underscores a concern for the richness of the planning process itself—its complexities, dialogues, and possibilities.

kurath@arch.ethz.ch



Fig. 12.1 The "SAVED" program

In the United States, planners can struggle with the ambiguities that stem from the profession's interpretative breadth. They often find it difficult to formalize or legitimize their value, caught between a desire for expert identity and the realities of a public imagination that positions them as pen-pushing bureaucrats and quasi-politicians. While planners may have their own conversations about their professional identity, this unease rarely filters into public discourse. In Detroit, and other American cities which experienced postwar urban renewal, the discourse is set firm: "planners were the people who tore down our neighborhoods, and they are not to be trusted." (As one Detroit planner confided: "I was driving a City car through a neighborhood once. These kids ran up, singing: 'We know you're a cop! We know you're a cop!' I was gonna tell them I was a city planner, but I wasn't sure which was worse.")

Our analysis centers upon the planners' evaluations of the schools' historic significance and future potential. It is shaped by two concerns. First, alongside other authors in this volume, we are interested in how materiality

kurath@arch.ethz.ch

and nonhuman agency shape day-to-day planning practice. The planning profession is saturated with physical artifacts. Planners routinely do things, with things, to things. They take pictures, make sketches and drawings, create maps, fill spreadsheets, build models, write reports, construct animations, and design interactive tools. They drive through neighborhoods, run their fingers over brickwork, and leave physical traces of themselves in landscapes. Planners' deep knowledge of cities and their complex modes of professional action are forever mediated through artifacts. Yet, as Miller (2010) points out, "stuff" has an intrinsic humility. Because these mediations are so routine, so seemingly benign, they are easy to overlook. "Objects don't shout at you like teachers, or throw chalk at you as mine did, but they help you gently to learn how to act appropriately" (Miller 2010, p. 53). This quiet, unremarkable agency of objects is precisely the reason that their role in planning should be acknowledged, carefully studied, and sometimes challenged. Langdon Winner (1986), for example, highlights Robert Moses's decision to minimize clearance under Long Island's parkway bridges.[1] The bridges prevented public buses from passing underneath and thus concretized Moses's desire to keep poor black families away from the Island's beaches. (Moses also lowered the water temperature in certain public pools, believing that black children were less able to tolerate cold water than white children—see Caro 1975, p. 319.)

Winner's choice of planning example, however, frames our second concern: the need to reassert planners' humanity. Moses is infamous for good reason, but his megalomania is hardly typical of the average planning professional. However, much of the literature on the built environment coming out of STS, anthropology, and cultural geography reads as if it were. Planners are portrayed in a crude, two-dimensional light—something that jars with these disciplines' usual sensitivity to qualitative difference. They are stock characters, a gray backdrop against which the intricacies of nonhuman agency are set. Either planners are thrown together with Moses, castigated as unelected, unfeeling, Faustian tyrants, or they are pitied as naïve, unwitting bureaucrats, smoothing the path of capital through a banality of small evils. Both tropes gain currency because planners' own voices, or feelings, never feature in authors' accounts. As Callon (1986, p. 216) observes, "to speak for others is to first silence those in whose name we speak."

kurath@arch.ethz.ch

Miller's (2010) *Stuff* is interesting here. One of the world's leading scholars on materiality, he writes that "the point of anthropology is to enquire empathetically into how other people see the world" (ibid., p. 14). Yet, his critiques of planning practice are rather indifferent to planners' own worldviews. He points to the simultaneous construction of tower-block housing in the West and USSR to show how planners use artifacts (again, big concrete ones) to slip disempowering forces of modernity past the radar of ideological politics (see also Holston 1989). The heroes of Miller's account? Stubborn English suburbanites, who quietly faced down the grand plans and visions of Le Corbusier et al. with pebbledash, porches, and bay windows. Of the planners themselves, he further remarks: "[C]uriously, when it came to their own private lives," they "tended to prefer to live in semi-detached or even detached housing" (Miller 2010, p. 84).

If Miller indulges "planner-as-tyrant," then Edensor's (2005) *Industrial Ruins: Space, Aesthetics and Materiality* showcases "planner-as-bureaucrat." This is a highly original text, which brilliantly captures the role of ruination in urban life. Edensor's central thesis is that industrial ruins stand in bold defiance against the sanitized homogeneity of capitalist modernity. Ruins are viewed as sites of playful transgression, mutability, and disorder which mock governments' pretentions to control (and thus commodify) space through classification, rationalization, and the general curtailing of freedoms. Chapter after chapter, between wonderful passages on affect, beauty, stillness, and so on, the "modernist planners" arrive to ruin everyone's fun:

> For like the mounds of matter produced through construction which are typically deposited on the outskirts of the city, ruins are excess matter, containing superfluous energy and meaning, which as disorderly intrusions, often in more central areas of the city, always come back to haunt the planners' vision of what the city should be. (Edensor 2005, p. 62)

In what follows, we strive to balance a respect for nonhuman artifacts with empathy for the professionals who engage with them. If, as Miller (2010, p. 156) also writes, "denigrating material things, and pushing them down, is one of the main ways we raise ourselves up onto apparent pedestals,"

kurath@arch.ethz.ch

then we should be wary of doing the reverse. Planners are no more and no less "rational" than other professionals.[2] No more or no less keen on straight lines, they hope to shape cities in all sorts of ways—to make them more beautiful, equitable, and, sometimes, even less orderly (cf. the "parklet" phenomenon). They laugh, cry, and feel like the rest of us.

The Schools, the Team, and First Impressions

Between 1900 and 1930, Detroit's population increased from 286,000 to 1.57 million, and the city became the fourth largest in the United States. Eight of the thirteen schools were built during the 1910s and 1920s, part of a huge 180-school DPS construction program intended to meet increased demand (Table 12.1; Grover and van der Velde 2016).[3] Three of the thirteen—Cadillac Junior High (1924–2007), Guest Elementary (1924–2010), and Monnier Elementary (1924–2007)—came under DPS control through the City's aggressive annexation of surrounding villages and townships between 1916 and 1926 (Grover and van der Velde 2016). These eleven older schools were imposing brick structures, often with richly decorated exteriors and interiors. Several contained gymnasiums, swimming pools, and auditoriums, reflecting their founders' belief that schools should provide an array of community services.

The two remaining schools on the planners' list—Healy Elementary (1951–2007) and Weatherby Elementary (1957–2005)—reflected the priorities of Detroit's postwar planners, as detailed in *Detroit Master Plan* (City of Detroit 1951). Drafted by Ladislas Segoe, an ex-artillery officer in the Austro-Hungarian Army, the master plan was the City's first comprehensive attempt to control urban growth and coordinate strategies between municipal departments and agencies. Small, and nestled in residential neighborhoods, Healy and Weatherby reflected Segoe's conviction that all of Detroit's elementary pupils should be able to safely walk to school (Williams 1980).

The planning team consisted of Julie, Reggie, and Tony.[4] Julie and Reggie were architectural historians. Both had graduate degrees in historic preservation and several years' professional experience. The historians'

kurath@arch.ethz.ch

Table 12.1 The thirteen schools (Data: courtesy of Detroit Building Authority and Loveland Technologies)

School	Type	Opened	Closed	Years active	Size (sq. ft.)	Fire damage	Scrapped
Sampson Elementary	Built	1912	2007	95	69,897		Yes
Hanneman Elementary	Built	1918	2007	89	45,968	Yes	Yes
Cadillac Primary Jr. High. Antoine	Annexed	1924	2007	83	48,192	Yes	Yes
Courville Elementary	Built	1923	2007	84	79,691	Yes	Yes
Guest Elementary	Annexed	1924	2010	86	82,149		Yes
Monnier Elementary, Peter C.	Annexed	1924	2007	83	50,413		Yes
Marshall, John C. Elementary	Built	1929	2009	80	60,066		Yes
Oakman Special	Built	1929	2013	84	46,464	Yes	Yes
Arthur Jr. High	Built	1931	2005	74	37,472	Yes	Yes
Burbank Elementary Jr. High	Built	1931	2009	78	80,448		Yes
King Elementary, John R.	Built	1931	2009	78	52,100	Yes	Yes
Healy Elementary, Daniel J.	Built	1951	2007	56	17,828		Yes
Weatherby Elementary	Built	1957	2005	48	25,621		Yes

kurath@arch.ethz.ch

primary responsibility was to assess the schools' "significance." This notion of historic significance dominated their professional lives. It governed the way they looked at buildings, how they moved through them, what notes they made, and how they spoke about them to others. It was the lens through which all their judgments passed. We discuss the importance and attribution of significance in the next section.

Tony was born in Detroit, but his family moved to the suburbs when he was six, following a shooting outside their home. He attended two prestigious universities before working as a City of Detroit planner for twelve years. In a new position with a sister agency, his main responsibility was to secure the thirteen buildings from the threat of metal thieves ("scrappers"), vandalism, and weather damage. A six-man boarding crew accompanied the planners on the tour. As Tony inspected the buildings, he and the crew's foreman debated the best way to secure the schools' doors and windows with plywood boards, metal grilles, and spot welds.

Prior to the tour, Tony mapped the most efficient route between the various schools, beginning with Burbank Elementary on Detroit's far east side, and ending with Marshall Elementary near 8 Mile Road, the boundary between Detroit and its northern suburbs. The group, which included one of us as ethnographer (Macmillen), traveled in four vehicles. The crew hired an armed guard to accompany the group, whom Tony nicknamed "Blackwater." The planners were unfazed by his presence. Oral history interviews later revealed professional careers marked by violence. Tony was once robbed at gunpoint leaving a public planning meeting. "It's Detroit," he explained. "Anything's possible, at any time, any place. If someone's gonna assault you, they're gonna assault you."

As we neared each school, the planners examined the physical condition of the neighborhood. Julie took meticulous notes, recording her observations on a series of maps. The planners also made notes on the size and condition of the schools' grounds and playing fields. At some schools, the grounds were neatly mown. At others, the planners and crew waded through weeds and tall grasses.

In contrast to the "humility" of things (Miller 2010), or the "quiet" of ruin (Edensor 2005), the schools were physically imposing structures.

kurath@arch.ethz.ch

Many had several floors and featured chimneys from their original power plants (Fig. 12.1). When they reached a school, the team typically circumnavigated it as a group. Tony and the crew tried to locate every point of possible access, and he recorded boarding prescriptions in his notebook. At Hanneman Elementary, for example, his notes read:

> North Doors A—weld; North Door B—flat iron; North Doors C—weld; North Window—board; North Door D—door guard; West Windows—board (x10); South Doors A—weld; South Doors B—weld and hasp; East Windows (x5)—board.

Julie and Reggie circumnavigated more slowly, inspecting the schools' external condition and evaluating its architecture. Reggie took multiple photographs of noteworthy cornices, patterned brickwork, engravings, or tiling. Some photographs were taken landscape-style, as he tried to record a sense of place. Others were close-ups of the detailing, shot like a crime scene. If there were residents within earshot, Julie and Reggie regularly engaged them in conversation, to learn about the history of the school, and to hear their hopes and opinions on the schools' futures. Many residents appeared eager to talk.

Once inside, the ruined schools assaulted the team's senses. The interplay of light and dark, of pitch-blackness and piercing sunlight, disorientated them. They moved cautiously through decaying corridors, classrooms, staircases, cafeterias, and gymnasiums, sometimes inspecting the same rooms twice by mistake. Exploration was as much haptic as visual; the schools ran with unfamiliar surfaces and textures. Moss grew on interior walls, and wooden floors rose up in waves, sometimes revealing large holes and chasms. The planners enjoyed the playful transgression of being in these spaces. As Julie joked at Sampson: "Don't breathe in. And don't kick up any dust."

Small sounds became huge in the quiet—Julie's scribbling on her clipboard, the clunk of Reggie's camera, or the broken glass that popped underfoot like hot grease. Outside, the slam of car doors, dog barks, distant trains, and nearby cicadas, all emphasized the silence. The planners heard rabbits before they saw them. There was birdsong all day. The fore-

kurath@arch.ethz.ch

man sang old songs. There were smells, too. Chemical smells, animal smells, and the deep, acrid smell of old fires. These blended with the generic smell of "school" that everyone recognized, both repellent and inviting.

All thirteen schools had been picked clean by scrappers, and six were fire-damaged (Table 12.1). Physical traces of trespass, such as gang tags, disemboweled brickwork, or the silhouettes of removed metal, juxtaposed with poignant reminders of the school's original purpose—spellings still on chalkboards, children's name tags scattered on carpets, or playgrounds overrun with vegetation. The resulting poignance fueled a dark humor. Docked in tall grass at Healy, for example, was a small, blue, fishing boat (Fig. 12.2). There was a suitcase in it, some old clothes, a jazz DVD, and a bible, splayed open at the Second Book of Samuel: Chapter 8. ("And the Lord preserved David whithersoever he went.") While the planners surveyed, the boarding crew huddled around the fish-finder, mocking the notion of restoration as they did so. "Let's go catch some walleye! This baby got GPS? We could bring this back. Bring this *back*. I see a lot of potential here. A *lot* of potential."



Fig. 12.2 An abandoned fishing boat at Healy Elementary

kurath@arch.ethz.ch

All this was both backdrop and input for the planners' evaluation of significance and potential. This assemblage of nonhuman things, wildly composed, these emotional and affective reactions, became the raw materials of professional, "rational," decision-making. A human response to ruin, produced in and through nonhuman artifacts.

Sensing Significance: Structures, Contents, and Neighbors

Provided they are in good condition, most buildings in the United States over fifty years old are considered "significant," and eligible for inclusion on the National Register of Historic Places ("the Register"). More recent buildings may also be eligible if (a) they are associated with an important historical event, (b) they have a connection to a person who has contributed to history, (c) they are the work of "a master," or (d) if they contain archaeological materials (National Parks Service 2000). In Julie and Reggie's evaluation of the schools, significance carried two powerful functions. First, it stood as the professionalized incarnation of their basic desire to preserve old buildings for reasons of cultural heritage and posterity. The director's SAVED acronym was not just playfully alliterative; it spoke to the heart of their professional identity. They believed that some of the thirteen structures deserved a future and that their social and aesthetic value would benefit Detroit. As the historic preservation scholar Michael Tomlan (2015, p. vi) argues, "at the root of all historic preservation efforts, is the basic belief that we should save things."

The second function was pragmatic and closely tied to the team's planning process. On the one hand, communicating buildings' historic significance could be a prudent strategy for adaptive reuse. Once translated into the real estate lexicon of "character," "uniqueness," and "original features," significance could make resale more plausible. If the schools didn't sell, however, any such designation of significance would backfire. This was because Tony's demolition funds came from the federal government, and buildings eligible for the Register are protected under Section 106 of

kurath@arch.ethz.ch

the 1966 National Historic Preservation Act if federal subsidies or permits are involved.[5] As Tony explained, "Only by virtue of the fact that we're using federal funds to demolish the buildings is the historic consideration so prevalent. And if Reggie determines them eligible, then we have to go through a very lengthy process. And I don't know if that contributes a lot to the community good."

Attention to Detail

Frowning at Sampson's brickwork, Reggie explained how he inspects for significance:

> I look for architectural details, uniqueness, [and] if the windows are still intact. Compared to the first three schools, there's a lot less here. In the others there was stonework around the doors and inlaid tile work. Here it's non-existent. It has a nice cornice, but that's about it.

Uniqueness and detail were the foundations of significance, aspects of the schools that Reggie could represent in photographs or Julie could record in her notes: stonework elaborately engraved with a school's name;[6] polychromatic brickwork, employing five different shades of red; huge gymnasiums sunken into basements; colorful, hand-made tiles that edged exterior and interior walls; floor-to-ceiling bay windows overlooking a courtyard, with bespoke children's benches matching the windows' curvature; solid-core doors; spiraling hardwood banisters; open fireplaces; bookshelves built into the walls at child-height (Fig. 12.3).

We tend to associate urban planning with modern materials: concrete, asphalt, gravel, utilitarian shrubs and trees. We see a profession steeped, materially, in what Steve Jackson (2014, p. 225) calls "the primacy of production"—where our collective attention is directed to the novelties and possibilities of design and construction and blinded to the importance of maintenance and repair. Touring the schools, however, all three planners were captivated by the investment of labor and skill that these older features represented. At Oakman, the most beautiful of the thirteen, Julie whistled in awe at the craftsmanship. Even Tony, relatively

kurath@arch.ethz.ch



Fig. 12.3 Exterior tiling at Marshall Elementary

ambivalent about the schools' fate, was mesmerized by the Pewabic pottery tiling at Marshall. "It kills me. Just the *time* it took to do that." Wherever modern materials intruded on these early schools—in vinyl windows or "crappy" plastic paneling—Reggie or Julie lectured on the newer materials' inferiority.

Permanence and Duty

For Munn (2013), the texture, shape, and detail of such architectural "features" only partially constitute a place's overall aesthetic value. They become important, she argues, through their interplay with particular

kurath@arch.ethz.ch

"qualities"—basic qualitative attributes which cut across features—and reveal features' aesthetic functions within the whole. Thus a "commanding" or "noble" house (qualities) would highlight the value of hill-top location (feature). Walking through the schools, the planners performed a back and forth narration between architectural features and the quality of "permanence." As a novelist might describe a setting, their running commentary on the features sustained an overarching imaginary of timelessness. Against the uncertainty of the schools' fate, and the immediacy of their decay, the schools' architecture implied a normative resilience, a stubbornness, as though they would mock any attempt to make them disappear. Reggie, well-read on the schools' history, argued that the 1920s buildings were "meant to be permanent fixtures." He knew about their intended role as neighborhood anchors and public gathering places, and how the 1951 Master Plan had cemented this idea into the City's thinking—"fixing" the growing city around these educational rivets. He understood that their physical stature was as much symbolic as it was structural, that they were bold statements of civic leadership, a commitment to public betterment, and the raw confidence of Detroit's golden era. The architects sought "objectification" (Miller 2010), where humanity attempts to extend itself through artifact, where subject and object become mutually constitutive, each sustaining the power of the other through time (see also Marx 1867, pp. 167–169).

Actor-network theory foregrounds this longevity of artifacts. Objectification makes social life possible because it outlasts the fleeting ephemerality of social interaction. Intersubjective relations partly acquire their stability through the durability of nonhuman things (Callon and Latour 1981; Sayes 2014). For Miller (2010) this pulls objects into the timeframes of lived temporality, that the form and function of things like homes and schools are inherited from previous generations and are, thus, in an anthropological sense, ancestral. Whether we call the product of this ordering orientation our "habitus" or "culture" or "environment" or whatever, it can breed a powerful sense of curatorial duty, inculcated through everyday practice. It is no coincidence that Julie and Reggie's mission of "heritage" shares the same etymological roots as "inheritance." They knew they were the last professionals with any intellectual say in their fate, with the briefest of windows in which to chart a new course.

kurath@arch.ethz.ch

Their expertise cultivated a respect for those who preceded them—a lineage of early planners, developers, financiers, architects, engineers, designers, artists, groundskeepers, governors, principals, and teachers which stretched for eighty or ninety years. As if inheriting a Swiss watch, the schools' grandeur mandated a particular duty of care which the planners had to honor.

For anthropologists, care spans affective states, moral experience, obligations, and the relationships between them, which are often complex and intergenerational (Buch 2015). And the STS literature on care highlights a commitment to neglected things. The verb, "to care" is about "material doing" in contrast with matters of "concern" (Latour 2004) which may imply a dissociative worry. Care is about ethical obligations and everyday laboring (de la Bellacasa 2011). Like the Maori notion of *whakapapa*, which dwells inside objects and materializes social obligations of debt and reciprocity (Tapsell 2011, cited in Geismar 2015), the schools framed the planners' actions around an extended moment of custodianship, rather than ownership, where breaking the chain of professional care would be a betrayal of both past and future generations.

The schools' monofunctionality heightened this impression of permanence. Old buildings commonly cycle through different uses: lofts become apartments; warehouses become galleries; offices become bars; bars become offices. This adds flavor and intrigue to their histories, often carefully curated through the management of architectural features—in "exposed" beams and bricks, for example. As a new owner or tenant, we crave knowledge of how we fit into the building's history—sometimes through sheer curiosity, other times to increase its exchange value. The thirteen schools, however, had always been schools, their layouts and designs dedicated to a single purpose. In their forlorn, decaying state it was a deep and singular history that animated what remained. The schools took on anthropomorphic qualities—of faithfulness, monogamy, even, and their abandonment carried the pall of an octogenarian divorce. As writing on material culture has shown, there is a dialectic between significance and permanence (DeSilvey 2006; Colloredo-Mansfeld 2003). The schools were built for permanence because of their significance, and now this permanence sustains its own significance. The qualities of permanence and significance encouraged a sensitivity in the planners'

kurath@arch.ethz.ch

engagement with the schools' architectural features—a sensitivity inseparable from judgments of aesthetic value (cf. Munn 2013).

This clash of significance, fragility, and temporality was moving to watch. Julie and Reggie knew that saving all the schools was unlikely and that such buildings would never be built again. Julie said the buildings "spoke" to her. That "on days like this, it's all worth it." Looking up at the walls of Marshall Elementary, she said: "I want to hug it. Turn away."

"Go ahead," smiled Tony. "We won't judge you. Well—."

Contents

If the schools' physicality was exceptional, their contents were unnervingly familiar. And if establishing significance was led by a concern for structural features, it was also fed by the sense of poignancy and meaning of what the planners' found inside. These "left behind" artifacts—children's shoes, posters, American flags, nametags, and so on—had no formal bearing on the potential for adaptive reuse. They lacked the persuasive influence of tile work, ironwork, woodwork, or brickwork which dominated Reggie and Julie's photographs and notes. (If the schools were "saved", their contents would be removed and discarded. If the schools were to be demolished, the contents would go down with the ship.) Yet these artifacts infused the planners conversations and deepened their sense of duty in profound ways. It reminded them of their own schooling and what had been lost in Detroit. It asked for their preservation rationale to broaden, to honor and commemorate, as well as to regenerate and reuse.

Written materials were often most striking. There were official signs on the exterior and interior walls: "Welcome. Let the Learning Begin"; "Soaring to Success"; "Where Excellence Begins"; "One teacher can shape a child, one child can shape the world"; "Aggressive behavior is subject to criminal prosecution." At Weatherby a large sign proclaimed: "Excellence Starts With You!," adjacent to a gymnasium strewn with math problems. Some of the official signs were missing letters: "Believe & Achi_ _ _ "; "Success for Al _." There were also teaching materials left behind: a browned map of Detroit, disintegrating inward from its edges; a 1–100

kurath@arch.ethz.ch

number train, taped across the top of a classroom's walls, which had come loose between 41 to 87, making a polynomial swoop into the room. Then there were the chalk scrawls of trespassers: "hoe ass bitch"; "Stop the violence"; and, in one bare classroom at Oakman, underneath a furled stars-and-stripes, "7-Mile Killer." It is at this stage, where their "half-identity still clings to them" (Douglas 1966, cited in DeSilvey 2006), that decaying artifacts most disorder their environments, blur boundaries, and create ambiguities (DeSilvey 2006).

In the next room, pink slips of paper lay scattered. Each bore a child's first name. As the crew talked matter-of-factly about where to hammer a board, Julie looked at the names. Each was unique—Vincent, Tanika, Marcus—yet, in the arranged homogeneity of the pink slips, written in neat teacher's handwriting, the individual children became a class again, the poignance greater than the sum of its parts. A mass of failed kids. Named ghosts (Fig. 12.4). Behind Julie's shoulder was a poster for Obama's 2008 presidential campaign. "Michigan," it read, "Our Moment is Now … stand for change so that our children have the same chance that somebody gave us."



Fig. 12.4 Nametags at Oakman Elementary

kurath@arch.ethz.ch

Reggie, too, was moved. At Arthur (1931–2005), he stood looking through a smashed window into a classroom. Inside, a broken chalkboard held tight to a list of yellow spellings. On their last day at school, a decade earlier, the children had been learning suffixes:

1. Useless;
2. Clueless;
3. Jobless;
4. Shapeless;
5. Helpless;
6. Playful;
7. Hopeful;
8. Harmful;
9. Shameful;
10. Wonderful.

The planners were staring at twin crises of heritage and education, and such traces fused the crises together. They deepened the planners' resolve to try and find a future for the schools, as though Detroit's educational failures could be rectified through their restoration. As Julie reflected at Burbank: "This was once full of kids and life. It's so eerie now. Hopefully we can do something … and people can come back here, and bring their kids here." Holding tight to her clipboard, "hopefully" implied something strategic; Julie's assessments, judgments, evaluations would feed into, and improve, the City's and developers' decisions. But her tone of voice also held the magnitude of the task, and a resigned sense that the buildings' fate, like the educational destinies of the ex-pupils, would be decided through systems that planners couldn't influence.

It was in the silence of things, that the planners' sense of duty, humility, and significance converged. Like horse whisperers, or skilled nurses, Julie and Reggie established their own soft communion with the schools. The haunting traces of the schools' last pupils fueled this engagement with a poignance and depth that their architectural merits could not match. The ghosts encumbered the schools, meddling in the rationalities of adaptive reuse (see also Miller 2010). They called attention to those metaphysical themes which contemporary photographers of ruin, or Renaissance

kurath@arch.ethz.ch

landscape painters of the Roman disabitato tapped into—death, love, tragedy, fate, innocence, entropy, human fallibility and the cyclicality of time (Cosgrove 1984; Waldheim 2013). This sense of haunting, as Miller (2010) points out, suggests a return to subjectivity. We are more comfortable ascribing agency to humans, even to dead humans, than to nonhumans, even though many of our desperate, grieving attempts to acknowledge the humanity of the dead is played out through a ballet of things: flowers, cards, or graveside soccer shirts.

Neighbors

Existing works on ruination make interesting observations on ruins' relationship to wider urban geographies. Edensor (2005) hails ruins' capacity to challenge and thwart prevailing norms of urban development, suggesting that ruins are stubborn features on the landscape which refuse to play by the normal rules which govern urban space. This argument implies a spatial proximity, a realm of contention between ruins' locations and the locus of existing developments and "planners' visions." A relationship which rests on an imbalance of disciplinary force. Symbolically, ruins are "close' enough to central cities that they frustrate the ordering of space. Yet, in their unsurveilled darkness, they are "far" enough to allow deviance and authenticity to flourish, two-steps removed from the sorts of formal and informal policing which regulate urban behavior.

This may have been true of British industrial ruins in the late twentieth century, the focus of Edensor's study. Yet while entropy spares nothing, its visible forms depend upon particular geographies and histories. Even "postindustrial" landscapes vary wildly between regions and territories. If postindustrial cities in the United Kingdom encounter industrial ruins as exceptional, transgressive spaces, as clearly demarcated features in an otherwise "normal" landscape, then this is just one variant. In Detroit, perhaps America's most iconic "postindustrial" city, ruin is everywhere. One cannot meaningfully isolate it, or bracket it away from the rest of the metropolis, because it is deeply constitutive of what the metropolis has become. For every "industrial" ruin, there are thousands of decaying residential, commercial, and institutional structures.

kurath@arch.ethz.ch

This has profound implications for how ruination is perceived. A few of Detroit's ruined structures, such as the Packard Plant or Michigan Central Station, have become internationally iconic sites of decay, their imageries sustained by artistic representation, journalism, and tourism. These fuel meta-narratives of urban mortality and return critiques of "ruin porn" (e.g. Apel 2015; Doucet and Philip 2016). Outside of this circulation and exchange, however, most ruins sit quietly, discarded by the modest capital flows that created and sustained them. As they retreat from the rhythms and circuits of urban life, new forms, functions, and identities take over, as nature invades and entropy accelerates. These ruins are less iconic and exert a smaller sphere of influence. The schools belong in this latter category. Though a few of Detroit's large and imposing ruined schools have featured in coffee table collections (cf. Marchand and Meffre 2010), their physical decay, and its consequences, are tightly localized.

This localism is heightened with schools because of their original neighborhood function, and this positions nearby residents important actors in considerations of the schools' significance and potential. Beyond "authors-as-explorers," "thwarted planners," or "spirited deviants," literature on ruination is limited in its treatment of how people relate to ruin. In its push to assert the agency of nonhuman things, there is a tendency to overlook whom this agency impacts, and how. As Julie, Reggie, and Tony toured the schools, nearby residents made their presence felt—standing visibly on their porches as their dogs sent volleys of barks toward the group. In marked contrast to Edensor's unsurveilled ruins, nearly all the residents that the planners spoke with throughout the day stated that they "keep an eye" on the buildings (see Jacobs 1961). They were concerned both for their own safety and the welfare of the buildings—anxious to protect the integrity the schools from scrappers and arsonists, prevent "young kids" from trespassing, and ensuring the schools could not be used for sexual assaults. Within ten minutes of arriving at the first school, a police car appeared. "We're always calling," said an elderly woman on her porch at another. At Monnier, a man who had acquired a set of keys to the school followed the planners into the gymnasium to confront them.

kurath@arch.ethz.ch

Once it was established that the planners were working for the City, the tenor of these conversations changed. Julie and Reggie explained the planners' intentions and listened hard to residents' memories of the schools and what they wished to see happen. Some of the residents expressed gratitude that adaptive reuse was being considered, while others used the opportunity to complain about City services and procedures. These chats were low-key and pleasant, with no "consultation-style" questioning. Both parties were familiar with Detroit's history of over-promising and under-delivering on planning issues, and Julie and Reggie simply made the most of this opportunity to learn more about the schools' relationship to the neighborhoods.

Many residents had attended the schools. The majority as pupils, and some as staff. Emphasizing the structural integrity of the school buildings, several expressed a wish that they be preserved. One man at Cadillac typified most viewpoints, when asked what he wished to see the school become: "Anything that can raise some revenue, an' bring some money back around here. It could be a school, it could be a recreational center. Something to keep these kids out of the way."

As the team left Healy, the significance of ex-pupils' memories hit home. One of the boarding crew, walking slowly through his old schoolyard, looked toward the playing field:

Sam (crew) [*speaking softly*]: "Last time I was here, we played a softball game. We played softball, right here."

Ben (crew) [*teasing*]: "He was getting a bit teary-eyed around the corner; we had to hold him up. Every school we ever went to is in this condition. We went to Cadillac, and he went right here. Cadillac's on the list for this afternoon. It hurts a little. There's a little emotion. And you know what's so crazy about it? The principal said we would never *be anything*."

[Crew laugh until they can hardly stand].

(Fieldnotes)

kurath@arch.ethz.ch

Evaluating "Potential": Folk Theories of Integrity and Adaptability

Assessing the schools' potential for adaptive reuse was a more informal, improvised process, jointly undertaken by all three planners. It was a difficult undertaking. Estimating the schools' condition and significance helped, but they faced chronic uncertainties about the future of the schools' surroundings, which bore heavily on the schools' potential marketability to investors. Complex human and nonhuman interactions forced the three professionals to operate at the very edges of their experience. Working with few resources, the planners' approach might be understood as the application of "folk theories"—ways of understanding, explaining, and justifying actions that stand outside of formal models of investigation and analysis. Folk theories emerge through pattern recognition and actors' reflections but are rarely checked for accuracy or completeness, enjoying widespread acceptance within particular communities of practice. Though conservative in character, they are often marked by an orientation toward future action (Rip 2006). Such was the scope of the schools' challenge, that no planning textbook, master plan, or historic preservation manual could provide the planners with the kind of answers they required. Instead, they had to improvise; they had to "feel" what actions were appropriate, based on the information they had available and structured according to principles they held to be true (Fig. 12.5).

In their search for significance, there was a certain amount of training and guidance the planners could fall back on. But even there, folk wisdom, if not theory, steered their judgments through the schools' poignant contents and the neighbors' concerns. The planners "sensed" or "felt" significance as much as they "tested" for it. This was all the more true in their appraisals of the schools' potential for adaptive reuse. Faced with thirteen buildings, some better than others, they focused on two criteria: the schools' integrity and adaptability.

Integrity

The planners loved the strength of the old school buildings. Reggie admired their solid lines and thick masonry. They were "substantial."

kurath@arch.ethz.ch



Fig. 12.5 Sampson Elementary's "pierced envelope"

They "held up better" than newer schools. As Tony counted Hanneman's windows with his pen, jabbing it at the school, and he shook his head. "Look at that brickwork. You could drive a tank through this building and not get it down." This reinforced a folk theory of institutional anchorage, as if time itself was built into the schools' architecture, as if their gravitas or historical momentum would guarantee some sort of future that could carry the surrounding "stick built" (wooden frame housing) neighborhoods along with them. Temporal assumptions of permanence bred spatial presumptions of responsibility. Where this architectural strength coincided with schools in good condition, a sense of integrity was complete. Oakman, for example, had a blue-gray slate roof atop thick stonework. Reggie jumped out of his Jeep like a child arriving at the beach. "Look how intact the slate is!" he exclaimed. It was the first moment in the day where the planners unanimously agreed that potential was present.

In overseeing the boarding program, Tony was highly attuned to the fragile and temporary nature of "integrity." Though the schools were strong, they were subject to numerous assaults: trees used to ramrod doors, windows smashed, walls ripped open. Julie explained the planners' approach with reference to buildings' "envelopes being pierced." Like a ship's hull,

kurath@arch.ethz.ch

they argued, once a single structural breach occurs, decay becomes exponential (see also Munn 2013, on the "unsealing" of places). This was true for the human breaches of scrappers and arsonists, as well as nonhuman breaches, like vegetation infiltration and freeze-thaw weathering. Similar to Kelling and Wilson's (1982) "broken windows theory," which asserts a causal relationship between aesthetic disorder and urban vice, the planners' folk "envelope" theory makes strong causal connections between a cohesive equilibrium and a set of nonlinear consequences to any change.[7]

Protecting the envelope was difficult. Some artifacts—like Britain's red telephone boxes, or Benjamin Franklin's gas lamps—are designed to maintain their integrity following a structural breach. But chinks in the schools' armor would compromise the whole. At Sampson, there was some debate about whether to board the second floor windows. "You'd probably have to," advised one of the crew. "[scrappers] can get a ladder and go right on up, come down, kick the boards out, and go right on in." And boarding was a temporary measure, designed to buy the City time to find a future for the schools. The measures would not last long. Arthur had been "secured" once before. When the team arrived, they found that scrappers had ripped off the plywood boards covering the windows and arranged them into a path through the undergrowth. All the metal boards had been stolen. The crew stood about the wooden path, whistling at its ingenuity, as if they had come upon superior quarters behind enemy lines. "They're creative," acknowledged Tony.

Adaptability

Planners are trained to evaluate holistically, to pay wide and close attention to cities. They are more like geographers than architects in this respect. When developers bring blueprints to City Hall for approval, the planners pay more attention to projects' surroundings and context than to aesthetic considerations. What is nearby? How will this affect the planned development? How will the planned development affect the surroundings? Their professional identity is closely tied up in this holism. They work for the City of Detroit, in part, because they are custodians of Detroit's overarching integrity and sense of physical unity, *as a city*. Their

kurath@arch.ethz.ch

professional instruments, like master plans and zoning ordinances, encourage this sense of responsibility in their abstraction and civic scale. Over time, through years of their personal and professional experience in the city, they acquire a deep familiarity with the landscape, and a sense of spatial expertise. Like the famed "Knowledge" of London's taxi drivers, when the planners hear the name of a street, they know where it is, they know the predominant land uses in the area, the major transportation corridors, and major centers of employment.

For Reggie, Tony, and Julie, then, the relationship between the schools and their surroundings was a central fulcrum in considerations of their potential for adaptive reuse. As they approached each school, Julie made detailed notes on the condition of the residential areas nearby. She was doing "a general assessment," Reggie explained. Large numbers of vacant, grass-covered lots indicated a potentially high level of City-ownership in the area. This meant that the additional land could plausibly be integrated into adaptive reuse strategies. For example, the planning director had expressed an interest in solar arrays within the city, where school grounds and surrounding lots could house the panels, and the schools themselves could store equipment. If, on the other hand, schools were surrounded by decaying homes, then adaptive reuse would be a harder proposition.

At Burbank, Julie talked as she wrote, translating into layman's terms the surrounding houses' age ("same"), style ("nice"), condition ("not great"), proximity to one another ("cute"), and the number of vacant lots between them. The houses were over fifty years old, and individually they were in a poor state ("insignificant")—broken windows, boarded doors, and overgrown lawns. It was the overall subdivision, however, that attracted her attention. The bungalows shared a neat, twenty-foot setback. A white, vinyl-clad triangle lifted each roofline. A line of trees, full and green, ran between the sidewalk and the street. This inventorying continued throughout the day. At one end of the spectrum were "heavy lifts," on blocks abutting "bombed-out" commercial strips. At the other extreme, there were "well-maintained" Tudor revivals and "reasonably nice" Cape Cods, standing on "clean-looking" blocks. The bread-and-butter term for these areas was "stable."

kurath@arch.ethz.ch

This notion of stability was central to the planners' evaluation of the landscape, for it implied a degree of temporal confidence in the surroundings, some sliver of certainty amidst a sea of uncertainty that "blight" represented. In the absence of any data or formal analysis of neighborhood change, engagement with "stability/blight" operated as a folk theory. The planners attended to different visual features and assembled a particular panorama that fed their sense of how the city evolves and dissolves. The planning conversation was a physical, material one. There was no engagement with the temporal dynamics of Detroit's foreclosure crisis. Instead, there was a folk theory of microgeographic contagion, spillovers, trickledowns, where "pockets" of blight or stability carried powerful agency against their surroundings. The planners felt these catalytic, nonlinear forces keenly. They knew how neighborhoods could "flip" from good to bad, or vice versa, in a short space of time.

Vegetation featured prominently here. The neighborhoods' engagement with nature was used as a proxy for their ability to maintain their property and participate in civic life, more broadly. Mastery over nature became a key criterion of care. Where streets were "leafy," yards were in "good shape," or lawns were deliberately "manicured," this signified that residents were "keeping up" and "taking care" of their properties. These verbs carried both moralistic overtones as it related to their neighborly responsibilities, as well as overtones of personal responsibility and a threshold level of household income, an ability to participate in some form of civic future beyond mere survival. "Any time you see leaf bags," said Tony, "that's a good sign."

This focus on vegetation melted seamlessly into the spatial narratives of blight and stability that dominate planning conversations in Detroit. Left unchecked, nature became unruly. Long grass and twisted brush seemed to be the first wave of encroachment into stable areas—the first indication that a neighborhood might "tip" or "flip." This fed back into narratives of responsibility, that each household had to keep on top of nature lest it take over the whole. Much like the schools' "envelope," once the integrity of the neighborhood was compromised, the fear was that blight would encroach exponentially. Looking at a neighborhood on Detroit's far North East side, Tony put it bluntly: "Some people watch each other's backs, and some just let go."

kurath@arch.ethz.ch

Aside from the neighborhoods' condition, the criterion of adaptability seemed to hinge strongly on the schools' size. The older 1920s buildings, though with better integrity and stature than the modern schools, were often seen as too huge for any viable reuse. At 18,000 sq. ft., for example, Julie described Healy (1951) as "manageable" and a "sweet little set up." Even Arthur (1931) at 37,000 sq. ft. was "an easier sell." Guest (1924), however, at 82,000 sq. ft., drew exasperation: "What are you going to do with that in a neighborhood?" The contention here was simple—that these larger schools would only be suitable for industrial reuse, but zoning ordinances, and the political opposition from the neighborhoods, would prevent industrial location in such close proximity to residences. The schools' design, too, was important. As Reggie commented on Oakman: "We love this building. The layout works, each corner has large rooms, so I think it would be easily adaptable. The classrooms are reasonably sized. And that courtyard? That's unique. There aren't many schools in the city laid out like this." Overall, the planners were sensitive to what might be termed the area's "carrying capacity' for adaptive reuse. This was a folk theory of plausible reuse, official zoning stipulations, and the planners' perceptions of residents' attitudes and tolerances. As Tony commented on Healy:

> Again, like the second one we saw, it's embedded *right* in the middle of a neighborhood. So what are you gonna do? You've maybe got a senior housing option, [or] halfway houses for people getting out of prison. They've got to go somewhere, right? Somewhere where they can safely try to reenter society. Places like this might not be too bad for them—nice, quiet, and secluded. The problem is the neighbors.

Conclusions

This chapter has tried to fuse a concern for the power and agency of nonhuman materiality with due regard for urban planners' emotional labor. We aimed to show how ruination shapes human and nonhuman interaction and how this proceeds in moments of strategic, future-orientated work. Ruination makes us pause to ask questions about urban places and

kurath@arch.ethz.ch

processes. Paying attention to logics of repair, particularly in extreme situations like Detroit, helps to reveal the mundane processes by which places are sustained, both physically and culturally (cf. Jackson 2014). Detroit's planning professionals, of course, did not escape the postindustrial hurricane that ravaged the city's physical landscape. They are underresourced and ill-equipped to deal with the scale of the urban challenge which confronts them. Trained in managing growth, they must improvise when managing decline. In "facing ruin,", they stand as a different set of actors to those with whom we typically associate urban decay—scrappers trying to extract hard value, artists trying to extract representational value, or urban explorers seeking experiential value. The planners find ruin on their desks and in their spreadsheets because it is their task, above all, to make hard decisions about it.

We have argued that these decisions emerge via folk theories, improvisations, and, importantly, through objects and artifacts. The thirteen school buildings, their contents, and their surroundings constituted the raw materials with which the planners grasped signals of the particular challenges they faced and how they might overcome them. They paid close attention to artifacts' design, condition, symbolism, age, scale, aesthetics, sounds, arrangements, textures, functions, juxtapositions, relations to histories, geographies, and power relations, uniqueness or banalities, and other promissory or nostalgic properties. Through this physicality, they created or remade relationships with other humans, often across multiple overlapping temporal registers—with the boarding crew, the mayor and the director, unmet developers, past pupils and staff, dead craftsmen, and neighbors who desperately wanted something new or fondly remembered something old.

All buildings eventually collapse. Yet there is something about schools which seems sacrosanct. They are supposed to be optimistic, hopeful places, sheltered from the forces of creative destruction which churn the American landscape. Detroit's abandoned schools, however, facing closure and/or demolition after seventy to eighty years, have very human lifespans (Marchand and Meffre 2010), and the planners cared about them accordingly (Table 12.1). The weight of their task became heavy through their concern, and yet sometimes felt light, given its difficulty. Observing their craft challenges many of the stereotypes we might carry about urban

kurath@arch.ethz.ch

planning as a bureaucratic practice, as something unthinking or unfeeling. Max Weber famously argued that such detachment is seen as bureaucracy's specific nature and special virtue, one welcomed by capitalism's desire for frictionless passage. Yet, in Detroit, there is plenty of what he saw as its opposite: "love, hatred, and all purely personal, irrational, and emotional elements which escape calculation" (Weber 1948, p. 215).

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Notes

1. Whether the low bridges can be imputed to Moses' agency or were actually a part of more general rules for constructing "parkways" is discussed in Joerges (1999).
2. The treatment of planners here is akin to some treatments of science and scientists. The discovery that scientific rationality isn't all it is cracked up to be shouldn't lead to the opposite view of science—what Collins and Pinch (1998) call "flip flop" thinking—that scientists are evil charlatans serving their capitalist masters.
3. Many of the system's nineteenth-century school buildings were overcrowded, ill-lit, poorly ventilated, and fire-prone. Lessons were held in basements, and pupils were often encouraged to attend part time (Grover and van der Velde 2016).
4. All names are pseudonyms.
5. Section 106 was a legislative response to the physical devastation of urban renewal. It seeks to limit the impact of federally funded initiatives on historic properties (see Tomlan 2015).
6. The schools' naming conventions were interesting. Dr. Charles Oakman was a Republican Congressman from Detroit who introduced the 1954 bill that added "Under God" to the Pledge of Allegiance. Courville was a much-admired teacher, killed in a car accident in 1916. Healy was originally a dealer in ostrich feathers.

kurath@arch.ethz.ch

7. This struggle between the "scrappers" and the City authorities is another instance of what Latour (1991) calls the battle between programs and anti-programs. Each use of nonhumans (e.g. boards over windows) to script human action (to keep humans out of the building) can be subverted by the scrappers by, say, gaining entry elsewhere and kicking the boards out, which then means Tony and his crew must build a new anti-anti-program to stop this behavior.

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kurath@arch.ethz.ch

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James Macmillen is a doctoral candidate in city planning and anthropology at Cornell University, and fellow-in-residence with the City of Detroit's Planning and Development Department.

Trevor Pinch is the Goldwin Smith Professor of Science and Technology Studies at Cornell. His research interests cover the sociology of technology, sound and music studies, materiality and agency, and the sociology of economic transactions.

kurath@arch.ethz.ch

Part V

Afterword

kurath@arch.ethz.ch

13

Afterword: Planning and the Non-modern City

Andrew Karvonen

Planning has always been relational. Since its founding in the first decades of the twentieth century, planning has involved multiple processes of aligning people and things in specific configurations through policymaking, regulation, zoning, master planning, participatory decision-making, and visioning. James Macmillen and Trevor Pinch (this volume) note that the planner's worldview is a holistic one that identifies and knits together the city as a whole. From this perspective, the term 'relational planning' might look like a tautology. What would a non-relational form of planning look like? And how would it achieve planning's general aims and objectives?

However, acknowledging that planning is relational is a far cry from *understanding* this relationality. Interpreting and shaping the multitude of human and nonhuman relations in cities is a perennial challenge for planning scholarship and practice. This is where Science and Technology Studies (STS) comes in. By employing a range of theoretical approaches and ideas, STS disrupts conventional approaches to planning that are

A. Karvonen (✉)
Urbana o Regionala Studier, KTH Royal Institute of Technology, Stockholm, Sweden

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kurath@arch.ethz.ch

based on certainty, control, and prediction. Instead, the STS perspective champions the indeterminate, multiple, and muddled character of cities. Such a post-positivist perspective is a ready target for critique as intellectual grandstanding that employs unnecessary and opaque terminology to create arguments that ultimately lead nowhere. But this would overlook the usefulness of STS concepts to decentre and destabilise prevailing planning theory and practice and to produce deeper and more nuanced accounts of cities as relational achievements.

At the root of this scholarship is a profound dissatisfaction with the technocratic, modern origins of planning as well as the discursive, post-modern communicative approaches that have dominated since the 1980s (Kurath, this volume). Instead, an STS-inspired planning explicitly engages with associated disciplines—geography, architecture, sociology, anthropology, political science, and economics, among others—to develop a *non-modern* perspective on how planning theory and practice shapes cities. A non-modern view of planning recognises that existing urban conditions are not inevitable, stable, and easily understandable; instead, cities are contingent, incomplete, and always in the making. This opens up planning to new ways of knowing and doing and has the potential to make the discipline more vibrant, engaging, and relevant.

An STS Approach to Planning Theory and Practice

Traditional planning is based on a positivist understanding of a singular world where linear chains of cause and effect invoke change. In contrast, STS scholars take a post-positivist stance to unpack the modern underpinnings of planning theory and practice. They emphasise the significance of contingency, uncertainty, fluidity, and plurality (Metzger, this volume). Adopting such a *sociotechnical* perspective recognises that humans are bound up in technological systems and there is a need to understand how these systems are conceived, designed, constructed, and maintained and by whom and for what purposes. At the centre of STS analysis is an inquiry into knowledge production and how competing claims about the world are developed, debated, and ultimately settled. There are many

kurath@arch.ethz.ch

parallels here between scientific and technological knowledge production and the ways that planners conceive of and shape cities with competing knowledge claims and expertise. In addition to its epistemological stance, STS forwards an alternative ontological perspective that encourages us to interpret the world differently. Nonhumans such as animals, plants, bricks, automobiles, digital images, and so on are equally important to human actors in planning activities. As Monika Kurath and colleagues (this volume, p. 4) note, 'materiality can be used to rethink power, space and its distribution in planning processes.' This results in a more heterogeneous worldview that is simultaneously hybrid and relational.

Despite these epistemological and ontological shifts, the radical character of the STS approach is not always apparent. This is in part because STS does not embody a formal discipline or coherent discourse; instead, it is more accurately described as an attitude, a perspective, or a sensibility (Söderström, this volume). There is no sociotechnical recipe book that can be followed to study planning practices. Instead, STS provides inspiration and guidance on studying planning in new ways; it is performative rather than prescriptive. The overarching aim is to develop deeper, more nuanced understandings of cities by moving beyond conventional categories of analysis and explanation (Guy and Karvonen 2011). It stretches and disrupts existing modes of inquiry and practice, resulting in more complex and richer accounts. The lack of concreteness, boundaries, and definitions is at once stimulating and confounding. It can not only be playful, inventive, and curiosity-driven but can also be confusing, nonsensical, and contradictory. It encompasses a subtle but profound revolution in thinking about cities.

In the 1980s, STS scholarship that engaged with cities was relatively contained and easy to summarise. A common touchstone was the work of historian Thomas Hughes on electricity networks and his notions of the seamless web and technological momentum. This inspired the discourse of Large Technical Systems that expanded beyond electricity to include detailed sociotechnical studies of water, transportation, and other urban infrastructure networks (e.g., Mayntz and Hughes 1988; Summerton 1994; Guy 1997; Latour and Hermant 1998, Graham and Marvin 2001; Coutard 2002; Hommels 2005). At the same time, a handful of geographers, architects, sociologists, and political scientists

kurath@arch.ethz.ch

began to adapt the early STS work on natural science laboratories and science and technological knowledge production to the urban context (e.g., Brain 1994; Murdoch and Marsden 1995; Philol 1995; Söderström 1996; Swyngedouw 1996; Aibar and Bijker 1997; Graham 1998; Harvey and Chrisman 1998; Star 1999). By the early 2000s, STS notions of cyborgs, boundary objects, actants, technological frames, and hybrids were proliferating through the urban disciplines at a rapid pace, instigating a multitude of new ideas related to knowledge production, materiality, embodiment, and politics. Today, one would be hard-pressed to define a coherent 'urban STS' discipline or discourse. Instead, STS inhabits a wide range of existing disciplines, stretching and amplifying debates while resisting a tidy and coherent literature review or categorisation.

This volume reveals the diversity of STS theories and approaches that are being employed to understand a particular facet of urban scholarship, namely, planning. There is a strong influence of actor-network theory (ANT), and the early work of Bruno Latour in particular, as inspiration for unpacking the knowledge claims and hybrid character of planning practice. However, the chapters demonstrate how Latour's version of ANT is but one of many approaches that is useful for studying cities; the contributors also bring in ideas from assemblage theory, cosmopolitics, the social construction of technology, material politics, and beyond. Moreover, the diversity of STS is embodied in the contributors themselves. Some of the authors consider themselves to be STS scholars who happen to study cities while others self-identify as urban scholars who use STS tools and terminologies to enhance and extend their work. Their shared aim is to understand how knowledge is constructed and deployed, and how humans and nonhumans come together, in an attempt to bring planning scholarship closer to how cities actually exist.

Doing STS in Cities

A common characteristic of STS studies of planning is to gather empirical data through activities of tracing or following (Rydin et al., this volume). Research methods tend to be qualitative and descriptive with a strong emphasis on producing detailed accounts. Guillen Torres (this

kurath@arch.ethz.ch

volume) refers to this approach as a 'micro focus' of data gathering. This contrasts with the majority of existing planning scholarship that relies on predefined categories and structures to produce more general accounts of planning practice. With STS, there is a conscious rejection of predetermined categories, and, instead, insights are generated from gathered evidence. There is a focus on following knowledge claims to understand how they are conceived, negotiated, combined, and taken up. However, this is not so much an inductive form of scientific inquiry but rather the employment of abductive reasoning as is common in American Pragmatism and, in particular, the work of John Dewey (Latour 2004; Marres 2007, 2012; Farías 2011; Karvonen 2011; Blok, this volume). There is a focus on the doings of planners, of studying those activities and conditions on the ground that make and unmake the relations that hold cities together. Description and interpretation are championed over causal links and this is all situated in particular places. As Ignacio Farías (this volume) describes it, STS is 'an open investigation into the world'.

This methodological approach of tracing produces rich narratives with nuanced understandings of how urban realities come into being. And the hybrid ontology of STS means that tracing is not restricted to humans but also includes nonhumans. Examples in this volume include public markets, master plans, texts, exhibitions, zoning codes, maps, abandoned buildings, visualisations, and even entire cities. Macmillen and Pinch (this volume, p. 4) acknowledge the 'quiet, unremarkable agency of objects' as central to how planning is conceived and undertaken. Such a 'more-than-human' (Whatmore 2006) approach extends planning studies beyond discursive accounts of cities, and, instead, it reveals the experiential and embodied character of planning where things are as important as humans (Beauregard 2015; Rydin et al. this volume). And the inclusion of the nonhuman recognises that the relations are not simply networks but atmospheres; we are not just connected to but embodied by things (Söderström, this volume; Paulos, this volume).

Beyond the inclusion of nonhumans, STS studies of planning are focused on tracing the relations between humans and nonhumans. This raises fundamental questions about what exactly is being related and how the relating occurs. Mediation serves as a recurring theme in this volume and reveals how particular actors (both human and nonhuman) introduce

kurath@arch.ethz.ch

and hold together particular linkages. Mediation can be done not only by humans but also by nonhumans, including images, plans, maps, models, and discourses (Söderström, this volume; Rydin et al, this volume). Planning here is a process of aligning and harmonising. Alternatively, tracing activities can be used to 'open the blackbox' of planning practices to reveal what has been hidden, suppressed, taken for granted, or ignored (Marskamp, this volume; Farías, this volume; Hommels, this volume; Blok, this volume). In both cases, planning is understood as an activity of relation building or socio-material assembling. It involves the constant but partial orchestration of ideas and things in particular places. Such a perspective shifts our gaze from powerful actors and their actions to the connections between actors and artefacts.

Planning and the Non-modern City

Cities are messy, planning is messy. Things do not come together as nicely as we would like; they do not necessarily add up (Metzger, this volume). It is one thing to say that cities are multifaceted and complex and quite another to engage with and study this complexity and make sense of it. STS provides a way to interpret and engage with urban messiness without oversimplifying and missing out on the essence of cities. Moreover, STS sparks the urban imaginary and challenges us to think differently about the spatial, material, and discursive aspects of cities. The contributions to this volume demonstrate how planning scholars are engaging with the non-modern character of cities; its complexity, ambiguity, indeterminacy, and uncertainty. While this is a more challenging way to interpret and understand the world, when done well it provides more accurate and arguably more useful accounts.

The relational planning perspective shared by STS scholars in this book is a means to provide richer accounts of planning ideas and activities. Relationality is not simply an acknowledgement that things are connected but embodies a radical ontological and epistemological shift. If we intend to embrace this perspective seriously, then we need new methods and procedures to conduct planning. Surprisingly, the methods used to study planning from an STS perspective are largely conventional: interviews,

kurath@arch.ethz.ch

site visits, focus groups, observation, and discourse analysis. These methods are useful for gathering empirical data and developing rich accounts of planning practices. However, they tend to interpret nonhumans rather than engaging with them directly. Emerging non-representational methods that are spatial, embodied, and action-based have yet to be employed to unsettle the research process and bring in a wider range of empirical findings (Pryke et al. 2003; Thrift 2008; Vannini 2015; Kurath this volume, Metzger this volume). This has the potential to destabilise the research process and potentially making the empirical accounts more robust while bringing in material agency in more substantive ways.

Another challenge of STS and planning scholarship is to go beyond description and interpretation and help us plan cities more effectively. While the perspective reveals new insights about policymaking, zoning, master planning, participation, and design practices, follow-up activities are rarely considered or proposed. There is a need to develop modes of scholarship that are not only descriptive and reflective but that can also engage with the politics of urban development (Woodhouse et al. 2002; Coutard and Guy 2007; Blok, this volume). This would foreground the normativity of planning and help to articulate and support the often implicit agenda of planners to create a 'better' world (Marskamp, this volume). Fortunately, the planning practice provides multiple modes of action research and applied teaching and learning that can supplement and enhance the STS perspective. In this way, we can not only expect STS to influence planning but also for planning to influence STS.

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kurath@arch.ethz.ch

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kurath@arch.ethz.ch

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Andrew Karvonen is Assistant Professor in Urban and Regional Studies at the KTH Royal Institute of Technology in Stockholm. He conducts research on sustainability and cities with a particular emphasis on the social and political aspects of urban infrastructure. His 2011 monograph from MIT Press, *Politics of Urban Runoff: Nature, Technology and the Sustainable City*, won the 2014 Association of Collegiate Schools of Planning John Friedmann Book Award.

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