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LARRY SUSSKIND

ACTION-REFLECTION-ADAPTATION-PUBLIC LEARNING:
Excerpts from the Life of a Pracademic

Larry Susskind in conversation with Shekhar Chandra

Shekhar Chandra, Ph.D. Candidate
Massachusetts Institute of Technology

CONVERSATIONS IN PLANNING: EDITORIAL

AESOP YA Booklet Project Published by Association of European Schools of Planning (AESOP)

"Action-Reflection-Adaptation-Public Learning: Excerpts from the Life of a Pracademic. Larry Susskind in conversation with Shekhar Chandra" is the ninth booklet published as part of the AESOP Young Academics 'Conversation in Planning Theory and Practice' project whose aim is learning through conversations across generations of planners. In the first phase of the project, the booklets were divided into three series or themes, such as the use of philosophical theories in planning, planning theories, and planning practices. Now, we have combined these series into a sole and comprehensive structure.

From a pedagogical perspective, the uniqueness of the project is learning through conversations. The booklets aim to provide an introduction to the theories and ideas of senior scholars: what and how they contributed to the field of planning; what and who influenced the development of these theories; and how this implicated/reflected on planning debate in theory and/or practice. The young academic authors not only learn from the senior scholars about their work, but also get involved in a conversation with them in order to make sense of how the senior scholars have used these theories in their work, and how such theories are applied in planning theory and practice.

Since Urban Planning is a practice-oriented discipline, many raise questions about the role of theories in the discipline. Most of our published booklets have addressed the debate and interdependency between theory and practice in planning. Previous booklets also demonstrated various ways of understanding planning theory, urban theory, or critical theory. They show how the academic discipline of urban planning evolved, in different times and contexts, often cross-pollinating with other disciplines, and creating new branches.

This booklet regards the relationships among theories and practices and the positions scholars and academics can and should assume while reflecting and working in the realm of public involvement and dispute resolution. It concerns some of the major scholarly works and important thoughts of Larry Susskind and is enriched with a number of voices of other scholars who have worked together with him, providing their own glimpses on his work.

The booklets are, in a way, open peer-reviewed, which improves their rigor. We would encourage both the young academic community as well as the senior scholars to use the booklets in their teaching. Being open-access, they can be easily circulated. We extend our heartfelt gratitude to all the senior scholars of the present and forthcoming booklets who have not only enthusiastically agreed to take part in the project but have also relentlessly supported our YA authors despite their very busy schedule.

With thanks and regards,
"Conversations in Planning" Booklet Team

LARRY SUSSKIND

ACTION-REFLECTION-ADAPTATION-PUBLIC LEARNING: EXCERPTS FROM THE LIFE OF A PRACADEMIC

Shekhar Chandra is a Ph.D. candidate in Public Policy in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology (MIT). He holds an undergraduate degree in Mechanical Engineering from India's G.B. Pant University, and two Master's in Earth and Atmospheric Sciences from the Indian Institute of Science in Bangalore, and Georgia Institute of Technology, Atlanta, GA. He worked with India's National Planning Commission for four years before coming to MIT to study policy issues related to energy, transport, infrastructure, and governance. His doctoral research is on understanding the linkages between the grand corruption of senior officials and the petty corruption of street officials. His work focuses on untangling the internal structure of bureaucratic organizations to better understand the way incentives work at different levels in the state hierarchy.

ACKNOWLEDGEMENTS

FOREWORD (VIDEOS)

(1)	In this video, Larry talks about key insights into the consensus building approach.

https://www.youtube.com/watch?v=NTjEqek1D5E

(2)	In this video, Larry discusses the question of planning in the age of climate change.

https://www.youtube.com/watch?v=DQMRv-dA5lU

(3)   In this video, Larry can be seen speaking about the usefulness of serious games to enhance public participation in the decision-making.

https://www.youtube.com/watch?v=rScZdjQHBw4
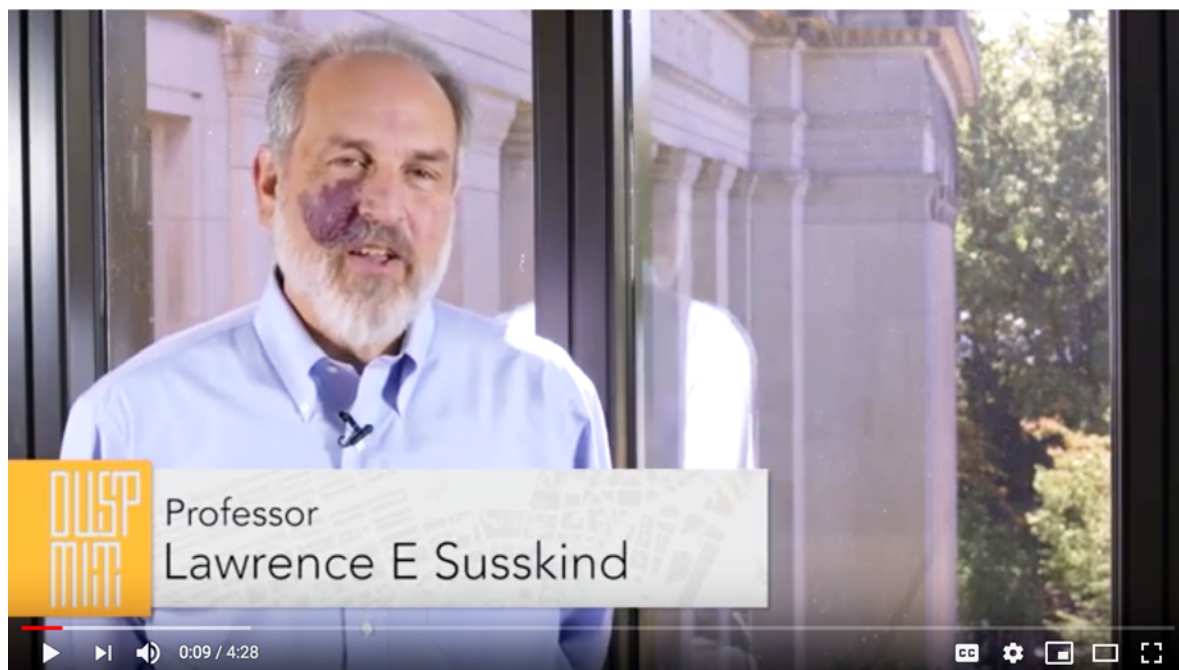
(4)   In this video, Larry describes how groups even with diverging interests can work together effectively.

https://www.youtube.com/watch?v=WEGK7nkeaY8

In these two videos, Larry talks about conflict resolution in the mining industry and environmental conflict resolution.

https://www.youtube.com/watch?v=Rc_TKTrURcc
https://www.youtube.com/watch?v=NAq3RGnF3TY

Contents

INTRODUCTION

As an undergraduate, Larry Susskind studied sociology and English literature at Columbia University, graduating during the politically tumultuous 1968 academic year. At Columbia, he organized an improvisational theatre group, edited both a literary magazine (Sundial) and a counter-institutional newspaper (The Heights) while contributing his first book chapter (Never Trust a God Over Thirty, McGraw Hill). He then studied city planning at the Graduate School of Design at Harvard and the Department of Urban Studies and Planning at MIT. During his MCP studies, Larry focused on land use planning and the new communities movement in the United States. John Howard, Head of MIT's Department of Urban Studies and Planning, was his MCP thesis advisor. He graduated in 1970 and joined the MIT faculty as an instructor at the same time he entered MIT's Ph.D. Program in Urban Studies and Planning. He designed and headed MIT's undergraduate (Bachelor of Science) in urban studies and planning. His dissertation focused on intergovernmental fiscal relations in the United States, analyzing the impact that shifting from block grants to categorical grants had on big cities in the United States. He completed his Ph.D. three years later in 1973 under the direction of Professor Lloyd Rodwin, winning MIT's prestigious Goodwin Award for teaching excellence. He was quickly promoted to Assistant Professor and then Associate Professor, and became the youngest head in the history of the MIT Department of Urban Studies and Planning. Larry was appointed Ford Professor of Urban and Environmental Planning and subsequently built and headed the Department's Environmental Policy and Planning Group for more than 15 years. This year, 2020, is his 50th consecutive year as a member of the full-time teaching staff at MIT.

Larry has always described himself as a pracademic, organizing a planning consulting firm with colleagues from the MIT MCP program, helping to form the dispute resolution company known as Endispute, which subsequently merged with the now quite prominent Judicial Arbitration and Mediation Service (JAMS). He was appointed by three governors of Massachusetts to help strengthen land use planning and growth management in the state and the Boston area in particular. He has helped to manage multiple public engagement processes in a variety of states, including Hawaii and Massachusetts, and worked extensively with First Nations in Canada. He founded the not-for-profit Consensus Building Institute (with his wife, Leslie Tuttle) and is still on CBI's Board of Directors. CBI operates internationally, providing mediation and consensus building services in complex resource management disputes. He helped to found the inter-university Program on Negotiation (PON) at Harvard Law School, which he directed for its first four years (after securing multi-year funding from the Hewlett Foundation). Larry developed PON's Negotiation Journal, its Executive Education Programs, and its Clearinghouse (now known as PON's Teaching Negotiation and Resource Center). He co-managed the Sustainability Challenge Foundation in Holland for more than a decade and designed and led their two-week summer institute on the management of sustainable development. He also co-organized and taught the Water Diplomacy Workshop (with Shafiqul Islam) for many years and designed and led the Salzburg Seminar's original sustainable development series.

Along the way, Larry has published more than 20 books if you count the foreign language editions of Breaking Robert's Rules (Susskind and Cruikshank, 2006), which were not just translated but rewritten jointly with colleagues practicing public dispute resolution in Holland, Russia, China, Korea, Turkey, Argentina, France, Japan, and Brazil. His Environmental Diplomacy book (Susskind and Ali, 2014) was published in Arabic, Japanese, and Chinese. And one of his most recent books, Good for

You, Great for Me has been reprinted in Hebrew, Chinese, Korean, and Croatian (Susskind, 2014). Larry is devoted to his student advisees. He has supervised more than 70 doctoral dissertations and 150 MCP theses. Many of his doctoral advisees are now faculty members in planning, public policy, and environmental studies programs around the world. And many of his MCP advisees are senior managers in local, state, national and international agencies and organizations. In 2005, he received ACSP's Distinguished Educator Award.

This booklet does not cover all of Larry's scholarly work but is rather a compendium of his writings on five important development challenges to which he has made seminal contributions. His research has contributed not only to a better understanding of these challenges and ways of thinking about possible policy solutions but has also influenced the research of others in these areas. His Mutual Gains Approach (MGA) to decision making has questioned the conventional wisdom about collective decision-making (based on zero-sum thinking) and clarified how parties can negotiate to achieve mutually beneficial outcomes. His work adds to the scholarly tradition that followed Garrett Hardin's "The Tragedy of the Commons" article in *Science* (Hardin,1968) that stirred a debate about the possibility of managing the commons without private or governmental control. Lin Ostrom's work (Ostrom et al., 1999) showed how people could come together and effectively manage the "local" commons through mutually agreed-upon and self-enforcing property rights principles without external control. Most examples that Lin Ostrom presented are indeed local and might not be easy to scale up. What makes Larry's work important in this tradition is his analysis of MGA based on hundreds of real-world cases that present a step-wise guide to actually making the self-enforcing decisions that Lin talks about regarding local communities managing common-pool resources without external control. The MGA also minimizes the transaction costs of participating stakeholders that Ronald Coase describes as necessary for achieving Pareto optimal outcomes in resource allocation (Coase,1960).

The booklet also includes comments from experts who have partnered with Larry in these five thematic areas. John Forester (Cornell University), Larry Crump (Griffith University), Maria Ivanova (University of Massachusetts Boston), Michael Wheeler (Harvard University) and Patrick Field (Consensus Building Institute) share their observations on the scope and impact of Larry's work in the field of dispute resolution, Shafiqul Islam (Tufts University) and Saleem Ali (University of Delaware) in the field of water diplomacy, transboundary water management and multiparty negotiations, Danya Rumore (University of Utah) on environmental problem-solving and planning pedagogy, Todd Schenk (Virginia Tech) on managing climate risks, and Armando Carbonell on facility siting and angry publics. The five thematic areas covered in the booklet are:

1. Public Dispute Resolution
Is it really possible to work toward consensus on public disputes in the city or at the city scale? Can the mediation of public disputes (particularly science-intensive disputes) really produce fairer, more efficient, more stable and wiser results than the normal political and administrative processes of public decision-making?

2. Water Diplomacy and Multiparty Negotiation
Integrated Water Resources Management (IWRM) has been the prevailing approach world-wide for

managing shared waters. The Water Diplomacy Framework challenges IWRM in several important ways that have consequences for planning practices. Does the diplomacy framework hold up when we look closely at water disputes in various parts of the world?

3. Environmental Problem-solving and Planning Pedagogy

Planning has relied heavily on traditional lecture approaches to teaching, along with studios and internships. Can role-play simulations provide an alternative pedagogy that is more likely to achieve the clinical teaching objectives of planning educators?

4. Managing Climate Risks

How can cities develop public support for incorporating climate adaptation actions into current planning and development policy activities?

5. Facility Siting and Angry Publics

Can following the facility-siting credo make it possible to overcome the NIMBY (Not In My Back Yard) phenomenon? Does it make sense to negotiate directly with parties guilty of substantial environmental injustices?

1. PUBLIC DISPUTE RESOLUTION

Is it really possible to work toward consensus on public disputes in the city or at the city scale? Can the mediation of public disputes (particularly science-intensive disputes) really produce fairer, more efficient, more stable and wiser results than the normal political and administrative processes of public decision-making?

1.1   Introduction

In the field of negotiation, consensus building, and conflict resolution, some of Larry's most important scholarly contributions can be grouped under two headings: (1) theoretical and (2) pedagogical. In the theory realm, he has mainstreamed ideas (developed originally by Donald Schon) regarding the importance of continuing to develop our personal theories of practice (Schon,1990). He has also proposed new deliberative and collaborative dispute resolution frameworks and methods that have changed the way urban planning, environmental policymaking, and conflict resolution in the public arena are studied in the university and practiced in the world-at-large.

In interpersonal relations, business relations, public policymaking, or the Machiavellian world of politics, disputes are inevitable. Parties of all kinds have no trouble starting these disputes, but most are very unclear about how to negotiate their way out of them. Regardless of the scale involved, the relevant actors are often reluctant to engage in dispute resolution because they fear they will look weak if they appear too ready to work out agreements with their adversaries. They also think they will have more bargaining power if they continue to escalate their demands or impose higher costs on their adversaries. When groupthink takes over and all the parties are locked in a confrontation that is spiraling out of control, it is very difficult to change the game or move in a different direction. Luce and Raiffa (1957) sum up this traditional group conflict thinking brilliantly. They start by defining what a group is and finally underscoring the limited means available to solve group conflicts. They write that "the distinction between an individual and a group is not a biological one but simply a functional one. Any decision maker—a single human being or an organization—which can be thought of as having a unitary interest motivating its decisions can be treated as an individual in the theory. Any collection of such individuals having conflicting interests, which must be resolved, either in open conflict or by compromise, will be considered to be a group" (p.13). The interesting phrase in this quotation is, "…conflicting interests that must be resolved, either in open conflict or by compromise" (p.13). Many people have tried to apply problem-solving and negotiation techniques that work for individuals, to groups. It does not work. Unfortunately, there are very few descriptive or prescriptive theories regarding the resolution of conflicts within and among groups. It is into this breach that Larry has inserted himself.

1.2.   Traditional approaches to managing multi-party conflicts

Historically, it has been unimaginable to sparring factions that coming to the negotiating table quickly, without any drama, could produce a mutually advantageous result. In recent years, however, there has been a great deal of empirical work demonstrating how and why win-win (or all-gain) outcomes, especially those that take advantage of a range of value-creating moves, are quite feasible

(Fisher, Ury and Patton, 2011; Susskind, 2014). While in some cases there might be good reasons for not negotiating directly, there is a great deal of practical and scholarly support for the idea that intermediaries (i.e. mediators or facilitators) can help multiple parties engage in joint problem-solving when their past interactions make face-to-face conversation impossible (Cruikshank and Susskind, 1987; Susskind, Bacow and Wheeler,1983; Susskind and Ozawa,1983; Raiffa, 2002). Of course, the parties must choose the right intermediary and retain the power to dismiss that person or team at any time (Fairchild and MacKinnon, 2009). The desire to refrain from direct conversation grows out of a lack of trust and a perception that the parties are not likely to have any common ground. The notion of not talking to other parties usually hinges on the assumption that disputes can only be resolved through the unilateral exercise of power or through compromise. Neither offers much of a reason to discuss the possibilities. Again, at the core of the conventional wisdom about the resolution of a conflict is that any gain to one side must be accompanied by losses to the others. Despite overwhelming evidence to the contrary, many disputants continue to remain skeptical about a mutual gain or an all-gain approach to dispute resolution.

In the last few decades, as the disciplines of public policy, urban and environmental planning and dispute resolution have emerged, there has been an increase in the number of possible approaches to decision-making in the public arena (Howlett and Ramesh,1995). In all of these approaches, however, the question of how to involve stakeholders and resolve their disagreements in the context of public decision-making is a critical step towards implementing sustainable, efficient and more inclusionary policies and programs. At the same time, the nature of group conflict has become more complex, making it increasingly difficult to reconcile the interests of contending stakeholders. Developing a theory about how best to do this, which can characterize correctly the nature of the challenges involved and prescribe remedial dispute resolution measures is the Holy Grail for public policy and applied social science researchers.

Social science researchers have theorized about possible ways of involving various categories of stakeholders (or their representatives) in decision-making and resolving their differences. They have tried to test these theories using "found" data or experiments. It is generally accepted in these circles, though, that due to social, political, ecological, economic, and cultural complexity, all efforts at this kind of exploration will be limited by the impossibility of creating "controlled" trials (as can be done in medicine). It is not possible to fully encapsulate real-world challenges and opportunities in a tested theory that identifies causal forces and offers general prescriptions that are sure to work across multiple contexts. Thus, the search for "pretty good approximations" and the debate about their relative merits will continue indefinitely.

Due to the impossibility of developing uncontestable theoretical formulations, practitioners must be ready for surprises of all kinds when they intervene. Post-positivists—those who rely on an anthropogenic (i.e., case study) approach that emphasizes the importance of local contexts and argues against the usefulness of general theories—are in the ascendance in policy- and action-oriented circles (Flyvbjerg, 2001). But more positivist approaches that seek to approximate randomized controlled trials (RCT) and meet tests of replicability, the way many econometric experimentalists do, still hold out hope that large scale quantitative (or statistical) studies are possible.

1.3 Susskind's work as a pracademic in the planning field

It is at this juncture where Larry Susskind's work comes in. His scholarly worldview runs across these two worlds. He focuses on the importance of building "theories of practice" that emphasize the importance of local context. He goes into the field to engage in practice, develops a set of theoretical propositions based on the results of PAR (participatory action research), then seeks to test those propositions in similar (but not identical) field settings. So, it is the experience of practice that shapes his theoretical approach. It is for this reason he calls himself a "pracademic"—a term that places him at the intersection of university-based scholarship and client-based practice. Simply put, by pracademic he means a practitioner who reflects systematically on his experience (as a PAR scholar).

More broadly, these conversations about theory and practice add to the long history of the debate questioning whether planning is an academic discipline or a practice-oriented field. These attempts to frame the choice about planning in this binary epistemic way have probably done more to undermine the intellectual underpinnings of planning as an independent discipline than anything else. Planning remained bogged down in wasted efforts to cast it as one of several social sciences versus an extension of architecture or engineering. What makes planning distinct from the social science disciplines is its focus on formulating knowledge for action (Davoudi, 2006). Larry's work reflects the fact that planning has emerged from a focus on human needs and the search for prescriptive ideas about community building. What makes his approach unique is the way he develops ideas about planning theory. Rather than postulating theoretical propositions and then testing them in the field to see whether they work, he derives theoretical ideas from practical difficulties and successes in the field. This ensures that his theoretical suggestions follow from real-world problem-solving efforts. In short, he studies cases (some that he has been involved with directly) in detail and then develops causal explanations to justify their continued application. An example of this is the Mutual Gains Approach (MGA) to negotiation, a process-oriented explanation regarding the best way to handle decision-making, involving large numbers of diverse stakeholders to achieving better outcomes, which Larry has developed based on hundreds of field studies from around the world.

Larry is not a detached social science observer of practice, but nor is he a practitioner who keeps his experience to himself (for competitive purposes). He engages collaboratively in the design and implementation of dispute resolution efforts, which means he must meet his obligations to his client stakeholders. However, following each intervention (often undertaken with partners outside the university), he uses the experience of his client-centered engagement to test and reformulate theories of practice that he then shares often through university- and community-based training programs.

He often describes why and how a pracademic works differently from his or her more traditional social science colleagues. Suppose he wants to reconsider prevailing assumptions about the effect of increasing group size on various aspects of (consensual) decision-making to test a hypothesis regarding the emergence of blocking coalitions as the number of parties increases. A conventional social scientist would go into the field and investigate many different group sizes and the outcomes of their dispute resolution efforts. After controlling what he could about everything else besides the size of the group, he would measure (with surveys or through consistent independent observations by a team of trained observers) quantifiable results. He would then use multiple regression techniques to identify changes in outcome and coalitional behavior correlated with the changing size of the groups

included in the study. The results would be peer-reviewed for publication in a scholarly journal. Pracademics, on the other hand, are more interested in studying exactly how coalitions of various types emerge and dissipate (as well as the impact they have on outcomes) in a small number of groups to which the pracademic is contractually obligated to provide facilitation or group problem-solving assistance. The pracademic vets his findings and interpretations by writing them out and sharing them in a draft with all the parties involved, seeking counter-arguments or contrary evidence the participants might be able to provide. While the written results might find their way into a peer-reviewed publication (that entertains case study or policy research), the implications of the findings for practice would be shared in practice-oriented publications, presented at practitioner-oriented conferences and incorporated into training materials for the continuing education of practitioners.

Another distinct focus of Larry's work has been his effort to incorporate knowledge from natural sciences and scientists in analyzing policy options related to environmental and water disputes (e.g., scenario planning) as well as in the process of developing agreements among stakeholders regarding the best way of handling science-intensive policy disputes. At MIT's Department of Urban Studies and Planning, he leads an interdisciplinary research team (The Science Impact Collaborative) that strives to develop and test new ways to harmonize science, politics and public policy in the management of natural resources and the resolution of environmental disputes. This is similar to the stream of thinking that advocates for planning to be defined as an applied science field (Faludi, 1973). However, an important difference between Faludi, for example, and Susskind is that the focus of the latter's work is truly inter-disciplinary.

1.4 Pros and cons of Susskind's pracademic approach

Larry cites several pros and cons of his pracademic approach. First, the insights of a pracademic involved in two or three successive cases without RCT-like controls are unlikely to be accepted as peer-reviewed findings. Thus, pracademics rarely make their way up the tenure ladder in social science departments. Only those who are promoted on traditional grounds and then switch to a pracademic approach can survive long-term in the university. Second, the active participation of pracademics in studying the results of interventions in which they are directly involved goes against the established norms of social science research because it presumably undermines the objectivity of the findings. Finally, observations and prescriptions generated in this way are very likely to reflect an individual's ideological biases. He, however, counters these oft-repeated arguments by highlighting the specific advantages of a pracademic approach to applied social science research. First, through participation in specific client-oriented studies, there is a chance he can learn more about causal dynamics than he can, by analyzing large datasets statistically. From inside the process, causal links are more obvious. Second, only when one actively participates (via a client-practitioner relationship) can one trust enough what they learn about group dynamics to be able to draw meaningful inferences about what happened and why. Finally, when it comes to prescription, proposed actions or change strategies are viewed as much more trustworthy by groups operating "on the ground" when they come from someone who has participated first-hand (and shared responsibility with the group) rather than from someone who merely analyzes logs of data without having any first-hand sense of group dynamics or any responsibility for the outcome of the group.

1.4.1 Pracademic approach and a Circle of Engagement

Broadly, his scholarly pursuits as a pracademic connect with the worlds of both theory and practice through what he calls a Circle of Engagement. This draws on the work of Fisher, Ury and Patton (2011), as it is shown in Figure 1. The circle is divided into four quadrants that cover: defining the problem; developing generalized theories; formulating and making a case for a particular approach to problem-solving (in practice); and finally taking action or implementing solutions to the problem that was the focus in quadrant I. More broadly, the upper semi-circle focuses on the identification and the analysis of a problem while the lower half is mostly about formulating and implementing a prescription in a particular situation. Similarly, the left half is about what happens in practice and the right half deals with efforts to formulate a generalized theory. Most university-based scholarly activities have been organized in such a way that practitioners and scholars stick to their own (separate) quadrants. More than disciplinary boundaries, the Circle of Engagement is a better way to think about the work of current scholars. Judith Innes argues that the reason why the gap between theory and practice is closing is due to an emerging tradition among planning theorists who pursue the puzzles that arise from their practice rather than those which arise from thinking how planning should be and could be. This is a significant departure from earlier theorists who did mostly "armchair theorizing" as against some of the current scholars who do "grounded theorizing based on richly interpretive study of practice" (Innes,1995). Traditional social scientists stay in quadrants I and II, while Larry's pracademic pedagogy makes him important to all four quadrants.
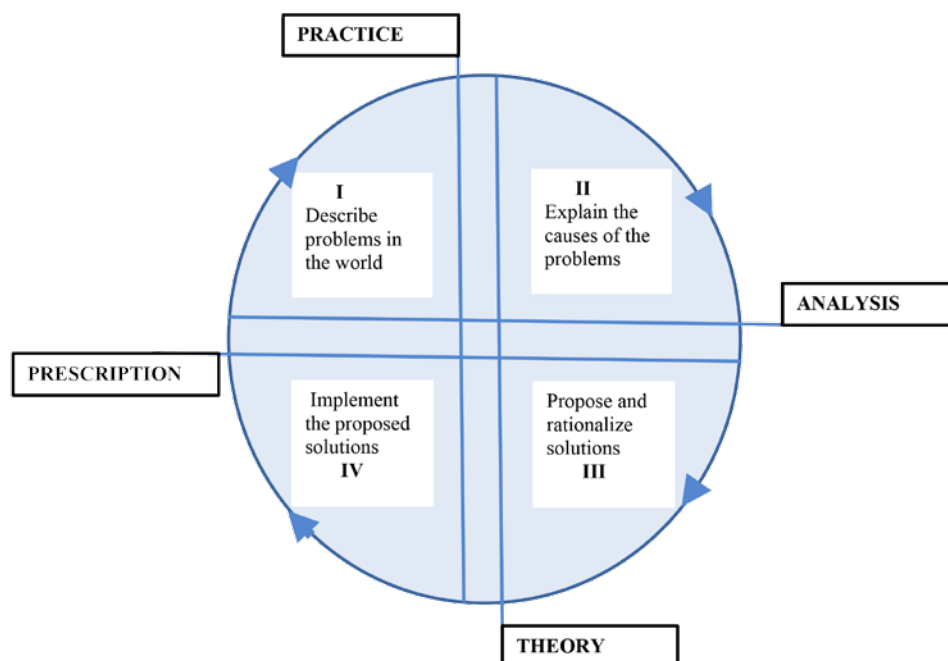
Figure 1: The Circle of Engagement

1.4.2 Redesigning the Circle of Engagement

To reconcile the divergence in scholarly pursuits among more traditional social science scholars and pracademics, he proposes a redesigned Circle of Engagement. His goal is to facilitate conversation among pure researchers and practitioners regarding how social science might contribute directly to effective problem-solving in the world-at-large (Figure 2). In the redesigned Circle of Engagement, the four quadrants are renamed: documentation, theory building, teaching and training, and action partnerships respectively. For more details on the original and revised circles of engagement, please refer to Susskind (2013a).
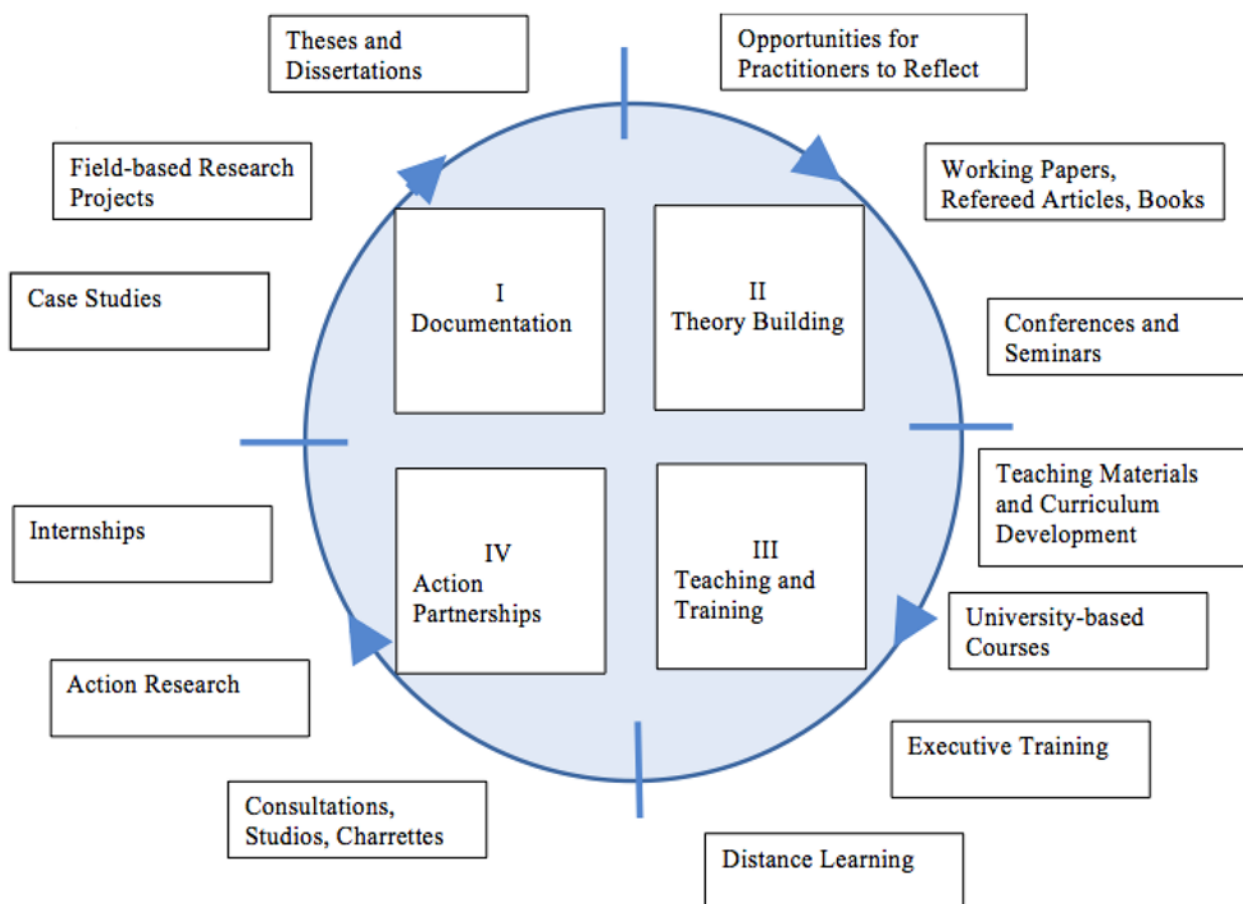
Figure 2: The Circle of Engagement, Redesigned

1.5 The Mutual Gains Approach (MGA)

Among his many theoretical contributions, MGA (Mutual Gains Approach) has been highly influential among practitioners, stakeholders, and applied social science researchers (in many parts of the world) involved in efforts to resolve complex public disputes using consensus building techniques (Susskind and Cruikshank,1989). This framework is being used in the global North as well as the global South as policymakers agree to include more voices in planning and decision-making processes. An

important reason why Larry's framework is particularly helpful in the context of developing countries is that it allows less powerful stakeholders to participate in developing policy solutions, which are then self-enforcing. In the Global South where institutions are weak and property rights are not very clear, the self-enforcing nature of agreements or policies is particularly useful. Larry has developed his framework, which involves a process-driven approach to problem-solving that moves through four stages, after studying or participating in hundreds of dispute resolution efforts around the world. By consensus, he means an effort to seek unanimity, but in which the participants are willing to settle for overwhelming agreement, as long as every effort has been made to accommodate holdouts who, in turn, have been given a chance to propose modifications to the prevailing agreement that would make it better for them and no worse for anyone else. Through several real-world interventions (often through the not-for-profit Consensus Building Institute), he has been able to show that despite the conventional wisdom to the contrary, large and diverse groups of stakeholders can achieve informed agreement on divisive and complex issues by committing to the mutual gains approach to multiparty negotiation. His course[1], Negotiating to Create Value: The Mutual Gains Approach, offered online by MIT xPRO, teaches the MGA fundamentals using role-plays. He involves participants directly in the four steps for negotiating better outcomes for all involved. At the very beginning, stakeholders commit to ground rules indicating that a decision will only be made by consensus and can only be adopted when (almost) everybody believes they will be better off than remaining with the status quo. Such a process engages the stakeholders in developing a proposal that will leave everyone better off than the result offered by their most likely alternative (Susskind and Cruikshank, 2006; Susskind and Field, 2010).

MGA calls for preparation, value creation, value distribution, and a promise of follow-through and relationship maintenance. This is a way of turning a zero-sum confrontation into an all-gain solution. The parties explore their options privately, frame an agenda rich enough with items to trade, and formulate a package or a set of trades. At the outset, there is usually no guarantee that the parties will be able to find their way into what Larry calls the Zone of Possible Agreement (ZOPA) or the trading zone. If no ZOPA can be found, there is no need to disclose that any back-and-forth has occurred. One of the major advantages of MGA is that it creates ways of "expanding the pie" and moving beyond a zero-sum framing of conflicts. Susskind and his colleagues at the Consensus Building Institute have developed the MGA as a four-step process (prepare, create value, distribute value, and follow through) in which certain activities need to happen under each step (Susskind et al.,1999). The MGA presents a step-wise process-oriented guide to formulating multi-party solutions, which are fairer, more stable, wiser and more efficient. The parties follow these four steps sequentially and deliberate over each item under each step. Dozens of documented cases are presented in the Consensus Building Handbook (Susskind et al.,1999). These cases have been analyzed in the Handbook using the MGA framework, which is an invaluable resource for planning scholars and practitioners to learn more about theory and practice in the field of dispute resolution (Figure 3).

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[1] https://xpro.mit.edu/courses/course-v1:xPRO+GNx/

MUTUAL GAINS APPROACH TO NEGOTIATION

PREPARE
- Clarify your mandate and define your team
- Estimate Best Alternative to Negotiated Agreements (BATNA) yours and theirs
- Know your own interests and think about their interests
- Improve your BATNA (if possible)
- Prepare to suggest mutually beneficial options

CREATE VALUE
- Suspend criticism
- Invent without committing
- Generate options that exploit differences
- Bundle options into multiple packages

DISTRIBUTE VALUE
- Behave in ways that build trust
- Identify standards/creiteria for dividing value that all sides can support
- Keep at least two packages in play
- Use neutrals to suggest possible distributions

FOLLOW THROUGH
- Design nearly self-enforcing agreements
- Specify mechanisms to deal with "predictable surprises"
- Agree on monitoring arrangements, including metrics
- Keep working to improve relationships

Figure 3: The Mutual Gains Approach to Negotiation

The theory behind the mutual gains approach to negotiation is based on an assumption that in most real-world situations, parties have more than one objective or interest they would like to pursue. The key is to unwind the positions they take publicly and identify the full array of their underlying interests. Trades across these issues do not require compromise. Rather, when parties trade something less important to them for an outcome they value very highly, and their negotiating partners do the same, that is the creation of value. In practical terms, the parties need a carefully structured and facilitated opportunity to ask each other, "what if?" Only by exploring possible trades, confidentially, in real-time can parties create value efficiently (Fisher, Ury and Patton,1991; Susskind and Cruikshank, 2006). Once the maximum feasible value has been generated, the parties can then wrestle with their (competing) views of what a fair share of the value would be for each (Mnookin, Pepper and Tulumello, 2000). Players at the beginning of such negotiations or problem-solving efforts find themselves in what will appear to be a zero-sum situation—often as the result of public demands they have made, many times to convince the people, stakeholders or interest groups they represent to believe in them. The MGA, however, provides them with a way of working around whatever strong stands they may have taken publicly.

Through theoretical frameworks like the MGA, his commitment to PAR, and his work as a pracademic, Larry's contributions may well offer a harbinger of change to come in the public policy, planning and dispute resolution worlds, especially since many hundreds of his former students and trainees are now teaching and practicing around the world. The Consensus Building Institute (CBI), which Larry has founded and serves as its Chief Knowledge Officer, has a professional network of mediators in more than 20 countries. He has made the case that consensus building presents an opportunity to produce fairer, more stable, wiser and more efficient results when it comes to decision-making in the public arena.

1.6 Expert Comments

1.6.1 John Forester, Professor of City & Regional Planning, Cornell University

"Larry has been pushing the boundaries of the planning and dispute resolution fields for decades. He is singly most responsible for advancing the planning discourse about participation into a far more sophisticated and practically focused field of mediated negotiations and facilitative leadership. He has led the field not by his theoretical or conceptual work as much by an astonishing pragmatism of leading by doing and then reflecting back on that work and sharing it with colleagues in many allied applied fields. Larry shows what is possible before he even knows what is possible. That is an extraordinary contribution to an applied field like ours."
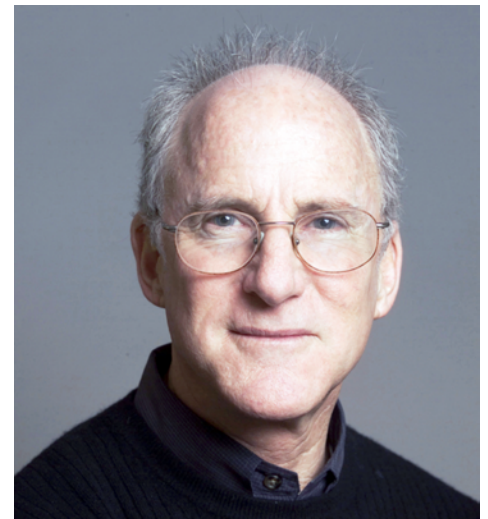
1.6.2 Larry Crump, Deputy Director, APEC Study Centre, Griffith University, Brisbane, Australia

"It is possible that all negotiators around a table may have an integrative approach but it is just as likely that the table will include negotiators with a zero-sum mindset, as every society seems to create negotiators that embrace a win-lose framework. Adding parties – moving from bilateral to multiparty negotiation – makes it more likely that at least one negotiator at the table will exhibit a zero-sum approach. A single negotiator with a zero-sum approach – especially if they exhibit relevant sources of power – can influence negotiation process in a way that reduces value creation for everyone involved.

A properly designed consensus-building approach, however, is one way to respond to this challenge, as it establishes a process that can lead the parties – even zero-sum negotiators – toward integrative outcomes. Critical procedures include making certain that legitimate representation is at the table, which may include a facilitator; group clarification on the mission, the agenda and the ground rules that will guide negotiation process; fact finding that is accepted by everyone at the table; a search for an agreement that leaves everyone better off than if no agreement were reached; and engaging stakeholders in a discussion about the proposed outcome, while anticipating implementation obstacles. These fundamental multiparty negotiation principles have been developed by Lawrence Susskind and his colleagues over many years through participatory action research, which includes repeated field practice in building relevant negotiation theory."

1.6.3 Maria Ivanova, Associate Professor of Global Governance and Director of the Center for Governance and Sustainability, University of Massachusetts Boston

"Increasingly complex in terms of substance, scope, and scale, contemporary global problems—from climate change to species extinction and cyber-attacks – demand urgent solutions. None of these problems, however, can be resolved once and for all. They are wicked problems that constantly evolve and require evolving solutions. The only way to generate such solutions to global challenges is to co-create knowledge that takes advantage of widely distributed insights and changes the zero-sum calculus of multi-party negotiations.

Professor Larry Susskind has changed the nature, process, and outcomes of negotiations. Conventional assumptions of a zero-sum approach where a positive result for one party is necessarily detrimental to another has led to stalemate and sub-optimal outcomes. An important innovation that Professor Susskind introduced – the process of joint-fact finding – has allowed for value creation where none was assumed. Joint fact-finding is a collaborative method for collecting, analyzing, and presenting information. It challenges parties to generate data and information that all participants accept. It ensures the legitimacy of the negotiation process by creating agreement on the type of data, the modes of data collection, and the kind of analytical tools to be used. While this approach does not eliminate disagreement, it highlights the root causes of that disagreement and opens opportunities for changing the parties' ways of interpreting information.

As new global problems emerge, marine plastic litter, for example, governments launch new multilateral negotiations for new international treaties. Professor Susskind's methods of facilitation and joint fact-finding will be critical to the effectiveness of such processes and, ultimately, of their outcomes.

As a collaborator in the Science Diplomacy Dissertation Enhancement Workshop that Professor Susskind launched as a joint initiative of Boston-based universities, I have had the privilege to work with him in leading researchers through a systematic discovery process. Seeking to build skills in negotiation and consensus building in relation to scientific issues at all levels of governance, the team of scholars Professor Susskind convened shared insights, exchanged views, and explored new issues at the science-policy interface. With a focus on increasing the policy impact of research, we explored Boston's science diplomacy ecosystem and committed to creating a science diplomacy network. This network will seek to increase the policy impact of local scholarship by training researchers in the skills of science diplomacy, facilitating continuous interaction and engagement between the diplomatic and academic circles of Boston, and creating opportunities for spontaneous collaboration that Professor Susskind is so skillful at."

1.6.4 Michael Wheeler, Class of 1952 Professor of Management Practice (retired), Harvard Business School

"I have had the good fortune to work with, teach with, and learn from Larry Susskind for many years.

Our collaboration and friendship began when negotiation research was still in its infancy. Studies at that time had been largely limited to labor relations and diplomacy. In the United States, growing awareness of environmental problems—among them air and water pollution, extraction of coal and oil, urban sprawl, just to name a few—had spurred enactment of federal and state laws imposing stricter regulations on the operation of private industry and public projects.

This was a time of heighted citizen activism, coming on the heels of protests against the war in Vietnam and rallies for civil rights. Environmental advocacy groups, empowered by the new laws brought lawsuits to block planned projects. Other stakeholders often joined in. Lobbyists for industry sometimes countersued. Big cases typically dragged on for years without resolution.

Larry—and a handful of other scholars and public officials—recognized that reliance on the courts to settle these disputes not only was costly in terms of time and money, but also led to poor outcomes. The decisions judges ultimately rendered were usually based on narrow procedural rules. Though judges could declare winners and losers, they had no authority to fashion creative solutions. (Nor did they have the expertise to do so.)

Larry envisioned a radically different approach: multi-party negotiation engaging stakeholders and decision makers who would deal holistically with a wide range of related interests and issues. Putting this ambitious idea into practice required an innovative approach to process issues that seldom if ever arose in conventional diplomacy or labor relations.

Through the action research that he led and case studies by others who followed him into this new field, Larry made important breakthroughs in process design. Here are just a few examples of issues he constructively addressed:

• Facilitation and participation: How can negotiations sometimes involving dozens of parties be justly and efficiently guided? Who is eligible to participate and who can speak for large citizen groups (whose own members may not be in full accord)?

• Fact-finding: Environmental disputes often expose sharp differences in opinion about the nature and magnitude of impacts, as well as the expected cost of mitigation. Larry has been a pioneer in advancing joint fact-finding in which stakeholders work together building models that illuminate their particular assumptions and how they may be tested.

• Rules of engagement: Larry has written persuasively about the importance of legitimacy and transparency in process design. For agreements to be sustainable, there must be consensus that they were reached fairly.

Other scholars and practitioners have fruitfully extended Larry's ideas and many others that he has put forward in his many books and articles, but much of the work in public disputes realm can be traced back to his framework.

Larry also has been an institution-builder. He was one of the founders of the Program on Negotiation (which spans Harvard University, M.I.T., and Tufts) and served as its first Executive Director. Under the PON umbrella, his Public Disputes project and, for many years, his Dealing with An Angry Public course, have introduced his approach to countless public officials, business people, scholars, and citizen advocates.

He is also a co-founder of the Consensus Building Institute, a not-for-profit organization that for three decades has consulted on and facilitated the resolution of disputes in dozens of countries around the world. Under his leadership, CBI has also brought forth a new generation of leaders in the world and served as an enduring model for others who seek to promote wise and equitable resolution of public disputes."

1.6.5 Patrick Field, Managing Director, Consensus Building Institute, Cambridge, MA

"The mutual gains approach to negotiation has been instrumental in informing my work as a public-sector mediator for over twenty years. While numerous dispute resolution techniques and tactics are useful—the mutual gains approach provides a clear, cogent, evidenced-approach for how to structure, facilitate, and support agreement-seeking processes. As a mediator of hundreds of public sector cases with multiple parties on issues ranging from energy development to Superfund cleanup to wildlife protection, I have used the mutual gains framework to structure not only meetings but entire processes.

As perhaps the most powerful and explicit example, in working with Jonathan Raab of Raab Associates, we were engaged by world's largest regional electricity transmission organization (RTO), PJM, to restructure its entire stakeholder governance process based on the mutual gains framework. With billions of dollars at stake in complex energy markets involving some 700-member companies, the stakeholders were often caught with multiple proposals, unclear definitions of the problem, and on-going, repeat impasse on essential issues. Taking the four step framework of mutual gains, we restructured the governance process in collaboration with PJM members to: 1) provide for clear time to define interests and a common view of the problem; 2) create options collectively, not individually; 3) utilize sophisticated techniques and joint fact finding to build elements and packages of choices; 4) deploy sophisticated and diverse "voting" tools to arrive at optimized solutions supported by most members; and 5) build and utilize a cadre of PJM facilitators to fairly and effectively guide the process. This restructuring has improved the quality, clarity and support for decisions by PJM members over the last five years."

2 WATER DIPLOMACY AND MULTIPARTY NEGOTIATION

Integrated Water Resources Management (IWRM) has been the prevailing approach world-wide to managing shared waters. The Water Diplomacy Framework challenges IWRM in several important ways that have consequences for planning practices. Does the water diplomacy framework hold-up when we look closely at water disputes in various parts of the world?

2.1   Introduction

Early civilizations thrived and prospered along rivers, for water is an important driver of socio-economic development and critical input to the functioning of the natural environment. The 1992 International Conference on Water and the Environment of the World Meteorological Organization (WMO) recognized water as a vital element for human life. However, despite a range of national and international development efforts over the years to manage water resources and handle water-related disputes, about a third of the global population, mainly the most vulnerable in the developing world, still lack access to safe drinking water; political relationships among groups of people, states and countries are being adversely affected—and in some cases even driven—by disputes over shared water resources. Issues like environmental degradation, climate change, burgeoning population, and fast urbanization are making the task even more challenging. It is in the face of such unprecedented challenges, in its latest report on water, the United Nations recognizes access to water as a human rights issue and places it at the center of efforts to achieve the goals of 2030 Agenda for Sustainable Development (The United Nations World Water Development Report, 2019).

In the year 2000, a large portion of the world population (ranging from 1.6 billion to 2.4 billion people) was water-stressed. Among all, South Asian and East Asian regions were most stressed (Gosling and Arnell, 2016). The variation in these numbers is due to the difference in how we measure scarcity and the fact that climate change is affecting different regions in different ways. In many parts of the world, the lack of access to water coupled with the fear of losing present levels of access due to dwindling freshwater reserves is creating many new water-related conflicts while worsening some of the existing ones (Bakker, 2012). The United Nations World Water Report (2019) estimates that water demand would rise by about 20 to 30% by the year 2050 over the current level. Furthermore, if the use of water and the rate of environmental degradation both continue at current rates, 45% of the global GDP and 40% of grain production will be at risk by 2050. These risks are expected to be disproportionally distributed among marginalized people exacerbating already existing high levels of inequality.

2.2 Challenges in managing water conflicts

Water-related conflicts are occurring at all geographical scales—e.g., local disputes among groups fighting for access in the face of increasing demand and supply gaps resulting from poor physical and institutional infrastructure, state-level conflicts within national jurisdictions due to competing claims over shared water resources, and international conflicts, often involving transboundary water disputes. These challenges can be broadly grouped into three categories:

(1) simple problems in which cause and effect are generally understood and best management practices are effective,

(2) complicated problems in which causal forces are not straightforward, no definitive solutions are available, and partial solutions depend on discretionary management interventions, and

(3) complex problems in which causal relations are not clear, and uncertainty, non-linearity and bidirectional feedbacks occur all the time making system dynamics highly complex for the purpose of analysis (Islam and Susskind, 2018).

At the core of most water dispute resolution mechanisms are long-standing assumptions about how water allocations ought to be made. For example, in the case of countries and states sharing common water resources—e.g., fights over boundary water management, despite the importance of situational and contextual factors, are often reduced to questions about respective shares of a fixed resource (water), which inevitably ends up as a multi-variate optimization problem. This focus leads to a zero-sum mindset that assumes there must be distinct winners and losers. One of Larry's theoretical contributions is an alternative framework for resolving water disputes. At the heart of his proposal is a challenge to the traditional Integrated Water Resources Management (IWRM) framework. His work in water sector governance is rooted in complexity theory and a non-zero-sum approach to negotiation (Islam and Susskind, 2012; Susskind, 2013b). He challenges the conventional wisdom by making a strong case that water is a flexible resource (i.e., it can be saved or reused multiple times), and when parties invest in trust building, they can reach lasting agreements in their national interests while enhancing both water security and sustainable development (Susskind and Islam, 2012). He further underscores that it is necessary for social, political, cultural, and economic relationships to all be taken into account in managing the complex web of relationships that transform water resources into complex water networks. These networks and the relationships among them are increasingly important to coping with increased water demand and depleted supplies. Any agreement regarding the use of shared waters is unlikely to last unless it takes account of these networks and the relationships involved.

Traditionally, water resources have been managed, and disputes over water allocation resolved, using the principles of integrated water resources management (IWRM). These principles offer a framework for equitable, efficient, and sustainable water management by assuming that water is a fixed resource. IWRM treats water use as an engineering problem in which a fixed resource is to be allocated optimally for achieving the most efficient use by relevant stakeholders. While some of the principles of IWRM have been touted for many decades, it was only at the 1992 Rio World Summit on Sustainable Development that the framework was adopted by the Global Water Partnership (GWP). According to their definition, "Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources to maximize economic and social welfare equitably without compromising the sustainability of vital ecosystems" (GWP, 2000). The framework depends on:

(1) relevant cross-sectoral strategies, policies, and legislation being in place;
(2) the development of key political institutions that can ensure the rule of law; and
(3) the development of sophisticated management capacity to ensure 1 and 2.

2.3 The Water Diplomacy Framework (WDF)

A number of countries, in a bid to solve their internal and external water disputes, have tried to put IWRM into practice. They bought into the idea that water resources are finite and they can be allocated "optimally" to meet competing demands, and once this is done disputes will be resolved. Thus, they entered into a game-theoretic worldview where parties are constantly vying for larger shares of a common pie, and that one party can only gain at the expense of the others. What we see in practice, under such an approach, is that parties are always skeptical about the shares that other parties are receiving and there is no agreement on what an optimal allocation of shares would be because different parties have competing objective functions (i.e. needs and priorities, often driven by changing internal pressures). It is at this juncture that Larry's work is of paramount importance. He offers an alternative water management approach known as the Water Diplomacy Framework (WDF). He draws on theories of consensus building, negotiation and conflict resolution to address competing interests and ongoing disputes. WDF fills gaps in the conventional approach to managing shared waters and resolving water allocation disputes at every scale (Table 1).

Table 1: Comparison of the WDF and the conventional conflict resolution theory

	Water Diplomacy Framework (WDF)	Conventional conflict resolution theory (applied to water and other common pool resources)
Domains and scales	Water crosses multiple domains (natural, societal, political) and boundaries at different scales (space, time, jurisdictional, institutional).	Watershed or river-basin falls within a boundary domain.
Water availability	Virtual or embedded water, blue and green water, technology sharing and negotiated problem-solving that permit reuse can "create flexibility" in water for competing demands.	Water is a scarce resource that must be used to meet competing demands.
Water systems	Water networks are made up of societal and natural elements that cross boundaries and change constantly in unpredictable ways within a political context.	Water systems are bounded by their natural components; cause-effect relationships are known and can be readily modeled.
Water management	All stakeholders need to be involved at every decision-making step including problem framing; heavy investment in experimentation and monitoring are key to adaptive management; the process of collaborative problem-solving needs to be professionally facilitated.	Decisions are usually expert-driven; scientific analysis precedes participation by stakeholders; long-range plans guide short-term decisions; the goal is usually optimization, given competing political demands.

Key analytic tools	Stakeholders assessment, joint fact-finding, scenario problem-solving are the key tools.	System engineering, optimization, game theory, and negotiation support-systems are most important.
Negotiation theory	The Mutual Gains Approach (MGA) to value creation; multiparty negotiation key to conditional behavior; mediation as informal problem-solving are vital to effective non-zero-sum negotiation.	Hard bargaining informed by prisoner's dilemma style game theory; principal-agent theory; decision analysis (Pareto optimality); theory of two-level games.

Source: Islam and Susskind (2012)

The key assumption at the heart of the Water Diplomacy Framework is that shared water resources can be managed more effectively when all relevant factors—e.g., political, social, and environmental—are taken into consideration simultaneously, and that water is a flexible not a fixed resource (i.e., can be reused multiple times, cumulated in more efficient ways and saved through the use of more efficient technologies and practices). As such, it needs to be managed by stakeholders, not experts (Islam and Susskind, 2012). Essentially, the Water Diplomacy Framework uses science and politics as twin tools for public learning, innovation, and joint problem-solving. It builds on a close review of a wide range of real-world water disputes, which Larry and his students have been studying over the years to identify the dynamics at the center of water conflicts. Larry points out that water networks are inherently complex systems (actually, networks), open and continuously changing, uncertain and non-linear, and best managed using a non-zero-sum approach to negotiation. Due to their inherent complexity, the different interests of stakeholders, and the political dynamics in each context, he underscores the need to specify and adequately characterize each dispute on the continuous spectrums of certainty-uncertainty and agreement-disagreement. He calls for the realization that water networks are socially, politically, and culturally interconnected. These networks are located in a zone of complexity. It is under these theoretical assumptions based on his experience dealing with actual water disputes that he recommends possible steps for managing water networks more effectively. These include the need for situation-specific assessment, active involvement of stakeholders, scenario planning as opposed to numerical optimization, exploration of value creation possibilities, joint problem solving, and operating under a consensus rather than a majority-rule format.

2.4   Using Water Diplomacy Framework to manage shared water resources

The Water Diplomacy Framework has achieved global recognition because it provides a practical approach to incorporating diverse interests into management and decision-making in the water sector. The comparative advantage of WDF is underscored via in-depth case studies by researchers working on water disputes around the world. A list of almost a hundred national and international cases where the WDF framework has been or could be applied successfully is available at the Water Diplomacy Group's webpage, which can be accessed at:

http://aquapedia.waterdiplomacy.org/wiki/index.php?title=Main_Page

The two most important points that emerge from these cases are that water is not a fixed resource, but a flexible one and value creation through the joint efforts of the stakeholders is possible. Furthermore, Susskind emphasizes that available science is limited, and in most cases, additional scientific

certainty is not likely to help resolve underlying disagreements. Using the case of the Nile Basin, he infers that an effective way to address transboundary water disputes is through joint decision-making and informal problem-solving. He then shows how the parties could do this in the longstanding Nile water dispute (Islam and Susskind, 2015).

Another important aspect of water resource management, which Larry has highlighted over many years, is the lack of attention to the meaningful involvement of civil society in IWRM. In IWRM decision-making, technical and political decisions are left to government officials and their technical advisors. Although in some instances, citizens and other relevant stakeholders can use the judiciary to challenge certain water management decisions, they are, for the most part, left out of decision-making. They may be able to learn about policies or projects that are under review, but that is not the same thing as taking part in actual decisions. WDF calls for the active involvement of all relevant stakeholders at all stages of decision-making and offers a method of doing so (Susskind, 2013b).

What emerges from this discussion is that through his work, Larry has presented a theoretically robust framework for avoiding or resolving complex water disputes. The widespread recognition and application of WDF have helped make clear the reasons behind the failures of IWRM and provided new tools and strategies for collaborative decision-making regarding shared waters. As we strive to solve complex development problems in which water is a top priority, the use of WDF needs to be mainstreamed and institutionalized by multilateral institutions like the UN as well as in bilateral situations in which countries and other stakeholders are obligated to revisit long-standing water allocation agreements.

2.5 Expert Comments

2.5.1 Saleem Ali, Blue and Gold Distinguished Professor of Energy and the Environment, University of Delaware

"Professor Susskind has pioneered novel consensus-building approaches in numerous areas of environmental planning and has enshrined the term "environmental diplomacy" in the lexicon of planners worldwide. In particular his work has found direct applications in water resource management which is often a core area of ecological conflicts between upstream and downstream riparians. Water resources are often presented as a classic zero-sum game in terms of the quantitative usage and the fluid nature of water also lends itself to greater power differentials among stakeholders. Larry Susskind and Shafiqul Islam coauthored the authoritative volume on water diplomacy in 2012 which laid out the opportunities for shared gain in transboundary water management. They challenged the zero-sum assumptions by suggesting how science and efficient approaches to conservation, prioritization of seasonal uses, trade and science-based trust formulation can transform the dynamic.

The research and practice of water diplomacy has now gained international traction and numerous courses are being taught on the topic worldwide. The National Science Foundation's prestigious IGERT program has also established a doctoral program in water diplomacy at Tufts University with Prof. Susskind serving on the advisory board. The Water Diplomacy portal established through the original NSF grant also features the Aquapedia case study database and examples of the application of approaches developed by Prof. Susskind and his associates. Prof. Susskind's contributions to cooperative approaches to water management have likely averted serious conflicts and also led to communities realizing the often latent potential of environmental peace-building."

2.5.2 Shafiqul Islam, Professor of Civil and Environmental Engineering and Professor of Water Diplomacy, Tufts University

"Professor Susskind has made substantial contributions in alternative dispute resolution and negotiations in a wide range of disciplines by integrating theory and practice in an actionable way. His contribution – in partnership with Water Diplomacy Program at Tufts with over a decade long collaboration with Dr. Islam – has significantly shaped the nature of resolving water disputes around the world. He was instrumental in integrating complexity of water problems with emerging theory and tools of negotiation and dispute resolution to address a range of transboundary water problems.

The Water Diplomacy Framework (WDF) is one of the pioneering and game changing efforts to rethink existing reductionist approaches to water governance and management. This framework fundamentally challenges the existing water management paradigm and treats water as a flexible resource. It explicitly acknowledges the coupling of natural and human systems by putting the notion of complexity science at the center–particularly the ontological complexity of water resource variables and processes–with the societal complexity of the contested management and governance of water resources involving multiple actors and institutions.

The WDF approach emphasizes that, when addressing complex water problems all parties have a legitimate right to have a voice about the evidence used and its interpretation, the past evidence and future implications of an intervention, metrics of equity and sustainability, and the package of actionable solutions. These parties include users and producers of water knowledge, managers, technical experts, policy makers, decision makers, and politicians. Furthermore, the WDF–in contrasts to technical solutions to water problems including integrated water resource management–as promoted by Dr. Susskind asserts that parties need to seek consensus and mutual benefits when negotiating a resolution for complex water problems."

3 ENVIRONMENTAL PROBLEM-SOLVING AND PLANNING PEDAGOGY

Planning has relied heavily on traditional lecture approaches to teaching, along with studios and internships. Can role-play simulations provide an alternative pedagogy that is more likely to achieve the clinical teaching objectives of planning educators?

3.1 Introduction

Clinical education is an integral part of the academic curriculum in a majority of professional or applied fields. In Law, Business, and Medicine, for instance, it has been used widely to teach students about the real-world problems they will soon face in their work. Even in planning, such skills are increasingly critical for making planning processes more inclusive through meaningful stakeholder participation—a departure from the conventional top-down approach (to plan-making) of the past. The underlying objective of all clinical education is to train apprentices to respond to demanding situations most efficiently and in the best possible manner. Such exercises give students a feel for real-world problems while they are still in an academic environment and can discuss them with their teachers. In fact, over the years, Harvard Business School's case method of teaching management is credited with changing the teaching pedagogy of most business schools.

Similarly, with the growth of the discipline of public policy and the field of urban planning, an important challenge has been to develop a pedagogical technique to prepare graduate students to take on real-world problems in the public and not-for-profit sectors. An accusation is often made by practitioners that the policy solutions suggested by academics rarely work on the ground: the responsibilities of actors are not well defined, some actors are left out of the framing of the problem, the framing of the problem is overly simplistic, and proposed solutions are not sustainable. It is due to these considerations that internships, client-based workshops and studios have become an integral part of the learning process in urban planning and public management, including adding diversity to classrooms by recruiting graduates with a mixed socioeconomic, cultural, educational and professional backgrounds.

Larry has made an important contribution to clinical education by demonstrating how serious games (like role-play simulations (RPSs)) can be used in classrooms and other community-based contexts. He has established RPSs as a critical part of urban planning, public policy, and legal pedagogy. He has designed more than a hundred RPS exercises to teach specific negotiation and conflict management skills. He has established their usefulness in actual conflict management and dispute resolution situations, not just for university teaching purposes. He argues that the degree to which RPSs can be helpful to disputants in real-world negotiations depends on the extent to which joint-training is provided to actual negotiators and by showing how different pedagogical techniques (including online education) work in different clinical settings.

3.2 Using role-play simulations (RPSs) for analyzing complex policy problems

Preparing RPSs provides a powerful way for decision-makers to closely engage in the analysis of complex policy problems and conflict management issues. A good RPS is faithful to the most crucial features of a real situation even though it simplifies the ease of teaching. It is also helpful for learning more about the dynamics of negotiation, particularly multiparty negotiation. RPSs are being used in laboratory-like settings to test main assumptions and propositions. RPSs are a subset of serious

games. These are exercises that directly engage participants in an environment in which they work toward solving a real-world like yet simulated problem, focused on learning and finding its solution (Abt, 2002). These games are proven effective tools to convey difficult concepts and complex information while also fostering creativity in exploring solutions to pressing policy problems. One of the major benefits—as explained earlier—is that they allow participants to explore simulated environments that could replicate both the present and the past to work on a range of policy solutions in a low-risk environment, even for those cases that have not yet been resolved in the real world. Simple games are quite open-ended in the sense that participants are free to shape their assigned roles and decide which constraints they will and would not take seriously. For simple games, therefore, it is difficult to infer specific learnings since each participant is left to make their own choices and decide how they want to interpret the rules. In the end, therefore, it is hard to know which assumptions and behaviors account for the outcome. On the contrary, when well-created role-play simulations are used, participants have no choice but to work within well-defined constraints and specific responsibilities. The outcomes can be used to test different negotiation and dispute resolution strategies because the positions and behaviors of all the participants are predictable. Thus, it must be the negotiation strategies used by the players that account for variations in the outcomes when multiple independent groups, assigned the same roles, generate very different results when they play the game.

3.2.1 Role-Play-Simulations (RPSs) and MIT's Science Impact Collaborative

Role-play simulations have been central to MIT Science Impact Collaborative (MIT SIC), a team of researchers and practitioners led by Larry within MIT's Department of Urban Studies and Planning. The SIC is committed to developing and testing new ways of harmonizing science, politics, and policy in the management of natural resources and the resolution of environmental disputes. The main focus of MIT SIC is testing the effectiveness of a range of collaborative planning and decision-making techniques, based on real-world experiences. The use of scientific knowledge in planning is increasingly important—e.g., scenario-planning is becoming more popular. It is particularly helpful in dealing with planning problems characterized by large uncertainties—e.g., climate change. So, in a sense, it deals with some problems in the world using the steps mentioned in the first part of this book (Figure 1). It does not initially prescribe theory to be followed in solving real-world policy problems; it rather develops a possible theory of practice based on the insights from real-world projects and the ideas of practitioners working on the ground. SIC has elaborated on a range of tools, including collaborative adaptive management, joint fact-finding, scenario planning, environmental mediation, multiparty negotiation, and the use of role-play simulation exercises. MIT SIC has developed several role-play simulations over the years, and they can be found at https:// scienceimpact.mit.edu/role-play-simulations.

In addition to using role-play simulations in different areas of his research, Larry's work on developing a range of role-play simulations and using them as part of his teaching pedagogy at MIT and Harvard and in many professional training programs for mid-career professionals (that have already drawn more than 40,000 enrollees from around the world) has become a hallmark of his teaching. It is for these reasons that the courses he teaches at MIT attract students from multiple disciplines in which role-playing simulations allow students with little or no professional background to join others with more experience in the same class. It is incredibly instructive to see how some of the most difficult concepts in the realm of public policy and urban planning can be absorbed by the students so

easily when they take part in role-play simulations. It not only contextualizes the theoretical foundations of various concepts but also allows them to apply those concepts in a simulated setting close to what their work experience will require. Role-play simulations allow students to "experience" a range of possible circumstances. This accumulation of experiences affords students to formulate a richer personal theory of practice than would otherwise be possible. RPSs can be played in a real-time face to face setting, but they can also be played in an online (interactive) context or computer-assisted environment. The biggest advantage of role-play simulations after practicing in a variety of settings is learning from one's mistakes without creating any risk to anyone. Larry's many online courses cover these theoretical concepts in detail and are available online for the public. Some of these courses are Entrepreneurial Negotiation (MITx), Socially Responsible Real Estate Development (MITx), Negotiation, Influence and Power (MIT xPRO), and Cybersecurity for Critical Urban Infrastructure (MITx).

Although the terms simulations, games, and role-plays are often used interchangeably, there are important differences amongst them. They meet different teaching objectives. For example, games operate under agreed-upon rules, which constrain the solutions the participants achieve. This is because participants in games explore only those solutions, which fit the rules of the game. Role-plays assign specific characteristics to each participant who, according to their roles, are given detailed constraints, similar to the constraints that these participants would face if they encountered the same problem in the real-world. The contours of the final agreement are relatively unconstrained, as long as each participant meets their minimum requirements. Simulations are a hybrid of games and role-play, for they use features of both, and consist of three fundamental elements: background information, which sets the (realistic) stage and specifies the rules of the game, confidential instructions for each participant, and debriefing guideline for the instructor. Debriefing is crucial, especially when the same simulation is played simultaneously by several groups. It allows players to analyze the difference in outcomes (even though almost everything was held constant). Participants get an opportunity to not only reflect on their results in light of the outcomes achieved by their peers. If supervised by a skilled instructor, debriefings allow the teacher to point out different solutions and work with the participants to identify the explanations for them. Differences in outcomes can be connected to key elements in negotiation and dispute resolution theory.

3.3 Using serious games in negotiating public policy pathways

In recent years serious games have been used in a variety of policy-making contexts to help the actual "combatants" explore very different negotiation pathways without anyone having to commit to anything. This has been done in risk management, food security, climate change, health policy and natural resource management settings. There have been attempts to develop a theoretical basis for applying RPSs in a range of policy areas. Edwards et al. (2019) explain good game design in the context of adaptive governance in the following way:

(1) conflicts and objectives such that participants work towards a solution;
(2) short feed-back cycles, which allows participants to feel the impact of their decisions quickly;
(3) immersion and engagement, which allow students to get a feel for the real-world situation;
(4) challenges and learning opportunities for participants; and
(5) collaboration among peers and possibilities for participants to develop collaborative solutions.

RPSs have also been used by applied social scientists in a laboratory-like way. For example, Rumore et al. (2016) found that role-play simulations at the community level foster climate change adaption literacy, enhance collaborative capacity, and facilitate social learning. They list three specific advantages of role-play simulations over case studies. First, role-play simulations are good at starting conversations, for they do not work in isolation, so a wider engagement among stakeholders is an inevitable part of role-play simulations. Second, role-play simulations allow participants to think about radically new and different options about the real situation they are in. Finally, naysayers argue that people may be skeptical about role-plays and their validity, however, experience shows that people generally enjoy role-play simulations and have no trouble applying from a simulated or hypothetical context to real life. Referring to games as role-play simulations is probably the best way to induce a more professional crowd to attend.

Larry's four-pronged approach to the training of mid-career professionals (in short training sessions) suggests starting simply, relying on layering, encouraging continuous reflection, and drawing behavioral lessons. It is used widely in academia (Susskind and Corburn, 2000). These four pedagogical steps are complementary, and when executed properly, positively contribute to the effectiveness of overall learning in just a few days. He emphasizes that we should start with simple exercises, which emphasize behavioral lessons and introduce key theoretical concepts. Initial exercises work better if they do not relate much to the real-life experiences of the participants. This means that initial lessons should be more abstract or generalizable. Simple games (used at the outset of training) can be understood easily, and can convey fundamental concepts of negotiation in a straight-forward way—e.g., how to think about positions, the difference between interests and positions, value creation, value distribution, etc. The second pedagogical step involves layering by which he means adding complex concepts one at a time. In layering, it is important to keep emphasizing the lessons of the previous simulations as we increase complexity. For example, one can start with a two-person negotiation and then introduce slowly a multi-party exercise. Also, it is useful if the simulation contexts become increasingly realistic. The third important suggestion that Larry offers is to make sure that the participants engage in continuous reflection. Group debriefing is an important part of reflection, but so is individual "journal keeping" or responding to written prompts. The role of the instructor is important in both group debriefings and providing rapid feedback to participant reflections. Finally, Susskind suggests that RPS could be best used by complementing them with other teaching techniques, including case studies, online exercises to supplement face-to-face exercises and continuous prodding to update personal theories of practice.

In other words, RPSs model a complex process or reality, and they can be powerful educational tools not only in classrooms but also in high-stake situations in real-world negotiations. Indeed, games can never perfectly or fully replicate reality, but it is undeniably true that they can prepare us better for reality. They also can alter the results of real-world negotiations when applied properly by real-world negotiators. Role-play exercises should not be looked at as a means of steering real-world negotiations toward a particular outcome. Rather, they can help parties improve their capacity to work together.

Susskind and Schenk (2014), using several examples, provide a list of conditions under which role-play simulations can influence the outcome of real-world negotiations and when they cannot. Their most important insight is that role-play exercises can influence the result of real-world nego-

tiations when they are used by the actual negotiators and not by those who want to shape the real-world result but have no say in the formal policymaking process. Their point is similar to what John Stuart Mill calls "government by discussion" or Ostrom (2009) refers to as a "polycentric approach" to governance due to the "common pool" nature of the problem and social dilemma like the free-rider problem. Furthermore, real-world negotiators work under many constraints similar to Professor Robert Putnam's two-stage game characterization (Putnam,1988): they worry about their careers, their reputations, accountability to the people back home, etc. Susskind suggests that these constraints may suggest the need for multiple games for the same parties.

In conclusion, RPSs[2] can be a powerful educational exercise in a variety of contexts. However, one has to be cautious about their usefulness and what message to derive from them, keeping in mind the conditions and controls under which they work best. Serious games can be used by graduate students to prepare themselves for future negotiations or conflict management efforts in a range of fields. They also can be a useful research tool in applied social science fields. The game is like a laboratory. RPSs can be used in practice to better prepare real-life negotiators to work with each other. However, as mentioned earlier, serious games can have an impact on actual negotiations only when parallel informal negotiations or joint-training for actual negotiators happen. Larry indicates that the effectiveness of serious games on real-life negotiators is determined by four inter-dependent conditions (Susskind and Schenk, 2014):

(1) games must be designed in such a way that they reproduce the dynamics of a real-world situation,

(2) they need to be facilitated by a skilled person who can help participants reflect on what they have learned,

(3) they need to be played by the actors who are in parallel engaged in actual negotiations, and

(4) participants need a clear set of confidential instructions to help them stick to their script, and, of course, the script itself should mirror the real-world constraints.

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[2] Interesting RPS exercises are available via the PON Teaching Negotiation Resource Center at www. pon.harvard.edu/shop/bepo-dam-plan and www.pon.harvard.edu/shop/prioritizing-climate- change-adaptation-measures.

3.4 Expert Comments

3.4.1 Danya Rumore, Ph.D., Director of the Wallace Stegner Center Environmental Dispute Resolution Program, University of Utah

"Some planning schools and courses have continued to rely on traditional lecture approaches to teaching. That said, as I see in my department and elsewhere, many professors and instructors are moving toward more interactive and experiential learning approaches. This is an important shift for a number of reasons. First, we know from research that adult learners learn best through experiential approaches. Further, learning how to do planning and the skills it takes to be an effective planner (such as how to productively deal with disagreement and conflict) requires gaining hands-on experience in realistic or real-world contexts. Professor Susskind was an early adopter and pioneer in integrating experiential learning approaches into planning classrooms, and he has inspired many other educators (such as myself) to do the same.

Professor Larry Susskind has long been a proponent of using role-play simulations for planning education. As I know from my dissertation research and years of experience using role-play simulations in classrooms and public education contexts, these exercises have considerable potential as a teaching tool. Personally, I see role-play simulations as a powerful complementary (rather than alternative) approach to more "traditional" teaching approaches. For example, in my classroom, I convey information to students via lectures and readings, and then use role-play simulations to help students put concepts into practice and practice the skills they have been learning about. I highly recommend the use of role-play simulations, as well as other experiential and active learning approaches (such as discussion of realistic scenarios and group problem-solving exercises), in planning education, where appropriate.

I am thankful Professor Susskind, who was my Ph.D. advisor, introduced me to role-play simulations and taught me how to integrate these and other experiential exercises into the courses I teach.

Professor Susskind has advanced planning education in a number of important ways. He is an exceptional teacher and academic advisor who has mentored hundreds of students, including many who have gone on to become planning instructors themselves, setting a high bar for academic instruction and advising. He has advocated for and advanced the use of experiential learning tools (such as role-play simulations) in planning classrooms and programs. Perhaps one of his biggest contributions, he has importantly drawn attention to the critical need to teach planning students the skills of negotiation and conflict management, which is becoming increasingly important in the context of political divides, the prevalence of misinformation, and the complexity of public sector decision-making. Personally, I think that negotiation and conflict management skills should be a necessary part of all professional planning education."

4 MANAGING CLIMATE RISKS

How can cities develop public support for incorporating climate adaptation priorities into current planning and development activities?

4.1 Introduction

This question can be approached by mentioning two stylized facts. First, the impacts of anthropogenic activities on the global climate in the form of extreme weather events are visible now. And second, there is a broad consensus among policymakers on the role of human activities on climate change and the need to mount an adequate and effective global response, to limit the increase in global temperature within 2° C—a long considered threshold to avert the worst impacts of global climate change.

First stylized fact: The Fourth U.S. National Assessment Report of the Global Climate Change Research Program compiles a range of evidence that anthropogenic activities are responsible for changes in the global climate, the impacts of which are already being felt (USGCRP, 2018). The report further argues that these effects are likely to worsen over time. The report says, "Climate change is already taking a toll on U.S. agriculture, health, tourism, fisheries, energy, transportation, infrastructure, businesses and more. For example, $1 trillion of public infrastructure and private property along the U.S. coastline are at risk due to rising seas, increasing storm surges, and tidal flooding. No region of the country and no sector of the economy is immune. We must use all tools and pursue all policy levers to turn the tide." Similar views have been expressed in the Intergovernmental Panel on Climate Change Fifth Assessment Report (AR5). It reflected 90%-100% consensus among researchers that the "warming of the climate system is unequivocal" (Cook et al., 2016) and "it is extremely likely (95%–100%) that human influence has been the dominant cause of the observed warming since the mid-20th century" (IPCC, 2013).

Second stylized fact: Despite global efforts, well-regarded research shows that the world is on course for a 3.2°C rise in the average global temperature more than double the lower threshold of 1.5°C set by the 2015 Paris Agreement, which scientists have long been claiming is the last chance to save coral reefs, the Arctic ecosystem and the wellbeing of hundreds of millions of people at risk due to increased drought, flooding and forest fires. The latest IPCC report claims that the world has already undergone a rise of 1°C in temperature and is likely to reach 1.5° C by 2030-2052 if the current growth of emissions continues (Masson-Delmotte et al., 2018). If one looks at the carbon budget left to breach the 1.5°C-2°C ceiling and the current rate of CO_2 emissions, there are only four years left before we are likely to breach the emission limit and enter the zone of 1.5°C-2°C rise. This is based on the fact that the humanity is left with a carbon credit of 150-1500 Gt of CO_2, and at the current rate of emissions, the lower limit is set to be crossed in four years (Figueres et al., 2018).

While we should acknowledge the uncertainty surrounding the use of certain climate models, the two stylized facts are true no matter what. Simply put, we need to prepare ourselves for a warmer world – a world in which extreme weather events are going to be more frequent and of longer duration. We also need to recognize that it is time to shift our climate response from mitigation to a combination of both mitigation and adaptation. How do we do this? Larry goes against the conventional perspective, suggesting that we move away from our obsession with the 2°C threshold, what he

refers to as an example of what Whitehead called "misplaced concreteness."[3] The advocates of the 2°C limit say that if we breach that limit, the impacts of climate change will be irreversible, something the ecosystem cannot afford as if we should stop what we are doing if we can not avoid breaking the limit.

4.2 Managing uncertainty and complexity in planning climate risks

In *Managing Climate Risks in Cities and Coastal Communities*, Susskind widens the scope of the discipline by suggesting ways to include city residents and affected communities in the decision-making process, the use of scenario planning to be able to respond commensurately with the risks involved and emphasizing the need of focusing on both adaptation as well as continued mitigation. He argues that by including affected communities in the decision-making process, policymakers will be empowered to respond more effectively because citizen involvement enhances the credibility of the decision-making process and hence empowers the policymakers to make decisions appropriate to the challenges they face (Susskind et al., 2015). He argues that rather than focusing on 2°C, we need to focus instead on moving as quickly as possible to invest in adaptation and letting people see what the costs are (already) of being forced to respond to increased flooding, sea level rise, growing storm intensity, extensive wildfires and other climate change impacts. He emphasizes that policymakers need to encourage a shift away from fossil fuels all over the world without reducing society's level of economic well-being. This will mostly require nations to move to various forms of renewable energy. He underscores reasons to be optimistic this can happen by pointing out the upward trajectory of renewable energy, which is already happening much more rapidly than anyone thought possible a decade ago. In recent years, renewable energy growth has been the highest among all energy sources. The shift to renewable energy makes the idea of adaptation easy to understand.

Larry has also argued that there is hope for more drastic individual and collective actions in the future. He argues that when people understand how much adaptation (survival!) is going to cost (by confronting what we have to spend annually to replace infrastructure destroyed by storms and forest fires), they will become much more active supporters of mitigation (i.e., the source of the problem). So, getting everyone to confront the costs of changing weather, increasing forest fires, increased flooding (in some places), increased drought (in other places), loss of property, the health impacts (loss of life), especially of increased disease vectors, is what is important right now. We do not need to debate the accuracy of different people's predictive models or when we are likely to exceed a 2°C change in average global temperature. At some point, due to the increased cost of climate change impacts, he suggests that citizens will demand that something is done. That is when the level of support for changing patterns of development, population control, and investment in developing and sharing new technology will garner the political support it needs around the world.

Coming back to the question of the climate change impact on cities, as the threat of climate change worsens in the wake of continuous rise in greenhouse gas emissions, even under the most

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[3] Alfred North Whitehead says that an individual commits the "fallacy of misplaced concreteness" when the individual mistakes an abstract belief or concept about the way things are for a physical or concrete reality (Whitehead,1997).

plausible scenario, cities are left with no option but to adapt to these emerging risks or move out. In his book, *Managing Climate Risks in Coastal Communities: Strategies for Engagement, Readiness and Adaptation*, drawing on the New England Climate Adaptation Project, Larry and his co-authors suggest that cities need to prepare themselves by building their capacity to make collective decisions rather than just relying on the state and national governments to impose new regulatory limits (Susskind et al., 2015). While underscoring the need for local climate adaptation, he and his co-authors argue that individual action will not be sufficient. There is a need for collective action to manage climate risks. The authors emphasize that while many communities recognize the need for collective action, they have no effective way of involving whole communities to participate in such endeavors. To achieve broader community engagement, the authors suggest using very carefully constructed role-play simulations to augment the readiness of the local population to deal with climate risks.

Larry's central argument is that cities, particularly coastal cities, need to pay serious attention to the climate change-related problems they already face, e.g., flooding. This is because the cost of not preparing further is enormous. There is a limit to how many times a coastal community can rebuild lost water treatment facilities, roads, school buildings, and other infrastructure. Mitigation plans are often expressed in terms of individuals needing to change their life-styles (and reduce their carbon footprint) at some point in the future. Adaptation plans are very different, for they require simultaneous or collective responses. To facilitate broader community engagement, Larry suggests joint fact-finding and role-play simulation of the sort he facilitated in coastal cities in four New England states to address complexity and uncertainty in climate risk management (Susskind, 2010).

As the worst impacts of climate change unfold, one would expect cities to be ready with preparedness plans. Unfortunately, very few cities have climate action plans and those that do rarely practice their implementation. Huge complexity in atmospheric dynamics, uncertainties in socio-ecological variables and feedback mechanisms, sparse emission inventories, and several simplifying computational assumptions in our forecasting models make it difficult to predict the future state of local climate impacts with reliable certainty. This makes anticipatory governance difficult. Planning requires whole communities to be convinced of what the future holds and which actions in response make the most sense.

Cities, which have climate action plans, focus mainly on mitigation, not adaptation. A report by C40 Cities[4] states that 70% of all global cities are already facing the effects of climate change, and nearly all of them are at risk. Also, because about 90% of urban areas are coastal, there is a serious risk of flooding and storms most cities face globally. Cities are important because they are home to 50% of the world population and most global economic activity. By 2050, about 2-3 billion more people will be added to the urban population, and two-thirds of the global population will then be urbanized (IPCC, 2014). A collective commitment to climate adaptation is crucial.

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[4] https://www.c40.org/ending-climate-change-begins-in-the-city

4.3 Recognizing the difference between climate adaptation planning and normal planning

Climate adaptation planning is different from normal planning undertaken by cities in four distinct ways:

(1) it is a more complex activity involving atmospheric, land-based, and oceanic systems and their non-linear feedback, which makes forecasting difficult. Hence, planners need to be ready to deal with a lot of uncertainty,

(2) many adaptation activities, such as building gigantic flood barriers, are expensive, at least in the short-run. They require higher investments than usual. However, it is true that in the long-run, the resultant savings would be higher than the cost incurred,

(3) it involves land-use change which has implications for the use of private property, and

(4) since most adaptation planning activities are based on uncertain forecasts, it is difficult to win over climate skeptics and others who do not want to face the need for higher taxes or requirements that people move to safer locations. This is an area where Larry suggests using scenario planning rather than aiming for exact predictions.

Given the complexity of the climate system, it is almost impossible to make accurate local predictions either in the short or the long-run. Science historians Naomi Oreskes and Eric Convey call the naysayers in these situations "Merchants of Doubt" (Oreskes and Conway, 2011) as they manufacture doubts in the minds of people about well-established science for their own selfish reasons.

To effectively undertake adaptive planning, Larry suggests a four-pronged strategy (Susskind, 2010). First, he suggests that adaptation planning needs to be action-oriented. Second, planning needs to take a dynamic approach to both risks and risk management in the sense of continually recalibrating where they stand. Third, in order to garner support, cities need to be strategic. They can start with those initiatives, which have broad support among stakeholders and could be implemented at a relatively low cost, followed by those activities, which require higher investment and support is difficult to come by. If low-cost, no-regret measures are successful, then cities can showcase them to win further support, especially if people support them independently of their concerns about climate change. Finally, these initiatives ought to be broad-based and collective in nature, hence broader involvement of stakeholders is necessary.

In conclusion, Larry's contribution to cities' preparedness for climate change underscores some key points, which are often overlooked in the planning and public policy literature. He emphasizes the need for the active support and meaningful participation of the local population, which he suggests can be achieved by using role-play simulations on a city-wide basis. He further underscores the need for cities to undertake incremental approaches to managing climate change due to the uncertainty inherent in climate change predictions and try to win over naysayers incrementally by advocating popular city investments, apart from their climate change relevance. Finally, he suggests that resilience ought to be an essential feature of all local climate change adaptation plans, implying that investments now will keep paying back. In other words, he advocates a futuristic view of planning.

4.4 Expert Comments

4.4.1 Todd Schenk, Assistant Professor, School of Public and International Affairs, Virginia Tech.

"It is imperative that cities act to both mitigate emissions and adapt to the already baked in consequences of climate change. Climate adaptation is maturing as a factor in cities' decision-making, yet concrete action often remains elusive. Cities and regions need to move beyond shallow adaptation planning and truly integrate adaptive measures into the way they make decisions, like how and where to build infrastructure, where to concentrate and discourage growth, and how to use resources to most effectively support vulnerable populations.

Many of the adaptive decisions to be made will be unpopular, not least because they involve tradeoffs and will have negative or uncertain consequences for some. Adaptation also requires broad coordination across agencies and levels of government, given that the challenges often do not fall neatly into sectoral or jurisdictional boxes, nor respect territorial boundaries. Persistent uncertainty and dynamic conditions further complicate matters. Stakeholder coordination and buy-in, including broad public support, is thus necessary for real climate action.

As Susskind (2010) notes: "Adaptation planning, in particular, should be viewed as a collective risk management task. As such, new tools for collaboration such as scenario planning, joint fact-finding and the use of role-play simulations to build public support in the face of high levels of uncertainty and complexity might be helpful."

It is in the development and implementation of such tools for 'collective risk management' that Susskind's work is so important. In the broadest sense, Susskind's decades of work as a pioneer in the use of consensus-building techniques to facilitate effective collaborative governance can provide a vital foundation for successful adaptation planning. As Susskind and Cruikshank identified back in 1989, good deliberative practice in the context of planning and public policy-making involves bringing representatives of the various stakeholder groups together for facilitated learning and dialogue to arrive at outcomes that are creative and broadly supported, or what they characterize as 'fair, efficient, stable, and wise'. Susskind's consensus-based approach has proven itself robust for coordinating responses and resolving disagreements as groups tackle complex challenges like the risks posed by climate change.

Other tools that Susskind is playing critical roles in developing build upon this consensus-based decision-making foundation to support better collaboration around challenges like adapting to climate change. Joint fact-finding is one such tool. Adaptation decisions necessarily rest on sound, broadly accepted scientific and technical information.

Engaging stakeholders in the process of identifying data needs, and working with experts to devise and implement research agendas and assess the data can narrow the factual disputes and help inform better decisions (Susskind, 2010).

Susskind is also a seminal figure in the increasingly recognized world of using serious games—and role-play simulation exercises in particular—to explore challenges like climate change. Serious games are proving invaluable as means to foster experimentation and social learning, and help stakeholders to better understand not only the challenges and pros and cons of various potential responses, but also of the various interests at stake. Serious games have proven valuable at all scales, from engaging residents of small coastal communities to international decision-makers (Rumore et al., 2016; Susskind et al., 2018).

Responding to the very real threats posed by climate change will require a 'whole-of-government, whole-of-society' approach. Susskind has provided us with an invaluable set of tools to facilitate the kind of robust collaborative governance necessary to truly engage stakeholders and communities and make progress."

5 FACILITY SITING AND ANGRY PUBLICS

Can following the facility-siting credo make it possible to overcome the NIMBY ("not in my backyard") phenomenon? Does it make sense to negotiate directly with parties guilty of substantial environmental injustice?

5.1 Introduction

NIMBY ("Not In My Backyard") refers to a phenomenon in which the benefits of a facility or a program are widely dispersed while its impacts (and costs) are concentrated in certain areas or neighborhoods—e.g., prisons, airports, wind farms, low-income housing projects, sports stadiums, and waste disposal facilities. Despite the social benefits of such projects, they often invite intense local resistance resulting in sinking the projects. Richman (2001) identifies two features of NIMBY projects. First, they are expected to result in a net social surplus, i.e., there will be a net social gain. Second, these projects result in concentrated costs over a particular neighborhood while their benefits are distributed over a region. Sometimes the residents of the affected area must relocate elsewhere. Richman (2001) summarizes the NIMBY problem as a problem of "inequality in distribution, and the nature of the costs and benefits associated with these facilities virtually assures the existence of local opposition." The NIMBY dynamic was first pointed out by O'Hare, Bacow, and Sanderson in Facility Siting and Public Opposition (O'Hare, Bacow and Sanderson,1983). They argue that if appropriate transfers could be made to the adversely affected parties, then everybody could be better off. Simply put, NIMBY projects could be Pareto-improving. The real challenge, though, is how to achieve Pareto optimal results, and it is at this point, Larry's consensus-building framework becomes important in the siting process.

5.2 Emergence of NIMBY problem and its implications for economic development

The growing NIMBY problem in recent years has been attributed, in part, to the loss of public trust in scientists and institutions who seem to have difficulty predicting risks to the public (Kasperson et al.,1992). Such skepticism grows further when: (1) a project involves technologies, which are not easily understood by laypersons and governments fail to provide convincing justification in terms of benefits and costs and their distribution; (2) hazardous materials are discovered, especially when they were previously thought to be safe; and (3) the full set of vested interests in the project are not disclosed at the outset. Developing effective siting procedures requires addressing these concerns.

Helman and Fisher (2015) estimate that in the past decade, the phenomenon has delayed or killed more than 500 mega projects in the United States, causing a loss of at least $1 trillion to the economy. Hence, despite our growing scholarly understanding of the NIMBY phenomenon, there is still opposition to many proposed projects. Typically, the losses associated with such projects are far lower than the gains that will be realized, but the potential losers are more determined to fight to see it stopped than the gainers are inclined to ensure that it is completed (O'Hare, Bacow and Sanderson,1983).

5.3 NIMBY problem and the facility siting literature

The facility siting literature suggests various ways of responding to NIMBYism and public opposition to projects, mainly by promising compensation to potential losers and providing more public information (O'Hare, Bacow and Sanderson, 1983). The Facility Siting Credo, however, involves a more complete set of guidelines for local authorities and developers to use to forestall a NIMBY reaction (Susskind,1990). The literature was created by Larry Susskind and Howard Kunreuther of the Wharton School. It offers a set of procedural guidelines that have been effective in a number of American cities (Kunreuther et al.,1993). The guidelines were developed in 1990 at a workshop co-sponsored by the MIT-Harvard Public Disputes Program (founded by Larry Susskind), and the Wharton Risk and Decision Process Center. The participants at the workshop believed that "if public officials, citizen activists, industry leaders, and technical experts adopt the 13-point Credo, we might, as a nation, be able to engender greater trust among the affected groups by dealing with our differences in a fashion that produces fairer, wiser, and more efficient siting results more often" (Susskind,1990).

5.4 Susskind's facility siting framework

Susskind argues that traditional "decide-announce-defend" siting approaches are unambiguously ineffective and often lead to drawn-out disputes that benefit none of the parties. One of his key insights emerging from his involvement in the siting of potentially hazardous facilities is that the resistance to regionally necessary, but locally noxious facilities does not necessarily arise from "misunderstanding, misinformation, or unreasonable selfishness" (Susskind,1990). It is often the case that likely losers have appropriately tallied the disadvantages to them of the proposed facility. He emphasizes that such abutters may not have the time or financial resources to secure technical expertise regarding the likely impacts of the proposed facility, but they are quite good at estimating the potential loses and gains to themselves (Susskind,1985).

In general, for most NIMBY projects, we have about 10% of people who are firmly against it and about a similar percentage, 10%, who are firmly in favor of it. Those who favor are typically those for whom the project will provide direct benefits, including the purchase of their land at a very high price by the developer. Similarly, firm opposition comes from those who will actually feel the disproportionate burdens of the project, perhaps because they live nearest to it. Michael Elliot of Georgia Tech and Larry Susskind estimate that 30% of the residents in the general area of the proposed facility are indifferent to what happens. It is the remaining 50% who Elliot and Susskind call "guardians," who can magnify the NIMBY phenomenon. If they feel that the initial opponents are being treated unfairly, they will side with them. If they do, there will be a majority who opposed the project (Poirier-Elliott,1984).

To address the shortcomings of the traditional approach to facility siting, Susskind highlights five steps that project developers or regulators can take (Susskind,1985). His central argument is that through informal negotiations, it is possible to achieve fairer, wiser and more efficient siting agreements. Simply put, developers and government officials must recognize and respond to the legitimate concerns of nearby inhabitants (Table 2).

Table 2: Susskind Framework

Susskind's Facility Siting Framework	
Joint fact-finding	Joint fact-finding is important, for guardians are most likely to get offended at the suggestion that a siting decision is going to be based on technical factors, which are too complex for laypersons to understand, and pre-determined guidelines, which take no local considerations into account. A collaborative approach can forestall some of the resistance when all affected parties are invited to join the conversation, their views are taken into account, and some of the gains to the "Gainers" are used to compensate the losses to the "Losers." If there is a need for additional research, all sides must agree on the choice of experts and approve the research protocols to ensure transparency. These steps increase the chances that the guardians will support rather than oppose the project. In some cases, joint fact-finding might require the involvement of a nonpartisan facilitator to make sure that all parties are adequately heard and their views considered to their satisfaction (Bacow and Wheeler,1984).
Reducing or spreading risk	An important factor that shapes the response of people in general and guardians, in particular, is how they respond to the technical data made available to them. Even if they all have access to the same information, they may respond to it differently. For example, if the technical information suggests that abutters might be put in jeopardy if a project happens, guardians could argue that it is not fair for one group to disproportionally bear the risks of a regionally beneficial project. This makes risk reduction or risk spreading important. In this example, insurance might be offered. If abutters are guaranteed that they will be compensated for the full price of their property plus inflation, should they be forced to move, they are less likely to resist the project. If the terms of the insurance are legally committed by the developer and the local government, it will have a positive effect on the overall response of the community to the project.
Promises to mitigate	It is important to win the support of the guardians (i.e., those who are concerned but have not yet taken a position). They need assurance that the adverse impacts of the project will be mitigated, and any unexpected adverse impacts will be compensated. Without just relying on spoken promises, more cogent procedures like posting a substantial financial bond, could be considered. There are still other ways —e.g., enforcing commitments through third-party intervention and signing legally binding contracts.

New forms of compensation	Most forms of compensation in NIMBY cases are monetary, or what Donald Hagman and Dean Misczynski call "windfalls for wipeouts." Compensation to those abutters, who are not deprived of their property rights, may not be payable by city governments under the law. However, project developers could make such payments and, in the process, build greater support for the project. It is also better to let the potential losers define the terms of their compensation. For example, if there is a disagreement over whether a hazardous event will happen or not, there can be contingent agreements, i.e., payments are made if a hazardous event occurs, but are not paid if such an event does not occur.
Shared responsibility	Shared responsibility, defined as shared monitoring and control, is very important to guardians. In some cases, residents may not support a NIMBY project, but their response might be different if they are assigned shared responsibility for monitoring the implementation of the project. For example, if members of a community believe they can trust the accuracy of monitoring reports, they are less likely to oppose a project. It is true that in some situations, shared monitoring might be a difficult thing for a developer to accept.

When it comes to operationalizing this framework, it can be done as follows: joint fact-finding can be achieved by appropriately re-structuring a mandated environmental impact assessment process. Similarly, risk-sharing contracts can be separately negotiated by the parties and kick-in only if the formal decision-making process results in the facility. Various agencies or even different levels of the government can sign a memorandum of understanding (MOU). Self-enforcing agreements can be triggered by one or more parties. In that case, pre-negotiated court-enforceable provisions would take effect. Shared responsibility for monitoring and management can also be included in a formal siting agreement. Incorporating these five steps does not necessarily require the enactment of new legislation.

Finally, beyond the framework, an additional point that emerges from Larry's research is that he advocates negotiating directly with parties guilty of substantial environmental impacts and injustices. That is, he urges environmental advocates and those who fight for environmental justice to negotiate directly with the companies or groups against whom they are fighting if the opportunity arises. This is important for several reasons. First, one of the reasons why the traditional siting process has been unsuccessful in resolving siting disputes is its over-reliance on the courts. The courts do not seek to resolve the differences or address the concerns of those who oppose new projects. They just pick a winner and a loser—usually on narrow legal grounds that have almost nothing to do with the real concerns of the opponents. Direct settlement negotiations, well before lawsuits are filed, can lead to changes in project designs and commitments to mitigate adverse impacts. Without face-to-face negotiation, these are unlikely to emerge. Second, it is possible to negotiate trades that are independent of anything a project developer is required to do by law or regulation. For instance, a community

opposed to a new facility might win an agreement from a city to remove two existing facilities that are legal but strongly opposed by neighbors in exchange for backing a proposed new facility (as long as contingent promises of compensation are included).

In his work on facility siting, Larry does not just advocate environmental causes. He is concerned about generating support for sustainable (economic) development. By linking issues in an open-ended negotiation, assisted by a professional facilitator or mediator—as long as all the relevant stakeholders are represented and can choose their own representatives—Susskind believes that appropriate projects can win approval (Macey and Susskind, 2001). He also believes that less politically powerful groups can achieve more through properly structured negotiation than they can through the Courts or through direct political action (although direct action may be needed to get more powerful parties to agree to come to the negotiating table).

5.5 Expert comment

5.5.1 Armando Carbonell, Vice President of Programs, Lincoln Institute of Land Policy, Cambridge, MA

"In working with Larry Susskind on some of the Lincoln Institute of Land Policy's earliest efforts to help cities plan for mitigation and adaptation, we became increasingly aware of the special challenges created by the uncertainty inherent in climate change. We came to conclude that the public need first to be made aware of the nature and potential magnitude of climate impacts and then empowered with knowledge of responses that will result in "least regrets" under the inescapable condition of uncertainty. Tools like joint fact-finding, visualization, and scenario planning can be used to identify a range of plausible potential climate impacts and a corresponding set of feasible adaptive measures."

6 CONCLUSION

In conclusion, Larry Susskind's academic contributions have significantly pushed the conventional boundaries of the planning field. His contributions are much wider than those covered in this booklet. His process-driven Mutual Gains Approach (MGA) to collaborative decision-making feels like an important shift in the way planners think about their roles and responsibilities. The approach has found resonance and usefulness in a variety of decision-making settings across sectors and disciplines, for it provides a step-wise guide to overcoming an essential challenge to all decision-making: how to bring together multiple stakeholders driven by individual self-interest to achieve sustainable and non-zero-sum outcomes.

To me, as a doctoral student, the influence of this approach on my learning about decision-making theories can be best captured by the comments of Archilochus, an ancient Greek poet who lived around 650 BC: "The fox knows many things, but the hedgehog knows one big thing." The quote was relatively anonymous until it became well known after the famous essay, "The Hedgehog and the Fox" by Professor Isiah Berlin in the late 1970s (Berlin,1978). The quote has been figuratively used to divide intellectuals into two camps: the hedgehog and the fox. Those in the hedgehog camp fit their investigations into unitary or grand-scale narratives while those in the fox camp care more about the finer details of the problem. The scale here does not refer to the importance of their purpose; it only refers to the twin intellectual approaches to investigating real-world problems. While the MGA framework places Larry Susskind in the hedgehog camp for the overarching importance of MGA for the planning field, his other contributions to environmental planning, transboundary water management, and facility siting put him in the fox camp. Philosophers normally place people either in the fox camp or the hedgehog camp. Larry's inter-disciplinary research makes him a rare thinker who sits comfortably in both camps.

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8 SOME RECENT IMPORTANT WORKS OF SUSSKIND NOT CITED IN THE TEXT[7]

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[7] A detailed list of Larry Susskind's important publications is available at: http://susskindreader.mit.edu

9 EXPERT BIOS

9.1 Armando Carbonell

Carbonell is currently Vice President of Programs at the Lincoln Institute of Land Policy, where he led the urban planning program for twenty years. After attending Clark University and the Johns Hopkins University, Carbonell spent the early part of his career as an academic geographer. He went on to initiate a new planning system for Cape Cod, Massachusetts, as the founding Executive Director of the Cape Cod Commission. In 1992 he was awarded a Loeb Fellowship in the Graduate School of Design at Harvard University.

Carbonell later taught urban planning at Harvard and the University of Pennsylvania and served as an editor of the British journal Town Planning Review. He has consulted on master plans in Houston, Texas, and Fujian Province, China, and is the author or editor of numerous works on city and regional planning and planning for climate change, including Nature and Cities: The Ecological Imperative in Urban Design and Planning. Carbonell is a Fellow of the American Institute of Certified Planners, Fellow of the Academy of Social Sciences (UK), and Lifetime Honorary Member of the Royal Town Planning Institute (UK).

9.2 Danya Rumore

Danya Rumore, Ph.D., is the Director of the Environmental Dispute Resolution Program in the Wallace Stegner Center and a Research Associate Professor in the S.J. Quinney College of Law. She is also a Research Assistant Professor in the Department of City and Metropolitan Planning in the College of Architecture and Planning. She teaches courses in negotiation and dispute resolution and is a research affiliate of the University of Utah Center for Ecological Planning and Design and Global Change and Sustainability Center.

Danya completed her doctorate in Environmental Policy and Planning at the Massachusetts Institute of Technology, where she was the Assistant Director of the MIT Science Impact Collaborative and the Project Manager for the New England Climate Adaptation Project. Danya's work and research focus on supporting more collaborative decision-making and stakeholder engagement in the context of science-intensive environmental issues, with a particular focus on climate-related risk management, water resource management, and mixed land-use planning. She holds a Master of Science in Environmental Management and Geography from the University of Auckland, New Zealand, and a Bachelor of Science in Environmental Science and Natural Resource Economics from Oregon State University. She has worked with a range of organizations, including the Consensus Building Institute, the Program on Negotiation at Harvard Law School, the New Zealand Center for Sustainable Cities, and Manomet Center for Conservation Sciences. She is a co-author of the book *Managing Climate Risks in Coastal Communities: Strategies for Engagement, Readiness, and Adaptation.*

9.3 John Forester

John Forester is Professor of City and Regional Planning at Cornell University. His research explores how, as planners shape participatory processes and address public disputes, their deliberative (mal)practices shape not only reflective reframing but relationships of respect or humiliation, trust or threat, compassion or coercion. His best known work includes Planning in the Face of Power (California,1989); Deliberative Practitioner (MIT, 1999), Dealing with Difference (Oxford, 2009). His best teaching cases appear in Planning in the Face of Conflict (APA, 2013). His recent "Our Curious Silence about Kindness in Planning" appears in Planning Theory (2020).
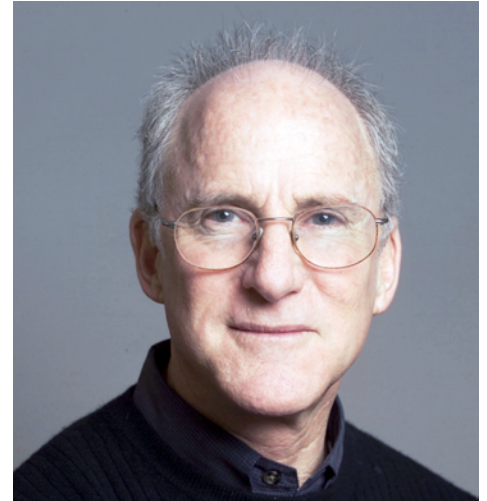
With colleagues David Laws, Ken Reardon and Daniela De Leo he has published and assessed practice-focused oral histories dealing with conflict and improvisation, community building post-Katrina, and contemporary Italian urban planning. Place Makers Tell Their Stories is in the process of publication; a book on listening, invention and deliberation should follow. Forester has taught during sabbatics in Israel, Holland, and Italy. Having served at Cornell as department chair from 1998–01 after associate dean in 1997–98, Forester received his B.S., M.S., M.C.P., and Ph.D. from the University of California-Berkeley.

9.4 Larry Crump

Larry Crump is Deputy Director of the APEC Study Centre at Griffith University (Brisbane, Australia), while serving the Department of Business Strategy and Innovation within the Griffith Business School. Lawrence E. Susskind and Larry Crump received the 2010 "Outstanding Book" award for *Multiparty Negotiation, Vol. 1 – 4* (published in 2008 by Sage in association with the Program on Negotiation at Harvard Law School) from the International Association for Conflict Management. Larry Crump teaches courses on negotiation strategy and skill, international negotiation and related courses, and has devoted over 25 years to the study of negotiation complexity. Larry has examined negotiations involving the G20, UN climate change negotiations, the WTO, negotiations involving regional associations (APEC, EU, Mercosur, Pacific Alliance, TPP, Union for the Mediterranean) and many bilateral trade negotiations to extend theory on negotiation strategy, linkage dynamics, closure, turning points, framing and coalition building. He can be contacted at: L.Crump@griffith.edu.au.

9.5 Maria Ivanova

Maria Ivanova is international relations and environmental policy scholar. Her research focuses on international environmental institutions and their performance, environmental sustainability, and the science-policy interface. She studies the implementation of global environmental conventions and the policy processes around the Sustainable Development Goals. She is an associate professor of global governance at the John W. McCormack Graduate School of Policy and Global Studies at the University of Massachusetts Boston where she also co-directs the Center for Governance and Sustainability.

She is a member of the Scientific Advisory Board of the U.N. Secretary-General, a board member of the U.N. University Institute for the Advanced Study of Sustainability (UNU-IAS) and the Global Young Academy, Global Young Academy, and an Andrew Carnegie Fellow. She also serves as an ambassador for the New Shape Prize of the Global Challenges Foundation. Her career, marked by teaching excellence and policy leadership, has bridged academia and policy. Her academic work has been recognized for bringing analytical rigor and innovative input to the international negotiations on reforming the U.N. system for the environment. She works closely with national governments, UN agencies, and convention secretariats in providing an academic perspective into their international environmental governance work.

9.6 Michael Wheeler

Michael Wheeler has taught Negotiation in Harvard Business School's MBA program since 1993. He also teaches in a wide variety of on-campus executive courses, including Strategic Negotiation. Working with HBS Online, he created Negotiation Mastery, a 40-hour, highly interactive course on HBS's digital learning platform. It launched in February 2017; it has now been taken by managers, officials, and students from 134 countries. He was appointed MBA Class of 1952 Professor of Management Practice in 1999. He subsequently served as faculty chair of the first year MBA program, and headed the required Negotiation course. He has also taught The Moral Leader, as well as Leadership, Values, and Decision Making.

In 2004 he received the Greenhill Award for his contributions to HBS's mission. In previous years has also been a Visiting Professor at the Harvard Law School and the Kennedy School of Government. Wheeler's current research focuses on negotiation dynamics, dispute resolution, ethics, and distance learning. In July 2015 he was named Editor Emeritus of the Negotiation Journal, having been its Editor the prior twenty years. He also co-directs the Negotiation Pedagogy initiative at the inter-university Program on Negotiation. Wheeler blogs about negotiation issues as an Influencer on LinkedIn. With Professor Kimberly Leary he co-hosts the podcast Agility, where they explore agile negotiation and adaptive leadership. His Negotiation 360 self-assessment/best practice app is available for iOS and Android devices.

9.7 Patrick Field

Patrick Field is Managing Director at the Consensus Building Institute and Associate Director of the MIT-Harvard Public Disputes Program. For 24 years, he has built consensus and collaboration capacity on complex public and organizational issues in the U.S. and Canada. His primary focus is building agreements on and finding solutions for the built and natural environment across sectors, interests, disciplines, and organizations. Leading CBI's U.S. practice, Patrick mediates and facilitates public engagement and stakeholder processes on natural resource, land use, transportation, energy, and water issues across the United States and Canada.

He frequently works with and between local, regional, state, and federal governments. He is particularly adept at designing and facilitating processes that integrate technical complexity, community involvement, and agency decision-making. He has worked with federal agencies such as the U.S. Department of Interior, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration, the Department of Defense, and others. He has worked extensively with Native American and First Nation communities and governments. Patrick has worked with major industrial sectors in energy, mining, construction and development, and food and agriculture. His cases have involved energy facility siting, Superfund cleanup, river, estuarine and groundwater restoration, food system and sustainable agriculture policy and programs, land use and transportation projects and policy, and wildlife management.

9.8 Saleem Ali

Saleem H. Ali is Blue and Gold Distinguished Professor of Energy and the Environment at the University of Delaware. Professor Ali also holds Adjunct Professor status for both the Global Change Institute, and the Sustainable Minerals Institute at The University of Queensland in Australia. He previously served as Chair in Sustainable Resource Development and professor of sustainability science and policy, also at The University of Queensland. Previous to that, he was professor of environmental studies at the University of Vermont's Rubenstein School of Natural Resources, and founding director of the Institute for Environmental Diplomacy and Security.

His books include "Treasures of the Earth: Need Greed and a Sustainable Future" (Yale University Press) and with Larry Susskind "Environmental Diplomacy" (Oxford University Press). He has been recognized by the World Economic Forum as a "Young Global Leader."

9.9 Shafiqul Islam

Shafiqul (Shafik) Islam is a professor in the Department of Civil and Environmental Engineering and a professor of water diplomacy at the Fletcher School of Law and Diplomacy at Tufts University. He is the director of the Water Diplomacy Program. He works on availability, access, and allocation of water within the context of climate challenges, health, and diplomacy. He seeks interdisciplinary approaches to create actionable knowledge by blending science, engineering, policy, and politics in contextually relevant ways using complex science, systems thinking, principled pragmatism, and negotiation theory.

Islam maintains a diverse network of national and international partnerships and is engaged in several national and international consulting and training practices in the United States, South Asia, Africa, and the Middle East. He is the 2016 recipient of the Prince Sultan Bin Abdulaziz International Water Prize for Creativity. He has over a hundred journal publications and three books on water diplomacy. His research and practice have been featured in numerous media outlets, including the BBC World Service, Voice of America, the Boston Globe, the Huffington Post, Nature, and Yale E360. For more information about his interests and expertise, please visit Water Diplomacy.

9.10 Todd Schenk

Dr. Todd Schenk is an Assistant Professor in the Urban Affairs and Planning Program of the School of Public and International Affairs at Virginia Tech. He has extensive research and consulting experience working on environmental policy and planning, and collaborative governance issues in North America, Europe, Asia, Africa and the Middle East. Dr. Schenk received both a Ph.D. in Public Policy and Planning and a Master in City Planning from the Massachusetts Institute of Technology, and a Bachelor's degree in Geography from the University of Guelph. He served as the Assistant Director of the MIT Science Impact Collaborative, and held a research fellowship with the Program on Negotiation at Harvard Law School. Dr. Schenk has also held positions with the Regional Environmental Center for Central and Europe and the Consensus Building Institute.

Dr. Schenk's work falls into three overlapping areas:

1) Collaborative governance, particularly at the science-policy interface: Dr. Schenk is co-editor of the volume *Joint Fact-Finding in Urban Planning and Environmental Disputes,* which focuses on approaches that move beyond 'adversarial science' by engaging stakeholders to collectively identify their information needs, partner with experts to develop and implement research agendas, and collectively receive and consider the results and their implications on policy-making and planning. He is director of a new program at VT called *Science, Technology & Engineering in Policy (STEP)*, which is

providing STEM-H students with the understanding and competencies to work with other stakeholders in policy processes. Dr. Schenk also works with interdisciplinary teams on species management, water pollution, and other environmental issues.

2) Climate change adaptation, particularly as a governance challenge: Dr. Schenk is author of the book *Adapting Infrastructure to Climate Change: Advancing Decision-Making Under Conditions of Uncertainty,* which examines how infrastructure managers and other stakeholders can prepare for uncertain climate futures. It considers various tools and approaches, including the use of multiple scenarios.

3) Serious games as a tool for action research: Much of Dr. Schenk's work uses role-play simulation exercises to engage stakeholders in the collective exploration of their challenges and consideration of their options.

GLOSSARY

2030 Agenda for Sustainable Development: The 2030 Agenda for Sustainable Development refers to a commitment to eradicate poverty and achieve world-wide sustainable development by the year 2030. The Agenda consists of 17 Sustainable Development Goals (SDGs) and 169 targets, and was adopted on 25 September 2015.

Adaptive Planning: Adaptive planning refers to the planning procedures, which are responsive to the demands of all the stakeholders as well as to the emerging challenges and opportunities during the planning process.

Collaborative Decision-making: Collaborative decision making refers to a collective decision made by a group of people from the available alternatives.

Integrated Water Resources Management (IWRM): Integrated Water Resources Management (IWRM) is an approach to manage water resources based on the principles of social equity, economic efficiency, and environmental sustainability.

Intergovernmental Panel on Climate Change Fifth Assessment Report: The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) is the fifth in a series of reports. The IPCC was established in 1988 under the auspices of the United Nations Environment Program's World Meteorological Organization to assess scientific, technical and socio-economic information concerning climate change and explore opportunities and needs for adaptation and mitigation.

Memorandum of Understanding (MOU). An MOU describes the broad details of an agreement and mutual expectations reached by two or more parties. It's not a legally binding document, but it gives a signal that a similar binding contract is imminent.

Participatory Action Research (PAR): Participatory action research (PAR) underscores participation and action. It aims to conduct a research inquiry in communities collaboratively and following reflection. Reason and Bradbury (2008) suggest that "within a PAR process, "communities of inquiry and action evolve and address questions and issues that are significant for those who participate as co-researchers".

Zone of Possible Agreement (ZOPA): In the negotiation literature, ZOPA refers to the bargaining range where two or more parties may find a common ground to reach an agreement.

Action-Reflection-Adaptation-Public Learning: Excerpts from the Life of a Pracademic

Shekhar Chandra

Larry Susskind is Ford Professor of Urban and Environmental Planning at the Massachusetts Institute of Technology (MIT). His research interests focus on the theory and practice of mult party negotiation and public dispute resolution, the practice of public engagement in local decision-making, global environmental treaty-making, and the resolution of science-intensive policy disputes, particularly those related to climate change adaptation. He is an experienced mediator, having helped to settle more than 50 resource management and development disputes in many parts of the world, mostly through the Consensus Building Institute, which he founded in 1991.

Larry is the author or co-author of more than twenty books including, most recently, Environmental Problem-Solving (Anthem), Managing Climate Risks in Coastal Communities: Strategies for Engagement, Readiness, and Adaptation (Anthem), the second edition of Environmental Diplomacy (Oxford Press), and Good for You, Great for Me (Public Affairs Press).He is one of the co-founders of the inter-university Program on Negotiation at Harvard Law School, where he now directs the MIT-Harvard Public Negotiations Program, serves as Vice-Chair for Instruction, and co-directs the Negotiation Pedagogy Initiative.

This booklet is based on the author's frequent interactions with Larry over several years at MIT. During his doctoral studies, the author has had multiple opportunities to work with Larry that not only inspired the author's research but also exposed him to some of Larry's important scholarly contributions to the planning field. Conversations in the booklet are grouped under five broad public policy questions to which Larry has made important contributions.