JUSTICE, COMPLEXITY AND EFFECTIVE GOVERNANCE IN THE TWENTY-FIRST CENTURY[*]

JUSTICIA, COMPLEJIDAD Y GOBERNANZA EFECTIVA EN EL SIGLO XXI

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Resumen:

La democracia constitucional está bajo presión en todo el mundo, generando temor entre los ciudadanos de muchos países. Una fuente clave de consternación es la sensación de que los asuntos que consideramos que estaban resueltos ahora parecen no estarlo. Habiendo codificado e institucionalizado las normas que defienden los derechos humanos fundamentales, las libertades y las normas básicas durante décadas, asumimos que muchos problemas se habían resuelto definitivamente.

Después de haber luchado por comprender estos problemas durante los últimos años, he llegado a creer que una fuente clave de nuestra sorpresa y consternación al ver abandonadas o debilitadas las normas establecidas reside en un malentendido fundamental de la naturaleza y función del derecho. En lugar de establecer significados fijos y eternos, necesitamos entender la ley como provisional y en constante cambio.

En este artículo, comienzo examinando algunos supuestos fundamentales de la teoría política, en particular la tradición contractualista. En la segunda parte, examino la reciente crítica basada en la complejidad que cuestiona la posibilidad del diseño legal e institucional. En la tercera parte, considero si las alternativas a la teoría política contractualista y en particular el trabajo de Amartya Sen, podrían ofrecer bases superiores para pensar sobre la justicia política. En la parte final de mis comentarios, considero las implicaciones de estos puntos de vista y ofrezco algunos escenarios sobre cómo el desarrollo y la reforma legal e institucional podrían lograrse a través de enfoques

más flexibles, participativos y basados en evidencia, a partir de la teoría de la complejidad. En conclusión, sugiero que, a pesar de la promesa de estos enfoques novedosos, es importante reconocer que ninguna estructura institucional puede garantizar la total fidelidad a las normas legales y que sigue teniendo un papel importante la renovación de los compromisos compartidos de los ciudadanos con los valores fundamentales y la solidaridad social.

Palabras Clave:

Complejidad y derecho, gobernanza, teoría jurídica contemporánea, teoría de la justicia.

Abstract:

Constitutional democracy is under strain around the world, creating fears among citizens in many countries. A key source of dismay is a sense that matters that we took to be settled now appear unsettled. Having codified and institutionalized norms upholding fundamental human rights, liberties, and basic norms over decades, we assumed that many issues had been resolved definitively.

Having struggled to understand these issues over the past few years, I have come to believe that a key source of our surprise and dismay in seeing established norms abandoned or weakened lies in a fundamental misunderstanding of the nature and function of law. Rather than establishing fixed and eternal meanings, we need to understand law as provisional and constantly changing.

In this paper, I begin by examining some fundamental assumptions in political theory, particularly the contractarian tradition. In the second part, I examine a recent complexity-based critique which calls into question the possibility of legal and institutional design. In the third part, I consider whether, alternatives to contractarian political theory, notably the work of Amartya Sen, might offer superior grounds for thinking about political justice. In the final portion of my remarks, I consider the implications of these views and offer some scenarios for how legal and institutional development and reform might be accomplished through more flexible, participatory, and evidence-based approaches based in complexity theory. In conclusion, I suggest that despite the promise of these novel approaches, it is important to recognize that no institutional structures can ensure complete fidelity to the legal norms and that an important role remains for renewal of citizens' shared commitments to fundamental values and social solidarity.

I. Introduction

Constitutional democracy is under strain around the world, creating fears among citizens in many countries. While there are many causes of this situation, a key source of dismay is a sense that matters that we took to be settled now appear unsettled. Having codified and institutionalized norms upholding fundamental human rights, liberties, and basic norms over decades, we assumed that many issues had been resolved definitively. Many of us thought this progress was a one-way street. It has been commonplace to assume that constitutional democracies which reached certain levels of economic development would simply continue on this road. The notion of path dependency in institutional economics provided support for the expectation that established institutions would persist. Even those of us who recognized that tremendous injustices in our countries remain unresolved and the need for deeper reform discounted the risk of backsliding or retreat from these established baselines.

Having struggled to understand these issues over the past few years, I have come to believe that a key source of our surprise and dismay in seeing established norms abandoned or weakened lies in

a fundamental misunderstanding of the nature and function of law. Rather than establishing fixed and eternal meanings—what English speaking lawyers refer to as "settled law"—we need to understand law as provisional and constantly changing. Recent interdisciplinary scholarship in complexity theory and historical institutionalism in the social sciences sheds light on this changeable nature of law. Law continuously evolves because a complex array of social actors continually shapes collective understandings and applications of law.

This conception of law has important implications for how we think about the way in which legal orders are established, how they develop over time, and the ways in which we approach the reform of legal and governance institutions.

The assumption of permanence in legal and institutional structures may also help explain a second major challenge that societies around the world are facing: that our political systems are failing to solve critical problems. In light of the immense existential challenges humanity confronts today, a conception of law as rigid and timeless would have us fettered to existing institutions and laws even as they fail to generate positive results.

To develop this argument, I would like to begin by examining some fundamental assumptions in political theory, particularly the contractarian tradition, which have heavily influenced the ways in which we think of legal systems. In the second part of my talk, I will examine a recent complexity-based critique by Devins et al,[1] which calls into question the possibility of legal and institutional design. I will then review scholarship from the historical institutionalist school in political science, which analyzes the processes by which law and institutions change and evolve over time.

In the third part of my talk, I will consider whether, in light of these critiques and research, alternatives to contractarian political theory, notably the work of Amartya Sen, might offer superior grounds for thinking about political justice.[2]

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[1] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin, 'Against Design' (2015) 47 Ariz. St. L.J. 609 <https://arizonastatelawjournal.org/wp-content/uploads/2015/12/Devins_Final.pdf >

[2] Amartya Sen, *The Idea of Justice* (first published Allen Lane 2009, Penguin Books 2010)

In the final portion of my remarks, I will consider the implications of these views and offer some scenarios for how legal and institutional development and reform might be accomplished through more flexible, participatory, and evidence-based approaches. In conclusion I will suggest that despite the promise of these novel approaches, it is important to recognize that no institutional structures can ensure complete fidelity to the legal norms and that an important role remains for renewal of citizens' shared commitments to fundamental values and social solidarity.

II. Rawls and the Ideal Theory of Justice

As many have observed, John Rawls' *A Theory of Justice*[3] marked a major turning point in the history of political thought. While the contribution of this work has certainly been significant, my interest is less in the specifics of Rawls' theory than in what it represents. In this regard, I wish to focus on the notion of an ideal theory of justice that he develops in his work.

In constructing his theory, Rawls famously devises a thought experiment, the veil of ignorance, which he uses to explain how free and equal citizens could choose principles of political justice on which to base a society. In the "original position" under the hypothetical veil of ignorance, persons would lack any conception of their personal attributes or positions in society. Lacking such knowledge, these persons would choose principles of justice that would avoid the possibility of favoring certain classes, personal attributes, or inherited endowments. Not knowing whether one had red hair or not, persons would not opt for rules which denied red headed persons equal rights, for instance.

The principles of justice that derive from the veil of ignorance are intended to ground a social contract. The chief content of this model are just institutions through "an agreement on the principles that are to regulate the basic structure [of society] itself from the present

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[3] John Rawls, *A Theory of Law* (first published 1971, The Belknap press of Harvard University Press Cambridge 1999)

to the future."[4]. As Rawls defines it, the principles developed through this procedure would constitute an ideal theory of justice. A key implication of this understanding is that, having identified ideal principles of justice, societies must take steps to implement those ideals.

Rawls recognizes that the ability to realize such ideal principles in real-world conditions may be difficult. To allow for that possibility, he develops the notion of nonideal theory. Nonideal theory bridges the gap between current societal conditions and the ultimate achievement of the ideal principles of justice. Rawls does not elaborate his understanding of nonideal theory extensively in *A Theory of Justice*, which has led to some confusion among readers as to its precise meaning and purpose.

While nonideal theory recognizes that immediately realizing ideal principles of justice is impossible, a key assumption of both theories is that societies can and should work towards their realization. They provide bases for enacting institutions and laws capable of realizing principles of justice.

III. Against Design

In a remarkable article written in 2016, Caryn Devins, Roger Koppel, noted complexity theorist Stuart Kaufman, and Teppo Felin called into question a basic assumption among lawyers and political theorists: that institutions can be designed to achieve intended aims. According to the authors, legal theorists operate under the assumption that laws will produce predictable consequences and future contingencies can be anticipated. Drawing on complexity theory and earlier work of three of the four authors, they contend that, once created, institutions undergo extensive changes through the creative work of a multitude of social actors, who modify the institutions in ways that depart from the intent of their designers. These creative processes determine the functions of institutions in society. They justify their critique by examining the ways in which the constitutional doctrines supporting the adoption of civil rights legislation to

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[4]   John Rawls (n 3) 17

protect minorities in the US have been used to support very punitive drug laws, which have disproportionately harmed those same minority groups.

Devins et al argue that the assumption of design is central to our understanding of law. They define design as creating a plan based on known constraints and resources to achieve predefined objectives. While they allow the possibility that design may have been appropriate in earlier periods of history—for instance during the emergence of the modern state following the Enlightenment—they contend that in today's world "design has outstripped its usefulness"[5]. Design "successfully exerted through deliberation plays a far smaller role in the development of law and policy than is commonly believed" they contend.[6]

The basis of their critique relies on two principal claims. First, the legal system is a complex system of interlinking parts that interact in myriad ways. Drawing on Freidrich Hayek's critique of centralized planning, they contend that cognitive limitations make it impossible for actors to design institutions capable of responding to the innumerable contingencies that may arise in society. This observation finds support in the Herbert Simon's notion of bounded rationality, widely applied in new institutional and transaction cost economics to explain why contractual incompleteness is a permanent feature of economic life.

The second basis of their argument stems from an understanding of the ways in which social actors respond to institutions once designed. We can "draw up detailed plans but their execution cannot be controlled as they take on new life within interlocking adaptive networks that respond to them", they write[7]. Devins et al contend that entrepreneurial agents exploit the "adjacent possible" of existing institutions by developing affordances, uses, and functions that could not have been thought of or anticipated by designers. They argue that "laws are the beginning rather than the end point, the en-

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[5] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 612

[6] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 612

[7] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 612

ablers of an elaborate complex evolutionary process between legal institutions and society".[8]

This argument echoes recent scholarship among complexity-sensitive heterodox economists such as Jason Potts and Colin Crouch. They identify the creative work of individuals and firms —what they refer to as institutional entrepreneurs—who continually shape and reshape the economy, as accounting for its fundamentally dynamic nature. A key implication of this view is that static equilibrium economic models fail to capture the changing evolutionary nature of the economy.

The assumption of the possibility of design rests on the view that legal systems are closed systems when in reality they are open to the input of society. "Rather than deterministic rules that mechanically generate predefined behavior, legal institutions develop through evolutionary changes that cannot be understood or predicted," they argue[9]. This nonlinear dynamic means that consequences which are unintended — and even fundamentally contrary to designers' intents — are inherently part of this process.

IV. Historical Institutionalist Understanding

Understanding institutional change has been a central focus of the historical institutionalist school. In contrast to rational choice and sociological institutionalist scholarship, which treat institutions as relatively static, historical institutionalists focus much on institutional change processes. As writers such as Graham Room have noted, this research also provides empirical grounding for complexity-based understandings of institutions.

Two noted historical institutionalists, James Mahoney and Kathleen Thelen, offer a theory to explain institutional evolution. They note that a central conceptual challenge in thinking about institutional change is the fact that "the idea of persistence is virtually built

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[8]   Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 673
[9]   Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 620

into the very definition of institution"[10]. This makes sense since if there was nothing constant in institutions then we wouldn't have anything to talk about! Yet the reality, these scholars find, is that institutional change is ongoing.

Mahoney and Thelen argue that the basic properties of institutions contain within them the possibility of change. Their view provides a more detailed understanding of the actual causal mechanisms within the kinds of creative adaptations that Devins et al describe. There are four primary reasons for this view. First, they contend that rules may constrain action, but are not unequivocal. Actors can exploit openness to transform how power and authority are exchanged. They contend that it is in the "soft spots" between rule interpretation and enforcement, often involving official discretion, that institutional change can occur. Hence, they argue that "ambiguity is a permanent feature of institutions even when formalized".

Second, cognitive limits prevent actors from choosing the rules that avoid conflict. Rules designed to achieve one institutional aim will often conflict with other aims, hence creating opportunities for change. Mahoney and Thelen argue that institutional "compliance is inherently complicated because rules can never be precise enough to cover the complexities of all possible real-world scenarios".[11] Third, they argue that institutions are often embedded in assumptions that are implicit.

Hence, unwritten norms often affect the ways in which institutions operate and can cause changes. They reference Durkheim's view of the "noncontractual basis of contracts" to support this claim. Finally, the application of rules —notably in enforcement and interpretation— provides opportunities to undermine the original design.

The views of Thelen and Mahoney find support in other historical institutionalist scholarship. As with Devins et al, they find that design is only the beginning of the process and that laws' meanings change continuously in their application and enforcement due in

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[10] James Mahoney & Kathleen Thelen (eds), *Explaining Institutional Change. Ambiguity, Agency, and Power* (Cambridge University Press 2009) 4
[11] James Mahoney & Kathleen Thelen (n 10) 11

part to rules' inherent ambiguity. Together these authors make the Rawlsian notion of an ideal theory of justice appear beside the point. How then should we approach the task of institutional development and reform?

V. Amartya Sen and the Idea of Justice

Amartya Sen offers an alternative model in point of contrast to Rawls that is more appropriate to the conditions of legal change and uncertainty I have described. While a rich account of his work is beyond the scope of this paper, I will offer some illustrative examples that can guide consideration of plausible alternative models, which follows.

Rather than offer an ideal theory of justice, Amartya Sen proposes a more modest "idea of justice". He rejects the notion of ideal theory as unattainable. It is in light of the work of the Against Design authors that we can see the strength of Amartya Sen's critique of Rawls and the potential his approach to justice holds. Sen rejects the work of many contemporary theorists of justice, particularly those within the contractarian position, including Rawls for what he calls institutional fundamentalism. By reducing questions of justice to the creation of just institutional structures and procedures, he contends they are unable to offer much guidance to inform decision making.

A key complaint of Sen's is that once chosen, there is no procedure within the system to check whether the institutions are, in fact, generating the anticipated results. Sen seeks to focus on alternative theories of justice and social choice which "take extensive note of social states that actually emerge to assess how things are going and whether the arrangements can be seen as just and how they can be improved".[12]

Sen argues that institutions are fundamental to a theory of justice but rather than treating institutions themselves as *manifestations* of justice as Rawls does we have to seek institutions that *promote*

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[12] Amartya Sen (n 2) 86

justice.[13] Sen turns Rawls' claims upside down arguing that defining "what is a just society is not a good starting place for a theory of justice"[14] Instead he defends a relational approach which focuses on practical reasons for choosing between different policies, strategies, and institutions. Being able to make comparative judgments about competing options is central to Sen's approach. Social choice theory to figures prominently in his approach. He argues for the importance of not only defining appropriate institutions for realizing justice but also evaluating how they affect actual social realizations.

VI. Scenarios for Adaptive Legal and Governance Systems

I will propose three scenarios for how law making and reform can be approached in light of the foregoing. I call these scenarios, first because I do not purport to offer a fully-developed unified theory and second because I accept the possibility that no such theory is possible, which leaves us with the task of identifying different tools to pragmatically address governance problems in different ways.

The first scenario builds on the suggestions of Devins et al and examines the possibility of taking a more flexible approach to thinking about institutional design. In this regard, I will consider the work of other scholars on experimentalism and explore possibilities for direct citizen engagement which new technologies are making feasible.

Next I will consider work in the field of regulatory theory, particularly theories of responsive regulation and its variants. I will then consider developments at the international level, which provide some evidence of the ways in which self- organization can occur within general legal frameworks. In conclusion I will consider the applicability of ideals of civic republicanism, which provides inspiration for renewing our commitments to self-governance in ways that support positive social change and collective problem solving.

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[13]   Amartya Sen (n 2) 82
[14]   Amartya Sen (n 2) 105

As I hope will become clear, these different scenarios have commonalities that may allow them to work together.

VII. Evolutionary Legal Frameworks

Devins et al offer an approach to thinking about evolutionary legal systems, which is based on the idea of institutional performance. The basis of such systems rest on metrics to measure the attributes and outcomes of institutions. The approach is designed to deal with the creative complex nature of the legal system by supporting its evolution.

Rather than seeking to design optimal legal institutions, they argue for an approach to "growing institutions through flexible evolutionary learning"[15]. Drawing inspiration from the emerging approach to personalized medicine in which the specific attributes of patients understood through a large data clouds can be used to design treatments that respond to the multi-causal factors affecting their conditions, they argue for an approach that supports empirical evaluation of the efficacy of a variety of legal regimes by analyzing their outcomes in real time[16]. One need not be a technological Utopian to imagine how the advent of new data gathering technologies coupled with data analytics and machine learning applications will dramatically improve these practices. A second aspect of this approach is to decentralize decision making. Recognizing the cognitive limitations of judges as neutral objective interpreters of the law — epitomized by Ronald Dworkin's hypothetical ideal judge Hercules — they contend that what are needed are more "bottom-up strategies to evolve and proliferate institutions and the methods of policy-making".[17] The dispersed decision making system they envision would "increase the flow of knowledge through distributed actors and its percolation throughout the legal system".[18] In this context,

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[15] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 677
[16] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 677
[17] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 678
[18] Caryn Devins, Roger Koppl, Stuart Kauffman & Teppo Felin (n 1) 678

legal entrepreneurs would not be eliminated but could play roles in supporting more effective policy making by crowd-sourcing distributed knowledge to facilitate adaptation in light of new knowledge.

The model of democratic experimentalism proposed by Charles Sabel and Michael Dorf twenty years ago has affinities with this view. They propose a pragmatic approach to governance that combines direct deliberation of citizens in decentralized decision making forums with enhanced systems for learning by monitoring. By gathering data on the results of government programs, adjustments can be made to improve their effectiveness. The process of reviewing results and experimenting with new solutions promotes a process of learning by monitoring.[19]

These forward looking ideas for experimental and direct deliberative politics find further support in emerging trends that new technologies are making possible.

Specifically, the development of blockchain technology enabling highly secure identification techniques coupled with enhanced communication devices, is enabling new forms of direct democracy. Rather than resigning ourselves to only engaging in formal political processes every two to six years, it is becoming feasible for citizens to communicate their policy preferences easily and directly. These approaches also make representative democracy no longer the only practical option—a claim long used to discount the possibility of direct forms of democracy. It is becoming increasingly untenable to hold that the views of hundreds of millions of citizens must be filtered through a few hundred representatives for years at a time.

VIII. Responsive Regulation

The types of institutional flexibility, learning by monitoring, and engaging diverse stakeholders these authors imagine has clear affinities with the idea of responsive regulation developed by Ian Ayers

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[19] Michael C. Dorf & Charles F. Sabel, 'A Constitution of Democratic Experimentalism' (1998) 98 Columbia Law Review 267 <https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=1119&context=facpub>

and John Braithwaite[20]. Braithwaite's regulatory theory has been informed by a lifetime of close empirical research on regulation in fields as diverse as coal mines to nursing home to policing in post-conflict countries. The basic idea of "responsive regulation suggests that governance should be responsive to the regulatory environ-ment and to the conduct of the regulated in deciding whether a more or less interventionist response is needed"[21]. Responsive regulation challenges the "rulish presumptions that harmful conduct X man-dates regulatory intervention Y"[22].

It is instead a "dynamic model in which persuasion and/or capac-ity building are tried before escalation up a pyramid of increasing levels of punishment and coercion[23]. The ability to calibrate regula-tory responses to actual conditions requires the kind of data and learning that Devins et al seek to enable. The responsive nature of this regulatory model helps demonstrate the legitimacy of institu-tions to citizens — hey, the government listens and seems to adjust behavior in a sensible fashion depending what I do — and other stakeholders.

The responsive regulatory model has been extended through the related theory of "smart regulation". Smart regulation contends that regulators should review how different regulatory interventions in-teract, with some complementing each other, and others undermin-ing the intended purpose. Braithwaite observes that "smart regu-lation implies a diagnostically reflective regulator attending to the possible synergies and contradictions a pyramid of networked esca-lation can throw up".[24]

Smart regulation has two key features which make it attractive from the standpoint of complexity. First, it recognizes that regula-tion can be carried out not just by the state but by engaging different

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[20] Ian Ayres & John Braithwaite, Responsive Regulation. Transcending the De-regulating Debate (Oxford University Press 1992)

[21] Ian Ayres & John Braithwaite (n 20) 4

[22] John Braithwaite, 'Types of Responsivness' in Peter Drahos (ed), *Regulatory Theory: Foundations and applications* (Australian National University Press 2017) 118

[23] John Braithwaite (n 22) 118

[24] John Braithwaite (n 22) 123

configurations of public and private actors. Second, smart regulation takes a holistic view of the regulatory landscape, particularly recognizing that different regulatory regimes can reinforce or undermine one another. A responsive regulator takes account of these interactions and adjusts regulatory approaches to ensure their effectiveness.

This model of regulation departs from a one-sized fits all approach and instead seeks to tailor regulatory responses to the behavior of regulated firms and individuals. It is an inherently pragmatic and evidence-based approach, which makes it suitable to addressing the conditions of complexity.

IX. Complexity and Evaluation of the Public Sector

Support for an evolutionary and more flexible approach to law can be found in emerging practices for evaluation of public institutions and programs. Traditional evaluation practice has taken a linear approach. Following the results-based management model favored by New Public Management proponents, government programs have been evaluated based on whether they achieved the objectives set. Evaluators review whether in a cascading fashion program outputs led to outcomes which in turn resulted in impacts. It is noteworthy that evaluation professionals have independently found that traditional conceptions of program design and implementation are unable to explain how institutions operate.

Under the weight of evidence showing that this linear model of evaluation failed to account for many causes of program results (notably both positive and negative unintended consequences), evaluation professionals are developing and applying new evaluation techniques that draw on insights from complexity theory.

Complexity-based evaluation recognizes that program results are often emergent rather than specified in advance. It also recognizes that in multi-causal processes, it may be difficult to single out one specific cause for changes that occur. In contrast to the straight-line accountability assumptions behind traditional evaluation, complexity based evaluation is based on a learning model that facilitates

program adaptation and innovation. One can see how these types of evaluation practices would complement the other governance innovations described earlier.

X. Complexity in Global Governance

An additional model of how diverse actors can contribute to achievement of governance and regulatory objectives can be seen with the international framework governing biodiversity. The Convention on Biological Diversity (CBD)[25] provides the basis for the framework. This treaty ratified by 191 states sets forth basic norms for protecting biodiversity and enabling sustainable use of resources. To support implementation of the CBD, the parties agreed on a strategic plan in 2010, covering the period 2011-2020. The Strategic Plan for biodiversity as it is called contains 19 targets (the Aichi targets) to gauge progress. Parties to the CBD report on their activities to implement the convention, while a much broader community of actors conducts an array of supportive activities.

To support the monitoring of the Aichi Targets, a group of international organizations and other biodiversity-related treaty bodies have created the Biodiversity Indicators Partnership. The partnership has helped elaborate the indicators to monitor biodiversity while seeking to identify interconnections between them. To support scientific research and monitoring for biodiversity, the Intergovernmental Science-Policy Panel for Biodiversity and Ecosystem Services was created in 2012. It includes the main international organizations and multilateral environmental agreements for biodiversity. An array of international organizations also monitor biodiversity through Earth Observation Satellites (EOS) and remote sensing (RS) devices. These organizations have banded together to create the Group on Earth Observations Biodiversity Observation Network (GEO BON), a collaboration between governments, international organizations, and academic research institutions, to support and coordinate their efforts. This data is supplemented by

[25] Convention on Biological Diversity [1992] UN

research carried out by citizen scientists (e.g. amateur bird watchers), NGOs, academics, national conservation professionals, and indigenous communities. To gather and manage the massive amounts of biodiversity data being generated by these diverse actors, a separate organization, the Global Biodiversity Informatics Facility, was launched in 2012 with support from the OECD, other IGOs, and governments. The GBIF seeks to create an open-source infrastructure for storage and dissemination of biodiversity information.

Together these efforts reflect both top-down and bottom-up processes. While states have agreed on the CBD and the targets under the Strategic Plan for Biodiversity, an array of actors contribute to monitoring achievement of the targets and developing the scientific knowledge base to inform decision making. Formal classifications of institutions as public sector or private have given way to hybrid organizational models that support collaboration among diverse configurations of public and private actors. Participation is generally open and encompasses many different actors. While the CBD represents a locus for these activities, there is no centralized authority directing efforts. It thus reflects a high degree of self- organization among the participants.

XI. Conclusions

As Sen and others have argued, we can pat ourselves on the back for adopting laws that we think just, but if they do not generate results in terms of improvements in society, new approaches are needed.

We can enact schemes of legal aid to protect the human rights of criminal defendants, for instance, but if people cannot obtain aid, or it is administered unfairly, or is ineffectual in ensuring proper defenses then we have to ask why? Likewise, we can adopt clean air legislation but the air quality remains poor or respiratory illnesses do not decline, we need to respond.

This not a call for amending the laws nor simply implementing them as sometimes suggested but instead a call for new approaches to thinking about what law delivers. Nor is it a normative question about the adequacy of the rules adopted but a factual and quantita-

tive question about whether the law is working. Engaging citizens, businesses, scientists, civil society in monitoring, evaluating, and developing improvements is critical.

Despite the promise of these new approaches to governance, we are still left with the problem with which I began. While we can develop new forms of governance that are more compatible with the evolutionary nature of law and institutions, there are no *ex ante* rules that can be established to block efforts to backtrack on established norms. Ultimately, governance must rest not on iron clad rules from which deviation becomes impossible but instead on the support of the governed.

It is through actors' adherence to basic norms of justice over time that enables society to realize principles of justice. It is not a once and for all situation. Rather justice is something that actors must continually reproduce through their actions. If members deviate too far from shared principles of justice the institutions break down. In complexity terms, the reproduction of justice principles manifests the self- organizing nature of institutions.

As a lawyer trained in the USA I have to wonder if a certain amount of our bewilderment about the Trump presidency has to do with our own institutional fundamentalism. Nostalgic for the wisdom of its framers, we have become so enamored with our Constitution that we fail to see the essential role of good faith, social solidarity, and public ethics in maintaining a healthy *res publica*.

We must continually find value in the norms that previous generations fought for and defend these standards in our daily lives as citizens. The law cannot do all the work. Civic engagement supported by civic education and the role of citizens in the types of participatory governance I have imagined here is essential. While we can improve our techniques of governance to become more problem solving and adaptive in nature, there is ultimately no substitute for renewing our commitments to responsible self-governance and creating the basis for new forms of social solidarity.

XII. References

Sen Amartya, *The Idea of Justice* (first published Allen Lane 2009, Penguin Books 2010)

Devins Caryn, Koppl Roger, Kauffman Stuart & Felin Teppo, 'Against Design' (2015) 47 Ariz. St. L.J. 609 < *https://arizonastatelaw-journal.org/wp-content/uploads/2015/12/Devins_Final.pdf* >Convention on Biological Diversity [1992] UN

Ayres Ian & Braithwaite John, Responsive Regulation. Transcending the Deregulating Debate (Oxford University Press 1992)

Mahoney James & Thelen Kathleen (eds), *Explaining Institutional Change. Ambiguity, Agency, and Power* (Cambridge University Press 2009)

Braithwaite John, 'Types of Responsivness' in Peter Drahos (ed), *Regulatory Theory: Foundations and applications* (Australian National University Press 2017)

Rawls John, *A Theory of Law* (first published 1971, The Belknap press of Harvard University Press Cambridge 1999)

Dorf Michael C. & Sabel Charles F., 'A Constitution of Democratic Experimentalism' (1998) 98 Columbia Law Review 267 <*https://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=1119&context=facpub*>