Journal of Environmental and Sustainability Law

Missouri Environmental Law and Policy Review
Volume 17
Issue 2 *Spring 2010*

Article 4

2010

Regulating Climate Change Risk at the Local Level - The Denver Experience: Greenprint or Greenwash?

Romulo Silveira da Rocha Sampaio

Regulating Climate Change Risk at the Local Level – the Denver Experience: Greenprint or Greenwash?

Rômulo Silveira da Rocha Sampaio*

* Professor and Researcher, FGV Direito Rio (FGV Law School), Rio de Janeiro, Brazil. Adjunct Professor, Pace Law School, New York, USA. Doctor of Laws (S.J.D.) and LL.M. in Environmental Law, Pace Law School. LL.M. and LL.B. Pontific Catholic University Law School, Curitiba, Brazil.

I would like to thank Professor Colin Crawford personally and on behalf of Georgia State University College of Law for the invitation and support to participate in Study Space Denver 2008 and his thoughtful insights on previous versions of this manuscript. Very special thanks to Professor Doctor Luis Fernando Shuartz for his brilliant comments and interest on the research that made this article possible. My special thanks to the research workshop at FGV Law School Rio de Janeiro for some of the ideas that helped to shape the final version of this manuscript.

ABSTRACT

In the past decade, efforts on climate change mitigation strategies became not only an issue addressed at the international level, but reached the local decision-making level. In the U.S., perhaps due to the country's lack of a more affirmative action in the international negotiation process, municipalities were encouraged to move forward with progressive mitigation commitments. The outcome of the 73rd Annual U.S. Conference of Mayors in Chicago, 2005, reflected just that: 141 U.S. Mayors signed the U.S. Mayors Climate Protection Agreement. This agreement established a goal for the participating cities of a seven percent greenhouse gases reduction target. This quantified commitment in the Mayor's Agreement reflected that set forth for the U.S. in the 1997 Kyoto Protocol. After the Mayor's Conference, in 2006, Denver's Mayor, John W. Hickenlooper, introduced Greenprint Denver, constituting a set of public policies aimed at mitigating Denver's carbon footprint along the terms of the U.S. Mayors Climate Protection Agreement.

Against this background, this article examines Denver's strategies in light of the risk regulation theory. The ultimate goal is to analyze efficiency in Greenprint Denver based on an in locus experience provided by Study Space Denver 2008. Because of the underlying uncertainty on the causation between the best local climate change mitigation policy and the real and concrete impact on a global environmental problem, this article argues that efficiency can only be measured procedurally. In that sense, considering local policies have the potential to impact people's lives directly, both positively and negatively, whether they are being efficient can either justify or fail to justify some of the burdens borne by groups of local residents. Assuming science is not able to deliver with certainty the underlying information on the causation between what the top regulatory burden priorities are and the possible positive mitigation impacts on a range of global environmental natural disasters, this paper, through the Denver Case Study, argues that ampler public participation increases legitimacy, reduces asymmetric information, shares responsibilities over the final results of any policy, and tends to be more efficient procedurally from a burden sharing perspective.

TABLE OF CONTENTS

I. INTRODUCTION

In 1992, the international community successfully managed to agree upon the Rio Declaration on Environment and Development.[1] This remarkable multilateral agreement represented an expansion of the 1972 Stockholm Declaration on the Environment, where diverse nations with distinctive economic development priorities formally recognized the need to address global environmental problems from a common set of guiding principles. While the Stockholm Declaration focused primarily on local pollution problems, the Rio Declaration turned to those of transnational impacts. The downside, though, is that the Rio Declaration itself being international soft law, it fails to promote action and binding commitments worldwide. Without a set of worldwide enforceable rules, global environmental problems become deeply dependent upon collaboration among and within nations. Climate change is one such global environmental problem not bound by political borders and heavily dependent upon national and local actions.

On the flip side, the potential competitive impacts on national economies from any ambitious mitigation action, along with the lack of precise scientific information on the causation between climate change and natural disasters, are both elements inhibiting stronger societal involvement. That is because mandatory mitigation actions impose costs upon different sectors of a country's economy and since precise causation between increasing global temperatures and the magnitude, frequency, and impacts of natural disasters cannot be firmly established, consensus upon stronger action among and within societies differ. Therefore, not only international commitment, but also domestic and local commitments merit attention. The U.S., even in spite of its resistance to join in international environmental commitments, has long been pioneering the enactment and promotion of environmental laws and policies. More recently, the country has been actively promoting environmental markets, including emissions trading schemes, and, in the area of climate change, a climate bill is

[1] *See generally* United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, June 3-14, 1992, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26 (Aug. 12 1992).

currently before Congress without prejudice to different states' initiatives.[2]

With respect to climate change, even in spite of all the opposition to stronger federal commitments from the Administration of then U.S. President George W. Bush and the prior U.S. Congress, U.S. municipalities stepped forward and promoted local actions aimed at contributing positively to the worldwide climate problem. As a result of the 73rd Annual U.S. Conference of Mayors in Chicago, 2005, 141 U.S. Mayors signed the U.S. Mayors Climate Protection Agreement, committing to adopt the U.S. target set forth in the 1997 Kyoto Protocol of seven percent reduction in greenhouse gases emissions from the 1990 levels by 2012. This landmark agreement fostered a wide range of local action throughout the country, including Denver, one of the participating cities in the Climate Protection Agreement.

In 2006, Denver's Mayor, John W. Hickenlooper, introduced Greenprint Denver, "an action agenda for sustainable development for the City and County of Denver."[3] During Study Space Denver 2008,[4] the

---

[2] *See, e.g.*, Regional Greenhouse Gas Initiative, CO2 Budget Trading Program, Homepage, http://www.rggi.org/home (last visited Mar. 31, 2010) ("[T]he first mandatory, market-based effort in the United States to reduce greenhouse gas emissions. Ten Northeastern and Mid-Atlantic states will cap and then reduce CO_2 emissions from the power sector 10% by 2018."); California Environmental Protection Agency, Air Resources Board, Assembly Bill 32 – California Global Warming Solutions Act, http://www.arb.ca.gov/cc/ab32/ab32.htm (last visited Mar. 31, 2010) ("In 2006, the Legislature passed and Governor Schwarzenegger signed AB 32, the Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas emissions reduction goal into law. It directed the California Air Resources Board (ARB or Board) to begin developing discrete early actions to reduce greenhouse gases while also preparing a scoping plan to identify how best to reach the 2020 limit. The reduction measures to meet the 2020 target are to be adopted by the start of 2011.").

[3] John W. Hickenlooper, Mayor of Denver, Letter from the Mayor (July 12, 2006), http://www.greenprintdenver.org/about/letter-from-the-mayor/.

[4] *See* Registration form, Study Space III: Evaluations of Human Habitats and Habits in the 21st Century, Private and Public Lands in the Post-Colonial North American West (Nov. 29-Dec. 6, 2008), *available at* http://www.law.du.edu/latcrit/documents/study-space-iii.pdf ("Study Space is an intensive series of workshops, held at diverse locations around the world, the goal of which is to acquire a deeper understanding of the legal, policy and human challenges posed by the global growth of megacities. The emphasis of

participants had a unique opportunity to experience in person some of the topics listed in this important sustainable development plan. Ten items are highlighted as the goals of Greenprint Denver Action Agenda.[5] For the purpose of this paper, item one of Greenprint Denver Action Agenda, the item directly relating to climate change mitigation, is the only one examined. The reason for such exclusionary selection is threefold: (1) Denver is a signatory of the U.S. Mayors Climate Protection Agreement; (2) climate change mitigation is expressly stated as the first listed goal of the Greenprint Denver Action Agenda; and (3) as a part of Denver's local policy, Study Space 2008 provided a useful case study for a more practical analysis of the deficiencies and merits of a climate change regulatory policy at the local level under a risk regulation perspective.

Considering that local policies have the potential to directly impact people's lives, both positively and negatively, this study took a one-week onsite opportunity to examine the climate change mitigation goal of Greenprint Denver Action Agenda in light of a risk regulation perspective. Assuming science cannot demonstrate the causation between what the top regulatory burden priorities are and the possible positive mitigation impacts on a range of global environmental natural disasters, the Denver case study indicates that ampler public participation increases legitimacy, reduces asymmetric information, and shares responsibilities over the final results of climate change mitigation policies; therefore, this tends to be considered more efficient procedurally.

Worth noticing, however, is that economic analysts differentiate between the notion of risks and uncertainty or ignorance. In that sense, risky situations are those "where the precise outcome cannot be predicted but a probability distribution can be specified...".[6] Uncertainty situations occur "where one does not even know the parameters of the outcomes."[7]

---

each Study Space week is on applied learning, supplemented by lecture and group discussion.").

[5] *See* GREENPRINT DENVER, GREENPRINT DENVER PLAN 6 (2006), *available at* www.greenprintdenver.org/docs/greenprint_report.pdf.

[6] Aaron Wildavsky, *The Political Economy of Efficiency: Cost-Benefit Analysis, Systems Analysis, and Program Budgeting*, 26 PUB. ADMIN. REV. 292, 296 (1966).

[7] *Id.*

This paper works with the notion of uncertainty, because the selection of the policy that best maximizes public resources fails the causation test when the addressed problem is natural disasters due to global warming.[8] In addition, establishing probabilities in the causation between real and concrete impacts of a local policy to a worldwide environmental problem like climate change is quite an impossible exercise.[9] Therefore, this study focuses on the uncertainty aspect of risk regulation in which cost-benefit analysis encounters severe obstacles to serve as the fundamental maximization tool available to local regulators.

To verify whether Denver's climate change policy is effective procedurally under a risk regulation perspective, section II describes the climate change risk and demonstrates the difficulties of scientific knowledge at providing the best information to create a set of local policies that are better suited to address the problems of climate change globally. Subsequently, the analysis turns in section III to an overview of undergoing endeavors to regulate the climate change risk at different levels, from international to local. In the same section, this paper attempts to illustrate the difficulties in relating problems and causes of climate change in different levels of risk regulation. Section IV then provides an overview at Denver's climate change risk regulation strategy, building on the onsite experience from Study Space Denver 2008. Finally, before a conclusion can be stated, section V attempts to formulate some policy recommendations from a risk regulation perspective relating specific examples from the Denver experience.

---

[8] *See* Cass R. Sunstein, *Cost-Benefit Analysis and the Environment* 5 (Univ. of Chi., Olin Law & Econ. Program, Working Paper No. 227, 2004), *available at* http://www.law.uchicago.edu/files/files/227-crs-environment.pdf (building on the work of Richard A. Posner in the terms of decision theory based on which "Posner contends that global warming presents a situation of uncertainty, where probabilities cannot be assigned to outcomes, rather than risk, where such probabilities can be assigned").

[9] *See* Aaron Wildavsky, *The Political Economy of Efficiency: Cost-Benefit Analysis, Systems Analysis, and Program Budgeting*, 26 PUB. ADMIN. REV. 292, 296 (1966), *available at* http://www.jstor.org/stable/973301 ("The cost-benefit analyst must learn to live with uncertainty, for he can never know whether all relevant objectives have been included and what changes may occur in policy and in technology.").

II. ACKNOWLEDGING CLIMATE CHANGE RISK

Although the increase in the Earth's temperature is a natural occurring phenomenon, anthropogenic interference has being speeding up this process at an alarming rate. Eleven out of the twelve years from 1995-2006 are among the twelve warmest years in record.[10] Increases in sea level, decreases in snow and ice, alteration in rainfall patterns, and changes in the frequency and intensity of extreme weather events are some observed causes linked to global warming.[11] The causation between human activities and global warming is established by the increase in greenhouse gas emissions coming from the growing energy demand, transport, industry, deforestation, and agriculture sectors.[12] Greenhouse gases are so called because while the gases allow sunlight to come through the atmosphere, the gases also trap the heat produced thereof impeding it from being released back out of the Earth.[13]

In comparison with pre-industrial levels, concentration of carbon dioxide (hereinafter "CO_2") in the atmosphere increased from 280 parts per million (hereinafter "ppm") to 379 ppm in 2005.[14] CO_2 is the main

---

[10] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 30 (2007) [hereinafter IPCC SYNTHESIS REPORT], *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

[11] *Id.*

[12] *See id.* at 37 ("Global atmospheric concentrations of CO_2, CH_4 and N_2O have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years. The atmospheric concentrations of CO_2 and CH_4 in 2005 exceed by far the natural range over the last 650,000 years. Global increases in CO_2 concentrations are due primarily to fossil fuel use, with land-use change providing another significant but smaller contribution. It is *very likely* that the observed increase in CH_4 concentration is predominantly due to agriculture and fossil fuel use. The increase in N_2O concentration is primarily due to agriculture.").

[13] *See id.* ("Changes in the atmospheric concentrations of GHGs and aerosols, land cover and solar radiation alter the energy balance of the climate system and are drivers of climate change. They affect the absorption, scattering and emission of radiation within the atmosphere and at the Earth's surface. The resulting positive or negative changes in energy balance due to these factors are expressed as radiative forcing, which is used to compare warming or cooling influences on global climate.").

[14] *Id.*

anthropogenic greenhouse gas. The Intergovernmental Panel on Climate Change (hereinafter "IPCC") is composed of scientists from around the world who are responsible for compiling the best scientific information available to develop and issue periodical reports on climate change.[15] As such,

> [t]he IPCC does not conduct any research nor does it monitor climate related data or parameters. Its role is to assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation.[16]

In its latest report, in 2007, the IPCC has noted that higher concentrations of greenhouse gases in the atmosphere have risen to a point which leads to the conclusion that global warming is "*very likely*" attributed to anthropogenic activities.[17]

To be sure, there are conflicting scientific studies challenging the causation between human activities and natural disasters attributed to global warming. Even when causation is not disputed, some maintain that increasing global temperatures are either not as harmful as the IPCC argues or that climate change is a natural phenomenon that would occur regardless of any anthropogenic interference.[18] The Associated Press, for instance, prepared a compilation of climate change misconceptions. According to this summary, conflicting information over the science underlying climate change includes: "satellites shows global cooling, not

---

[15] *See* Intergovernmental Panel on Climate Change, About IPCC, http://www1.ipcc.ch/about/index.htm (last visited April 2, 2010) (containing information about the IPCC's roles and responsibilities).

[16] *Id.*

[17] IPCC SYNTHESIS REPORT, *supra* note 10, at 39.

[18] *See* Sunstein, *supra* note 8, at 37 ("Unlike Posner, I suspect that the likelihood of real catastrophe from global warming is low, and hence that he is wrong to say that no probability can be assigned to it.").

warming," "a planet warmer by 2 degrees Fahrenheit doesn't sound bad," "the sun's variability is the biggest cause of climate change," "recent warming is a natural rebound from the European 'little ice age,'" "warming is good because it will save us from a new ice age[,]" and "a melting arctic ice cap won't raise seas; ice melting in a glass doesn't raise the water level."[19] In spite of the controversy of whether climate change is happening or if it can be attributed to anthropogenic interference, that is not the underlying point of this paper's argument. Rather, this controversy is to illustrate that conflicting scientific information over a global environmental problem, like climate change, is not able to calculate with certainty what exactly the positive impact a local climate change mitigation policy has on the global problem in the future. That does not mean, and this is not what this paper is proposing, that no mitigation action should be pursued at the local level. Instead, that procedurally, under a risk regulation perspective, a more efficient approach to regulating the climate change risk should be thought-out and carefully designed.

In sum, the above-described conflicting scientific information is the background presented to lawmakers and policymakers at all levels, from global to local. Therefore, understanding the role of the law and regulations before scientific uncertainty and/or ignorance is the first step towards more stable and balanced legal outcomes. But reaching efficient legal and regulatory results is also the challenge typical of the risk society we currently live in.[20] Nicklas Luhmann described such a situation as when

---

[19] *Misconceptions about Climate Change*, MSNBC, Feb. 18, 2005, http://www.msnbc.msn.com/id/6994470/ns/us_news-environment/#storyContinued.

[20] *See* ULRICH BECK, RISK SOCIETY: TOWARDS A NEW MODERNITY 28-29 (Mark Ritter trans., Sage Publ'ns 1992) (1986) ("Risk determinations are an unrecognized, still undeveloped symbiosis of the natural and the human sciences, of everyday and expert rationality, of interest and fact. They are simultaneously neither simply the one nor only the other. They can no longer be isolated from one another through specialization, and developed and set down according to their own standards of rationality. They require a cooperation across the trenches of disciplines, citizens' groups, factories, administration and politics, or which is more likely – they disintegrate between these into antagonistic definitions and *definitional struggles*.").

> we look not at individual projects but at larger research contexts, we realize that science cannot very well live by self-criticism or falsification alone, for this would rapidly exhaust all suitable stores of knowledge. In the long run, sustainable truths must continuously be generated, and the risk run by certain research complexes or entire disciplines lies in not being able to do just that.[21]

Therefore, the decision over regulating climate change, just like any other area of environmental law, begins with reducing asymmetric information[22] as an attempt to mitigate the impacts of the social and economical burdens[23] born by society in general.[24] That is because, in part, "[t]here is no expert on risk."[25] The less asymmetric information there is, the lower the degree of uncertainty there is and, consequently, the more likely the regulating decision will be a better one.[26] Better, because more legitimate,

---

[21] NIKLAS LUHMANN, RISK: A SOCIOLOGICAL THEORY 204 (Rhodes Barret trans., Aldine Transaction 2005).

[22] *See generally* WALTER NICHOLSON & CHRISTOPHER SNYDER, MICROECONOMIC THEORY: BASIC PRINCIPLES AND EXTENSIONS 221-22 (Thomson Sw. 10th ed. 2008) (describing the economics, properties and value of information).

[23] *See* James E. Krier, *Risk and Design*, 19 J. LEGAL STUD. 781, 787 (1990) ("While I can suppose that everybody is interested in minimizing the total costs of error (so long as doing so is not itself too costly in other, say ideological, terms), I can hardly suppose that everybody agrees about what kinds of errors cost how much. To the contrary, debates about risk regulation in particular typically arise because there is so much controversy about precisely those questions.").

[24] *See* BECK, *supra* note 20, at 41 ("There is a systematic 'attraction' between extreme poverty and extreme risk.").

[25] *See id.* at 29.

[26] *See* Gene Rowe & Lynn J. Frewer, *Evaluating Public-Participation Exercises: A Research Agenda*, 29 SCI., TECH., & HUM. VALUES 512, 520 (2004), *available at* http://www.jstor.org/stable/1557965 (providing different definitions of efficiency in public participation processes and attempting to demonstrate under one concept of effectiveness in public participation mechanisms that, "if the exercise process is good (it is conducted well according to one's definition) then it would seem more likely that the outcomes will be good than they would be if the process is bad (and if attained, then arguably due to other factors). For example, it would seem more likely that decision makers will ignore the recommendation of an exercise (a 'bad' outcome) if they perceive

but also because, in the context of regulating risks, more efficient procedurally.[27] The relationship between legitimacy and efficiency in the decision-making procedure is examined in deeper details in subsequent sections.

III. REGULATING CLIMATE CHANGE RISK FROM GLOBAL TO LOCAL

With regards to climate change, reducing asymmetric information is being pursued at the global level, but also being underestimated in many cases at the national and in most cases at the local level.[28] Even internationally, considering the difficulties science faces in establishing causation between the best and more efficient climate mitigation policies and the real and concrete positive impacts on the problem, regulating human activities worldwide to address the threat of global climate change constitutes the major challenge before the climate change legal regime launched by the United Nations Framework Convention on Climate Change (hereinafter "UNFCCC") in 1992.[29] Public participation is key in reducing asymmetric information regardless of the level of the proposed policy: international, national or local. But the more local the policy is, the more difficult it is for science to establish the necessary causation in light of the global nature of the climate change problem. In other words, when taking place at the international level, proposed global actions can

---

it to have been poorly run (e.g., with unrepresentative participants), than if they perceive it to have been well run (e.g., with representative participants).").

[27] *See* JEAN-JACQUES LAFFONT, INCENTIVES AND POLITICAL ECONOMY 8 (2000) ("From the work of Vickrey (1945) and Mirrlees (1971) we know that incomplete information is the explanation of the costly information rents acquired by agents and therefore the fundamental source of these deadweight losses. So, a major inefficiency of political conflicts follows from the inefficiency of redistributive instruments due to asymmetric information.").

[28] *See* Colin Crawford, *Our Bandit Future? Cities, Shantytowns, and Climate Change Governance*, 36 FORDHAM URB. L.J. 211, 221-22 (2009) (noting the lack of local voices in the national and international climate change debates and advocating that "good public policy and effective legislation for climate change – or any issue of import – must take into account the views of those it seeks to help and whose behavior it will regulate.").

[29] *See* United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

be better measured than at the local level, considering climate change is an environmental harm that is not bound by political borders.

International climate change mitigation strategies have been the object of constant deliberation. Because over half of the anthropogenic greenhouse gas emissions come from the energy, industrial, and transportation sectors,[30] the burden of international policy efforts has been concentrated in industrialized countries.[31] That has triggered conflicts of interest over distributional impacts of international policy between developed and developing countries, and particularly fast growing economies with large greenhouse gas emissions rates, such as China and India.[32]

In regulating the climate change risk, the international community mixed a command-and-control type of system by imposing quantified emission reduction targets upon developed countries with flexible market-based mechanisms.[33] That was partially accomplished with the international community agreeing upon the Kyoto Protocol to the UNFCCC in 1997 which enters into force in 2005. More importantly, the Kyoto Protocol imposed upon the parties the need to orient their actions to

---

[30] *See generally* United Nations Convention on Climate Change official website, Greenhouse Gases Data, http://unfccc.int/ghg_data/items/4133.php (last visited Mar. 29, 2010).

[31] Binding greenhouse gases reduction commitments have been imposed upon developed countries only according to the 1997 Kyoto Protocol. *See* Kyoto Protocol to the United Nations Framework Convention on Climate Change art. 3, Dec. 11 1997, 2303 U.N.T.S. 148 [hereinafter Kyoto Protocol].

[32] *See* JOHN R. JUSTUS & SUSAN R. FLETCHER, CONG. RESEARCH SERV., CRS ISSUE BRIEF FOR CONGRESS: GLOBAL CLIMATE CHANGE 11 (2006) (noting that in 1998, the U.S. Senate passed Senate Resolution 98, which "urged the President not to agree to a treaty that did not include binding commitments for developing countries, or that cause harm to the U.S. economy").

[33] *See* Kyoto Protocol, *supra* note 31, arts. 3, 6, 12.

the precautionary approach,[34] a paramount principle of the risk regulation field.[35]

At the national level, a great deal of action has taken place. Studying the U.S., for example, a proposed bill to address the threats of climate change is currently before Congress.[36] This landmark bill, if successful, "would impose limits for the first time on carbon dioxide and other greenhouse gas pollution from power plants, factories, and refineries. It also would force a shift from coal and other fossil fuels to renewable and more efficient forms of energy."[37] Concomitantly to the Federal initiative, regional and even state actions along with a promising and evolving voluntary carbon market have already revealed some degree of preoccupation with the uncertainty regarding climate change in the U.S.[38] These different initiatives are evidence of growing domestic action in the U.S, even in spite of the U.S. Congressional refusal to ratify the Kyoto Protocol.

---

[34] *See generally* PHILIPPE SANDS, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 266-78 (Cambridge Univ. Press 2007) (1995) (describing the precautionary principle in international environmental law).

[35] *See generally* Sunstein, *supra* note 8, at 33-37 (providing a review of the relationship between the precautionary principle and cost benefit analyses in the context of risk regulation and uncertainty).

[36] *See* American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009), *available at* http://www.rules.house.gov/111/LegText/111_hr2454_sub.pdf.

[37] *House Passes Global Warming Bill*, CBS NEWS, June 26, 2009, http://www.cbsnews.com/stories/2009/06/26/politics/main5117623.shtml.

[38] *See* U.S. Department of Energy, Climate Change, http://www.energy.gov/environment/climatechange.htm (last visited April 2, 2010) (providing information on different U.S. initiatives to curb greenhouse gas emissions); Regional Greenhouse Gas Initiative, About RGGI, http://www.rggi.org/about ("[A] cooperative effort by ten Northeast and Mid-Atlantic states to limit greenhouse gas emissions."); California Environmental Protection Agency, Air Resources Board, Assembly Bill 32 – Global Warming Solutions Act, *supra* note 2 ("In 2006, the Legislature passed and Governor Schwarzenegger signed AB 32, the Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas emissions reduction goal into law. It directed the California Air Resources Board (ARB or Board) to begin developing discrete early actions to reduce greenhouse gases while also preparing a scoping plan to identify how best to reach the 2020 limit. The reduction measures to meet the 2020 target are to be adopted by the start of 2011.").

More importantly for purposes of this section, local stakeholders in the U.S. are mobilizing themselves through their municipal governments and articulating a climate change mitigation strategy.[39] At the 73rd Annual U.S. Conference of Mayors, in Chicago, 2005, the participating Mayors, including the Mayor of Denver, endorsed the U.S. Mayors Climate Protection Agreement.[40] In its opening statement, this agreement called upon the national and state governments to enact policies and programs aimed at reducing greenhouse gas emissions by seven percent below the 1990 level by 2012.[41] Comparing that with the proposed American Clean Energy and Security Act currently before Congress, the overall goal is similar with different timetables.[42] The proposed federal bill envisions a twenty percent reduction below the 2005 level by 2020.[43] But, the problem in the Mayor's Climate Protection Agreement is that when listing those actions, twelve in total, to take place locally, there is no reference whatsoever to any kind of public participation.[44] Aside from a provision providing for helping with climate change education, no reference is made to the importance and role of an ample public consultation process.[45]

Because regulating the climate change risk is a decision taken under the assumption that causation on what would be the best global warming mitigation result cannot be established with certainty, a climate change policy that does not facilitate public participation, regardless of its

---

[39] Despite the limited powers municipalities face in the U.S, cities are striving to take action on climate change mitigation strategies. *See* Gerald E. Frug, *The City as a Legal Concept*, 93 HARV. L. REV. 1059, 1062 (1980) (demonstrating municipal autonomy is limited by state and federal powers).

[40] *See* U.S. Conference of Mayors, The U.S. Mayors Climate Protection Agreement (2005) [hereinafter Mayors Climate Protection Agreement], *available at* http://www.usmayors.org/climateprotection/documents/mcpAgreement.pdf; *see also* U.S. Conference of Mayors, List of Participating Mayors, http://www.usmayors.org/climateprotection/list.asp (last visited April 2, 2010).

[41] Mayors Climate Protection Agreement, *supra* note 40.

[42] *Compare id.*, *with* American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009), *available at* http://www.rules.house.gov/111/LegText/111_hr2454_sub.pdf.

[43] *See* H.R. 2454, at 525.

[44] *See* Mayors Climate Protection Agreement, *supra* note 40.

[45] *See id.*

final content, is neither legitimate nor efficient.[46] Because policymakers cannot be certain of what the best climate change mitigating result will turn out to be, regardless of their investment choice (i.e. transportation, energy efficiency, land-use restrictions, tree planting, etc.), opening up the policymaking process to public consultation discussing where resources should better be used, increases the legitimacy of the regulating process and shares responsibilities over the final outcomes.[47]

In addition, considering the impossibility of answering whether one or another policy choice is qualitatively better, in light of the scientific uncertainty on the causation between a specific global warming mitigation strategy and any natural disaster attributed to climate change, the result will be more efficient procedurally if the involved interests are not disproportionally affected, both positively and negatively. And that is because, "[w]ithout some sense of both costs and benefits – both nonmonized and monetized – regulators will be making a stab in the dark."[48] Any environmental-oriented policy choice has an interesting feature of disproportionally affecting those who bear the regulatory cost and those who enjoy most, if not all, the benefits thereof.[49] In that sense, if a proposed regulatory action is taken despite scientific uncertainty of

---

[46] *See* MICHAEL D. RESNIK, CHOICES: AN INTRODUCTION TO DECISION THEORY 112 (1987) (arguing that "from time to time there can be a high correlation between two sorts of phenomena without any causal relation between them").

[47] *See id.* at 113 ("In making decisions we select acts in virtue of their power to produce the outcomes we desire (and hence the states that foster those outcomes). In view of this, it would be wrong for us to endow our decision theoretic framework with indicators of the efficacy of our acts that we know to be misleading.").

[48] Sunstein, *supra* note 8, at 5.

[49] See J.R. DeShazo & Jody Freeman, *Timing and Form of Federal Regulation: The Case of Climate Change*, 155 U. PA. L. REV. 1499, 1539 (2007), which identifies distinguishable interest group preferences in environmental regulation (On the one side, "[e]nvironmentalists (i.e., pro-regulation forces, treated collectively) can be expected to support forms of regulation that will be effective in achieving the chosen regulatory standard (which they prefer to be stringent), and reasonably easy to monitor and enforce." On the other side, "regulated industry (i.e., those who bear the burden, treated collectively) will generally prefer policy instruments that give the maximum flexibility and reduce their aggregate costs of complying with the chosen regulatory standard (which they prefer to be weak).").

whether it will be the best policy in light of any probable global contribution to the climate change problem, the more equitable the policy burden is distributed upon the affected interests, the more this proposed regulation will be more efficient procedurally.[50]

Therefore, for the purpose of risk regulation, efficiency in the decision-making process would be pursued by balancing the burden upon conflicting impacted interests with the result of the regulatory policy initiative.[51] The underlying rationale is that since policymakers do not have the information stating which policy will produce the best result due to scientific uncertainty with regards to causation, efficiency cannot be measured taking into account the quality of the final regulatory result.[52] Considering the difficulties of establishing causation between a local policy and a potential adverse impact on the Earth's climate, in both temporal and spatial scales, as long as the impacted stakeholders' interests are balanced, the policy choice is efficient procedurally. Therefore, under hard uncertainty or ignorance, the rationale can be sought at the regulatory procedure by institutionalizing and qualifying public consultation mechanisms as instruments to reduce asymmetric information and to balance the final results with respect to affected stakeholders.

A. *Problems and Causes of Climate Change Risk Regulation and the Importance of Public Participation Mechanisms*

The problems and causes of climate change risk regulation are manifold. For the purpose of this study, this section examines those

---

[50] *See* Christopher H. Schroeder, *Rights Against Risks*, 86 COLUM. L. REV. 495, 497 (1986) ("Unless one is willing to concede that regulation is based exclusively on physical, monetary, or electoral muscle, some explanation of the bases for public coercion in mediating risk disputes between individuals and groups is necessary.").

[51] See Wildavsky, *supra* note 6, at 294, which notes that "[t]he economic model on which cost-benefit analysis depends for its validity is based on a political theory. The idea is that in a free society the economy is to serve the individual's consistent preferences revealed and rationally pursued in the market place. Governments are not supposed to dictate preferences nor make decisions."

[52] *See id.* ("While economists might estimate the redistributive consequences of various projects, they cannot, on efficiency grounds, specify one or another as preferable.").

identified by the summary of Stephen Breyer's book, *Breaking the Vicious Circle: Toward Effective Risk Regulation*, by Robert A. Pollak,[53] as the problems and causes that relate to the climate change policies. According to Pollak's overview, three major problems are identified in risk regulation in general: (1) tunnel vision; (2) random agenda selection; and (3) inconsistency.[54] The underlying causes on these matters are public perceptions, congressional politics, and uncertainties in the technical regulatory process.[55] Problems and causes of risk regulation would constitute what Breyer's work refers to as the vicious circle.[56]

Interestingly, definitions provided for each of the identified causes of the problems of risk regulation are somehow directly or indirectly associated with the lack of institutionalized and qualified public consultation mechanisms. Considering public perceptions "are misleading in situations involving low probability events," and that the public "distrust experts" and "are exposed to sensational stories in the media," those are all results of typical disqualified public consultation mechanisms.[57] Well and better informed citizens tend to participate more qualitatively in the decision-making process and are less susceptible to external and misleading influences.

If Congress is not suited to deal with the detailed regulatory work, it can lead to inefficient risk regulation because of the likelihood of an unbalanced result due to the political preferences inherit to the congressional lawmaking process.[58] Assuming Congressional interference is inevitable in areas where uncertainty is the main feature, then institutionalizing a qualified public consultation process is likely to result

---

[53] *See* Robert A. Pollak, *Regulating Risks*, 33 J. ECON. LITERATURE 179 (1995), *available at* http://academico.direito-rio.fgv.br/ccmw/images/4/4c/Regulating_risk_pollak.pdf.
[54] *Id.* at 180.
[55] *Id.* at 181.
[56] *Id.* ("[P]ublic perceptions, congressional politics, and the technical uncertainties of risk regulation define the 'vicious circle' of Breyer's title – a situation of 'regulatory gridlock' (p. 51) in which the interaction of public (mis)perception, congressional (re)actions, and the uncertainties of risk regulation produce tunnel vision, random agenda selection, and inconsistency.").
[57] *Id.*
[58] *Id.*

in more equitable positive and negative impacts and, thus, increase efficiency in the decision-making process.[59] Finally, if technical uncertainties are inevitable in risk regulation, it is fair to assume a well-oriented public consultation process has, at least in principle, the potential to produce a more equitable result in light of the diversity of interests among different groups lobbying during the regulatory process.[60]

Because climate change regulation at the local level fits the risk regulation area of study, considering the underlying scientific uncertainty on the causation element, introducing and qualifying public consultation mechanisms can address most of the causes and problems leading to the above described vicious circle. Examining some of Denver's initiatives may indicate whether public consultation and qualification mechanisms are being pursued and, if not, how that is producing misleading public policies. But, on the flip side, before analyzing some of the specific examples provided by the Study Space experience, the next section addresses some of the benefits of shifting climate change endeavors to the local level.

B. *The Benefits of Shifting Climate Change Risk Regulation Endeavors to the Local Level*

The broader and more qualified the public consultation process is, the more efficient is the regulatory process over climate change. When public consultation mechanisms reach out to a large number of citizens with diverse interests and prepares them to participate qualitatively, the chances that the regulatory outcome is going to be a more balanced one is

---

[59] *See* Joshua J. Bruckerhoff, *Giving Nature Constitutional Protection: A Less Anthropocentric Interpretation of Environmental Rights*, 86 TEX. L. REV. 615, 623 (2008) ("Public Participation is especially valuable in environmental law because environmental quality--from the negative impacts of pollution to the positive benefits of biodiversity--affects all citizens.").

[60] *See* LAFFONT, *supra* note 27, at 10 (noting that "[i]n a world of asymmetric information, any public project creates information rents which cannot be eliminated (or only at extremely high efficiency costs)").

greater.[61] Professor Colin Crawford stressed that "[i]ncorporating . . . urban voices in climate change governance can lead to more efficient solutions."[62] While I agree with Professor Crawford's statement, the focus of this article is slightly different. Ampler participation is more efficient in the context of risk regulation not because of its content, considering the scientific uncertainty with respect to establishing causation between the best policy and its real and concrete climate change mitigation impact, but because of the likelihood of more equitable burden sharing among the affected parties.[63]

Climate change is a highly complex issue within environmental law. It involves a broad range of different areas of scientific knowledge.[64] Along with the difficulties in establishing causation in spatial and temporal scales between an action or omission and the adverse impacts to the environment,[65] the decision of over-regulating the climate change risk has the potential to adversely impact many sectors of the economy. Inequality between those bearing the regulatory costs and those benefiting from those policy choices are additional obstacles to regulating the climate

---

[61] *See* Ileana M. Porras, *The City and International Law: In Pursuit of Sustainable Development*, 36 FORDHAM URB. L.J. 537, 570-71 (2009) (stressing the importance of local involvement in the promotion of sustainable development).

[62] Crawford, *supra* note 28, at 225.

[63] *See* Sunstein, *supra* note 8, at 28 (acknowledging that "people do not always bear the full social costs of the regulatory benefits they receive").

[64] *See* Thomas C. Schelling, *Some Economics of Global Warming*, 82 AM. ECON. REV. 1 (1992) ("The greenhouse effect itself is simple enough to understand and is not in any real dispute. What is in dispute is its magnitude over the coming century, its translation into changes in climates around the globe, and the impacts of those climate changes on human welfare and the natural environment. These are beyond the professional understanding of any single person. The sciences involved are too numerous and diverse. Demography, economics, biology, and the technology sciences are needed to project emissions; atmospheric chemistry, oceanography, biology, and meteorology are needed to translate emissions into climates; biology, agronomy, health sciences, economics, sociology, and glaciology are needed to identify and assess impacts on human societies and natural ecosystems. And those are not all.").

[65] *See generally* RICHARD LAZARUS, THE MAKING OF ENVIRONMENTAL LAW 20 (2004) (relating uncertainty and environmental injury in the context of spatial and temporal dimensions).

change risk.[66] Therefore, efficiency in light of the underlying scientific uncertainty may only be measured procedurally.

At the local level, regulating climate change impacts generally on urban growth, living and housing choices, transportation, energy, waste, and water policies.[67] Changes in current patterns in all of those related sectors are desirable from a more immediate and safe environmental perspective, such as cleaner air, water, and soil where causation could be established more easily than it can in global or transnational environmental problems. This is the difference referred to in the introduction section of this work concerning risk and uncertainty or ignorance. From a climate change perspective, the regulatory burden may not yet be concretely justifiable. In a macro stage, the work of Eric A. Posner and Cass R. Sunstein attempts to demonstrate just that.[68]

In that sense, amplifying and qualifying public participation at the local level is necessary as an instrument to balance diverse and conflicting choices. In other words, regulating climate change risk at the local level is more efficient procedurally when the burden and benefits over the final results are more equitably shared. Whether that is attempted and undergoing in Denver is examined in the following sections.

IV. AN OVERVIEW OF DENVER'S CLIMATE CHANGE RISK REGULATION STRATEGY

The City of Denver is a signatory of the U.S. Mayors Climate Protection Agreement, a document reflecting the will of 1017 Mayors

---

[66] *See id.* at 19 (indicating that a command-and-control system that ignores the economical implications and scientific uncertainty of environmental matters, tends to be "unduly burdensome in many significant respects and unduly relaxed in many others, achieving the worst of both worlds.").

[67] *See generally* REID EWING ET AL., GROWING COOLER: THE EVIDENCE ON URBAN DEVELOPMENT AND CLIMATE CHANGE 17-35 (2008) (highlighting the impacted areas in urban planning and development in light of climate change).

[68] *See* Eric A. Posner & Cass R. Sunstein, *Climate Change Justice*, 96 GEO. L.J. 1565, 1590 (2008) (challenging the efficiency of a regulatory burden over climate change mitigation strategies instead of a more immediate assistance provided by developed countries to developing countries).

from the fifty states, the District of Columbia and Puerto Rico, representing over eighty-six million citizens,[69] and would have been the U.S.' emissions reductions commitments should the country have ratified the 1997 Kyoto Protocol of seven percent below the 1990 baseline-year by 2012.[70] Since then, in 2005, the municipality of Denver launched a sustainable development plan entitled "Greenprint Denver Initiative" which was described by Mayor John W. Hickenlooper as "an action agenda for sustainable development for the City and County of Denver that demonstrates local government can be an effective force for innovation and leadership to improve the environment."[71] In comparison with the U.S. Mayors Climate Protection Agreement, Greenprint Denver is even more ambitious as it envisions a ten percent greenhouse gas reduction from the 1990 baseline year by 2012.[72] As a risk management policy strategy, Greenprint Denver brings several references to community involvement, which is something not present in the U.S. Mayors Climate Protection Agreement.[73] How public participation is built into Greenprint Denver and how effectively it is being observed in practice is further examined in the following subsections.

A. *Public Participation in the "Greenprint Denver Plan"*

Public participation is built into the Greenprint Denver Plan (hereinafter "GDP"). From Mayor John W. Hickenlooper's opening statement, to a specific item in the Greenprint Denver Action Agenda entitled "communications," the plan addresses one important instrumental component linked to the causes of the problems in regulating risks: public

---

[69] U.S. Conference of Mayors, List of Participating Mayors, *supra* note 40.

[70] *See* Kyoto Protocol, *supra* note 31, annex B.

[71] Hickenlooper, *supra* note 3.

[72] *Compare* MAYOR'S GREENPRINT DENVER ADVISORY COUNCIL, GREENPRINT DENVER, CITY OF DENVER CLIMATE ACTION PLAN: FINAL RECOMMENDATIONS TO MAYOR HICKENLOOPER 10 (2007), *available at* http://www.greenprintdenver.org/docs/DenverClimateActionPlan.pdf, *with* Mayors Climate Protection Agreement, *supra* note 40.

[73] *See* Mayors Climate Protection Agreement, *supra* note 40.

perception.[74] How information is conveyed through communication can impact positively or negatively on public participation mechanisms.

As part of the plan's implementation stage, its executive summary describes a process that involves community partners. The introduction refers to the 2004 Denver Listens public feedback sessions, when "Environmental Responsibility and Environmental Excellence consistently ranked among the top issues of interest and concern in Denver's neighborhoods."[75] Among GDP's guiding principles, "[p]artner with community organizations, cultural institutions and business to achieve broad impact," stands independently from other, just as important, principles.[76]

Finally, one of the agenda's topics is the abovementioned "Communications," which includes training and capacity-building, website development, and outreaching and partnering with cultural institutions.[77] Although different from public participation, information and transparency through communication is an essential component of qualifying and providing the consultation process with the necessary means to participate in the risk policy design.[78]

However, having a written sustainable plan only guarantees the institutionalization of the public participation mechanism. It does not guarantee implementation. As stated above, institutionalizing public consultation is one piece of the public participation component within the climate change risk regulation puzzle. Another, just as important, is qualifying citizens to broaden the scope of interested and potentially

---

[74] *See supra* Part III.A.

[75] *See* Greenprint Denver, Mission and Guiding Principles, http://www.greenprintdenver.org/about/mission-and-guiding-principles/ (last visited Mar. 31, 2010).

[76] *See id.*

[77] GREENPRINT DENVER, *supra* note 5, at 21.

[78] See Rowe & Frewer, *supra* note 26, at 514, which notes that "some policy formulators may be more concerned with increasing public confidence in the policy process than truly seeking the views of the public. Participation conducted for such tokenistic reasons alone, however, with little intention of acting on the information gathered from the public, may prove counterproductive should the public appreciate this underlying rationale and has been much condemned."

affected groups of people and also to maximize the quality of public intervention in order to work as an efficient asymmetric information reduction tool.[79] That is something only verifiable in practice, as occurred during Study Space Denver 2008. Two distinct experiences are further examined in the following subsections.

B. *Lack of Public Participation in Practice: "The Five Points Neighborhood"*

When reading about the Five Points neighborhood on Denver's official website, one might have a different perception than the one provided by an onsite visit and conversation with local residents. According to the city's website, Five Points is "[o]ne of Denver's oldest neighborhoods, with block after block of Victorian homes mixed with luxury lofts and new housing developments, Five Points is one of the few predominantly African American-owned commercial strips in the country."[80] But what such invitational description does not reveal is that to support luxury lofts, the land-use policy is leaving out of the policymaking process those who constitute the majority of the neighborhood, the African American residents. Along with the city's natural economic growth process, the downtown area grew in both size and importance, turning the nearby Five Points neighborhood into an attractive option for luxury loft developers.

Coincidently, this land-use choice came along with Denver's version of the New York Broken Windows' policy[81] applied

---

[79] *See id.* at 515 ("Certainly, the number of [public participation] mechanisms has multiplied over recent years. What is less certain, however, is their quality and effectiveness.").

[80] City of Denver, Five Points, http://www.denver.org/metro/neighborhoods/five-points (last visited Mar. 20, 2010).

[81] *See generally* Bernard E. Harcourt & Jens Ludwig, *Broken Windows: New Evidence From New York City and a Five-City Social Experiment*, 73 U. CHI. L. REV. 271, 272 (2006), *available at* http://www.jstor.com.org/stable/4495553 ("In 1982, James Q. Wilson and George L. Kelling suggested in an influential article in the *Atlantic Monthly* that targeting minor disorder – loitering, panhandling, prostitution, graffiti – could help reduce more serious crime. The 'broken windows' theory produced what many observers

predominantly and almost exclusively to the Five Points' African American residents.[82] According to local residents' own testimonies, the Broken Windows' policy is the means through which the luxury loft developers and residents are meeting their goals: developing a high value area close to the business downtown district, while removing an old-established and traditional community that has the potential to lower property values of those expensive condominiums.

Aside from the many social justice issues involved, the fact is that onsite interviews demonstrates the lack of knowledge of local residents and participation in the Greenprint Denver Action Plan for one of the most traditional neighborhoods in Denver. Neighborhood redevelopment is part of GDP which, in turn, as abovementioned, has built in it the goal of climate change mitigation. Therefore, even if the Five Points redevelopment was justifiable under a climate change mitigation strategy, the burden borne by its residents and the lack of forums allowing for their voices to be heard indicates that, strictly under a climate change risk regulation procedure, it constitutes an inefficient policy.

If redeveloping neighborhoods is a priority of the City's Office of Economic Development included in one specific topic of the Greenprint Denver's Agenda ("Community and Economic Development: Thriving and Prosperous Urban Environments"),[83] when compared with the Five

---

have called a revolution in policing and law enforcement. Today, the three most populous cities in the United States – New York, Chicago, and, most recently, Los Angeles – have all adopted at least some aspect of Wilson and Kelling's broken windows theory, primarily through more aggressive enforcement of minor misdemeanor laws, also known as 'order maintenance' policing." (footnote call numbers omitted) (citing James Q. Wilson & George L. Kelling, *Broken Windows: The Police and Neighborhood Safety*, ATLANTIC MONTHLY, Mar. 1982, at 29, 38 and BERNARD E. HARCOURT, ILLUSION OF ORDER: THE FALSE PROMISE OF BROKEN WINDOWS POLICING 46 (2001))).

[82] *See* Gary Stewart, *Black Codes and Broken Windows: The Legacy of Racial Hegemony in Anti-Gang Civil Injunctions*, 107 YALE L.J. 2249, 2257 (1998), *available at* http://www.jstor.com/stable/797421 (arguing that "[t]he history of vagrancy laws reveals most vividly the dangerous implications for racial minorities and other disadvantaged communities of broad police discretion in crime prevention").

[83] *See* Greenprint Denver, Community and Economic Development: Thriving and Prosperous Urban Environments, http://www.greenprintdenver.org/green-building-industry/ (last visited Mar. 20, 2010).

Points case, it indicates that the abovementioned civic engagement explicitly referred to in the plan is simply rhetorical or, worst, selective in the sense that it does not include minorities from low income neighborhoods.

C. *Public Participation in Practice: "The 2009 Mayor's Climate Protection Award"*

The FasTracks plan is described as "a $4.7 billion regional infrastructure investment, [that] will provide 119 miles of new tracks, 70 new transit stations, 18 miles of bus rapid transit service, 21,000 new parking spaces at rail and bus stations, and expanded bus service in all areas."[84] Such an impressive and ambitious program was only possible because "[v]oters in eight-county Denver region approved FasTracks in 2004, authorizing a sales tax to help fund the Regional Transportation District's 12-year expansion plan."[85] This landmark public consultation and involvement process was responsible for an authorization of a 0.4% tax increase which, alone, provided for roughly thirty percent of the overall project's cost.[86]

The public's decision to accept an extra burden of such regulatory policy, even in light of the uncertainty over the causation between the quantified and concrete impacts that action will have upon a global climate change mitigation strategy, is a clear demonstration of how efficiency is improved procedurally with public participation in the decision-making processes under a risk regulation perspective. The decision is also legitimate because those individuals traditionally being regulated suddenly become regulators.[87] That is well illustrated by this

---

[84] Greenprint Denver, Fastracks, http://www.greenprintdenver.org/transportation/fastracks/ (last visited Mar. 20, 2010).

[85] U.S. CONFERENCE OF MAYORS, MAYORS AND CLIMATE PROTECTION BEST PRACTICES 5 (2009), *available at* http://www.usmayors.org/pressreleases/uploads/ClimateBestPractices061209.pdf.

[86] *Id.* at 6.

[87] *See* Heather Kilmartin & Evan Mendelson, *Transparency and Public Participation in the Federal Rulemaking Process: Recommendations for the New Administration*, 77 GEO. WASH. L. REV. 924, 926 (2009) ("Rulemaking procedures should aim to encourage

practical example, considering the voter's policy preference represented a third of the overall project's cost.

V. IMPROVING DENVER'S CLIMATE CHANGE RISK REGULATION POLICY STRATEGY

All in all, both practical examples examined above provide important guidance for useful policy recommendations aimed at improving Denver's climate change risk regulation policy strategy. To that end, the following subsections are divided into three distinct categories: (1) public awareness and capacity building; (2) community involvement and traditional knowledge; and (3) participatory budget. All the subsections are linked to the overarching premise of ampler public participation as both a legitimate and efficient strategy in the context of the process of regulating the climate change risk.

A. *Public Awareness and Capacity Building*

A crucial part of reducing asymmetric information at the local level with respect to the risks of global warming and potential mitigation policy actions is educating city residents on the scientific and technical information regarding climate change. Just as important at the local policymaking level is improving awareness over the burdens of any local policy and the probable, but yet uncertain, causation between the results of

---

decisions that both are legitimate and achieve the best outcomes for society. The quality of regulatory outcomes can be assessed against agencies' statutory missions, as well as more broadly by asking whether specific decisions advance the overall welfare of society. To ensure legitimacy in the rulemaking process, agency officials should arrive at their decisions in a fair and transparent manner, specifically by approaching a regulatory problem with an open mind, taking into account all relevant interests, and arriving at well-reasoned decisions. In many cases, rulemaking will advantage certain groups and individuals over others. Still, those who end up "losing" should at least be able to understand the decisions made by regulators and to feel that their interests were treated fairly and respectfully." (footnote call number omitted)).

the regulatory policy and the quantified and overall benefits.[88] Climate change policies, to be economically viable, might be dependent upon, for instance, higher transportation or local taxes to attract private investment. The above-described example of the City of Denver's FasTracks plan illustrates well that premise. Along with any climate change mitigation potential, other direct and more concrete benefits such as faster commuting time, better air quality, and less traffic jams allowed for the population to accept a 0.4% tax increase after a public consultation process.[89] Whether that public choice was due to awareness over taking local action to mitigate global warming, even in spite of all the uncertainty on temporal and spatial scales, or whether the choice was due to those more immediate, concrete benefits, such as the abovementioned, is difficult to measure.[90] But the overarching ideal of making that policy choice more legitimate and thus more efficient, considering the overall burden sharing among private investment, local government, and society, was successfully reached.[91]

Notwithstanding the foregoing, just conveying the information to increase public awareness is not sufficient. Public awareness must be

---

[88] *See* Sunstein, *supra* note 8, at 27 (relating people's willingness to pay ("WTP") with uninformed society: "[i]f people's WTP reflects impulsiveness, recklessness, an absence of information, or insufficient deliberation, then it is important for other people, in government as elsewhere, to draw their attention to that fact.").

[89] *See* U.S. CONFERENCE OF MAYORS, *supra* note 85, at 6.

[90] *See* Rowe & Frewer, *supra* note 26, at 518 (demonstrating the difficult aspects of defining effectiveness in the context of public participation exercises in the following terms: "[a]ssessing the 'quality of ideas' generated might involve value judgments being applied to those ideas, while focusing on the development of 'group consensus' might, arguably, detract from the diversity of opinions that may have value in their own right, or at least should be made public as part of a transparent process").

[91] The idea of efficiency in public participation processes under uncertainty is the one focusing on a democratic perspective. In that sense, regardless the quality of the regulatory outcome under uncertainty as long as public participation allowed for consensus over the distribution of burdens, the decision is more efficient. Fairness would be linked to the capacity of public participation mechanisms to reach consensus. *See id.* ("From a democratic perspective, for example, an effective participation exercise might be one that is somehow 'fair,' and a number of related criteria might be stipulated.").

accompanied by an effective capacity building strategy.[92] Climate change involves different expertise from virtually all fields of scientific knowledge. It is also an area that has the potential to affect various aspects of someone's life.[93] From transportation, housing, and consuming choices to land-use, fuel switch, energy efficiency, and forestry policies, the climate change knowledge spans beyond merely expecting the federal government to take on binding greenhouse gas emissions reduction commitments. A public campaign aimed at increasing the general public's knowledge on the impacts local choices might have, not only over the global climate change problem, but also over the real, immediate and concrete burdens and benefits of such policies, informing citizens is crucial to qualifying the public participation process and, consequently, fulfilling a public policy legitimacy purpose and rising its regulatory efficiency procedurally.[94]

B. *Community Involvement and Traditional Knowledge*

Widespread knowledge is an important element of a fertile environment for ampler community involvement. A fair assumption is

---

[92] Those are all premises built into the climate change agreement. Article 4.1(i) of the UNFCCC called all Parties to "[p]romote and cooperate in education, training and public awareness related to climate change." UNFCCC, *supra* note 29, art. 4(1)(i); *see also id.* art. 6.

[93] *See* PETER NEWMAN & ISABELLA JENNINGS, CITIES AS SUSTAINABLE ECOSYSTEMS: PRINCIPLES AND PRACTICES 33 (2008) ("Cities face a range of fundamental challenges – including climate change, water supply disruptions due to global peaking in production, regional environmental damage, loss of biodiversity – that require a new kind of clean, green economy to emerge.").

[94] The U.S. Environmental Protection Agency has already identified the benefits of a qualified public participation process in the policymaking process at the local level. *See* U.S. EPA, Where do we want to be?, http://www.epa.gov/greenkit/intro3.htm (last visited May 17, 2010) ("Community participation is key. Bringing people together, including business, industry, and education, along with children, planners, civic leaders, environmental groups and community associations, allows the vision to capture the values and interests of a broad constituency. Brainstorming ideas from the entire community results in a synergistic effect which can bring out a myriad of ideas that reflects values and interests of the community as a whole.").

that "[w]ere people to understand that decisions were being made that will affect how they use land and what environmental resources are available to them, they would likely engage in those decisions and illuminate justifications for resource distribution."[95] Denver's Five Points neighborhood case, described above, provides useful example of how a land-use policy ignoring a local community's inputs can be inefficient even in spite of a greener building strategy behind the will of the local government.[96]

Leaving aside the social justice issue behind the new land-use development policy for the Five Points neighborhood, without in anyway undermining this very important aspect of the proposed policy, the burden imposed upon the neighborhood's residents is disproportional and illegitimate in light of any possible aim of the proposed policy. Assuming that new residential developments are more energy efficient than those old Victorian style houses and, thus, have the potential to mitigate global climate change, in light of the uncertainty surrounding whether this specific local regulation is indeed the best climate change mitigation policy, and considering also the burdens thereof, only community involvement would be able to legitimize this process.[97] If some sort of compensation was presented to local residents in exchange for the proposed new developments and assuming that was accepted, then the burden sharing among the affected parties in light of the afore described uncertainty would make this regulatory process both legitimate and efficient.[98]

---

[95] Crawford, *supra* note 28, at 249.

[96] In construing a visioning process for a long-term vision for sustainable cities, Peter Newman et al. argues that "[a] vision needs to developed through a community visioning process – an inclusive and participatory process that brings together people from across the community and empowers marginalized groups to contribute." NEWMAN & JENNINGS, *supra* note 93, at 10.

[97] *See id.* (describing a successful land use planning system developed in Oregon involving community involvement, informational presentations and public events with national speakers).

[98] See Rowe & Frewer, *supra* note 26, at 520, which notes that one complex issue of defining effectiveness in public participation processes "is the fact that there are various constituencies involved in the process, from the sponsors to the participants and the

I experienced in locus during Study Space Denver 2008 the voices from different members of traditional communities, mainly indigenous people and descendants, which left the impression that their concerns and potential contributions are not being heard at the local policymaking level. This preliminary impression, of what needs to be an empirical research, indicates a lack of legitimacy and efficiency in the overall Denver's Greenprint initiative.[99] While a fair assumption would be that the inputs of the traditional knowledge historically and abundantly present in Denver[100] could only qualify the final result of any climate change regulatory action, in light of any such policy's failure to provide scientific certainty, legitimacy and efficiency are simply verifiable on the regulatory process. Considering the marginalization process and the land-use exclusion reported by many traditional communities in locus, Greenprint Denver as it is applied to the Five Points neighborhood could have a legitimacy deficit and it is, thus, inefficient procedurally in light of its failure to balance the interests of affected groups of stakeholders.

In that sense, any attempt of selling scientific certainty on the overall results of Greenprint Denver could end up implicitly hiding a discriminatory local policy approach as a global climate change strategy. A simple solution would be to foster community involvement. Public awareness and capacity building need to be as inclusive as possible. Centuries of accumulated traditional knowledge in Denver should be incorporated into the decision-making process.[101] Assuming there is no

---

various publics (or stakeholder groups) that they are meant to represent. Hence, what might appear effective to some might not appear so to others." And that to solve this problem, an objective perspective is desirable, "in which the contentment or acceptance of the specific parties involved (who-ever they might be) is an important aspect or criterion of effectiveness."

[99] *See* Kilmartin & Mendelson, *supra* note 87, at 927 (arguing that "transparency and public participation are more usefully seen as tools that can enhance regulators' ability to achieve society's goal of high-quality and legitimate rules").

[100] *See generally* KATHLEEN A. BROSNAN, UNITING MOUNTAIN & PLAIN: CITIES, LAW AND ENVIRONMENTAL CHANGE ALONG THE FRONT RANGE ch. 2 (2002) (describing the lack of traditional communities' involvement into Denver's historically urban expansion process).

[101] *See* Kilmartin & Mendelson, *supra* note 87, at 927 ("Public participation promotes legitimacy by creating a sense of fairness in rulemaking.").

other political motivation other than improving local regulatory processes under uncertainty, an additional contribution of such policy recommendation also has the potential to share responsibilities over undesirable or unpredicted results, for instance.[102]

C. *Participatory Budget*

Participatory budgeting is another available tool to enhance and qualify public participation in the policymaking process. At the local level, the participatory budget allows for citizens to effectively engage in the decisions of how public resources will be applied. For that, before a council meeting takes place, where citizens have the opportunity to express to local officials their choices over how to best invest public resources, the population engage in preparatory meetings educating themselves on the pros and cons of any final deliberation that will be translated into public preferences and ultimately influence the decision-making process.[103] As the number of citizens participating in the investment and stipends decisions increases, the more legitimate the process is and, consequently, more efficient procedurally. This is true especially in light of its potential to balance the final regulatory result under the assumption that causation between the best local action and its overall climate change mitigation impact cannot yet be precisely determined.[104]

---

[102] *See* Stepan Wood & Lynn Johannson, *Six Principles for Integrating Non-Governmental Standards into Smart Regulation*, 46 OSGOODE HALL L.J. 345, 360 (2008) (providing that public participation is essential in smart regulation, considering the state shares the responsibility of achieving the goals of the regulation with those being regulated).

[103] *See generally* Crawford, *supra* note 28, at 244-49 (describing in more details how the participatory budget works and was first conceived in Brazil).

[104] *See* Kilmartin & Mendelson, *supra* note 87, at 927 ("Not only will transparency and public participation inevitably help to achieve democratic goals, but they also can help produce better, more informed policy decisions. Increased participation allows agencies to obtain information that may help them better understand how current policies could be improved and also how the public or regulated parties would respond to a change in policy.").

Considering the climate change topic in Greenprint Denver Action Agenda[105] and its potential to impact every Denvernian's life, should the city's citizens be able to influence the decision over investment priorities, the process would be more legitimate and efficient. Furthermore, a participatory budget type of approach would fit nicely into one of the Greenprint Denver's guiding principles: "[p]artner with community organizations, cultural institutions and business to achieve broad impact."[106] Some of Denver's initiatives reported in the Greenprint Denver Plan are suggesting some sort of public involvement in decisions allowing public expenditure.

One example would be the above cited FasTrack plan, in which voters accepted a tax increase to help fund a public transportation project.[107] While the FasTrack example is different in conception from what an institutionalized participatory budget is, it can serve as a model to broaden the scope of including and stimulating public participation and traditional knowledge in the policymaking process. That is an important premise to pursue in the implementation of the Greenprint Denver Plan in light of other not as successful experiences in different topics of the city's sustainable agenda. Under "Community and Economic Development: Thriving and Prosperous Urban Environments," the implementation of one of the City's Office of Economic Development priorities, namely "neighborhood redevelopment and housing options," has indicated a legitimacy deficit and an inefficiency in the regulatory procedure due to its failure in balancing the burdens of its final outcome.[108] Thus, examples of the disproportional burden local residents are bearing are the lack of community involvement, the decision power over public preferences regarding redevelopment options, and the exclusionary Broken Windows' policy under the climate change goal in GDP.

Perhaps, an effective public consultation process associated with the assistance of those holding traditional knowledge, empowered to influence the definition of priorities through intervention in the city's

---

[105] *See* GREENPRINT DENVER, *supra* note 5.
[106] *Id* at 7.
[107] *See supra* Part IV.C.
[108] *See supra* Part IV.B.

budgetary allocation, have the potential to produce more legitimate and efficient local decisions with respect to climate change mitigation.[109] While the causation between climate change mitigation strategies and local actions still lack a definite scientific answer, empowering citizens to influence a city's budgetary allocation has the potential to share responsibilities over the final outcome of any regulatory decision taken under uncertainty. Therefore, institutionalizing the participatory budget for climate change related decisions turns the policymaking process inclusive, while sharing the burden over any affected stakeholder.

VI. CONCLUSION

Climate change is a global and complex environmental problem. Although scientific knowledge evolved considerably over the past two and a half decades, the best mitigation actions cannot yet be firmly determined. Because any mitigation strategy involving regulation has an impact on every citizen's daily life, and considering the great majority of people who are currently living in urban areas combined with the estimates that the numbers of urban dwellers are growing fast,[110] a balance between the costs and benefits of local policies must be sought. While mitigation strategies range from policies in the transportation, land use, sanitation, forestry, and energy sectors, among others, prioritizing an area to assist in solving a global environmental problem might not be justifiable if the costs are too high to bear in light of the scientific uncertainty behind the causation potentially linking the regulation and the proposed environmental benefit.

Because causation cannot be firmly determined, the more balanced the regulatory burden among the affected stakeholders is, the more efficient is the regulatory process. Efficiency is thus linked to the process and not to a qualitative analysis of the final regulatory result, considering

---

[109] *See* Crawford, *supra* note 28, at 244 ("Participatory budgeting provides an example of democracy emerging from below and not being imposed from above.").

[110] *See* NEWMAN & JENNINGS, *supra* note 93, at 34 ("World urban population has multiplied twentyfold since 1900 compared to a fourfold increase in total world population.").

causation cannot be established on what would be the best policy choice. When one shifts the focus from a qualitative analysis of the best regulatory result to the regulatory process, a more balanced outcome is more likely with an ampler public participation process. Communal involvement increases legitimacy and, if qualified, reduces asymmetric information, which, in turn, has the potential to influence positively the final outcome of such a complex issue like climate change.

I was able to identify some positive initiatives in the Denver Greenprint Plan along with the in locus experience provided by Study Space Denver 2008, like the FasTrack. This example counted on some sort of public participation method that eventually increased the legitimacy of the proposed policy and was more efficient because it was able to balance the burden among the different groups of stakeholders involved. On the other hand, I also identified some bottlenecks challenging the climate change mitigation goal in the Denver Greenprint agenda. Some of the challenges included the reported Five Points neighborhood discriminatory and selective set of policies, and that the Greenprint Plan explicitly relates community involvement with land-use redevelopments. Ultimately, the participatory budget as an instrument to amplify community involvement and empower citizens is an additional tool for increasing legitimacy and efficiency before a scenario where causation cannot be precisely determined.

All in all, Denver's Greenprint Plan as a sustainable policy has merit. However, where it relates specifically to climate change mitigation, GDP provides positive and negative indications of risk regulation legitimacy and efficiency. An improvement on public participation mechanisms through the promotion of public awareness, capacity building, community involvement, traditional knowledge, and, eventually, the introduction of a participatory budget type of mechanism, constitutes real and concrete normative recommendations to strengthen legitimacy and efficiency in the Greenprint Denver Plan. In the end, those are also valuable tools to turn regulated citizens into regulators easing some of the responsibilities falling upon the shoulders of local officials.