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Sustainability Policy's Inherent Dilemmas – Exemplified Via Critical Examination of the Las Vegas Metropolitan Sustainability Campaign

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SUSTAINABILITY POLICY'S INHERENT DILEMMAS—EXEMPLIFIED VIA CRITICAL EXAMINATION OF THE LAS VEGAS METROPOLITAN SUSTAINABILITY CAMPAIGN

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by

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ABSTRACT

SUSTAINABILITY POLICY'S INHERENT DILEMMAS—EXEMPLIFIED VIA CRITICAL EXAMINATION OF THE LAS VEGAS METROPOLITAN SUSTAINABILITY CAMPAIGN

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In response to a dual problem of critical water scarcity and rapid population growth, leaders of metropolitan Las Vegas implemented a region-wide, internationally marketed sustainability campaign. Preliminary studies found that, while sustainability policy attains its rhetorical goals, solutions initiated not only perpetuate but also purposefully expand the original dual problem to justify continuous water resource acquisitions. To examine this sustainability conundrum constructed by leadership—problem-perpetuation rather than problem-resolution—a critical examination in resource management asked two basic questions: what is being sustained and by what means? Via this inquiry, specific processes by which leaders perpetuate problems can be identified; and, so-informed, new choices capable of resolving human-constructed dilemmas can be applied. Drawing on Las Vegas' sustainability campaign as example, this paper argues that sustainability policy inherently sustains polity rather than natural or cultural resources and does so by means of policy structure, policy content (and omissions), and policy goals.

ACKNOWLEDGMENTS

From my arrival in Ellensburg in 2005, I have had many occasions to travel back and forth from Washington State down the West Coast, to the Southwest, to Texas, and to the Midwest mostly by car but also by airplane. In the long drives across the Basin and Range Region of the West, my thoughts always wander across the landscape with an awareness that each of our lives, each of our physical bodies, is entirely dependent upon the resources of Mother Earth. Without Mother Earth, none of us could exist. Her molecular properties and processes, Her hydrogen and oxygen, Her atmosphere, Her water, Her earthen soils create our bodies and fuel our lives. From Her, each of us is composed. So, to Her and to the Great Spirit, the Great Designer, the Great Unknown, I express my gratitude for this extraordinary life, for the many who have assisted me along the way, and for the privilege to live within this planetary ecosystem of refining evolutions.

In the process of developing this research, two rhetorical phrases frequently reappeared: “self-made” and “self-looping.” These cultural beliefs seem to dominate Western ideology, a forgetting that all are connected and no one lives as a self-contained unit. Needless to say, this research developed with assistance from many, many people. Foremost, I wish to acknowledge my graduate committee at Central Washington University-Ellensburg, Dr. Kathleen Barlow (committee chair), Dr. Jennifer Lipton, and Dr. Rex Wirth. Their encouragement, enthusiasm, respect, and patience fully supported this research.

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This research began with development of a Las Vegas fieldtrip. The fieldtrip could not have been possible without assistance from many individuals working for various professional organizations including the Association of American Geographers in Washington, DC, the Bureau of Land Management-Nevada in Carson City, the City of Las Vegas City Manager's Office, the Las Vegas Springs Preserve, the Molasky Corporate Center, and The Animal Foundation Dog Adoption Park in Las Vegas. The assistance from these many organizational representatives contributed significantly to this research.

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CHAPTER I

INTRODUCTION

Las Vegas, Nevada has always been, for me, a place of conflicting impressions. In 1961, when I first visited, I was 10 years old. On summer vacation with my parents and brother, I vaguely remember my father (the scientist) lecturing (to his captured, but uninterested, audience—my mother, brother, and myself) about the intricacies of Hoover Dam, which we had just visited, while locating a casino with an elaborate (cheap) buffet. My father's enthusiasm about the buffet (cheap) resonated into his ongoing lecture. Enduring the dam lecture throughout the meal, I finally asked permission to be excused to go to the ladies' room. Walking alone (safely in those days) into the ladies room, my attention was suddenly and absolutely captured. There, before me in front of the mirrors, stood three, barely clothed dancers with feathers trailing yards behind them and lots of sequins in very private places. My Southern Baptist upbringing in Dallas had not prepared me for this. So, *this* was Las Vegas?

Nearly a half-century later when returning from a geographer's conference, I read a magazine article on the flight from San Francisco describing an animal shelter that had been built using green technology (Adler, 2007). The animal shelter, The Animal Foundation Dog Adoption Park, was located in the Las Vegas metropolis.

When I first learned that the 2009 Association of American Geographers (AAG) annual conference would be held in Las Vegas, I felt disappointed, as, previously, the joy of attending AAG conferences for me had been the exploration of new landscapes. The thought of being stuck in a desert with the "gaming" industry (gambling, drinking, and

smoking) held no appeal for me. But then I remembered the animal shelter and I thought, what if I created a fieldtrip for the conference that would explore the animal shelter?

At first I simply tried to remember the name of the magazine or the name of the shelter and used a Google search with words like "green," "design," "award," "Las Vegas," "animal shelter." The search results that I received were massive, especially for green design awards in Las Vegas, but also for the city of Las Vegas with its Green Sheet and rapid sustainability developments (e.g. CLVN, 2006; 2007a; 2007d; 2008c). While not specific enough for academia, my initial research question was, "What in the world is going on in Las Vegas?"

As I began developing a fieldtrip that might be accepted for the 2009 AAG conference, I started working on two levels: one academic, the other professional. As an academic, I began drafting a spatial-temporal study to better understand "place." I wanted to know as much as possible about the geophysical landscape and the social cultural political economic development before I led a fieldtrip for international, professional geographers.

On a professional level, I needed to contact, coordinate, plan, and sign contracts with various professionals in Las Vegas. In this capacity I began asking some simple questions. For example, when speaking with the chef who would create menu-choices for participants' lunches, I was told the produce would be local. Already aware there were no "local" soils to grow food in the desert ecosystem, I was confused and asked for clarification about "local." The chef informed me that produce would come from Los Angeles.

As I was already creating a spatial-temporal study to identify local, regional, national, and international/global ecosystem resources, I found this difference in interpretation of "local" (the chef's vs. mine) fascinating (as in a research red flag) that alerted me to watch for other possible acculturated differences. In the course of this research, many appeared.

Simultaneous to these two levels of research, I was participating in a resource management graduate program that required a policy analysis of a specific policy. Having just contacted the Las Vegas City Manager's Office to request a spokesperson for the fieldtrip, I phoned back to request a specific policy, the city manager's *Sustain Las Vegas Policy No CM302* (CLVN, 2007g). Being new to policy analysis, I was guided by my political science professor to conduct a policy implementation analysis. Basically, this type of analysis focuses on a policy's stated goals and then identifies if those goals have been met. As this research demonstrates, Las Vegas most skillfully meets its goals.

These three research projects—the spatial temporal study, the fieldtrip creation (and participation in three other professional fieldtrips in Las Vega), and the policy implementation analysis—are what I call my first phase of methods or the "fieldtrip phase." In this phase as well as other phases, my two guiding research questions have been (1) what is being sustained, and (2) by what means?

In my second phase of research, I focused on policy, practice and place. I began by reexamining policy via two additional analyses, policy formulation analysis and problem identification analysis. Referencing the work of political scientists Eugene Bardach (2009), Joseph Stewart, David Hedge and James Lester (2008), I began noticing

applications of market-strategies to public policy, specifically a directive to avoid problems and focus instead on opportunities. This directive proved to be applied in Las Vegas' specific and general sustainability policies and in publicized sustainability agenda. The activities of the Southern Nevada Water Authority (SNWA) were exempted from the sustainability-market's promotional materials.

With suggestions from my political science mentor, Dr. Rex Wirth, I redirected my focus from the sustainability campaign to concentrate on SNWA activities. While I was at it, I decided to investigate global water management practices in arid lands where I came upon what currently may be considered the best practice in water management called "integrated water resource management'" (for historical development, see Dijk, 2012). Finding that Las Vegas was already using criteria recommended in this integrated approach, such as accessing water from different geographic scales and water sources (local artesian springs and aquifer, international river, regional and national aquifer systems), using sustainability logics, applying economic principles, and marketing energy efficiencies, I found, once again, that Las Vegas presented exemplary craftsmanship. Nonetheless, I began to notice more red flags, research inconsistencies, or what I termed research fractals.

These fractals—inversions, energy rifts, omissions, and appropriated theories—drove me onward to try to understand and explain what I was finding. While my research followed its original questions (what is being sustained and by what means?), this journal article summarizes findings from the larger research to answer a more specific question: how do leaders reconstruct problems? By using the findings from this critical

examination and by streamlining attention to policy crafting, this paper argues that sustainability policy inherently sustains polity rather than natural or cultural resources and does so by means of policy function and structure (self-looping constructs), policy content and omissions (problem avoidance), and policy goals (future-interests vs. resource realities).

CHAPTER II

METHODS

This article draws on a resource management inquiry conducted between 2008-2014 that found that sustainability solutions crafted by leaders in response to a dual problem of critical water scarcity and rapid population growth actually perpetuated and expanded the dual natural and cultural resource problem. To answer these research questions (what is being sustained and by what means?), multiple analyses evolved to identify specific processes by which leaders perpetuate problems. This larger inquiry included studies of policies, practices, and place (summarized in Figure A; see, Smith, 2009; Williams, 2009). These findings were synthesized then streamlined to focus

Critical examination of Las Vegas metropolitan sustainability campaign

PRELIMINARY FINDINGS (Zimmerman 2010a; 2010b; 2010c)

	CRAFTSMANSHIP	DUPLICITY
SUSTAINABILITY POLICY	✓ Opportunities (6) ✓ Systems model (4) ✓ Re-education programs (1), (10) ✓ Corrective logics via public participation (10) ✓ Collaborations & associations (1)	⊙ Problem avoidance/ problem perpetuation (6) ⊙ Energy-efficiencies (13) ⊙ Engineering consent (1), (9) ⊙ Disaster capitalism (11) ⊙ TreeCity in treeless desert (2)
PRACTICE Integrated water resources management portfolio	✓ Geographic scales (10) ✓ Water sources (10) ✓ Efficiency initiatives (10) ✓ Economic principles (10) ✓ Sustainability logics (10)	⊙ Ignore eco-system realities (2) ⊙ Ignore disagreeable science (1) ⊙ Imperialistic acquisitions (5), (8)
PLACE	✓ Sustainability of polity (4)	✖ Ecology of place (2) ✖ Water sources (2) ✖ Political boundaries (5), (8) ➔ **ENERGY RIFTS** (3), (7), (12)

References: **(1)** Bernays, 1947; **(2)** Gaus, 1947; **(3)** Ellul, 1954; 1964; 1990; **(4)** Easton, 1957; **(5)** Williams, 1980; **(6)** Dery, 1984; **(7)** Heilbronner, 1985 **(8)** Worster, 1985; **(9)** Herman and Chomsky, 1988; **(10)** Dijk, 2012; **(11)** Klein, 2007; **(12)** Foster *et al.,* 2010; **(13)** Haywood, 2011

Figure A Critical examination's preliminary findings of policy, practice, and place

attention on inherent dilemmas in policy crafting as identified in the Las Vegas metropolitan sustainability campaign.

Data concerning place were developed via spatial-temporal analysis focusing on two determinants—ecosystem resources necessary for basic human life (especially water but also soils for food and materiality) and the social political economy of place. Attention to differences between geological time (necessary for evolution of ecosystem and water resources) and the Las Vegas metropolis developmental time (since the city's founding in 1905, approximately 109 years) emphasized the rapidity and volume of water resource consumption by amassed human populations within desert ecosystems. Data for ecosystem resources were collected via fieldtrips[1] (Heaton and Esque, 2009; Heaton and Nussear, 2009; Mayda and Homes, 2009; Zimmerman, 2009) and literature reviews concerning desert ecosystems (e.g. CCN, n.d.; Skrbac, 1999; Christopherson, 2000; Gorelow, 2005; Alles, 2007; Meko *et al.,* 2007; Woodhouse, 2007; 2009; Laity, 2008), geophysical evolution (e.g. Bell, 2003; USGS, 2004; Maxon, 2006), and historical impacts of water use within Las Vegas Valley (e.g. Bell, 1981; 2003; Bell *et al.,* 1992; Winogard *et al.,* 1998; Donovan and Katzer, 2000; Weissenstein, 2001; USGS, 2006; Buckingham and Whitney, 2007). Data for social, political, and economic development were gathered via literature reviews documenting historical developments of water in the west (e.g. Powell, 1869/1988; Worster, 1985; Reisner, 1986; Powell, 2008; ENS, 2013)

[1] Four professional geographers' fieldtrips conducted during the March 2009 Association of American Geographers Conference in Las Vegas focused attention on ecosystem realities of place and/or specific Las Vegas sustainability practices. This author created, organized, and led one of these fieldtrips entitled, "Arid lands and community leadership: sustainability decision in Las Vegas" (Zimmerman, 2009).

and simultaneous developments in American political economy that promoted dam construction (e.g. Veblen, 1907; 1919a; 1919b; Sinclair, 1962; Heilbroner, 1985; Achbar *et al.,* 2004; Bakan, 2004; Dowd, 2004). Additionally, data concerning adjudication of the Colorado River's water that gave Las Vegas's access to the international, trans-boundary water resource of United States' largest national reservoir were obtained via multiple legal documents (e.g. USSC, 1963; BLM, 2007; Coggins *et al.,* 2007; BLM, 2008; ENSR, 2008). Historical accounts of the building of the Boulder Canyon Project with subsequent creation of the reservoir Lake Mead were obtained from literature reviews and promotional advertising (e.g. Maxon, 2006; Simonds, 2006). Data for specialized developments concerning water use and governance for Las Vegas were obtained via official documents and scientific journals (e.g. SNSU [State of Nevada-State of Utah], n.d.; UNEP [United Nations Environmental Program], 2006; Deacon *et al.,* 2007; TSEOTSON [The State Engineer of The State of Nevada], 2007).

Data concerning sustainability practices were gathered then categorized by (a) promoted practices, (b) practical but discrete practices, and (c) tabooed practices, those practices necessary for survival but omitted from discussion. Data for promoted practices—such as greening agenda, green building industry, renewable energy industry, engineered landscapes, energy-efficiencies, and sustainability educational campaigns—were gathered from fieldtrips (Mayda and Homes, 2009; Zimmerman, 2009) and discussion with local and official sustainability spokespersons (*ibid.*), and from official and nonofficial web sites featuring brochures, reports, and initiatives (e.g. CLVN, 2006; 2007a; 2007d; 2007e; 2007g; 2007h; 2008a; 2008b; 2008c; 2008d; 2009; 2010a; 2010b;

CLVPDD, 2007; UNLV, 2007; 2009). Data concerning practical but discrete practices (like ongoing water acquisitions) were gathered from four sources: (1) official documents concerning Southern Nevada Water Authority (SNWA) projects including SNWA official website and Bureau of Land Management (BLM) environmental assessment impacts (EAI) (e.g. BLM, 2008; Conrad, 2009a; Conrad, 2009b; ENSR, 2008; SNWA 2008c; SNWA 2009b; SNSU, n.d.); (2) newspaper articles and other investigative journalism concerning SNWA activities (e.g. Christensen, 1994; Signorelli, 2006; Gertner, 2007; Green, 2008a; 2008b; 2008c; 2008d; 2008e; Miller, 2009a; 2009b; Green and Gorman, 2010; Rowe, 2011; Wines, 2014); (3) literature reviews on water resource management in arid lands (e.g. Clarke, 1993; Conca, 2006; Reddy and Dev, 2007); and, (4) United Nations directives for water use (Dijk, 2003; 2006; 2007; 2008; 2012). Data for tabooed practices were identified via fieldtrips (Heaton and Esque, 2009; Heaton and Nussear, 2009; Mayda and Homes, 2009; Zimmerman, 2009) and promotional literature from the City of Las Vegas and the University of Nevada at Las Vegas (e.g. CLVN, 2006; 2007a; 2007d; 2007e; 2007g; 2007h; 2008a; 2008b; 2008c; 2008d; 2009; 2010a; 2010b CLVPDD, 2007; UNLV, 2007; 2009).

Data concerning policy were gathered from specific city manager's operational policy, *Sustain Las Vegas Policy No CM302* (CLVN, 2007g), and from general policies published throughout the metropolis' sustainability campaign including city council and planning department meetings, sustainability conferences, and official websites (e.g. CLVN, 2006; 2007a; 2007d; 2007e; 2007h; 2008b; 2008c; 2009; 2010a; CLVPDD, 2007; UNLV, 2007; 2009). Discourse analysis and three policy analyses—formulation,

problem identification, and implementation (e.g. Gaus, 1947; Easton, 1957; Dery, 1984; Stewart, 2006; Stewart *et al.,* 2008; Bardach, 2009; Haywood, 2011)—provided data for policy structure, content, and goals. Data concerning sustainability rhetoric were gathered from various discourses and plotted within a developed, scholarly spectrum of meaning (e.g. Bruntland, 1983/1987; Ehrlich and Wilson, 1991; Daily and Ehrlich, 1992; Hardin, 1993; TAHDAL, 2000; Bartlett, 2002; 2006; 2012; SOED, 2002; CLVN, 2007h; CLVNDD, 2007; Coggins *et al.,* 2007; GOS, 2011).

Drawing from this data, the following chapter was written and submitted as a journal article to the *International Journal of Urban and Regional Research*. The "article" includes only those references cited within. For the entire research thesis, a comprehensive reference follows.

CHAPTER III

JOURNAL ARTICLE

Sustainability Policy's Inherent Dilemmas—Exemplified Via Critical Examination Of The Las Vegas Metropolitan Sustainability Campaign

> One way of mishandling a problem is to behave as if it did not exist. . . . Two consequences follow . . . a) acknowledgement, let alone any attempted solution, of the problem is seen as a manifestation of madness or badness; and b) the problem requiring change becomes greatly compounded by the "problems" created through its mishandling.
>
> Paul Watzlawick, John H. Weakland, and Richard Fisch (1974: 46)
> *Change: Principles of Problem Formation and Problem Resolution*

Introduction

A critical examination of the Las Vegas metropolitan sustainability campaign reveals that sustainability policy inherently sustains polity, not natural or cultural resources. Polity leadership accomplishes this in three ways: (1) via policy structure that functions as a self-reinforcing construct, (2) via policy content and omissions that conceal problems and hide existing knowledge, and (3) via policy goals that avoid existing resource realities and focus only on future vested interests[1] (see Veblen, 1919b).

Traditionally, resource management identifies specific natural or cultural resource problems and applies prescriptive remedies, building upon an underlying "ideological scaffolding."[2] This process may be adequate unless solutions reproduce problems and

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[1] "Vested interests" is an American reference to special interests motivated by economic gain.

[2] This author uses "ideological scaffolding" to underscore culturally constructed and societally determined beliefs and practices.

crisis occurs. Addressing such problems requires stepping outside the terms and logic of the problem. Second-order change is required.

Psychologists Paul Watzlawick, John H. Weakland, and Richard Fisch discuss problem formation and problem resolution by explaining the difference between first-order change in which new choices are made but the status quo is maintained; and, second-order change in which the status quo is consciously discontinued, allowing a paradigm shift to occur (1974: 77). For these psychologists, second-order change applies within contexts of personal relationships; however, second-order change is also applied to societal change, familial change, and individual change (e.g. Alexander, 1910; Diamond, 2005: 197-203).

Second-order change stops acculturated or habituated behavior by (1) identifying behavior as self-looping, (2) identifying specific problems and attempted solutions, (3) making conscious commitments to *not* reenact the problem or attempted solutions, and, (4) redirecting attention to a newly conceptualized, optimally functioning whole. Each step requires conscious decision-making and attention.

By applying second-order change theory to a critical examination of Las Vegas, we identify the problem of two million people trying to live a lifestyle in a desert ecosystem that does not support such a lifestyle. To support this lifestyle, leaders have constructed sustainability "solutions" (a sustainability market) that increases business population and requires increasing water acquisitioning. This critical examination identifies processes by which leaders reconstruct such problems via their "solutions."

Two basic questions guided this examination—what is being sustained, and by what means? By asking these questions, processes that reconstruct problems are identified and resolution becomes possible.

Rather than imposing pre-conceived "correctives," this research focuses on raising awareness of processes/decisions that perpetuate problems (in order to discontinue) and interrogates the management of resources as a function of leadership responsibility. This focus is based on an assumption that polity leadership should serve those whom it leads in order to perpetuate the polity rather than serving personal, vested interests.

This discussion begins by summarizing research methods pertinent to this paper. Then, to introduce the Las Vegas sustainability conundrum, I summarize historical developments of the Colorado River that allowed Las Vegas to develop into a metropolis. Secondly, I recount main developments of the sustainability campaign before analyzing Las Vegas sustainability policy in terms of three components of policy crafting that can reproduce problems—self-looping constructs, problem-avoidance, and future-vested-goals. I give particular weight to policy structure to demonstrate how policy maintains polity by a self-looping, reinforcing system. In the second dilemma, I discuss strategies within policy crafting that conceal self-perpetuating problems. In the third dilemma, I briefly discuss goal-orientation in problem solving, specifically misdirection or mistaken outcomes orientation. In concluding, I return to discussion of second-order change and its potential application to the Las Vegas sustainability conundrum.

Methodology

A resource management inquiry conducted between 2008-2014 found that sustainability solutions crafted by leaders in response to critical water scarcity and rapid population growth actually perpetuated and expanded the dual problem. To answer two research questions (what is being sustained and by what means?), multiple analyses evolved to identify specific processes by which leaders perpetuate problems. Utilizing findings from this larger inquiry, this paper focuses on policy-crafting's inherent dilemmas as identified via the Las Vegas sustainability campaign.

Data concerning place were developed via spatial-temporal analysis focusing on ecosystem resources necessary for basic human life (especially water but also others) and social political economy of place. Differences between geological time (necessary for evolution of ecosystem and water resources) and developmental time for Las Vegas' metropolis (since 1905 founding) reveal rapid consumption of water resources by human populations amassed within desert ecosystems. Data for ecosystem resources were collected via fieldtrips and literature reviews concerning desert ecosystems, geophysical evolution, and historical impacts of water use within Las Vegas Valley. Data for social, political, and economic development were gathered via historical accounts and legal documents concerning water use, governance, and dam construction in the West (e.g. adjudications of Colorado River water, Colorado River Compact, Boulder Canyon Project, Lake Mead National Recreation Area) and concerning American economic development.

Data gathered for sustainability practices were categorized as (a) promoted, (b) discrete, and (c) tabooed, necessary for survival but omitted from discussion. Data on promoted practices (e.g. greening agenda, green building industry, renewable energy industry, engineered landscapes, energy-efficiencies, and sustainability educational campaigns) were gathered from fieldtrips and discussion with local and official sustainability spokespersons, and from official and nonofficial web sites featuring brochures, reports, and initiatives. Data concerning practical but discrete practices (ongoing water acquisitions) were gathered from four sources: (1) Southern Nevada Water Authority (SNWA) documents concerning groundwater development projects and Bureau of Land Management (BLM) reports; (2) investigative journalism concerning SNWA activities; (3) literature reviews concerning water resource management in arid lands; and, (4) United Nations directives for water use. Data for tabooed practices were identified via fieldtrips and promotional literature.

Data concerning policy were gathered from city manager's operational policy *Sustain Las Vegas Policy No CM302,* and from policies published throughout the sustainability campaign including city council and planning departmental meetings, sustainability conferences, and official websites. Discourse and policy analyses provided data on policy structure, content, and goals. Sustainability rhetoric from various discourses was examined in terms of an identified spectrum of meaning.

A River Dammed, A Metropolis Grows

Two miles above sea level (13,000 ft, or 3962 m) on the western slopes of the Colorado Rockies in the Never Summer Range, the Colorado River begins. Within this humid region of water surplus, high atop Mount Richthofen in Rocky Mountains National Park, melting snowpack and precipitation falling as rain form millions of finger-sized rivulets that flow into tiny streams that quickly pick up volume and speed as the river flows rapidly down steep banks of the Rockies converging with more and more tributaries to quickly form a dynamic river. As other tributaries in Colorado, Wyoming and Utah flow into the Colorado increasing the river's volume, and as speed accelerates from the rapid fall in elevation, the Colorado cuts through sandstone and granite walls, forming spectacular canyons, sculpting such majestic sites as Flaming Gorge, Red Canyon, Echo Park, Desolation Canyon, Labyrinth Canyon, Stillwater Canyon, Cataract Canyon, Marble Canyon, Grand Canyon, Separation Canyon, Soap Creek Rapids, Badger Creek Rapids, Crystal Creek Rapids, Lava Falls, Boulder Canyon, Black Canyon, and Grand Wash Cliffs. The more powerfully the river flows, the drier the climate becomes as the river traverses the arid basin-and-range region of the southwestern United States until at last, after a 1400-mile (2317 km) journey, the Colorado delivers 18.5 km^3 annual flow with 125-160 million tons of suspended sediment to nurture a vast ecosystem of verdant forests at the mouth of Mexico's Gulf of California. (J.W. Powell, 1869; Leopold, 1949; Reisner, 1986: 24-35; Christopherson, 2000: 450-453; Maxon, 2006; Laity, 2008: 277)

But, not anymore. In 1922, the year Aldo Leopold journaled his experience in the wetlands of Colorado's delta in Mexico—where "the still waters were of deep and

emerald hue . . .” (1949: 151)—US Secretary of Commerce, Herbert Hoover, met with state representatives from Colorado, Wyoming, Utah, Arizona, New Mexico, Nevada, and California to craft a Colorado River Compact (CRC), an “agreement” allocating proportions of the river’s entire annual flow to states, based not upon states’ water contributions but upon a new interpretation of established riparian water law.

United States water law evolved out of English common law based on riparian characteristics (water course, natural flow, landowner’s location, etc.). However, beginning in the mid 1800s with discovery of gold in California, a new appropriation doctrine legalized water diversions as beneficial use. This water appropriation doctrine (hereafter referred to as Western water law) applied to most euroamerican industry—mining, agriculture, other industrial uses (Coggins *et al.*, 2007: 487-488). Journalist and historian of Western water law, Marc Reisner, explains the difference between riparian water law and appropriated water law: “In the East, to ‘waste’ water is to consume it needlessly or excessively. In the West, to waste water is *not* to consume it—to let it flow unimpeded and undiverted down rivers” (*italics* in the original; 1986: 12).

In the West, to allow water to flow is to “waste” it. To use water for agricultural, industrial, or residential purposes is the goal. This inverts the intent of previous riparian water law, which was to use water carefully so as to allow it to maintain rivers, streams and their associated riparian zones. In the West, efficient or beneficial use of water now means consumptive use. (Reisner, 1986: 12, 124)

Influenced by financiers, robber barons, the newly conglomerated corporatists, and California irrigation developers, the United States Congress passed the 1922

Colorado River Compact (CRC). Based on arbitrary division between upper and lower basins, CRC allocated water based upon the new Western water law to benefit consumptive use by special interests (basin map, Figure 1). Specifically and

Figure 1 Colorado River Basin divided into upper and lower basins as mandated by US Congress to comply with 1922 Colorado River Compact (map produced by United States Geological Survey [USGS], 2012: 2)

influentially, California agriculturalists (and associates) would benefit from the "All-American Canal" redirecting Colorado River water (at taxpayers expense) to California's Imperial Valley. While the majority of river volume would come from upper states, two lower states, California and Nevada, contribute no water to total flow, but receive more than 60% of the allotment.

In 1920, the Colorado's flow exceeded 15,000,000 acre/feet/year, which happened to be a 1,200-year high. Characteristically, rivers in the arid West fluctuate dramatically and, while Congressional leaders were so informed at that time by John Wesley Powell, they ignored this dramatic variation and proceeded to allocate water based upon the river's 1920 annual flow. For Colorado, where 50% of the waters originate, the CRC allocated less than 25%. California contributed not a drop to the river's volume but was allocated 60%. Nevada also contributed nearly nothing but was allocated a fixed amount of 300,000 acre/feet/year, regardless of future flows (for hydrographs of historical flows, see Meko *et al*., 2007; Woodhouse, 2007).

As some states were refusing to sign this "agreement" (specifically Arizona; in later discussion), Congress authorized the 1928 Boulder Canyon Project Act (BCP) to construct the largest reservoir in United States history, the now-named Hoover Dam, and the All-American Canal that would siphon 60% of the Colorado River's annual flow to agriculturalists in California's Imperial Valley.

By 1931, the Colorado River's flow to the Gulf of California stopped. With the development of BCP, work-camps became towns and new cities sprang up. Boulder City became the first to pipe water from the Colorado River to its residents, the newly arrived

5,000 construction workers, who would build the dam. While the Great Depression adversely impacted people across the nation, this construction economy from the dam to Boulder City to the town of Las Vegas flourished. Besides the increase in saloons, gambling halls and brothels, societal infrastructures began to establish law enforcement agencies, medical facilities, schools, department stores, post offices, recreation halls, and churches. (Simonds, 2006)

This growing infrastructure, supporting workers and their families, became regional footholds for national corporatists who had won the project's contracts. In fact, the Boulder City Company, created to manage the town, was a subsidiary of Six Companies, the newly named corporate-winners' conglomerate. Included in the "Six" were the likes of California's Henry J. Kaiser and W. A. Bechtel. Del Monte and S and W thrived while US taxpayers, funding these corporate awards, suffered the Great Depression. The list of non-local, non-regional, nationally conglomerated corporations involved in the development of the dam and the locale is extensive (see Simonds, 2006).

As Boulder Dam's construction was completed, workers stayed and slowly local population grew. Before the construction began in 1920, the population was 5,000 (SNWA, 2008). Boulder Dam was completed in 1941 and, in 1947, was renamed Hoover Dam. That year, Congress designated the reservoir's surrounding shoreline the first National Recreation Area (Coggins *et al.*, 2007: 23), an entitlement producing litigation and resentment for years to come.

Meanwhile, the war years of World War II increased prosperity and demand for water in Las Vegas Valley. The Army Air Force established its Las Vegas Gunnery

School and the growing industrial military complex requested Colorado River water via pipeline access to the reservoir. Within Las Vegas Valley itself, artesian springs began to run dry while the first resort opened and the demand for water from a growing population within a desert ecosystem began its incessant cry.

By early 1950s, the population of Las Vegas was 24,624 (UNEP, 2006). Nevada legislators created a municipal water purveyor for Clark County, home of the modern metropolis. As population increased exponentially, the purveyor issued permits, metered water, and began an endless process of negotiating and renegotiating water resources. Reports of ground subsidence from groundwater withdrawal began to increase (e.g. Bell, 1981). The desert ecosystem was being sucked dry and the real show had not yet begun.

Las Vegas was assured access to water from the national reservoir by the Supreme Court's decision in *Arizona v. California* (1963). In 1931, 1934, 1936, and 1954, Arizona sued the US Secretary of the Interior, claiming that the CRC violated state rights. As a result of Arizona's suits, Congress appointed a *Special Master* to arbitrate future conflicts (1963, 1979, 1981, 1983, 2000, etc.). The 1963 decision concluded that federal rights trump state rights of water and that the "United States intended to reserve water sufficient for future requirements of the Lake Mead National Recreation Area" (USSC, 1963; Coggins *et al.,* 2007: 493). That decision established precedent for Las Vegas' access to the national reservoir (over CRC states) and initiated an attitude of entitlement seeping into Las Vegas' psyche. Over time, the Colorado River has become "the most legislated, most debated, and most litigated river in the entire world" (Reisner, 1986: 120). But there was forewarning.

During an 1893 international irrigation conference in Los Angeles, John Wesley Powell warned attending "development-minded delegates" (Christopherson, 2000: 450). "I tell you gentlemen, you are piling up a heritage of conflict and litigation over water rights, for there is not sufficient water to supply the land" (Stegner, 1954: 343). Time has demonstrated Powell was right.

Since 1922, fixed-appropriations of Colorado River water available to each CRC state (and finally Mexico in 1944) have not changed. But the flow of the Colorado has. Tree-ring analysis has determined that 1922 was within a 1,000-year occasion of high flow (Meko *et al.*, 2007**;** Woodhouse, 2007). Since then, the volume of river flow has diminished while the population of Las Vegas has grown from 5,000 people in 1922, to a metropolis with 2 million residents demanding more water for themselves, their residential swimming pools, and their businesses—the thirsty gaming and tourism industry that itself requires exponentially more water (e.g. see Hof and Schmitt, 2011; Gössling *et al.*, 2012).

The metropolis of Las Vegas now depends upon water received via Nevada state's full allocation of CRC (300,000 acre/feet/year) and upon purchases and/or complex legal "negotiations" with Arizona, California, northern Nevada, northern Utah, and Mexico. Additionally, SNWA leaders recently considered importing water from the Midwest through a pipeline over the Rocky Mountains (see Rowe, 2011; and, Wines, 2014).

Sustainability Market, Sustainability Conundrum

The Las Vegas Valley is situated ecologically within the Mojave Desert and politically within Clark County, Nevada. Of the four North American Continent's deserts, the Mojave is the driest—an epicenter between the other three desert ecosystems and the arid, higher elevation, Colorado Plateau. Historically, "average" rainfall in the Mojave is four inches, fluctuating between 76 and 202 mm annually (Laity, 2008: 41). For the entire year, from July 2001-July 2002, Las Vegas Valley received 0.68 inch, or 17.272 mm, total rainfall, establishing 2002 as one of the driest years in southern Nevada's recorded history (CCN, n.d.). During this period of severe desert aridity, 2001-2004, golf courses around the reservoir sprang up like mint in a balmy Midwestern thunderstorm (UNEP, 2006). In response to this frightful shortage of water, the leaders of metropolitan Las Vegas began orchestrating their internationally marketed sustainability campaign.

In August 2002, the Las Vegas City Council appointed its new city manager whose previous experience included serving as environmental engineer for the Las Vegas Valley Water District (LVVWD) and the Southern Nevada Water Authority (SNWA). The new city manager's webpage highlighted his ability to engineer solutions to water problems such as a $2.2 billion water system to lower intake[3] valves from the United States' largest man-made reservoir, so-called Lake Mead (Selby, n.d.). Between 2000-

[3] This paper highlights rhetoric that distorts, inverts, or misrepresents meaning, such as so-called *intake* valves that actually *take-out* water. Intake valves connect to pipelines that transport water up-gradient to the metropolis, significantly increasing operational costs over down-gradient flows supported by gravity.

2004, increased aridity combined with massive consumptive use caused an 18-meter (60 feet) drawdown (UNEP, 2006).

Following the city manager's 2002 appointment, sustainability efforts were promoted rapidly. Sustainability policies, resolutions, planning commissions, partnerships, official websites, and initiatives were implemented while green councils, green incentives, green building awards, and green recognitions flourished (see policy timeline, green policies, and news archives in CLVN, 2008b; 2009). In 2005, the mayor of the city signed the *Climate Protection Agreement*, a non-binding joint consortium of US mayors agreeing with the Kyoto Protocol. While the mayor was displaying international concern for the environment, the city manager was attending a 2005 public relations training by the US Department of Defense that provided "a multiservice orientation for civilian public opinion leaders" (USDOD, 2005: n.p.; CLVN, 2008b; Selby, n.d.). In global centers of power and economies, sustainability "science" was trending quickly (AAG, 2012).

By 2006, the city had joined *SustainLane's* yearly sustainable city competitions, associating with cities such as Seattle, Chicago, and Pittsburg, whose sustainability accomplishments occurred in humid climates (CLVN, 2006; *SustainLane*, 2008). In 2007 Las Vegas acquired its first *American City of the Year* award (CLVN, 2008a), notably making impressions with its internationally marketed sustainability campaign (CLVN, 2009). The official goal—to remake the metropolis of Las Vegas into a "World Class City" (CLVPDD, 2007:1)—was proving a success. Sustainability rhetoric and sustainability markets were its strategy. By 2008, Las Vegas was honored by

international sustainability organizations as being "green" (CLVN, 2008a). But few seemed to ask what was being sustained and in what ways was it green?

Meanwhile, behind the fanfare, on 23 July 2007, the city manager's office approved *Sustain Las Vegas Policy No CM302* (CLVN, 2007). This policy set an official agenda for city administration, establishing and directing all sustainability initiatives through joint commissions and workshops, websites, publications, plans, councils, and even the *2008 Urban Forestry Initiative* (CLVN, 2008c). For, while many of us were bedazzled by the metropolis' new, visually aesthetic, award-winning, green-building architecture (Zimmerman, 2009), others were attending to the ongoing, subtly orchestrated, social, political, and economic maneuverings for water by the Southern Nevada Water Authority (SNWA) (e.g. Christensen, 1994; Deacon *et al.,* 2007; Mrowka, 2014).

Three months following the city manager's approval of *Sustain Las Vegas Policy No CM302,* the *New York Times* ran a feature article entitled "The Future is Drying Up" (Gertner, 2007). Gertner stated that the Colorado River was experiencing the greatest drought on human record. An accompanying photograph of Lake Mead displayed the reservoir's visible drawdown. This reservoir, largest in the United States, is the primary source of water for all 1.8 million (2007) residents of the Las Vegas metropolis (plus its 40 million annual visitors and the downstream metropoli of Phoenix, Los Angeles, and San Diego, each receiving some of its recycled flow).

Gertner's article included an interview with the 2007 director of the SNWA, Pat Mulroy, who explained that an agency-hired engineering firm had just begun drilling a

deeper outtake valve at the bottom of the reservoir. Furthermore, Gertner wrote that ongoing and extraordinary population growth had increased the city's coffers so that Mulroy could purchase additional water from Arizona at a cost of $330 million. Gertner (2007: n.p.) wrote that "one catchphrase of the water trade is that water flows uphill toward money, which is another way of saying that a city with ample funds can, at least theoretically, augment its supplies indefinitely."

Furthermore, Gertner reported that the other states of the 1922 Colorado River Compact had tentatively agreed to guarantee Lake Mead's water level; and, that the water crisis had caused the Colorado's water managers to seriously contemplate a "compact call" to re-evaluate water allocations. This compact contingency could set lower basin states (Nevada, Arizona, and California) against upper basin states, forcing the states supplying the majority of water (Colorado, Wyoming, New Mexico, and Utah) to reduce their portion of allocated water or stop their withdrawals altogether. According to Gertner, Mulroy favored a "regional market that gives states, cities and farmers greater freedom to strike mutually beneficial agreements, but with protections so that municipalities [metropoli dependent upon the Colorado's water] aren't pitted against one another" (2007: n.p.; also, see Pitt, 2013). Mulroy's "regional market" idea coincided with the approval of *Sustain Las Vegas Policy No CM302* authored by the city manager whose previous employer was SNWA. Las Vegas leaders' expertise is engineering water solutions.

With this background, this author's preliminary studies examined policies, practices, and place. These studies revealed exceptional craftsmanship in policy

construction and implementation. However, also noted in specific (CLVN, 2007) and general policy were skillful omissions about water scarcity and acquisitions, population growth and human resource needs, importation costs for all resources, and ecosystem realities of place. Consequently, research findings directed this analysis of policy crafting that interrogates policy function and structure, policy content (and omissions), and policy goals.

Sustainability Policy's Inherent Dilemmas

Policy, by current definitions and etymological origins, functions to sustain the polity by which policy is constructed. Simply put, the purpose of policy is to sustain polity.[4]

The existence of a polity, or political system, requires two conditions within a social system: (1) having a governing structure that consists of leaders, an attentive, participatory populace, and a general populace; and (2) willingness to accept a governing structure. For the body politic to survive, its leaders must appear to support it. The elite structure of polity (leaders and participatory populace) must create or support policy that sustains the society or the leaders will have failed. Political leaders must appear to support the culturally preferred lifestyle of the polity (Wirth, 2014). Las Vegas' sustainability policy provides a clear example.

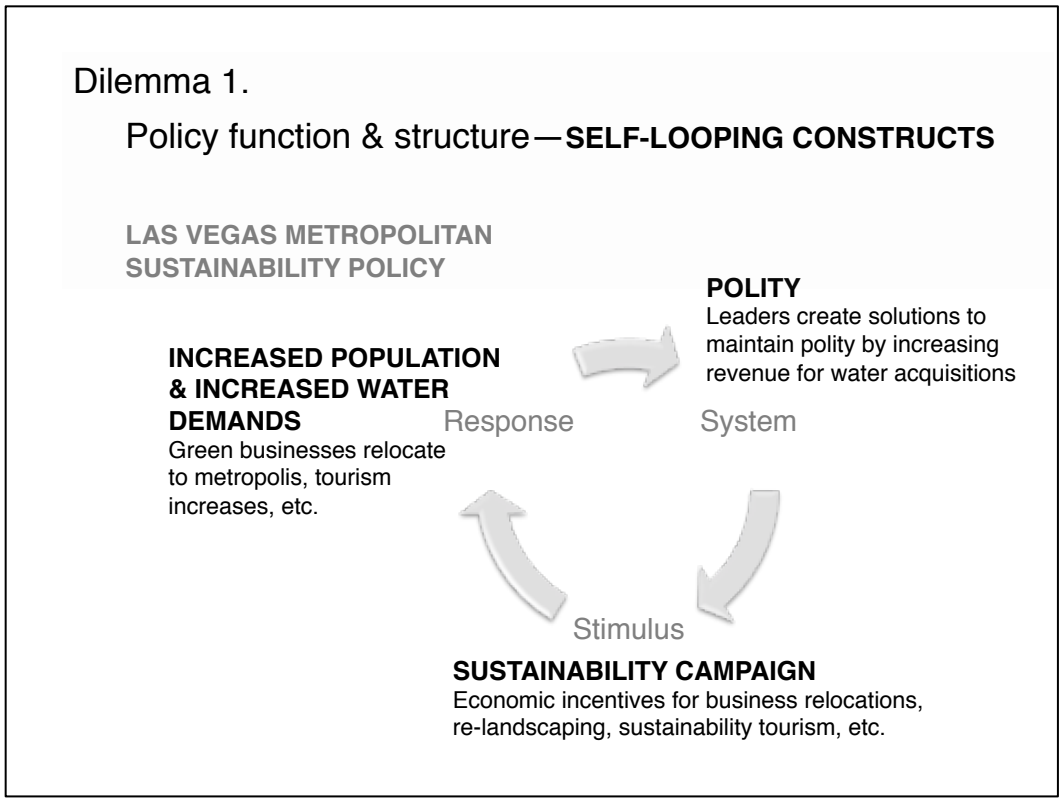
[4] See various dictionaries for definitions and etymological origins of "policy" and "polity."

Dilemma 1. Policy Function and Structure—Self-Looping Constructs

Las Vegas leaders have coordinated a metropolis-wide sustainability campaign and constructed a sustainability-market that offers economic incentives (e.g. green industry relocation incentives, sustainability-tourism special rates) to attract more visitors and new residents, increase the metro's tax base, purchase more water, and perpetuate growth that sustains the culturally determined lifestyle of the polity—the metropolis of Las Vegas (Figure 2). The political leaders are attempting to reconcile sustainability with growth. Las Vegas policy coincides with David Easton's political systems framework (1957), referenced as a "systems model" (see Figure 3).

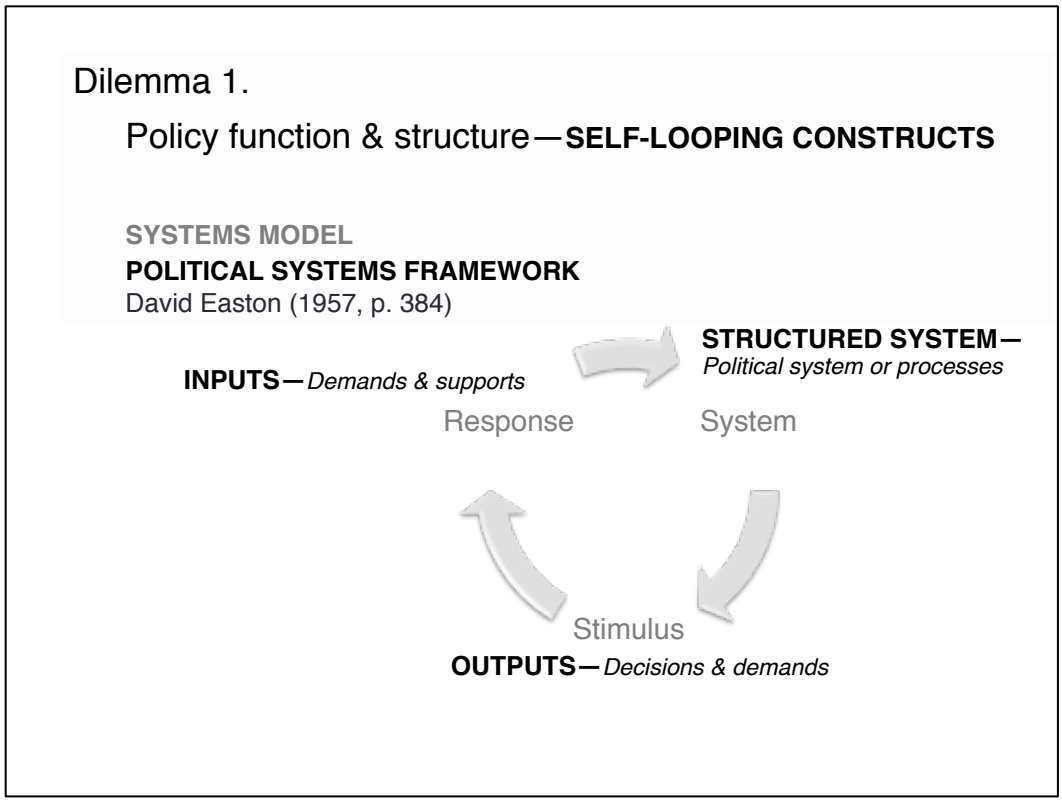
Like Las Vegas' sustainability policy (Figure 2), David Easton's "system model" (Figure 3) is an example of a self-looping construct. A political scientist, Easton (1957: 383) simplified political systems into "self-contained political units." In his analysis, the polity (system) receives inputs (responses) from the general polity in the form of demands and supports, and then provides outputs (stimuli) in the form of decisions and more demands to the general polity that feed back into the political system creating more demands and supports (Figure 3). In Easton's words (1957: 387), " . . . if a structured system [polity] is to maintain itself, it must provide mechanisms whereby its members are integrated or induced to cooperate in some minimal degree so that [polity leaders] can make authoritative decisions."

Aligned with Easton's systems model (Figure 3), Las Vegas's sustainability policy (Figure 2) exemplifies both craftsmanship and success. Leaders (of polity system) have planned and implemented policy that provides economic incentives (stimuli) that



Note: This diagram exemplifies Las Vegas general sustainability policy: polity leaders create a sustainability-market with economic incentives (stimulus) to increase the tax base (response), which will allow polity to continue water resource acquisitions to perpetuate growth.

Figure 2 Model of Las Vegas sustainability policy as a self-looping construct (model ©2013 by author)



Note: David Easton's political systems framework, referenced in policy crafting as a "systems model," prescribes processes to maintain a structured [fixed] political system. This concept of "systems" contrasts sharply to biological systems that are not self-looping, not self-contained, and not fixed.

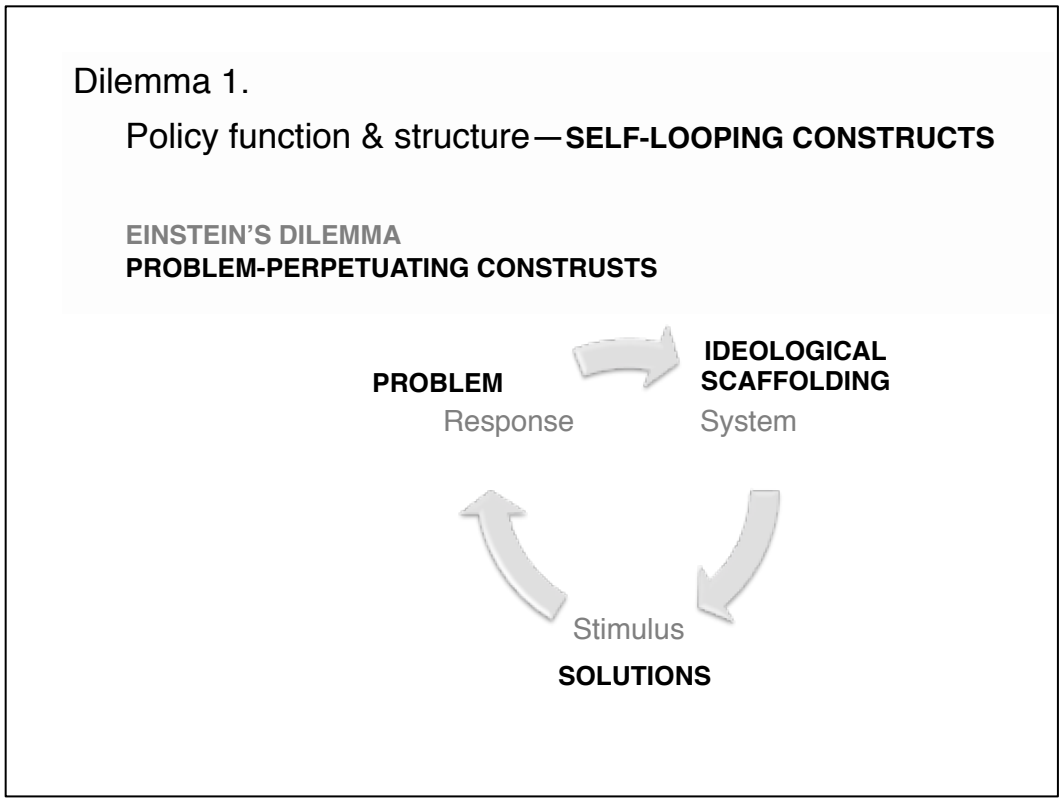
Figure 3 Model of David Easton's political systems framework as a self-looping construct (model ©2013 by author)

generates growth of the tax base (response) that supports the political system and generates more revenue for water resource acquisitions. However, while policy successfully accomplishes its goals, the originating dual problem to which the campaign responded—acute water scarcity and rapid population growth—increases. While Las Vegas leaders are addressing the survival of the polity—its growth and sustainability—the solutions put forth perpetuate and exacerbate water scarcity with population growth.

Self-looping, problem-perpetuating constructs occur in many disciplines. For example, in water resource management, constructing dams eventually reproduces, perpetuates, or expands problems exponentially beyond their original purpose. Jeff Mount, Director of Watershed Science at University of California at Davis, refers to this problem-perpetuating, self-looping construct as "serial engineering" (Blatman, 2009, 3: 4). Dams are constructed to solve problems but create more problems; so, more dams are built. (Psychologists describe this self-looping phenomenon as " 'more of the same' or when the solution becomes the problem" [Watzlawick *et al.*, 1974: 31]).

Microcosmic examples of this are repeated in the metro's sustainability campaign. For example, by 2009, the metro population (Clark County) had grown to 1.9 million and was supporting ten golf courses that required 10 million gallons of water per day (Signorelli, 2006). Sustainability rebates to golf courses and other tourist industries encouraged replacing live grasses with synthetic astro-turfs. However, sustainability spokespersons reported that petroleum-based astro-turf requires more water to cool than water to grow live grasses (Fieldnotes, 25 March 2009, from Mayda and Homes, 2009).

This example from Las Vegas demonstrates one of Albert Einstein's popularized quotes. To paraphrase, no problem can be solved from the same consciousness that created it (Figure 4; for quote variations, see Icarus, 2009). What Easton has prescribed for political systems, Einstein rejects for problem-solving. Einstein's "consciousness" for Las Vegas would equate to the intentional, desired lifestyle of the economic elite, the American dream.



Note: A representation and paraphrasing of Albert Einstein's infamous quote: no problem can be solved from the same consciousness that created it. In this figure, Einstein's consciousness equates to ideological scaffolding, or for Las Vegas, the intentional lifestyle of an economic elite.

Figure 4 Model of Albert Einstein's problematic dilemma as a self-looping construct (model ©2013 by author)

So what is the consciousness, the mindset, the ideological scaffolding of the polity's lifestyle, the political elite? It is to live the American dream, the American lifestyle, now a globally desired lifestyle. Las Vegas' problem-perpetuating solution becomes clear: as natural or cultural resource problems escalate and threaten to disturb the polity's lifestyle, greater efforts are required to save the system using its ideological scaffolding—market strategies.

Market strategies thrive within capitalistic ideology. Historical economist Douglas Dowd (2004: 4) writes that "the momentum of the capitalistic process was driven by efforts seeking to satisfy its three systemic imperatives: expansionism, exploitation, and oligarchical rule." Critical geographer David Harvey (2010:3) explains, "capitalism never solves its crisis problems, it moves them around geographically." Others, disagreeing with Harvey, argue that technology is responsible for relocating or redirecting problems, not capitalistic ideology and its methodology (Hammond, 2010).

Institutional sociologist Jacques Ellul and economist and sociologist Thorstein Veblen consider technology, science, and capital as unifying redirectors of problem-perpetuation and problem-expansionism (see Veblen, 1907; 1919a; Ellul, 1964; 1977; 1990). Both Ellul (1954) and Veblen (1907; 1919b) founded their theories upon a societally constructed idolization of capital. While human constructs of technology, science, and capital come and go, the biological ecology that sustains human life either adapts or dies.

Dilemma in policy occurs when the function of a political system impedes an essential function of survival. Self-looping constructs maintain a structured system (Easton, Figure 3). Structured systems, such as the Las Vegas political economy, are a product of dominant ideologies, like the American lifestyle. Las Vegas as a structured political system has attempted to solve its natural and cultural resource problem by defining sustainability in terms of growth within a capitalistic market system. Creating a sustainability-market to solve its dual natural and cultural resource problem instead exacerbates both problems (Las Vegas, Figure 2).

In 1947, political scientist John M. Gaus (1947) considered public administration (polity leadership) within the context of environmental ecology. Defining ecology as the "mutual relations, collectively, between organisms and their environment," Gaus (1947: 80-82) wrote that "factors of people and place are inextricably interwoven," that "exhaustion of the resource which originally brought settlements [would produce] a chain of institutional consequences," and that, "thus, . . . the use of the resources and products of a place, are coercive in their effect upon public administration." Gaus emphasizes that the critical task of politics is vigilance to discover the causes of resource problems, to communicate possible remedies, to organize citizens, and to formulate laws. In sharp contrast, Las Vegas did not develop from resources of place but developed from—and now is entirely dependent upon—consumptive water law, Congressional influence, and conglomerated special interests.

Beginning in the 1950s but accelerating into the 1980s, the resource issues foregrounded by Gaus were overridden as market strategies infused public policy (Stewart *et al.*, 2008). The application of market ideology produced reductionist strategies and rampant theoretical misrepresentations. For example, Easton's model of political systems has now become, in the lexicon of public policy formulation, equated with biological systems (see Stewart *et al.*, 2008: 95-96). Consequently, while Easton's model marches onward buttressed by claims that it is an "evolutionary approach" in public policy, this rhetoric hides how biological systems inherently function (*ibid.*).

Biological systems are not self-looping, not self-contained, and not fixed. Their function and evolution result via interactions with indeterminate evolving stimuli.

Biological ecosystems—soils, plants, animals, and humans—evolve via processes of adaptability and survivability within climate/earth systems and processes. From this multiplicity of interactions, biological maturation is characterized by openness, change, and diversity (see Ehrlich and Wilson, 1991; Wilson, 1992). Flora, fauna, human cultures, and entire ecosystems evolved through the millennia via multitudinous interactions and processes.

This biological, evolutionary process could not be more different from Easton's structured, fixed political systems. Self-looping constructs have developed to reproduce and maintain polities (political systems) by approving/disapproving of customs, practices, beliefs, etc. Via this construct, polities have developed as closed systems that reduce diversity and inhibit change in order to maintain a structured system.

To fuel its own growth, Las Vegas' water acquisitions (including projects, purchases, bartering, etc.) have been costly and destructive of ecosystems and other communities (see Deacon *et al*., 2007; Mrowka, 2014). Since the water level in the reservoir Lake Mead dropped below 49% of capacity, water acquisition costs have included lowering water outtake valves at the reservoir ($2.2US *billion*, $6.5US million, $817US million), groundwater development projects and pipelines to withdraw water from the Great Basin aquifer ($3.5US *billion*), and indeterminate costs for proposed water desalinization plants in exchange for portions of California's and Mexico's water allocations of the Colorado River water (Gertner, 2007; Green, 2008; Selby, n.d.; Wines, 2014).

How does this modern metropolis pay such astronomical costs for water acquisitions? Via a footloose economy dependent upon tourism. In a footloose economy (a regional economy lacking resources to export, what some now postulate as post-industrial economy), a service sector must thrive. For the 1928 BCP construction workers, the service economy included gaming, gambling, drinking, prostitution, and smoking. Since then, other insatiable, habituated, self-reinforcing practices of consumerism have thrived—spectacles, entertainment, shopping, food consumption, drugs, sex addiction, and gambling.[5]

To support Las Vegas' footloose economy, tourism has become the primary economic engine to grow the metropolis to two million residents (UNEP, 2006). Arriving via McCarron International Airport, approximately 40 million tourists visit Las Vegas annually (Signorelli, 2006). In addition to bringing monies for conferences and gaming industries, these tourists exponentially increase Las Vegas' carbon footprint. For, in addition to environmental and economic costs of transporting all the water, all the food, and all the materiality for two million residents' daily life and businesses, now water, food, and material resources must also be imported for 40 million tourists (see Figure 5 as illustration). Increasing the global carbon footprint exponentially, tourism—especially within arid climate zones—drastically increases water use and costs even while placards at resorts remind visitors to care for environments (e.g. Hof and Schmitt, 2011; Gössling *et al.*, 2012).

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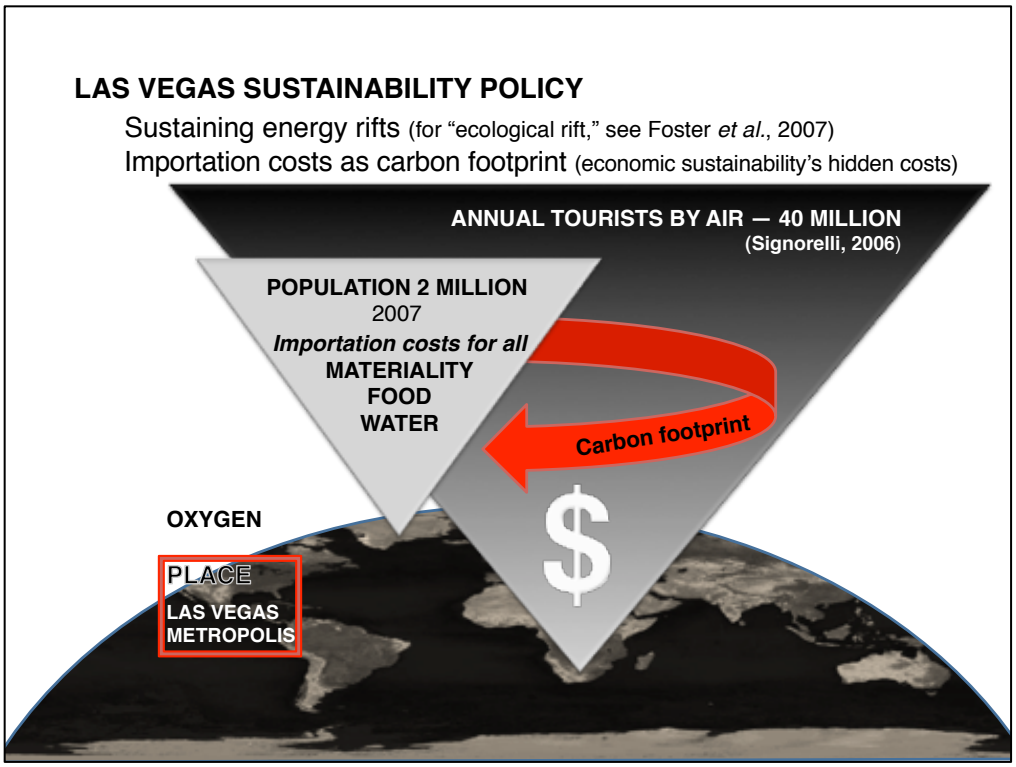
[5] Some would say that economies functioning predominantly on insatiable habits, fixed within self-looping constructs, have developed beyond footloose or post-industrial into addictive societies (see Wilson-Schaef, 1985; also, Hedges, 2009).



Note: Carbon footprint represents importation costs for all water, all food, and all basic materiality for each of 2 million residents plus additional 40 million annual visiting tourists.

Figure 5 Diagram of Las Vegas energy rift with resulting carbon footprint created by importation costs for all resources (water, food, materiality) needed for basic human life (model ©2013 by author)

In this first dilemma, I have argued that the function of policy is to sustain polity and that polity is a self looping construct that is prescriptive, necessary according to Easton's systems model, but problematic when ignoring Gaus' ecology model, thus representing Einstein's dilemma. Within the Las Vegas polity, leaders have constructed a sustainability-market that increases revenues to continue purchasing water resources, to perpetuate the lifestyle to which the body politic has become accustomed—an American lifestyle of the rich and famous. In this lifestyle, money can buy anything. But the pursuit of money—now the global ideology—is also a self-looping construct that does not solve

problems but, borrowing Harvey's words, moves problems around geographically. Within these self-looping constructs, a desire for more of the same reconstructs the problem. This self-looping relationship of policy to polity is concealed strategically by content that presents illusions of improvement or of problem solving.

Dilemma 2. Policy Content (And Omissions)—Problem Avoidance

Policy content (and omissions) result from multiple phases of policy crafting, a very sophisticated enterprise. Evolving rapidly since the 1960s, policy crafting has generated models, analyses, and processes to set, form, implement, change, and terminate policies—all to achieve very specific goals (Stewart *et al.,* 2008; Bardach, 2009). With such expertise available, and a chamber of commerce to fund expenses, a modern metropolis is able to target problems precisely with exceptionally well-crafted policies.

Applying multiple policy analyses to Las Vegas' specific and general policies reveals both craftsmanship and well-executed policies. Proposed criteria successfully meet goals. *Sustain Las Vegas Policy No CM302* (CLVN, 2007), the city manager's in-house, operational policy, presents simple goals to reduce overall energy and water consumption and to encourage education and training. So, one might ask, what's the problem? Or, more precisely, where's the problem? Policy craftsmanship has defined problems out of existence.

As political scientist Eugene Bardach (2009: 9) emphasizes, "problem definition is a crucial step"—so crucial, apparently, that as market ideology infused policy crafting, problems began to disappear, intentionally repositioned as externalities. Instead of

negative discussions about problems, the acceptable focus becomes "opportunities" (Dery, 1984: 27). By focusing on opportunity—to grow a "World Class City" via its new sustainability market—and avoiding its problem—acute water scarcity combined with rapid population growth—Las Vegas has expanded its dual problem. Intentionally omitted from its policies, two realities of the metropolis exist: (1) desert ecosystems have no water to support large communities (and Las Vegas is both in the desert and large) and (2) two million people require massive resource importation costs not to mention additional resource importation costs for its 40 million annual tourist economy. For Las Vegas, the real problem is no longer relevant. Instead, the problem becomes money, or rather, purchasing power. While markets are agreeable, all is well. But, because markets externalize problems, societal problems are not solved but always deferred.

As global water resources are challenged by unrestricted population growth and pollution permits favoring industry, international water management practices have changed. Contemporary recommendations include practices that (1) acquisition water from multiple sources (2) at different geographic scales, (3) create water efficiencies, and (4) apply sustainability practices (for integrated water resource management development, see Dijk, 2012). Having accomplished each of these, Las Vegas represents a sort of poster-boy in integrated water resource management.

So, is water really a problem for the metropolis? Thanks to careful wording and directives in *Sustain Las Vegas Policy No CM302*, the metropolis can reference energy efficiencies exemplifying beneficial water use (Western water law) so that when SNWA goes to the State Engineer, who decides state water allocations, the metropolis can be

awarded northeastern Nevada's (and maybe western Utah's) ground water from the Great Basin aquifer (see SNSU, n.d.; TSEOTSON, 2007; also, Green, 2008; Conrad, 2009; NDCNR, 2012; Johnson *et al.,* 2014). And, should the Colorado River and the Great Basin aquifer not meet the needs of the growing metropolis, there is, in the words of SNWA director Pat Mulroy, always the possibility of "seizing floodplain waters from the Upper Mississippi and its tributaries . . ." (Rowe, 2011: n.p.).

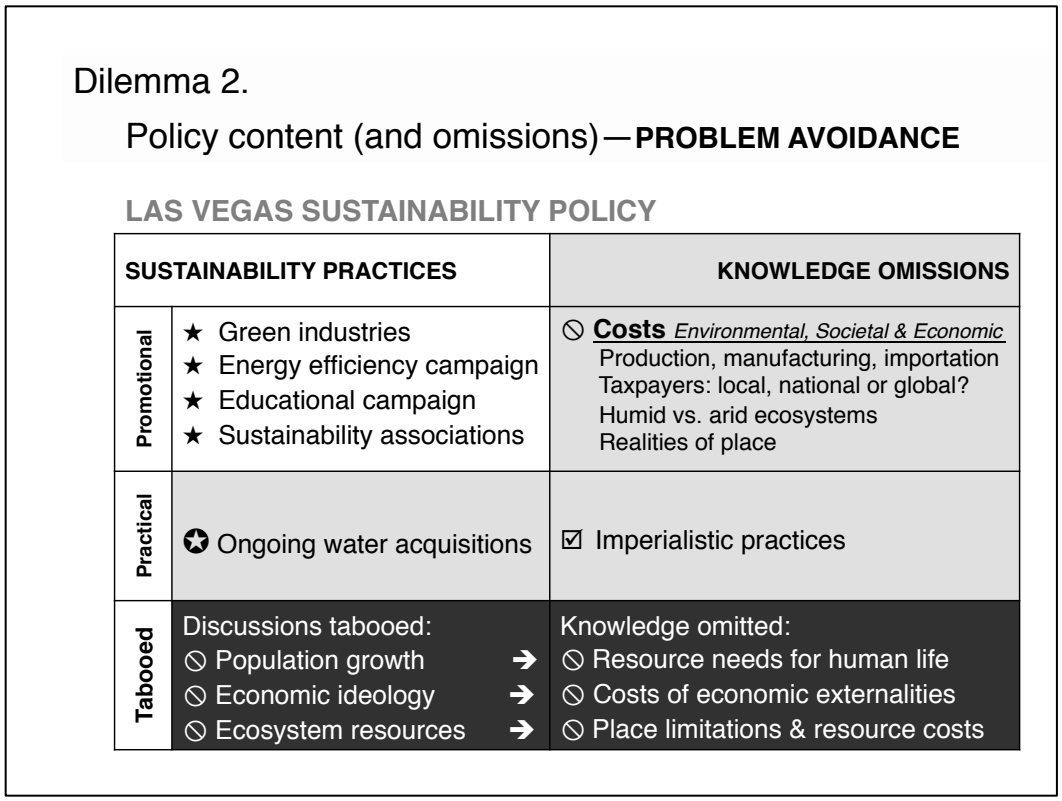
Omissions from Las Vegas' general sustainability policy are not limited to realities of acute water scarcity and water acquisitions. Population growth with its subsequent resource needs has been externalized from societal awareness (for historical-economic omissions, see Hardin, 1993; for critical analysis of population growth and sustainability, see Bartlett, 2006). Such rampant omissions constitute a policy of omissions, a culture of externalities—hiding what is left out of discussions, but remains in plain sight—like the visual drawdown of Lake Mead, a national reservoir holding international, trans-boundary water resources (see Figure 6; Gertner, 2007; Wines, 2014).

How do millions of people not see what is in plain sight? Historian Timothy Snyder (2012: n.p.) uses the term "knowledge deprivations" to explain a devolution of societal knowledge. For example, knowledge that was once common—like the effort and preciousness of drawing water from a well—is erased from societal awareness by "progress" that exploits then transports water internationally to super-markets in petroleum-based bottles. Some of this deprivation occurs perhaps intentionally through socialization to minimize trauma and some intentionally for political-economic gain. Edward Bernays (1947), founder of the public-relations industry, promoted what he

Figure 6 Drawdown at Lake Mead, the nation's largest reservoir, in 2014 (*source:* photo by author ©2014)

termed "engineering consent." Bernays helped President Woodrow Wilson convince an unwilling American populace to participate in World War I. He also quadrupled the bottom line for tobacco industries by convincing women that smoking was attractive (see Achbar *et al.*, 2004; Bakan, 2004). This process of intentionally misinforming the public has been called "manufacturing consent" (see Herman and Chomsky, 1988). Simply put, vested interests hide economic, societal, and environmental costs.

Sustainability practices promoted by Las Vegas' leaders exemplify how reality is erased, suggesting knowledge omission as a matter of policy (see Figure 7). One example is the city's *Urban Forestry Initiative* (CLVN, 2008c). This initiative recommends low-



Note: Sustainability practices identified in the Las Vegas' sustainability campaign are listed with a white background when openly promoted, with a gray background when quiet, not openly promoted, and with a black background when invisible, omitted, disappeared, or eradicated from discussions.

Figure 7 Chart of Las Vegas' sustainability practices (promotional, practical, and tabooed) listing knowledge omissions (model ©2013 by author)

water tree-types to plant within the city as a cooling and visual mechanism. The problem: no trees grow within the Mojave Desert ecosystem. The only tree-like plant that can grow is the Joshua tree, a moisture-retaining succulent. This initiative encourages planting species that could never survive in the desert without additional water importations. Providing potency to the idea of a metropolis' tree-planting campaign where none would otherwise grow, the Colorado River was reported as the most endangered American river in April 2013 (ENS, 2013).

Two other examples of knowledge omissions involve green industries. Renewable energy industries, requiring solar cells or wind turbines to collect energy en masse, receive tax incentives to relocate their businesses to the metropolis. Green building industries receive fortune and fame for their award-winning architectural designs. For both industries, all of the resources must be mined and manufactured elsewhere, imported (adding to that growing carbon footprint), then maintained until expiration, adding to toxic landfills elsewhere. At one green building facility, the management explained that malfunctioning green technology would not be replaced because equipment and importation costs exceed the facility's budget (Fieldnotes, 24 March 2009, from Zimmerman, 2009). Visual aesthetics of green building do not advertise actual costs.

But perhaps the greatest erasure from policy content is the reality of the polity itself—the method by which it constructs power. For Las Vegas, for the nation, for the new world order, for our common global metropolis, polity now functions on a market system, a system that values scarcity as opportunity and creates disaster to profiteer (Klein, 2007). Polity cannot survive on this market system.

A market system is a capitalistic reinforcing system dependent upon ongoing acquisition of resources. To identify this economic ideology of insatiable profit-making with its practices of endless growth is the greatest of American taboos. As historian William A. Williams (1980: 31) delicately puts is, there must be a gloss "for the harsh truth that empire, soft or hard, is the child of an inability or an unwillingness to live within one's own means. Empire as a way of life is predicated upon having more than

one needs." Williams historicizes the development of the United States as an empire engaged in imperialistic behavior throughout the globe.

Environmental historian Donald Worster (1985: 55) concurs that "man's boundless imperialism is never satisfied." Focusing on river empires of the American West, Worster (1985: 4) observes that "the West is still supposed, in popular thinking, to be a land of untrammeled freedom, and in some of its corners it may be just that. However, that is not all it is, is not even the more important part of what it is. The American West is also more consistently, and more decisively, a land of authority and restraint, of class and exploitation, and ultimately of imperial power."

Again, Las Vegas exemplifies success. Its sustainability campaign—with its policies of omissions and its imperialistic acquisitions of water—fits appropriately within our global polity's paradigm—a self-reinforcing construct of empire.

Dilemma 3. Policy Goals—Future Interests vs. Resource Realities

Our third dilemma examines policy goal orientations. Specifically, is the goal future-focused with attention to resource realities of population needs and ecosystem limitations of place (Gaus, 1947)? Or, not?

In *A Practical Guide for Policy Analysis*, policy analyst Eugene Bardach (2009) prescribes an eightfold path to more effective problem solving. "Projecting the outcomes" is essential in this path because " 'policy' is about the future, not about the past or the present" (Bardach, 2009: 38). However, Bardach (*ibid*.) explains, the future is never

predictable even "with the best of intentions and the most thoughtful of policy designs." Nevertheless, policy-crafting tunnels its vision towards popular, futuristic goals.

Because policy impacts people's lives, Bardach stresses importance in making best projections about how policy will or might play out. Some of his tools for projecting outcomes include extending projections, estimating impacts, identifying uncertainties, applying incremental analyses, and constructing matrices (Bardach, 2009: 38-52). Each of these tools is susceptible to one problem: projected outcomes may be subverted by inabilities to think outside of existing ideologies. Future-thinking is limited by polity's consciousness or polity's awareness, and thus easily susceptible to Einstein's dilemma.

In processes of design or engineering, resources used and impacted by design must be considered. When resource requirements are not considered, many problems can arise—faulty design, malfunctioning product, harm to others, environmental impacts, plus all related costs of production, malfunction, etc. To not consider impacts of design is to maintain a mote in one's eye.

With the rapid increase in sustainability rhetoric, however, discussion about resource needs for biological growth have diminished. Physicist Albert A. Bartlett has noted this change in sustainability rhetoric. Since 1950, Bartlett (2006: 19) has observed that now "we have a spectrum of uses of the term sustainability." At one end of this spectrum, Bartlett explains, discussions are about molecular properties and processes; at the other end of the spectrum, discussions are about good intentions, hopes and dreams, or desires; at worst, the term is used with intent to deceive (see Figure 8).

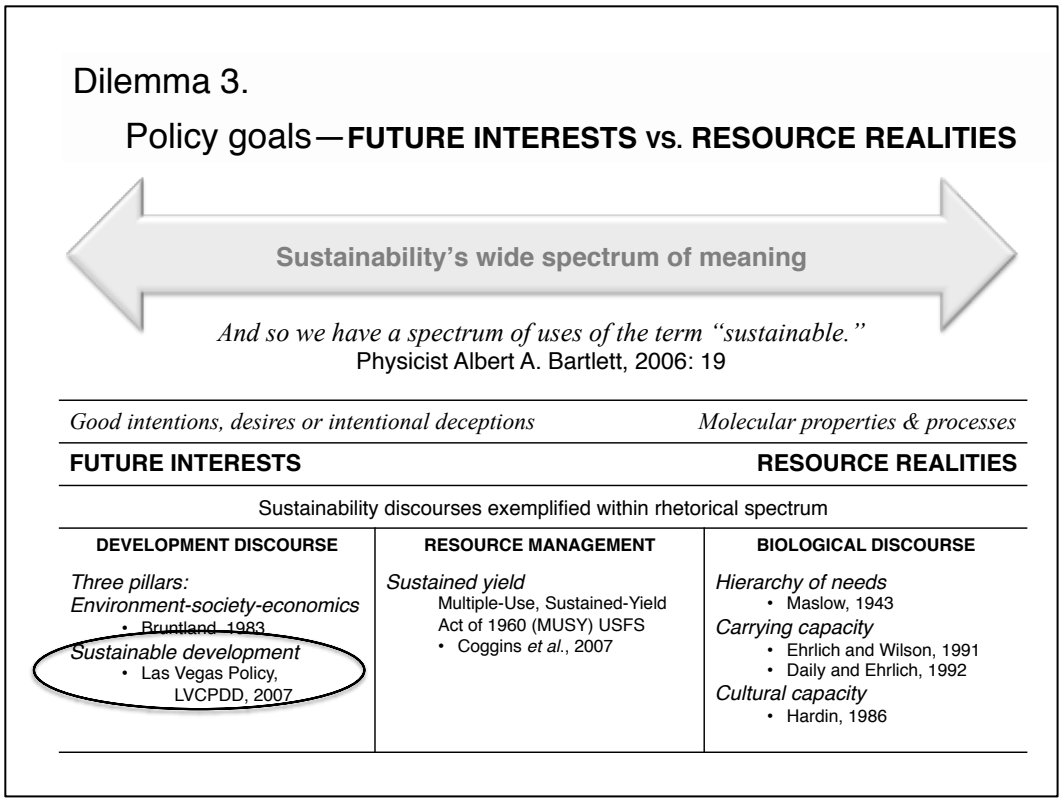


Figure 8 Diagram of sustainability rhetoric from various discourses plotted within physicist Albert A. Bartlett's "spectrum of uses" (model ©2013 by author)

In discussion about resource realities, for example, social psychologist Abraham Maslow discusses human motivation in terms of human-needs hierarchy, a dependence upon ecosystems and other people that develops actualization exemplifying maturated leadership (1943). Biologists E.O. Wilson, Paul Ehrlich, and Gretchen Daily use the term carrying capacity to discuss interactions between biological entities and the ecosystem they inhabit (Ehrlich and Wilson, 1991; Daily and Ehrlich, 1992). Ecologist Garret Hardin uses the term cultural carrying capacity to amplify and underscore the reality that human created artifacts (from clothing to advanced technology) require additional resources of ecosystems that must be considered in carrying capacity (1993). Centered

within the illustrated spectrum of meaning is the term sustained yield, used in discussions of forestry and logging practices by the US Forest Service that focuses on future developments of limited resources while paying attention to time and ecosystem restrictions for such future yield (multiple use sustained yield, "MUSY," in forestry law; see Coggins *et al.,* 2007: 686-690). These discussions of sustainability (Maslow, Ehrlich, Daily, Wilson, Hardin, and MUSY) include ecosystem realities and the consumptive needs of biological systems (molecular properties and processes).

Las Vegas's sustainability goal, however, does not focus on present resource limitations of place or ecological impacts of resource importations for its populace; instead, its goal is futuristic, unlimited growth. Supporting this goal, at the other end of Bartlett's spectrum, is development discourse. Following G.H. Bruntland's (1983) report to the World Commission for Environment and Development, an organization with economic development goals, sustainability rhetoric increased exponentially equating environment, society, and economics as three pillars while failing to identify each pillars' foundational support. Economics is an ideology dependent upon societal agreements. Neither an economy nor a society can exist without environmental ecosystems. In contrast, ecosystems have evolved without humans for multiple millions of years. While referencing Bruntland's definition throughout its sustainability campaign (e.g. CLVN, 2007; CLVPDD, 2007), Las Vegas' goal is futuristic, unlimited growth—becoming a "World Class City" (CLVPDD, 2007: 1).

Environmental historian David Worster (1986: 259) suggests that for people living within an arid ecosystem of limited resources (Westerners), where deprivation

drives technological conquest, "power is more likely to be strenuously sought and won under the pressure of continuing environmental scarcity than of ready-to-hand abundance." While humans may be driven by deprivation-challenges, leadership goals that construct empires of excess and acquisition at the expense of others are questionable.

In this section, I have emphasized that future-focused policy must also be attentive to present resource realities (Gaus, 1947). Otherwise, policy becomes dissociated from reality.

Conclusion: Resolving Human-Constructed Dilemma

I have argued that sustainability policy has three inherent dilemmas—policy function and structure as a self-looping construct, policy content (and omissions) as problem avoidance, and policy goal orientations as future-interests dissociated from resource-realities.

My first argument draws attention to policy as a construction by polity leadership that sustains itself, producing a self-looping construct. While this process of reproducing polity has been responsible for creating and maintaining human societies throughout human history, when self-looping constructs become self-destructive (as in destroying ecosystems upon which society depends or metastasizing, gobbling up others' resources), then problems exist. Las Vegas exemplifies this self-looping process. Polity that is accustomed to engineering water, simply engineers more water as needed, from wherever possible. This solution relies upon a market system that buys water in an ever-expanding arena while externalizing those problems it creates.

Secondly, I have argued that self-looping policy is maintained by policy content that applies market strategies of problem avoidance and knowledge omissions to focus solely on market solutions. The populace acquiesces through "non-informed" consent manufactured via deprivations, omissions, disappearances, and eradications of societal knowledge. The populace is uninformed about (psychologically dissociated from) the very ecosystem in which it lives. Such problem avoidance and knowledge omissions prevail in modern societies that reward industries, like public relations firms, that master deception for economic gain. The populace has lost consciousness of the basic reality that all production comes at the expense of others—others' resources, others' labor, and others' lives.

Thirdly, I have argued that policy goals must include present resource realities of place when oriented towards future goals. To focus on the future without attending to the present, re-produces outcomes within the limited awareness of one's own ideological scaffolding (Einstein's dilemma).

These three components of policy crafting have been interrogated for very specific reasons. They are prerequisites for applying second-order change. Second-order change allows paradigm shifts out of malfunctioning, cyclical behavior. However, this process of second-order change requires both a willingness to change and a constant vigilance in applying its steps. To review, second-order change requires: (1) identifying self-looping problems; (2) identifying specific problems and solutions attempted to solve problems; (3) deciding and committing to *not* reenacting problems and to *not* reenacting

attempted solutions; and, (4) redirecting attention to newly conceptualized, optimally functioning whole.

This critical examination has identified Las Vegas' sustainability problems and its attempted solutions. Its sustainability campaign exemplifies a situation in which second-order change is needed. However, while self-looping problems are evident, Las Vegas polity may not recognize them as such. As lawsuits develop over the Great Basin Aquifer (Johnson, *et al.*, 2014; Mrowka, 2014), Las Vegas now attempts market solutions to *conserve* Colorado River water (Postel, 2014). However, market solutions that arrive too late (Castle *et al.*, 2014; Keller, 2014) may perpetuate more of the same. Self-looping conundrums become caught up within one another.

Las Vegas' problem: two million people want to live in an arid ecosystem that has evolved through millennia as an ecosystem of fluctuating water scarcity. Las Vegas' solutions: a sustainability-tourism market that increases its tax base to purchase more water but also increases demand for more water while creating secondary problems that exponentially expand carbon footprints. The environmental, societal, and economic costs of resource importations are omitted from discussion. Instead of addressing these problems, Las Vegas leaders exacerbate them by creating opportunities that practice omissions and ignore problems, omitting the fundamental ecosystem reality from policy and discussion. While increasing their tax base for a while, Las Vegas leaders still need to locate and purchase water for their populace and for the 40 million visitors paying for this system. The solution becomes economic, locked within its own problem-avoidance, thus, problem-perpetuating construct.

These challenges are great, not just for Las Vegas, but for similar problems occurring in many aspects of the global market system. Solutions to such conundrums exist, fours simple steps—second-order change. But, borrowing from John Gaus, until the task of politics is discovering the causes of problems and understanding the mutual relationships between organisms and their environment, policy solutions may continue to sustain polity but only so long as natural and cultural resources are able to sustain life.

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