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NEW VISIONS FOR PUBLIC AFFAIRS

VOLUME 7, SPRING 2015

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New Visions for Public Affairs (NVPA) is an interdisciplinary, student-produced, peer-reviewed journal that publishes scholarly material offering new perspectives on public affairs. We operate as a student organization within the School of Public Policy and Administration at the University of Delaware.

INSTRUCTIONS FOR SUBMISSIONS

New Visions for Public Affairs produces an annual journal, available online. Individuals interested in submitting manuscripts to NVPA should abide by our “Guidelines for Submission and Publication” document. Scholarly articles should be 10-25 pages in length, define a research question in the introduction and abstract, and provide a summary of findings and conclusions at the end. All manuscripts must be submitted in APA style (6th ed.) and include a title page, running header, page numbers, in-text citations, a full reference list, and an abstract of no more than 250 words.

After review by members of the Editorial Board, authors are notified of the publication decision. Accepted submissions receive comments from faculty and associate editors. The board will require a signed publication agreement with the authors and may return articles for further final revisions. The publication agreement may be rescinded if changes made during the editorial process are determined to be unsatisfactory by the board or the author.

Please address all correspondence to:

ATTN: *New Visions for Public Affairs*
School of Public Policy & Administration
University of Delaware
186 Graham Hall
Newark, DE 19716

Email: nvpajournal@gmail.com

Website: <http://www.sppa.udel.edu/nvpa/home>

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EDITORIAL BOARD REMARKS

On behalf of the Editorial Board, we are pleased to present the seventh volume of *New Visions for Public Affairs*, a small sampling of the wealth of student scholarship on matters related to public policy and administration. The wide array of topics encompassed by the articles in this volume is indicative of the versatility of the field and the interdisciplinary nature of policy studies. From issues surrounding social equity to technology, philanthropy to policy regulation, each of the diverse subjects in this year's selection involves significant implications for policymakers, and by extension, the public, both in the United States and Internationally.

This year's volume includes a special feature that highlights the 20th Anniversary of Public Allies Delaware. This volume also features a profile of NVPA's participation in the National Journal Conference for Schools of Public Policy & Affairs.

We thank you for reading and hope you enjoy the articles that follow. It is our hope that this volume contributes to the growing body of research in the broad realm of public policy and administration.

We would like to acknowledge the members of the NVPA Editorial Board, who have dedicated countless hours over the course of the past academic year planning for the journal, reviewing articles and helping to prepare this edition for publication. We would also like to extend the board's sincere gratitude to NVPA's faculty advisory board - Drs. Maria Aristigueta, Jonathan Justice, John McNutt and Leland Ware. Thank you for supporting our journal and our board.

Sincerely,

Angela Kline
Editor-in-Chief

Katrina Cowart
Executive Director

NVPA at the National Journal Conference for Schools of Public Policy & Affairs

Jessica Mitchell & Gemma Tierney
University of Delaware

In mid-January, associate editors of *New Visions for Public Affairs* Jessica Mitchell and Gemma Tierney travelled to the University of Virginia in Charlottesville, VA, to attend the third National Journal Conference for Schools of Public Policy and Affairs, hosted by the *Virginia Policy Review* (VPR). VPR began this annual conference in 2013 in order to bring together graduate student-run public policy journals from across the country to share best practices. In addition to the University of Delaware's New Visions in Public Affairs and VPR, there were representatives from six other journals in attendance: University of Chicago's *Chicago Policy Review* (CPR), *the Cornell Policy Review*, the *Georgetown Public Policy Review* (GPPR), the *Pepperdine Policy Review*, George Washington University's *Policy Perspectives*, American University's *Public Purpose*, and the *William and Mary Policy Review*.

The itinerary consisted of four workshops, four guest speakers, and an Editor-in-Chief panel discussion as the closing event. A theme that emerged in several of the workshops and guest speeches was the value of alternative formats to present policy research. As complements to the traditional academic policy paper, infographics, images, graphic design, multimedia and lists were discussed as methods for innovating and strengthening journals from a holistic viewpoint.

Guest speaker Richard Gard, editor, publisher and president of Missouri Lawyers Media, emphasized the importance of data visualization in his presentation. Gard shared a variety of strategies he had used at his for-profit newspaper to expand readership, which he perceived to be relevant to academic policy journals. One of his key recommendations for appealing to a wide audience was the use of clear and concise data visualization, because, as he noted, "a lot of time, data is the story." Gard explained what he termed the "at-a-glance test," which simply means that an infographic must be comprehensible within the first couple seconds of looking at it in order to be effective.

Gard also advised the journal editors to draw on the resources around them. He explained that other university departments, namely graphic design, marketing and journalism programs, can be great assets in creating a product that reaches and appeals to a wide readership. Gard further noted that the goal of many successful policy journals was to reach not only a wide audience, but also a specific audience: policymakers. His presentation made a strong case for the importance of visual presentation in increasing the likelihood that a policymaker will pause to look at a publication before it passes across her desk. He summed up this emphasis well in one of his final statements, that "the visual is an equal partner in storytelling...[it is] not subordinate to the text."

Like Gard, the final speaker for the conference also came from the for-profit journalism world. Anita Kumar covers the White House for McClatchyDC, which produces stories for about thirty newspapers published across the country. Kumar's presentation shared Gard's focus on creating highly reader-friendly content. Kumar discussed a shift she had noticed in her field towards the use of infographics, videos, lists and other non-traditional presentations formats. Kumar pointed out that lists are not necessarily à la BuzzFeed. News publications can and do publish lists based on the same extensive research that would be the basis of a traditional news article. Like Gard, Kumar highlighted the value of data visualization to transform possibly dry or arcane subject matter into attention-grabbing and reader-friendly articles.

One common recommendation from several of the student-led workshops was the incorporation and utilization of an online presence; not only to inform the public about the journal itself, but also as an alternative means of publishing content. GPPR specifically led a workshop on “Online Presence and Blogging.” As a result of many lessons learned through trial and error, the staff members at Georgetown’s journal were successful in transforming their journal to one that is doubly as dynamic by reaching their target audience in both print and virtual formats. Executive Online Editor Garrett Brinker gave a history of GPPR’s website redesigns over the last several years, showing how they had moved toward cleaner and simpler presentations of content. Additionally, they had begun to head their articles with large-scale images which the presenter believed “instantly translated into some kind of emotional appeal.” While they laud the ease with which articles can be publicized online, they also shared their feedback on how policy issues should be given special consideration in regards to format when publishing them virtually. The online readership can vary greatly, so they recommended focusing on topical articles with a variety of visualization techniques including pull-quotes, videos, and interactive elements.

The Chicago Policy Review also provided graphically-themed presentation entitled, “Policy Journal Innovation: Incorporation Data Visualization and Rapid-Response Teams.” Chicago’s journal is unique in the fact that they exclusively publish online, which gives them in-depth insight into visualizing data in modern ways. One subset of their staff is a designated Data Visualization Team, which comprises a small group of students who are responsible for identifying articles that could benefit from supplemental graphics as well as creating stand-alone infographics that explain a particular policy issue. They further explained that while data visualization may seem daunting to undertake, there are several online platforms that exist to assist journals including Infogram, Infoactive, and Datagrabber. Additionally, they cautioned their peers that while supplementing articles with graphics is essential to today’s reader, it is also important to take care not to inundate readers with too many graphs, charts, or tables.

The third National Journal Conference provided grounds for collective troubleshooting as journal editors from around the country gleaned wisdom from one another’s best practices. Mitchell and Tierney were pleased to have the opportunity to acquire some new ideas for the future of NVPA. The journals represented at the conference comprise a variety of publishing formats, and therefore some of the data visualization



methods that were shared were not applicable to all of the journals. However, Tierney and Mitchell hope that they can apply some of these methods to a future issue of NVPA, either by encouraging or working with an author to incorporate infographics into an article, or by helping to create stand-alone infographics in conjunction with the rest of the editorial board. It was very exciting to learn how other journals had grown as a result of what their staff took away from the conference in previous years. Mitchell and Tierney hope that their time at the conference will be similarly rewarding in terms of bringing new ideas to NVPA.

Photo Credit: Juliana Echeverri, Outreach Coordinator for VPR

Enemies to Allies: The First Twenty Years of Public Allies Delaware

S. Elizabeth Lockman
University of Delaware

Under the slogan, “Everyone leads,” the Public Allies program enables individuals from diverse backgrounds to serve the community. Through apprenticeship, training, and a Team Service Project, Public Allies are immersed in community development work and understand the potential challenges and rewards of a life in public service. The partnership between Public Allies Delaware and the University of Delaware serves as an example to national Public Allies programs. In this retrospective, S. Elizabeth Lockman interviewed personnel of Public Allies Delaware and outlined the history of its development in Delaware.

Power to the People*

At the University of Delaware’s Center for Community Research and Service (CCRS), within the School of Public Policy and Administration (SPPA), the vision is to “strengthen the capabilities of organizations and individuals working to enhance the economic, social, cultural and physical conditions of neighborhoods and communities in Delaware and beyond” (CCRS, n.d.) The Center, which was formally founded in 1972 under the moniker of “The Urban Agent Program” and conceived of a bit earlier, evolving out of the Division of Urban Affairs that had been established in 1961 by a Ford Foundation grant enabling the University to develop a permanent system of “education, research, and service relating to urban problems” (CCRS, n.d.).

In its campus offices in Newark, the capacity-building effort involves research, publication and technical assistance to entities that are similarly committed to that social and economic justice and urban thriving: the nonprofit sector. Associate Professor and CCRS Director Dr. Steven Peuquet elaborated on this by stating, “The nonprofit sector enriches our communities

in a variety of ways, by addressing the needs of vulnerable populations, promoting the arts and culture, and advocating for improvements in a variety of public policies and programs. The nonprofit sector benefits everyone in the community, so having effective leaders in the sector is of great importance.”

CCRS also has a Wilmington office that plays host to CCRS training programs. The longest running of these training programs is Public Allies Delaware (PADE). PADE celebrated its 20th anniversary in 2014, and it can be argued that, the program realizes the greatest ideals of “urban agency”.

S. Elizabeth Lockman is completing a Master of Arts Degree in Public Policy and is a Public Allies Delaware Alumna, Class of 2005. Her research interests include education policy and policy communication, particularly as they relate to urban issues of diversity, and attributes her tenure as a Public Ally for deepening her interest in community development and urban policy.
Email: elockman@udel.edu

Don't Believe the Hype*

A myth within Public Allies is that the organization took its name directly in ironic homage to famed social activist hip-hop group Public Enemy. Certainly, the group was at the height of their fame in the years that the organization was evolving from the germ of an idea to reality and influenced its founders whose early mission was, in part, to dispel the popular perception of diverse young adults in America as “public enemies” who didn’t care in any deep way about their own future, let alone that of society at large (Schmitz, 2012).

What Kind of Power We Got?*

Public Allies Delaware is the local affiliate of a national nonprofit leadership development program, Public Allies. The national organization was founded in 1992 by Vanessa Kirsch and Katrina Browne in Washington, DC, as a way to tap into and mobilize the energy and idealism of young Americans and harness it as transformational power to improve struggling communities through training and apprenticeship in the nonprofit sector

What Kirsch and Browne created was quick to inspire the leadership at the very top. President George H.W. Bush recognized and funded the program through his Points of Light Foundation. After taking office, President Bill Clinton created the Corporation for National and Community Service (CNCS) in 1993, and with it the AmeriCorps program as one of its three pillars. The federal service program - essentially a “Domestic Peace Corps” - takes citizens interested in roles of service to the nation and matches them to opportunities. This serves a dual purpose, not only in filling critically needed positions, but creating a workforce and career pathways for those struggling to find them. Public Allies was brought under this umbrella as a federally funded program of AmeriCorps.

The mission of the organization is to “...advance new leadership to strengthen communities, nonprofits and civic participation” (Public Allies, n.d.). The program varies naturally in its implementation of that mission from site to site (of which there are currently 22 across the country) and has a fundamental philosophy that “...leadership is an action many can take, not a position few can hold”. These are brought to life through its three central programmatic practices: Apprenticeship, Training and Team Service Projects. The Apprenticeship portion of the program involves each Ally being placed with a nonprofit organization in a role that enhances their capacity to deliver their services to the community. The overall full-time commitment of an Ally is split between this placement, and in Training - a weekly gathering of Allies to develop skills in all areas: professional, social and personal. Finally, Allies form teams and engage in the Team Service Project (TSP) with a specific community to support them in developing and implementing a desired project - one intended to be sustained after the Allies have graduated from their term of service.

Show ‘Em Whatcha Got*

Kirsch and Browne successfully launched the Public Allies program in 1992 with 14 members in its DC corps. In 1993, Michelle Obama took the second site of the program live in Chicago. And in 1994, 3 new locations would open - including one in Wilmington, Delaware. There, two recent college graduates, 23 year old Suzanne Sysko and 24 year old Tony Allen, met in an office downtown and commiserated over a shared vision - part of a growing national sentiment - to empower young people into a lifelong commitment to service, professionally and personally. Supported by David Sysko, Suzanne’s father, and community leader Sonia Sloan, they were able to get the organization off the ground in Delaware, with funding from President Clinton’s Corporation for National and Community Service.

Public Allies Delaware furthers the national vision, that “leadership is about taking responsibility – both personal and social – to engage others to work for common goals”, and has adopted the site-specific vision of “a more just and equitable society for all” (Public Allies Delaware, 2014). In working towards this, the set of values to which Allies are asked to ascribe during their ten-month long tenure include Collaboration, Continuous Learning, Diversity and Inclusion, Focus on Assets and Integrity. According to the Public Allies Delaware Director Tina Morrow, the rationale behind the values is that these elements together comprise the profile of successful leadership. Throughout the program’s history, Allies have been

expected to hold themselves and each other to the high standards these values imply. Morrow reflects on her experience of this philosophy in practice:

I've had the privilege of witnessing transitions of people throughout the ten month period and then that lifelong, leadership journey. Our concept of advancing new leadership is based on the idea that everyone has leadership capability...I believe that and it's very cool to be able to see that launch itself through people. [For Allies] coming in, our goal is diversity all around. We have [Allies] with master's degrees and people with a GEDs, aging out of foster care. Diversity brings perspective to the team. There's a huge learning curve for all of them. It can be a wakeup call that community development is a lot of work, and collaboration is hard, with all of the challenges of working with residents or government agencies - but they get to learn this with the support of other Allies and staff.

Coming out on the other side of the program, Morrow continues,

[PADE Alumni] have had a deep enriching experience filled with frustration and successes throughout the year, and they will be able to more effectively work with people that are very different from them. They have a better grasp of what it takes to be successful in community development work. And they walk away with training in all facets of nonprofit management and the soft skills that go with it

Assistant Professor Raheemah Jabbar-Bey, who was first inspired by PADE co-founder Sysko when she heard her give a talk at Southern New Hampshire University and has come to work closely with the program as a senior professional staff member at CCRS, praises what she describes as an "intergenerational" give-and-take represented by the apprenticeship and training model, and is enthusiastic when Jabbar-Bey reflects upon its outcomes:

Every cohort that graduates helps to build the next generation of community development, mobilization and organization, taking that knowledge base and skill set to strengthen civic engagement and democracy with them. They're active - in strengthening civil society and furthering our democracy - and that is a tremendous value to the communities in which they live and work.

At the end of their term of service, the Allies receive an education award of several thousand dollars through CNCS that can be used to pay back loans or further their education. "What we're working on right now," according to Morrow, "with the University [of Delaware] and with Delaware Technical and Community College is how do we better serve Allies that come in without any higher education, maybe even be a pipeline to higher education?" PADE is currently developing pilots to position program alumni for scholarship eligibility to encourage this transition for those that need it.

Public Allies Delaware Co-founder Tony Allen currently serves on the University of Delaware's Board of Trustees and is the director of communications for Bank of America's Consumer Banking Division. Allen reflects on the legacy of the program in Delaware:

[Public Allies Delaware represents] a constant cultivation of next generation talent that is critical to the future of the American citizenry. That is true in any industry, at any time. Rarely do you find a structure to do that for a diverse set of young people aspiring to careers in public service in their local community. In Delaware, 21 years ago, Public Allies changed that and the results are all around us: 500 graduates, the great majority of whom continue in public service today; nearly 1 million hours of service to some of the most disadvantaged communities in the state; and an endless national network that runs from San Jose to Wilmington. In 1994, Delaware wanted something special like Public Allies. And they got it.

Bring the Noise*

Delaware's incarnation of Public Allies, as one of the national network's oldest, has gained a reputation in the national network of setting trends and benchmarks to which other locales aspire. It began this trend in July 2000, when then-executive director of Public Allies Delaware Patrick Carroll formalized a partnership with the University of Delaware, in which the University would oversee aspects of the organization's back office operations and enable them a surer degree of sustainability. Dr. Daniel Rich, Professor and Director of the Urban Affairs and Public Policy Doctoral Program, was a Public Allies Delaware board member and instrumental in the move. The program thrived under the auspices of the University, and in 2006 the national Public Allies administration took notice of the success of this operating partnership. They mandated that all sites follow suit in establishing similar relations with institutions in their regions.

Peuquet says of the relationship,

CCRS and the University as a whole have been very supportive of PADE as it works to develop the next generation of nonprofit leaders. PADE was one of 15 community engagement programs at UD that was highlighted in UD's recent application to the Carnegie Foundation for the Advancement of Teaching to obtain the classification as a "Community Engaged University." It has contributed to the University's identity as being engaged in the community and has prompted several Ally alums to continue their formal education and earning bachelors' and masters' degrees at UD and other colleges and universities

Rich comments that,

The orientation of the program, which connected education and public service, fits well at the University but there are divided views about the benefits. Originally, PADE was to be an incubator project with the idea that once it was strengthened it would become independent. Another view has proposed an even closer integration.

Morrow characterizes the support services that flow through the organizational partnership as "invaluable" and credits Peuquet as a "...great director who has really embraced the function of being part of a national network and given us an appropriate level of autonomy. We feel well-supported, like our model, impact, and successes are valued." Morrow stated, "Since [...] we're in Wilmington where [UD] has less of a presence and we're able to be something of an ambassador for the university." Jabbar-Bey agrees in stating:

Having PADE through [CCRS] has been recognized as a node of engagement. It brings leaders from other sectors into contact with the university, and gets them engaged. Just look at [PADE's] advisory board, which is diverse and broad-based, drawing across all of the sectors. Once folks get connected with this UD initiative, they often come to engage with other initiatives. The boards of the partner organizations where Allies are placed come to realize that UD is a significant resource for capacity-building.

Morrow points to a fairly recent moment in PADE's history when the organizational partnership reached its most synergistic level, just five years ago as the program aligned their TSP process with the Center's Blueprint Communities Program, a process in which Jabbar-Bey has been greatly involved. There was a clear benefit in combining forces, as PADE sought communities in which their Allies could place team service projects, to bring them to communities that were being trained to sustain such community development. They decided to invent a Request for Proposal (RFP) process, soliciting desired project ideas from communities for Allies to help implement, pivoting from the traditional TSP approach which had Allies doing the brainstorming. Morrow maintains, "Linking more fully with the Blueprint initiative was a turning point in the depth of our collaborative and the strength of our partnership [with UD]. It was wildly

successful, and many organizations in those communities now host Allies and continually submit RFPs for TSP projects. It has helped us to propel our community development efforts forward, making the most of our resources.” Even as the Blueprint Communities Program reaches the end of its funding cycle, much of the work continues as a result.

So Whatcha Gone Do Now*

After twenty years of steady growth, in numbers of alumni, hours they’ve served and respect from participating agencies and communities, what could the future possibly hold for a now-veteran organization that still runs on youthful energy and idealism?

Peuquet envisions that the organization’s roots will stay fast at the University: “There is every [reason] to expect that PADE will continue as a very important public service program of UD. Because its mission and work is so important, I hope that we can expand the size of the program in the future, and also provide more professional learning and growth opportunities to its alumni.” Morrow, embodying the deep well of enterprising spirit that courses through the program, expounds:

I’m really eager to see the next phase of Public Allies. In Delaware, we’re primed for impact; we’re poised to be more of a movement. We’ve emphasized a place-based community impact strategy, where neighborhoods come to us and we’re not the drivers. West Center City, Ninth Ward, Southbridge in Wilmington are where Allies are currently working on proposals received from those communities. It’s a reframing of the team service project model where we get to step out of our organization a little bit and open our doors to the community.

We take a very strong asset-based approach rather than a needs-based approach and believe the people that have to live with the solutions should be at the table in coming up with them, rather than some entity coming from outside with their own idea of what’s best going to be best for them. We’re using an [original] model, and it’s working. Because of that, we received the National Impact Award this past year from the national office... [other Public Allies] sites are contacting us to ask for more information on it.

Jabbar-Bey appreciates this opportunity for evolution and standard-setting:

I think of Allies in terms of three tiers of work: first, the building up of the Allies themselves, then enhancing the capacity of nonprofit organizations, and more than ever, working in the community with the stakeholders there. To me, PADE, especially through the TSP, has helped to uplift, clarify and give greater importance to community development work and community engagement in that process. I believe that will become more visible and of critical importance moving forward.

Turning from their first score of years towards their second, Public Allies Delaware appears positioned to be an ever-stronger example of the trend favoring voluntary national service in the nonprofit sector. Certainly, there will continue to be a place for an organization capable of translating humble opportunities and challenges into inclusion and innovation that can be channeled upward and outward for the benefit of its institutional hosts and the nation at large.

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*Song titles taken from Public Enemy' albums "It Takes a Nation of Millions to Hold Us Back", "Fear of a Black Planet" & "Muse Sick-n-Hour Mess Age" (Def Jam Recordings).

Highway to Inequity: The Disparate Impact of the Interstate Highway System on Poor and Minority Communities in American Cities

David Karas
University of Delaware

The Interstate Highway System constitutes one of the most substantial federal investments in the nation's infrastructure and has provided innumerable benefits in transportation infrastructure. The positive impacts of the road building campaign sparked by President Dwight Eisenhower in the mid-1950s, however, are not without their negative counterparts. Construction of the expressway network had a profound impact on American cities, often cutting through developed neighborhoods and forever changing the social and physical characteristics of urban landscapes. In discussions of the oft-devastating effects of the Interstate Highway System on urban communities, it is impossible to ignore the impact that the system has had on poor and minority communities. A growing body of research has addressed the racial effects of the landmark federal initiative, with many academics alleging that the system's construction constituted, at least in some cities, a civil rights violation that served to formalize Jim Crow-era discriminatory patterns and some of the original racial boundaries imposed in some urban spaces. In the present context, the still-evolving expressway teardown movement points to the reevaluation of the highway system on the part of policy scholars and public officials, many of whom have addressed the disparate outcomes of the network and have sought to remedy the harm it imposed on urban America.

Introduction

In Tennessee, opposition to proposed routing of the Interstate Highway System was, in many ways, a tale of two cities (Mohl, 2014). Protests in Memphis focused on the planned destruction of Overton Park, while in Nashville the citizens who coalesced to challenge the Tennessee State Highway Department spoke out against the disparate impact the roadway would have on the city's black community (Mohl, 2014). Both cases were taken to court and both received media attention, but the outcomes could not have been further apart (Mohl, 2014). While the Memphis highway was redirected to avoid disturbing the treasured community park, the stretch of road in Nashville was constructed as planned, leaving the city's black community in ruins (Mohl, 2014).

David Karas¹ is a PhD Student in the School of Public Policy and Administration at the University of Delaware. His primary research interests are city governance and media policy. Karas currently serves as an Urban Policy Fellow to the Wilmington, Delaware City Council, where he conducts policy research and analysis and drafts legislation. **Email:** dkaras@udel.edu

¹ David Karas is an Associate Editor for *New Visions for Public Affairs*. His identity was not disclosed to other members of the board as they considered whether to accept this piece for the peer-review process. Karas recused himself from voting on this piece. The only board member aware of the author's identity as an Associate Editor prior to publication was the Editor-In-Chief.

The Interstate Highway System, in large part the brainchild of President Dwight D. Eisenhower, was hailed by the president in his State of the Union Address on January 6, 1955, as “essential to meet the needs of our growing population, our expanding economy, and our national security” (Weingroff, 2014, p. 1). Construction of the expansive network of roadways was authorized the following year by the Federal-Aid Highway Act of 1956, the passage of which signified the beginning of a new chapter in the history of American cities (Mohl, 2014). As state highway departments released plans for the urban stretches of the highway network, it quickly became clear that few city amenities would be spared (Mohl, 2014). The system became controversial even before its construction would begin in some cities, particularly when historic districts, schools, parks, churches and waterfronts found themselves in the path of the “concrete monsters” (Mohl, 2004, p. 674) that would forever alter city landscapes (Mohl, 2014; Weingroff, 2000). As Raymond Mohl (2004) remarks, “pushing expressways through the social and physical fabric of American cities inevitably resulted in housing demolition on a large scale, the destruction of entire communities, severe relocation problems, and subsequent environmental damage” (p. 674). The physical transformations brought to American cities by the since-completed Interstate Highway System are well documented and easily visible in the present day. What can be less visible, and noticeably absent from much of the literature on the topic, is how the massive federal highway program dealt an especially devastating blow to poor, minority communities – effects that have been posited by some scholars as constituting significant civil rights violations.

The present article seeks to examine a range of published reports on America’s Interstate Highway System, assessing its purpose and evaluating its impact on urban spaces across the country. In the latter respect, subsequent sections make the case that the highway system had a disproportionately negative effect on particular populations in a way that has led some scholars to research the intent – both blatant and hidden – behind the design of the system of roadways. This article also contains an introduction to the still-evolving highway teardown movement, a glimmer of what could very well be a mea culpa on the part of American policymakers. Beyond the literature review portion of this article is a discussion intended to reflect on the recent policy shifts that have taken place, as well as to propose criteria that should be incorporated into any future efforts to remove, replace or relocate urban stretches of the roadway system.

The Reason behind the Road

In the years before the proposal of an Interstate Highway System, issues of congestion stretched across the country, with the loss of billions of hours of time and productivity attributed to detours and traffic jams, not to mention civil lawsuits related to congestion occupying the time of court systems (Weingroff, 2014). Poor routes also served to slow the delivery of goods, and the annual fatalities and injuries related to the nation’s system of roads topped 40,000 and 1.3 million, respectively (Weingroff, 2014). These pitfalls were joined by concerns related to the country’s readiness for national defense and the need to prepare for the possibility of atomic warfare (Weingroff, 2014). Eisenhower’s proposal of an expansive nationwide system of highways, 90-percent of which would be funded with federal dollars, sought both to remedy these ills and enhance connectivity across the country (Weingroff, 1996; Biles, 2014; The Tennessee State Museum, 2014b). The system is considered to have been the president’s favorite domestic initiative, and was described by Eisenhower himself as a landmark policy initiative, as noted in his memoir: “more than any single action by the government since the end of the war, this one would change the face of America...Its impact on the American economy – the jobs it would produce in manufacturing and construction, the rural areas it would open up – was beyond calculation” (Weingroff, 1996, p. 14).

While the Interstate Highway System would make progress in achieving the objectives put forth by Eisenhower, the network also paved the way for a number of challenges – particularly those related to cities (Weingroff, 2000). Rapid rates of urbanization had already contributed to the crowding of central city neighborhoods, which in turn sparked increased interest in suburban living for many who found employment in city centers but wished to reside elsewhere (Weingroff, 2000). In many ways, the Interstate Highway System exacerbated these contextual issues, all while gutting urban cores to make way for the large, unsightly stretches of roadways (Weingroff, 2000). While the system effectively ended rural isolation, it would also give

rise to new issues of equity and justice in inner-city neighborhoods displaced or destroyed by the very presence of the highways (Warner, 1972). These issues would be compounded as programs focused entirely on highway construction neglected to address impacts on surrounding urban neighborhoods while allowing local groups to play only an “obstructive role” in the process (Warner, 1972, p. 52).

Freeway Revolts

While the Interstate Highway System’s proposals were geared towards meeting deficiencies in the nation’s transportation network and offering a wide array of enhancements to travel, commerce and defense capacities, the system’s construction was not without its proverbial and literal roadblocks. And while the highway proposals presented their own challenges to American cities, the existing context offered additional struggles, as detailed by Warner:

Long lines of disparate historical trends, including private land speculation, attempts at regulation, private controls over public building, and the Balkanization of metropolitan political units, all came together after World War II to create in American cities the worst of all possible worlds. The freedom of the individual, which had been the dominant concern of our land-law tradition, disappeared with the growing scope of the influence of all manner of highway, urban renewal, and housing officials. (1972, p. 52)

It was not long after passage of the 1956 legislation that federal leaders and state highway departments announced proposed routes for the urban stretches of the Interstate Highway System, plans that were met in some cities with staunch opposition (Wells, 2012). Freeway revolts, as they have since been deemed, erupted in several dozen American cities in the wake of the landmark federal legislation as protesters took to the streets to advocate against the destruction the routes would bring to existing communities (Wells, 2012). Opposition centered on the social costs of highway construction and the disparate impact that the routes would have on particular neighborhoods, notably as neighborhood amenities were left square in the path of bulldozers (Mohl, 2008).

The freeway revolt first took hold in San Francisco, when in 1959 organized opposition spurred the city’s board of supervisors to reverse course and rescind support for any new highway construction (Mohl, 2004). Such opposition could likely be traced to the city’s previous experiences with the construction of the Embarcadero Freeway, which was erected prior to Eisenhower’s system and had the effect of dividing the city from its harbor along the bay (Mohl, 2004). Subsequent highway proposals, as Mohl (2004) posits, “...pitted neighborhoods against CBD [central business district] interests, as well as city residents against suburban commuters” (p. 679). Protests hinged on issues of aesthetics as well as historic preservation, and were supported by a groundswell of support from various community organizations and neighborhood associations (Mohl, 2004). Similar revolts would gain momentum in cities like New York, Philadelphia and Chicago, and some movements achieved modest results – with a well-organized citizen protest in Saint Paul, Minnesota successfully convincing the city council to revoke its approval of the proposed highway route through the city (Wells, 2012). The Residents in Protest over 35-E, aptly abbreviated as RIP-35E, eventually failed in its attempt to stave off any stretch of the Interstate Highway System through Saint Paul, but the originally-proposed six-lane, partially elevated freeway was replaced by a low-speed parkway restricted only to cars, designed and constructed with the input of members of the community (Wells, 2012).

The Case(s) of Tennessee

Organized attempts to “stop the road” in cities across America extended from the streets to the courts, as some groups sought judicial intervention to block the construction of spans of highway that would cut through existing neighborhoods (Mohl, 2004). Returning to Tennessee, two significant court challenges with divergent outcomes demonstrate some of the complexities of freeway revolts and the powerful interests they sought to block (Mohl, 2004; Mohl, 2014). In Memphis, opposition mounted following the approval of U.S. Secretary of Transportation John Volpe for a stretch of Interstate 40 that would bisect the city’s Overton Park, destroying some 26 acres of existing parkland (Gibson, 2011). Citizens to Preserve Overton Park, the

group that coalesced around opposition to the plan, based their protests on a provision of the Department of Transportation Act of 1966 that allowed for the approval of parkland for highway routes “only where there was no feasible and prudent alternative and all possible planning was employed to preserve the parkland” (Gibson, 2011, p. 727; Mohl, 2014). Final funding approval for the stretch of road left the grassroots organization with no other choice but to take the challenge to court (Gibson, 2011). Lower courts denied their claim, rulings that were later supported by the U.S. District Court and the Circuit Court of Appeals, each of which essentially neglected to consider whether an alternative route existed (Gibson, 2011). The latter judicial body, in adopting the holding of the lower courts, went further to suggest that the substantial work already completed in securing the right-of-way through the park, as well as the disruption of nearby homes and businesses, would mean that adopting an alternative route for the highway could constitute a significant socioeconomic impact (Gibson, 2011).

The case was subsequently granted consideration by the United States Supreme Court, which focused its study on the scope of judicial review that would be allowable by judicial bodies related to the authority granted to the Secretary of Transportation (Gibson, 2011). The Court held that Volpe’s actions were subject to judicial review, further interpreting the federal statutes as providing that parklands had to be spared for the purposes of highway construction in all “but the most unique situations” (Wilson, 2011, p. 738; U.S. Supreme Court, 1971). The Court reversed the lower courts’ holdings, remanding the action in *Citizens to Preserve Overton Park v. Volpe* to the District Court for a more thorough review of the Secretary of Transportation’s decision (Wilson, 2011). While additional hearings followed the Supreme Court’s holding, Volpe eventually reversed his initial plans, later finding that there were alternative routes that would be feasible for the stretch of Interstate 40 through Memphis (Mohl, 2014). The Supreme Court’s ruling would signal a new chapter in administrative and environmental law, and tipped the high court’s hat, so to speak, to the persistence of the grassroots organization that took its challenges from the city streets to the nation’s highest court (Gibson, 2011). As a result of *Citizens to Preserve Overton Park*, the parkland remains a central feature of downtown Memphis to the present day (Gibson, 2011; Mohl, 2014).

The legal opposition to the proposed stretch of Interstate 40 through Nashville, however, took on a vastly different flavor and brought about a polar opposite outcome (Mohl, 2014). There, planners announced proposals to route the expressway through the middle of what was a predominantly African-American community, a move that aroused concern among residents that the roadway would lower property values and destroy the sense of community there (Tennessee State Museum, 2014). In response to the proposal, a group of 40 citizens formed the I-40 Steering Committee, which launched a legal battle to halt the project (Tennessee State Museum, 2014). The context of Nashville likely played a part in the racial tone of highway plans and opposition there; racial violence followed the death of Martin Luther King, Jr., in Nashville, which was already a hot-bed for demonstrations and civil rights organizing (Mohl, 2014). Scholars point out that in both Memphis and Nashville, “many public policies had racial implications and racial intentions,” and the steering committee argued that the proposed highway route through the latter city was no exception (Mohl, 2014, p. 879). More than a decade after the I-40 Steering Committee would see the inside of a courtroom, it was revealed that the original plan for the Nashville stretch of road had been redirected to the north, “where it carved through the center of the large North Nashville black community” (Mohl, 2014, p. 880).

While that detail had not been made public, the steering committee was certain that the proposed path of the interstate would isolate black-owned businesses from their client base, a projection that was complicated by concerns that the community had not been given adequate notice of the public hearing concerning the route (Mohl, 2014; Tennessee State Museum, 2014). The group brought their concerns to the General Sessions Court of Davidson County, Tennessee, which ruled in favor of state officials who argued that the committee had exaggerated the impact the project would have in the community (Tennessee State Museum, 2014). The committee appealed the court’s decision to the U.S. Circuit Court of Appeals, which held that the hearing had been conducted similar to those in other areas of the state, and further ruled that “no discrimination is charged or shown” in the plans (U.S. Circuit Court of Appeals Sixth Circuit, 1967). The ruling also suggested that any route through an urban space could impact at least some portion of its

population and that “alternative routes undoubtedly would impose hardships upon others, further asserting that such weighing of hardships in road design is a task for engineers rather than a judicial body (U.S. Circuit Court of Appeals Sixth Circuit, 1967). While the steering committee appealed the decision to the U.S. Supreme Court, the case was denied certiorari and construction continued as planned (Tennessee State Museum, 2014).

The results of the Nashville stretch of Interstate 40 are difficult to dispute. Within a year of the project’s completion, most businesses in the neighborhoods surrounding the road had suffered financially and some closed while property rates declined by nearly a third (Tennessee State Museum, 2014). As Raymond Mohl (2014) describes:

Eventually, the I-40 expressway demolished more than 620 black homes, twenty-seven apartment houses, and six black churches. It dead-ended fifty local streets, disrupted traffic flow, and brought noise and air pollution to the community. It separated children from their playgrounds and schools, parishioners from their churches, and businesses from their customers. (p. 880)

Some have suggested that the routing of the highway might have been engineered in part to slow the progress being made in school desegregation following the Supreme Court’s ruling in *Brown v. Board of Education* (Mohl, 2014).

It is difficult to ignore the divergent outcomes of organized freeway revolts in Memphis and Nashville, the disparate results being attributed to a number of factors. In comparison with the lengthy battle against the road in Memphis, the Nashville fight was markedly short-lived, owing in large part to the late start the movement received (Mohl, 2014). This was undoubtedly triggered, at least in part, by the lack of knowledge among many in the community of the revised proposal for the highway’s route (Mohl, 2014). In addition, organizers of the I-40 Steering Committee were primarily black professionals who had expressed condemnation of the racial violence that touched the city in the past – and consequentially, did not consider engaging the broader, potentially more radical factions of the community in organizing demonstrations against the highway department (Mohl, 2014). Perhaps most striking about the movement’s failure to successfully protect Nashville’s black community from the Interstate Highway System was the fact that, according to Mohl (2014), the organizers “never seemed to realize that an expressway through a black community was not unique to Nashville, and that African Americans in other cities had been dealing with this issue with some success elsewhere” (p. 887).

Discriminatory Impact

Setting aside considerations of intent, there is little doubt among scholars who have studied American transportation history and policy that the Interstate Highway System took a particularly cruel toll on minority communities in urban spaces. As Raymond Mohl (2004) writes, “Trapped in inner-city ghettos, African Americans especially felt targeted by highways that destroyed their homes, split their communities, and forced their removal to emerging second ghettos” (p. 700).

Indeed, black communities found themselves in the path of seemingly relentless bulldozers at an inordinate rate, a trend that became more difficult to combat given the scant political leverage among minority communities in many cities (Biles, 2014; Mohl, 2004). In Miami, for instance, highway construction captured 40 square blocks of city space, demolishing some 10,000 homes and a predominantly black business community (Mohl, 2008). The impact in Detroit was similar, as the route of the highway tore through minority communities and left behind large swatches of cleared neighborhoods (Biles, 2014). There, as in many other cities, highway plans were announced long before construction would begin, resulting in significant drops in property values even before bulldozers lined up to clear the roadway’s path (Biles, 2014). In some cases, time would elapse even between condemnation orders and actual demolition, leaving “demoralized homeowners and businessmen (who) lost all incentive to make repairs” to their properties –

leading to even worse general neighborhood conditions and contributing to further difficulties among remaining property owners to sell their homes or businesses and flee their soon-to-be former community (Biles, 2014, p. 850). Scholars have documented the plight faced by African Americans not only in trying to oppose highway plans that would uproot their neighborhoods, but also in finding safe and sanitary housing to replace what had been taken through eminent domain (Biles, 2014). It would appear to many that officials would pay more attention to clearing land for the Interstate Highway System than finding adequate housing for those the massive project would displace – something that would lead at least one scholar to conclude that “racial politics guided these unfortunate developments” (Biles, 2014, p. 851).

The disparate impact that the highway system would have on urban spaces has led many to conclude that more deliberate, discriminatory intent was at work in crafting plans for the system. As Mohl (2004) posits, “freeway construction coincided with black political empowerment and the rising civil rights movement, developments that took on added significance when black neighborhoods were targeted by the highwaymen” (pp. 674-675). In Miami, researchers have pointed to highway planning as a means for the city’s political and civic elite to essentially recapture space within the central portions of the city that had previously been occupied by minority communities – racism and discrimination, perhaps, under the poorly veiled guise of economic development (Biles, 2014; Mohl, 2004). The aforementioned concept of emerging, second ghettos also came to light in some spaces, as displaced minority families and businesses were haphazardly – and often without much formal support or assistance – rerouted to surrounding neighborhoods (Biles, 2014; Mohl, 2004).

Racial Politics and the American Highway

Returning to considerations of the intent behind plans for the Interstate Highway System, many scholars have pointed to the massive infrastructure project as a means through which racial objectives of the political elite could be realized. Fotsch offers a depiction of the freeway as a “racist institution,” and one that has forever changed the fabric of American cities through altering neighborhood structures and inserting physical barriers within and between particular communities (2007, p. 169). Some of these routing schemes, Hanlon (2011) argues, can be closely connected with a growing fear of slums in many American cities, with highways being utilized as a means for slum clearance that could combat blight. Minority communities already saddled with the issues of disinvestment, inadequate schools, deteriorating housing conditions and property values, can be further plagued by challenges related to spatial separation in urban environments (Houston, Wu, Ong & Winer, 2004). The “white man’s lane” that would traverse urban spaces compounded these problems, and what neighborhoods that were not be destroyed to make way for the roadway faced the very possible fate of becoming isolated ghettos with little relief in sight (Lieb, 2011, p. 51). The distinction between neighborhoods of priority for planners was perhaps most clearly made in Baltimore, when civic leaders were assured that the areas slated for highway construction would not include anything “familiar and cherished,” but communities and neighborhoods that would “not constitute a loss to Baltimore” (Lieb, 2011, p. 56). Another example can be found in Birmingham, Alabama, where a 60-block, mainly black neighborhood was cleared in an effort that both residents and researchers characterize as a means to separate black and white communities (Connerly, 2002). In effect, the construction of the urban span of the Interstate Highway System there essentially maintained original racial boundaries that can be traced back to Birmingham’s 1926 racial zoning legislation, and the period of highway building has been attributed to the subsequent loss of a significant portion of the city’s black community (Connerly, 2002).

It is difficult to dispute the conclusion that the victims of highway construction and routing were predominantly poor, minority urban residents (Rose & Mohl, 2012). Many also argue that highways were routed through black neighborhoods in a routine and purposeful manner, claims that are supported in part by planning documents and revisions in many American cities (Rose & Mohl, 2012). Many have alleged that such decisions connect to organized efforts among public officials to maintain lines of residential segregation and discrimination, and to support efforts to rid central city neighborhoods of minority communities (Rose & Mohl, 2012). While this is perhaps more pronounced in some cities than others, scholars have concluded that it was the explicit attempt of highway planners to achieve discriminatory results along with creating the

massive federal infrastructure program (Rose & Mohl, 2012). The case of St. Paul, Minnesota presents an example of this type of targeted planning, when Interstate 94 spliced the city's small black community while avoiding the other, larger portions of the city (Rose & Mohl, 2012). As one critic posits, "very few blacks lived in Minnesota, but the road builders found them" (Rose & Mohl, 2012, pp. 108-109).

Robert Bullard (2004) concludes that the Interstate Highway System was blatantly and, in most cases, effectively utilized as a tool in what he describes as "transportation racism" (p. 15). In analyzing the effects of urban highway construction, Bullard discusses the concept of transportation equity, and the various costs of such infrastructure creation that should be weighed against the benefits (2004). A range of inequities have been attributed to this landmark federal undertaking, including the isolation of communities, environmental hazards that have had profound effects on particular neighborhoods, and the inadequate mitigation of the negative side effects of infrastructure – including noise and displacement of community amenities (Bullard, 2004). Putting the highway system in the context of racial segregation in America, Bullard posits that "transportation planning has duplicated the discrimination used by other racist government institutions and private entities to maintain white privilege" (2004, p. 20).

The Broader Context of Racial Disparities

It is critical to nest discussions of the impact of the Interstate Highway System in the context of racial segregation and urban race relations during the period of the 1950s and 1960s. President Eisenhower made the vast infrastructure project a major focus of his presidential administration (University of Virginia, 2014). However, unlike the successes he realized in his infrastructure programming, Eisenhower has been historically cited as having failed in his managing of civil rights during his time in office, perhaps reflecting his reported dislike for dealing with issues of race (University of Virginia, 2014). In this context, he is described by scholars as being "tepid" in his support of the cause of civil rights, and simultaneously unwilling to take a moral stance on the issue (University of Virginia, 2014). African Americans have been plagued with a higher likelihood of living in poverty, and urban conditions like zoning laws have historically presented barriers both to mobility and progress for many minority families and communities (Rothstein, 2014). Even recent studies on segregation attribute blame to urban highways and their routing in explaining some of the challenges facing poor, minority communities that have persisted to the present day (Rothstein, 2014). From red-lining to public housing and urban renewal efforts, scholars lump together efforts towards slum clearance and the reclamation, so to speak, of downtown neighborhoods as evidence of a concerted effort to combat the ghettoization of American cities – an issue conceived and addressed by public officials in a majority of cases as being rooted in race, and one that resulted primarily in the targeting of African American neighborhoods and communities through the lens of public policies and economic development programs (Seitles, 1998).

Lutz (2014) makes the argument that American dependence on cars, and the resulting priority given to vehicular transportation in American policies and infrastructure, constitutes a form of discrimination along the lines of mobility and income. Cars, she argues, contribute to broader socioeconomic inequities perpetuated most blatantly in urban spaces, with nearly all symptoms of inequality connected in some way to culture, status or a number of economic indicators (Lutz, 2014). It is difficult to ignore the financing and pricing discrimination that also takes place, factors that can further govern access to cars (Lutz, 2014).

American Dependence on the Highway

Setting aside for a moment the racial disparities related to the Interstate Highway System, it is helpful to include a discussion of what has become, in the opinion of some researchers, a potentially crippling dependence on the system and related transportation infrastructure. This discussion has evoked the interest of a broad base of researchers, including those who recommend studies into federal transportation spending and priorities, especially related to highways (Goldstein & Jurow, 1979). Historically, the growth of cars as a popular means for transportation granted planners additional credence as they charted plans for infrastructure systems to accommodate cars and facilitate rapid movement between spaces (Brown, Morris & Taylor, 2009). The freeway, and particularly its ability to connect rural and suburban spaces to the central business districts of American cities, has had a profound and lasting impact on urban environments and travel patterns among

Americans, patterns that have been perpetuated by the earlier discussion of the dependence upon automobile transportation and the political focus on supporting such mechanisms for movement both within and outside of cities (Brown, Morris & Taylor, 2009).

The growing use of, and dependence upon, portions of the Interstate Highway System has also supported the growth of “exit commerce,” described in a study of Interstate 75 that focused on the unique nature of commercial development and sustainability along rural, previously undeveloped stretches of the roadway (Norris, 1987, p. 23). Research has revealed that development that takes place in the area surrounding a highway interchange often does not follow the traditional norms guiding such building and commercialization (Norris, 1987). Norris (1987) finds that “like almost all interstate highways, I-75 has spawned numerous, relatively new, and generally anonymous ‘places’ in the American scene – more than three hundred clusters of roadside services spaced, on average, at a five-mile interval” (p. 31). This is yet another impact of the federal highway system developed in the Eisenhower administration, suggesting an additional set of structures and frameworks – in this case, in the sense of business and economic development – that has become heavily dependent upon the viability of the freeway network (Norris, 1987). If not for the highways, those small commercial clusters along the route’s exits and interchanges would arguably be left without the customers the concrete expanses deliver to their market.

A 2008 report on America’s infrastructure offers the argument that the federal government needs to reassess its transportation systems and infrastructure, and devise new approaches to transportation policies and land use planning mechanisms (Reid, 2008). The report resonated in the civil engineering community, particularly through its argument that the nation has been resting on the laurels of previous efforts without significant investment, reinvestment or development following initial surges of funding and planning efforts (Reid, 2008). The report offers some criticism of federal deference to state and local authorities for such endeavors, and highlights the dependence on transportation across the United States as an argument for more concerted attention to the matter (Reid, 2008). Coupled with this declaration, environmental scholars have offered pleas for further studies related to air pollution and air quality in urban spaces, as well as the impact that freeways have in contributing levels of pollution or other potential health threats – particularly within neighborhoods adjacent to spans of roadway (Fuller, et. al., 2012).

In addition to discussions of America’s dependence upon the highway system as a core of its transportation infrastructure, some researchers have analyzed the lessons that can be learned from the road network, both in the United States and on an international scale. Boarnet (2014) argues that analyses of the American model of national highways often neglect to include the full gamut of effects that the system has had, particularly the impacts experienced in urban environments. Other scholars have tied highways into broader discussions about the impact of federal urban public policy in American cities, seeking to respond to concerns that such efforts have constituted more negative than positive change and development (Plotkin, 2003). Another branch of current discussions and research related to highways focuses on efforts among planners and officials to consider options to improve freeway design and perception (Muller, 2014). But despite what previous efforts may have been made to revamp the highway system’s image or functionality, no considerations have been as significant as the still-developing expressway teardown movement taking shape in cities across the United States.

The Expressway Teardown Movement: A Mea Culpa?

In a July 2014 article published in *Governing* magazine, Daniel Vock poses a question that has long guided the studies of American transportation scholars: “why would you have a highway run through a city?” (p. 1). The article details many of the earlier discussions of the various impacts of the urban stretches of the Interstate Highway System, while also examining studies and efforts unfolding in a number of major cities to evaluate the feasibility of removing elevated highways from city centers and replacing them with ground-level boulevards or other public spaces (Vock, 2014). Part of this movement has been driven by the realization among planners and transportation officials that preserving freeway functionality and vitality will require considerations of a number of challenges facing the aging infrastructure system (Li, Hard & Bochner, 2013).

Among the chief points for further study and evaluation is the range of improvements that could be made to help alleviate congestion, especially along portions of the system that would not allow for large expansions to better accommodate traffic flows that have only increased over time (Li, Hard & Bochner, 2013). Research also suggests that further attention should be paid to options that might encourage the more efficient use of highways and other transportation systems, as well as general efforts to ensure that highways will remain functional (Li, Hard & Bochner, 2013).

Much has changed in American politics and culture since the passage of the Federal-Aid Highway Act, and researchers have spent extensive time in the period following the legislation's passage examining the impact of highway routing and construction in cities across the country (Biles, Mohl & Rose, 2014). Many of these considerations have focused on the negative effects the road system has had on minority communities – impacts that, in most cases, have yet to be addressed in a comprehensive fashion (Biles, Mohl & Rose, 2014). Another contemporary school of thought in urban planning revolves around the concept of “livability” (Fein, 2014). Brought to the forefront of federal policy and administration by a June 2009 speech by U.S. Secretary of Transportation Ray LaHood in his unveiling of the Sustainable Communities program, the idea includes promoting health, offering cost-effective transportation options and reducing dependence on gasoline and oil (Fein, 2014). Such a concept is arguably foreign to the design of much of the Interstate Highway System, especially given the local destabilization it left behind in urban neighborhoods as well as the lack of walkable, transit-oriented development included in original plans for the network (Fein, 2014). In fact, a plurality of public policies related to transportation in the past decades have served to undermine the concept trumpeted by LaHood, and significant efforts would have to be taken to remedy the effects that have already been doled out in American cities (Fein, 2013).

Fein's conclusions offer a nearly perfect cue for discussions of the evolving expressway teardown movement. The developments are offered by Mohl as evidence of a contemporary response to the well-studied impacts of the highway system, and a desire on the part of public leaders and planners to remedy the ill-effects that have been experienced in various cities (2012). To date, more than 20 American cities have planned, or at least considered, removing inner-city stretches of the system, and several have already completed such projects (Mohl, 2012). Boston, New York and Portland have already replaced formerly elevated routes with a variety of alternatives ranging from tunnels to a park (Mohl, 2012). Mayors, community groups and planners have gathered around the idea of reevaluating past transformation policy, in particular analyzing the long-term effects that expressways have had on the social and economic character of American cities (Mohl, 2012). In recent years, more cities have undertaken studies or begun conversations surrounding similar plans, notably as the existing infrastructure nears the end of its expected lifespan and hefty bills for repairs and rebuilding are confronting local, state and federal officials at an increasing rate (Mohl, 2012). And while initial research on the matter reveals some intriguing patterns among cities considering such policy reversals, the movement is far from a decisive ‘*mea culpa*’ on the part of elected officials. As Mohl (2012) remarks, “As in the past, automobility remains a key divisive issue. In many ways, the expressway removal movement highlights the continuing ambiguities surrounding the city and the highway, the American people and their automobiles” (p. 98).

Discussion: The Future of America's Highways

The ambiguities that Mohl (2012) presents serve to create a challenging context for policymakers across America who might be contemplating the future of the Interstate Highway System. Given the evidence presented in the preceding review of literature on the topic, it is difficult to dispute the lasting impact that the construction of this massive network of highways has had on communities throughout America, as well as the acute effects it has had on particular segments of those communities. Less clear, however, is the future of this public policy initiative. Vock (2014) and Mohl (2012) detail the still-evolving movement to revisit this segment of transportation policy as cities raze urban stretches of the highway system or conduct studies to evaluate such an option, but this remains an area that has received relatively little research attention both in the popular press and in academia. And while this movement might indicate that some policymakers wish to make amends, so to speak, for the ills that the policy initiative has created in many cities, it is far from a

coherent effort – at least presently – to fully remediate the negative consequences of the Interstate Highway System.

The expressway teardown movement also presents a series of decision points for legislators and officials who explore such an option. In some cases, motives appear to be related to addressing the less-than-pleasing aesthetics of the cement stretches of overpasses slicing through city neighborhoods, while in other cases – San Francisco being one instance – community development schemes drove such decisions (Vock, 2014). In cities like Nashville, plans are being developed to restore the “vitality” of urban neighborhoods through removing portions of roadway (Mohl, 2012), bringing with it the potential that the communities that the road system divided could once again be united. However, given the preceding literature review and the conclusions that can be drawn from the body of research on the impacts of the Interstate Highway System, the following considerations – adopted, in part, from Eugene Bardach’s (2012) piece on policy analysis – should be taken into consideration by policymakers reevaluating the viability of existing, urban stretches of the road:

1. **Stakeholders** – Perhaps best illustrated in the case of Nashville – where highway officials have been accused of acting deliberately to circumvent including all community members in the discussion about proposed highway routes – particular stakeholders have historically been left out of the planning process for the Interstate Highway System. These tend to include low-income, minority communities that have often suffered the worst effects of the roadway. Policymakers seeking to revisit this aspect of transportation policy should better evaluate the means through which stakeholders are identified and included in planning discussions and processes. If one of the motives behind the expressway teardown movement is to work towards mitigating the ills caused by the system at the time of its original construction, this level of involvement and engagement among affected members of the community is a must. Merely removing and replacing stretches of the road is not enough to exhaustively make amends for the negative consequences of this public policy initiative. Research on the subject suggests that the consequences experienced in some communities are more or less permanent, as businesses closed, families moved and communities were divided. Given these consequences, it is critical that officials and community leaders work in tandem to ensure more fairness and equity in future chapters of transportation policy development.
2. **Community Values** – In the past decade, cities that have removed urban stretches of highway have replaced them with community amenities like promenades or, in the case of Portland, a waterfront park (Mohl, 2012). Cities are presented with a wide range of options in terms of what could take the place of highways once they are torn down, but with this opportunity comes a great deal of responsibility. This duty centers not only on creating something that will suit its host community and is attractive to residents and visitors, but also something that could potentially restore what was destroyed by the highway when it was first constructed. Policymakers and local officials should consider whether the neighborhoods that were divided by highways could be restored or repaired; while this might not be possible in every case, it should be something that is explored with community leaders and stakeholders. Otherwise, cities run the risk of further perpetuating the negative impact that construction of the highway left in some neighborhoods. In replacing a highway with a public space that could potentially spur new gentrification efforts that could further affect these neighborhoods, the highway teardown movement could further divide these urban communities.
3. **Equity** – The concept of equity is intertwined with the preceding discussions of stakeholders and community values – in sum, it represents the importance of fully involving communities in future policy discussions. However, in this case equity can be employed in describing the ideal outcome of potential policy shifts. The literature review in the present article makes the case that the Interstate Highway System has had an impact that, in many

cities, constitutes a civil rights violation, targeting particular populations and razing certain neighborhoods to make way for the road. Given the disproportionate impact that the system has had in American cities, it is imperative that plans to remove, replace or relocate existing urban stretches of the system incorporate principles of equity. It could be argued that, if this approach had been fully considered starting in the 1950s, the very effects that have made the system detrimental to many cities would never have come to fruition.

These criteria are presented not as a fully comprehensive, exhaustive listing of necessary components of policy shifts, but rather as factors that should be taken into consideration – factors drawn from analyzing some of the effects of the Interstate Highway System in American cities. The importance of particular factors might vary between different cities, given the population makeup and historical context, and it is possible even in the infancy of the expressway teardown movement to document cases when leaders have arguably fallen short in addressing some of these factors. In Boston, for example, the so-called “Big Dig” project that replaced a central, above-ground roadway with a tunnel was bogged down by slow progress, enormous costs and a series of construction stumbles and failures (Mohl, 2012). The now-completed project has also brought considerable change to particular neighborhoods that are now better-connected to other sections of the city, introducing more concerns about the equity of the project’s outcomes – as well as who is better served by the finished product.

Conclusions

In a 2012 study, Rose and Mohl capture the enormity of the Interstate Highway System and its impact on urban America: “Few public policy initiatives have had as dramatic and lasting an impact on modern America as the decision to build the Interstate Highway System” (p. 95). It is difficult to understate the significance of the national network of roads, either in the sense of the advances it has brought to travel and commerce, or the devastating effects it has perpetuated against urban communities. And in discussions of the latter angle, it is impossible to ignore the disparate, negative impacts the system has had on poor, minority communities. The highway construction process was essentially used by some planners both as a step towards enhanced national infrastructure and connectivity, as well as a tool to achieve discriminatory objectives along the lines of race and class. A growing body of transportation and race scholars has made the connection between the highway and race relations in American cities, pointing to the oft-blatant targeting of African American neighborhoods on the part of transportation planners and officials. A thorough review of research pertaining to the effects of President Eisenhower’s network of roadways reveals what could be considered a significant civil rights violation – carried out in many cities by discriminatory officials with the objective of formalizing Jim Crow-era segregation under the guise of economic and transportation development. The evolving expressway teardown movement offers a glimpse at what could best be described as the onset of an eventual about-face for policymakers in America, some of whom have expressed the desire to return to the highway planning process and find ways to remedy the ills that have resulted from the development of the Interstate Highway System. Removing, replacing or rerouting urban expanses of the road network presents policymakers and community leaders with the opportunity to revisit this integral national transportation system while including considerations of equity and in identifying and involving stakeholders and the community throughout the process – elements notably absent in the initial rendition of highway construction some decades ago. Whether this comes to fruition, however, is a subject worthy of further research and investigation.

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Harnessing Entrepreneurial Potential in Soweto as a Catalyst for Inclusive Growth

Alexandra Davis
University of Delaware

Over the course of the past several decades, momentum has grown across developing nations in favor of the advancement of policies rooted in the linkage between entrepreneurial activity and economic growth. In line with this momentum, South Africa – a nation experiencing depressed entrepreneurial activity, sluggish growth rates, and unemployment rates just under thirty percent – has adopted the development of the small, medium, and micro enterprise (SMME) sector as a national priority. This analysis sought to assess the accessibility of public supports in place to facilitate the startup and development of SMMEs in historically underrepresented communities of the country, particularly in urban settlements colloquially referred to as “townships,” where tens of millions of South Africans live. This study was conducted as a case study of the communities of South Africa’s largest and oldest township, Soweto. This research supports that there is a severe lack of access to SMME supports in Soweto, as well as various institutional barriers, many due to legacies of the apartheid structure, and an inability of top-down governmental policy to filter to Sowetan communities.

Introduction

Over the course of the past several decades, with roots in the 1980s and 1990s, recognition has arisen of the transformative economic potential of the growth of the small businesses sector (Caree & Thurik, 2003). Consequentially, the emergence of a global consciousness with regard to the linkage between entrepreneurial activity and economic growth is also well underway. Thurik and Wennekers (2004) assert that small businesses today are increasingly being viewed as a vehicle for entrepreneurship and contribute to job creation, social and political stability, as well as innovative and competitive power.

Further, econometric evidence suggests that entrepreneurship is a critical indicator of economic growth, “...the

positive and statistically robust link between entrepreneurship and economic growth has now been verified across a wide spectrum of units of observation, spanning the establishment, the enterprise, the industry, the region, and the country” (Thurik & Wennekers, 2004, p. 142).

Alexandra Davis is a graduate student at the University of Delaware working towards a Master of Arts degree in Urban Affairs and Public Policy as the inaugural Littleton and Jane Mitchell Fellow for Civil Rights and Social Justice. Davis is a research assistant at the Institute for Public Administration. Her research interest is the economic development of urban marginalized communities. **Email:** asdavis@udel.edu

Acs (2006) summarizes the connection between entrepreneurship and economic growth,

A nation's economic development depends on successful entrepreneurship combined with the force of established corporations. However, the beneficial value of this mechanism varies with the national income, as measured by GDP per capita. At low levels of national income, self-employment provides job opportunities and scope for the creation of markets. As GDP per capita income increases, the emergence of new technologies and economies of scale allows larger and established firms to satisfy the increasing demand of growing markets and to increase their relative role in the economy. At the same time, the numbers of business start-ups decrease as a growing number of people find stable employment. Finally, as further increases in income are experienced, the role played by the entrepreneurial sector increases again, as more individuals have the resources to go into business for themselves in a business environment that allows the exploitation of opportunities. (Acs, 2006, p. 104)

An understanding of the linkage between entrepreneurship, small business development, and economic growth is certainly not a modern conceptualization. Before its widespread application as an economic policy tool in the 1980s and 1990s, scholars such as Joseph Schumpeter, as early as 1911, identified entrepreneurs as providing the engine for economic growth (Audretsch, Keilach & Lehmann, 2006). Industrialized nations – specifically the U.S. and the Euro bloc – incited this magnified focus on governmental and non-governmental provision of small, medium, and micro enterprise (SMME) sector supports (Audretsch et al., 2006). Increasingly though, less-developed nations around the world have begun to follow suit as they continue to face burdensome challenges including exorbitant unemployment, surging inequality, and stagnant growth rates. In the face of these barriers to economic growth, policy makers, non-governmental leaders, and social entrepreneurs in many developing nations have responded with new motivations to promote small business creation and development, evidenced by data indicating that countries which have shifted industry structure towards a larger share of small firms in a more rapid fashion have achieved higher growth rates (Thurik & Wennekers, 2004). This has initiated the increased implementation of legislation, programs, and initiatives in favor of the sustained growth of SMMEs and the opening of industry space for these businesses.

In line with this global consciousness, the Republic of South Africa – a nation experiencing depressed entrepreneurial activity, sluggish economic growth, and notorious unemployment rates – has adopted the development of the SMME sector as a national priority, particularly given the inability of the existing formal sector to absorb the growing labor force (Republic of South Africa, 2011). As made evident in the National Development Plan (2011), South African policy makers have grabbed hold of the prospects of the SMME development movement in hopes of improving certain economic and social conditions that have plagued the nation for decades. Evidence of South Africa's embrace of the SMME movement exists in the varied spectrum of legislation that has been implemented at the national level as early as 1994 by the administration of President Nelson Mandela (Republic of South Africa, 2014). Such efforts to support the small business sector are an attempt at spurring employment opportunities and equalizing the income distribution by redirecting a share of wealth to the nation's long-suppressed black majority.

This research has concluded with the assertion that despite national and local policy efforts, the accessibility of supports for SMME development and for emerging entrepreneurs is severely restricted in South Africa's historically underrepresented communities, specifically urban settlements colloquially referred to as "townships." The impact of the recent influx of policy initiatives lending themselves to the development and sustainment of SMMEs is disparate. The existence of various institutional barriers, many due to legacies of the apartheid structure, and an inability of top-down governmental policy to filter to these economically depressed communities, is critically hindering the establishment and advancement of SMMEs and stifling growth in Soweto.

Methodology

The methodological design of this study is a combination of qualitative fieldwork techniques as well as policy research and analysis. To investigate the policy climate in regards to SMME development and entrepreneurial advancement, in addition to their accessibility and effectiveness, ethnographic techniques were applied to study three target populations. Population 1 consists of local entrepreneurs who own a SMME (as defined by the National Small Business Act in regards to retail sector enterprises in South Africa), some of whom are working with a governmental organization to expand their enterprise. Population 2 is representative of business officials, policy makers, community leaders, and directors and employees of non-governmental organizations who are involved in the development of SMMEs in some fashion or are implementing business training or support initiatives to advance grassroots entrepreneurialism. Population 3 is comprised of local South Africans who have directly experienced, observed, or have formulated opinions on the accessibility or effectiveness of the governmental and non-governmental organizations supporting the advancement of local businesses or initiatives whose mission is business training and support of local entrepreneurs.

This project was executed over an eight-week period between May and July of 2013 in multiple regions of South Africa, with a particular focus in Johannesburg. Inquiry consisted of semi-structured interviews with key informants among the three populations, both individually and in the form of focus groups. In addition, several different participant observation strategies were utilized. This consisted of casual and unstructured observations and conversations in informal settings.

Non-probability sampling techniques known as purposive sampling and snowball sampling were used to identify key informants and interview participants. Babbie (2014) describes purposive or judgmental sampling as the selection of study participants on the basis of the researcher's judgment about which subjects will be the most useful and representative of the target population. Snowball sampling refers to a strategy in which study participants are accumulated by way of locating each subject and expanding scope based on their suggestions for other subjects (Babbie, 2014).

There are various limits to non-probability sampling methods of data collection such as those used in this study; however these methods are a critically important qualitative technique, particularly when initially exploring the scope and depth of a concept in the field. The use of purposive and snowball sampling result in samples with representativeness that can be called into question because these procedures are vulnerable to the subjectivity and biases of the researcher and the study's participants. Babbie (2014) references the theoretical notions put forth by Noy which contend that the use of snowball sampling reveals important aspects of the target population, "...the dynamics of natural and organic social networks" (Noy, 2008, p. 329). In addition, Babbie (2014) merits snowball sampling as an appropriate method when members of the target population are difficult to locate. Babbie's examples of such populations include homeless individuals, migrant workers, or undocumented immigrants. In regard to this study, entrepreneurs in the informal business sector like hawkers and street vendors, which have a heavy presence in Soweto, also fall into this category. The use of these techniques is an acknowledgment on the part of the researcher that there is a great deal to be learned regarding the SMME climate in Soweto and South Africa generally, upon initial penetration of the field. This work serves as the basis of a forthcoming quantitative research project.

South Africa's Economic Landscape in the Context of SMMEs

Prior to the birth of democracy in 1994, the economic landscape of South Africa was epitomized by a clear absence of small enterprises due to prohibitive apartheid laws obstructing the establishment and development of small, particularly non-white businesses (Republic of South Africa, 2014). Although the post-apartheid era has brought about major formal economic sector restructuring in an attempt to promote black economic empowerment, South Africa has struggled to redistribute wealth to the predominantly poor black majority, which is evidenced by key macroeconomic indicators.

The current status of unemployment in South Africa is a rate just over twenty-four percent, with youth unemployment at a staggering fifty-two percent, which is now recognized as third worst in the world (World Economic Forum, 2014). In addition, the nation’s economic growth rate has stagnated, currently at 2.5 percent, compared to the average for BRICS countries of 3.86 percent (The World Bank, 2013). BRICS nations – Brazil, Russia, India, China, and South Africa – are those which have been identified as developing or newly industrialized countries that are distinguished by their large and rapidly expanding economies and international influence. Despite the classification, economic indicators continue to reveal that South Africa performs poorly compared to its BRICS competitors. In comparison to similar BRICS economies, data reveal that South Africa’s entrepreneurial environment demonstrates poor performance when early-stage entrepreneurial activity and business ownership rates are examined (see Table 1 for more BRICS entrepreneurial activity and business ownership information). Further, according to the World Bank in 2009, South Africa is regarded as the one of the most unequal countries in the world with a Gini Index of 63.1, compared to the BRICS average of 46.78, with an index of 100 representing perfect inequality (The World Bank, 2009). This makes strategies for inclusive growth in South Africa of the utmost importance going forward.

Table 1
Total early-stage entrepreneurial activity and established business ownership rates across the BRICS countries (Herrington, Kew, Simrie & Turton, 2011, p. 25).

Country	Total early-stage entrepreneurial activity		Total established business ownership rate	
	2006	2011	2006	2011
Brazil	11.6%	14.9%	12.1%	12.2%
Russia	4.8%	4.6%	1.2%	2.8%
India	10.4%	n/a	5.6%	n/a
China	16.2%	24.0%	8.9%	12.7%
South Africa	5.3%	9.1%	1.7%	2.3%

Dalberg Global Development Advisors and J.P. Morgan have investigated the correlation between economic growth and small and medium enterprise development. Specifically, their initiative has examined methods for fostering this development in the Gauteng Province of South Africa, encompassing the City of Johannesburg (2012). In a report released by the leaders of the initiative, *The Small and Medium Enterprise (SME) Sector – Catalyst for Growth in South Africa*, it is cited that in addition to disturbing unemployment rates, South Africa has a low level of entrepreneurial activity compared to other emerging markets such as Ghana, Zambia, Brazil, and Chile, which makes it an effective location for investigation (Dalberg Global Development Advisors & J.P. Morgan, 2012). The report touches on the many challenges of SME development in the developing world, which include significant barriers to entry and sustainment, such as access to finance, market access, skills and networks, and the enabling environment. It further reports that in South Africa, seventy-five percent of applications for credit by new businesses are rejected and only two percent of new SMMEs are able to access loans (Dalberg Global Development Advisors & J.P. Morgan, 2012).

Soweto in Context: Post-Apartheid Township Economy

An exaggerated microcosm of these challenges has developed in areas of the country that many considered to be at the epicentre of the apartheid struggle: townships. In South Africa’s townships – areas where black

Africans were forced to reside during the apartheid years that were marginalized politically, socially, and economically – these impacts are felt exponentially. The majority of unemployed South Africans who can benefit from the job creation that can be brought about via SMME-driven economic activity live in townships, which are still characterized by poverty and high levels of unemployment. Johannesburg's Soweto region, established as an early consequence of the apartheid system, exhibits the manifestation of these attributes.

Soweto is an acronym for the South Western Townships and is a region which consists of about 59 square miles (153 square kilometres) and approximately 1.2 million people, making it the most populous urban residential area in South Africa (City of Johannesburg, 2008). Soweto was established in 1904 to house black, Indian, and coloured South Africans who were increasingly being evicted by city and state authorities and who were used in large scale industrial development, particularly the mines located on the northern border of the region. Soweto exploded as an informal settlement as the apartheid government took hold and formal legislation was passed to separate and oppress black and brown South Africans by regulating places they could live and work, most notably the Group Areas Act of 1950, the Bantu Building Act of 1951, the Bantu Services Levy Act of 1952, and the Native Urban Areas Act of 1952 (City of Johannesburg, 2008). When liberation was realized in South Africa in 1994, it was clear that Soweto had become an important part of the city of Johannesburg and needed to be integrated into both the economy and the governance of the city. This remains a challenge for policymakers today.

While a historical context of this critically important region of the country cannot be encapsulated in a one-paragraph synopsis, what is crucial to understand in the context of this research is the impact of the historical motivations for the establishment of Soweto – as dormitory space for a labor reservoir – on the development of the community's economy. During its 100 years under the above described system of systematic oppression and marginalization, the economy of Soweto was unable to diversify in any way. In addition, "apartheid systematically denied Africans opportunities to develop their own businesses. The result was, on the one hand, inadequate market institutions and infrastructure to support emerging producers, and, on the other, a widespread lack of experience in starting and running enterprises" (Republic of South Africa, 2014, p. 97).

The consequence, as experienced in Soweto today, is that despite being the largest urban residential area in South Africa, the formal economic footprint of Soweto is negligible. While Soweto comprises about forty-three percent of the total population of the city of Johannesburg, its economic footprint is less than five percent of the city's economy. Further, Soweto faces unemployment rates above fifty percent, as compared to the city of Johannesburg's still alarming, but significantly lesser rate of thirty-five percent (City of Johannesburg, 2008).

SMME Policy Framework

South Africa's National Development Plan of 2011 specifically highlights SMME development as a key method to combat the unemployment crisis and spur economic growth. The City of Johannesburg, therefore, has an obligation to ensure its efforts in this realm effectively follow suit. In 2010, the city of Johannesburg's Department of Economic Development launched its Jozi Rising initiative, aiming to create an environment in the city that is enabling for small business development and to simplify the accessibility of business support tools already being offered by various public development players (The City of Johannesburg, 2015). Despite the implementation of this framework, the communities of Soweto continue to be a neglected region in terms of SMME supports and the region's entrepreneurial environment remains stark.

Even after small businesses are established, they are unable to sustain themselves in Soweto. A University of South Africa (UNISA) study found that over sixty percent of small businesses shut down between the years of 2007 and 2008. At the same time, relatively few new enterprises opened, which led to a net decline of close to fifty percent of small businesses during the period of examination (University of South Africa Bureau of Market Research, 2009).

The preceding data begs a couple of questions. In the context of the state of entrepreneurship in South Africa overall, why does Soweto continue to have such concentrated levels of unemployment and such a low economic contribution compared to greater Johannesburg? Next, why are such a significant portion of Sowetan SMMEs unable to sustain themselves? A critical factor in the solution to these questions is that the infrastructure simply does not exist to support the entrepreneurial pursuits promised by both national and municipal initiatives like Jozi Rising. Entrepreneurs are forced to travel impractically far and expensive distances to Johannesburg's Central Business District to accomplish foundational steps in starting a business such as registration. In addition, both private and public support initiatives continue to be concentrated predominantly in the downtown city network, which deems them virtually inaccessible to Sowetan entrepreneurs.

The magnitude of this issue is profound as Soweto is not just a substantial component of the city of Johannesburg, but its more than one million inhabitants constitute the most populous urban residential area in the nation, and thus should be considered integral to economic prosperity. Yet, the region continues to be dependent on the economic activity of the Johannesburg metropolitan area for its formal employment opportunities and social support services, which have proven to be both inaccessible and insufficient. The lack of an adequate entrepreneurial support infrastructure in Soweto, as a result, has severely hindered momentum of the SMME development movement in Johannesburg.

More broadly, in the adoption of a varied array of strategies for local economic development, which will be critical for Soweto going forward, Barnekov and Rich (forthcoming) suggest lessons from urban development in the United States can be useful to policymakers in South Africa. They argue that a culture of privatism has been the underlying pattern of the development of American cities and although they highlight the absence of privatism is often a source of community impoverishment, privatism alone is not sufficient in meeting the complex challenges facing modern cities.

The challenge to the embattled American city was to create a new economic base – one that would transform declining physical and capital infrastructure, attract new firms, new population and new employment, and enable the city to successfully compete for a prominent role in a global post-industrial service society. The key to meeting this challenge was to stimulate private investment. (Barnekov and Rich, forthcoming, p. 12)

A public-private partnership model for urban development proliferated in the U.S. in which policymakers utilized public resources targeted at leveraging private investment. The generation of local investment and the strengthening of local private sector infrastructure were identified as key components for sustainable economic development as opposed to the sole reliance on limited public resources programs to conquer the unequal distribution of wealth in cities.

Private infrastructure is not only unevenly distributed throughout the city of Johannesburg, but for the most part absent in the city's depressed areas, such as the communities of Soweto. Taking the arguments of Barnekov and Rich into account, it will be important for the municipal government of Johannesburg to employ policy to aggressively work toward stimulating private sector activity in Soweto for the city to be a contender in the twenty-first century global economy.

Understanding conditions of Soweto's political economy will be key in identifying a viable solution to achieving an enabling environment for SMMEs as strategy for inclusive growth in the region. As the preceding twenty years of South African growth have demonstrated, the Sowetan economy does not respond to simply the growth of the nation's economy at large. A vibrant Johannesburg economy will also be an insufficient solution to address the issue of economic growth in Soweto. While many people will benefit from the growth of either the city or the nation generally, most South Africans living townships will not reap the benefits of growth at this scale without the adoption of a targeted approach.

In response to Barnekov and Rich's arguments on the benefits of privatism in American cities in this regard, it is important to note that when the American economy was booming throughout their narrative, economically depressed cities do not parallel this trend. For example, beginning in the post-WWII era, during the period of 1945 through 1970, the United States experienced an economic expansion, which resulted in growth of both employment and average of annual GDP. Despite positive growth during this period, America's old industrial cities, such as Detroit, Pittsburgh, and Cleveland, were experiencing just the opposite in the 1960s, demonstrated by steep economic decline, skyrocketing unemployment, and significant reductions in population. This is due to a specific set of circumstances, which dictated the individual economic response of these cities despite nationwide growth. This underlines the need for a policy platform by the city of Johannesburg, which specifically targets Soweto, as opposed to a reliance on overall city or nation-wide growth, which will not penetrate to the most economically depressed parts of the city facing a specific set of structural challenges.

Recognizing the structural conditions in the South African political economy that are embedded within Soweto is crucial to understanding the conditions in Soweto that constrain SMME growth. Many of these embedded constraining structural conditions are a product of apartheid, which make the political, economic, and social environment in this region unique to anywhere else in the world. At their conception, policies shaped Apartheid cities through strict social segregation in addition to their intentional marginalization and geographic separation of economic and residential zones to keep commercial and industrial activities out of non-white areas. The legacy of this policy has transcended the twenty-year period since the ending of apartheid, as regions such as Soweto continue to be isolated from their municipalities.

Turok (2011) stresses the relationship between the built form of cities and its relationship to the welfare of its residents as well as its impact on patterns of social integration and economic development. In his research into South Africa's urban centers, he touches on the role of apartheid in creating sprawling, splintered, and racially divided cities, which has stifled accessibility to jobs, amenities, and economic resources to huge sectors of the population. He explains that most of South Africa's poor are confined to overcrowded settlements on the periphery of cities, which has resulted in worsened poverty and exclusion by trapping poor households in these marginal areas removed from employment nodes with deficient services. This geographic and demographic phenomenon has characterized the city of Johannesburg and its peripheral communities like Soweto. As Turok describes, the scale and density of Soweto's population is profound, yet its separation from central Johannesburg has posed significant challenges to the welfare of its residents (2011).

Historically embedded social characteristics, overall levels of education, the nature of and awareness of support structures, and the regulatory environment also play a highly significant and negative role in determining the entrepreneurial landscape. The Global Entrepreneurship Monitor (GEM) South Africa provides useful data and analysis on the state of entrepreneurship in South Africa and the largest challenges facing entrepreneurs. The study notes,

During the apartheid era, there was a conspicuous absence of small businesses in the dominant sectors of the economy and very little attention was paid to small enterprise promotion in public policy. During the apartheid era, black South Africans, except in specially designated areas, were largely prevented from owning property. This meant that they were unable to leverage their property as a form of finance, which had a negative effect on their ability to start businesses. (Herrington, Kew, Kew, 2010, p. 31)

In terms of training and education, GEM found that only twenty-six percent of South African adults believed that they had the knowledge, skills, and experience required to start a business. Education has consistently been identified as a key inhibitor of entrepreneurialism in South Africa. Further, a particularly high proportion of informal entrepreneurs lack the skills to comply with the legal and tax requirements facing registered businesses. This begins to shed light on the cumbersome government regulations and ineffectual federal support programs are hindering sustainable growth of the SMME sector.

Registered businesses are hindered by the enormous administrative and cash flow burden that registration adds to the business. Although numerous small business incentives are becoming available, excessive bureaucracy and cumbersome application processes, offices that are only open on weekdays and the protracted, inefficient decision-making has limited the positive impact of these incentives. International evidence suggests that the regulatory environment has a major influence on the survival and growth of small and new businesses...The 2002 GEM Report found that few business support centres specifically targeted the informal sector while government initiatives directed towards the formal sector were largely too generic and had had limited success. (Herrington et al., 2010, p. 48)

Taking the arguments of Turok and GEM into account, turning to economic development theory or adopting “best practices” of inclusive economic growth or SMME development that have been successful elsewhere will be insufficient in coming up with a viable solution to address the distinct challenges facing Soweto. Many of such theories and “best practices” are not intended for or are unsustainable in places that have a level of embedded constraint as experienced in Soweto, and many other parts of South Africa as the aforementioned reports have demonstrated.

At this point in time, Soweto is without a viable economic base or support infrastructure from which to facilitate growth. While one method of addressing this issue is attracting established corporate enterprises to invest in the region, which is an immense challenge because of its stark economic landscape, another approach is to concentrate on the development of a favorable economic climate to promote homegrown business development. The Department of Economic Development must play a lead role in ensuring that the pursuit of entrepreneurship is at the forefront of a targeted policy agenda and additional public resources are allocated toward building local private infrastructure in Soweto. In advancing the key elements that underpin adequate support infrastructure for the SMME sector to develop and begin to sustain itself in Soweto, the City of Johannesburg’s Department of Economic Development must address issues such as access to finance, physical proximity to support services and business networks, and an economically conducive policy environment to entrepreneurship.

Evaluation Criteria

In looking for an effective solution to this set of challenges facing the communities of Soweto, establishing a set of criteria to evaluate current policy and in weighing policy alternatives will be important. The most critical characteristic underlying this set of evaluation criteria will be the effectiveness of impacting the conditions that the policy hopes to address. Over the course of the past two decades following the end of apartheid, while various policies have been introduced in attempts to target economic growth and SMME development in Soweto, a significant impact has not been made upon the examination of key economic indicators for success. Targeting a selected set of these indicators with a chosen policy must become priority.

Included in the measurement outcomes for determining policy effectiveness should be the number of start-ups and established SMMEs, as well as SMME survival and long-term growth rates, as indexed by the expansion in the numbers of employees and revenue generation. In terms of determining the effectiveness of physical support infrastructure in the designated target area, mapping national and municipal SMME support agency offices in the target region will be important to ensure the magnitude of their presence and the equitable geographic distribution of their location throughout the region. Further, as has been cited, capital accessibility for aspiring entrepreneurs, particularly in South Africa’s townships has been a consistent challenge in SMME development. Therefore tracking interest rates, loan approval rates, and average loan disbursements for publicly sponsored loans for SMME development projects to Soweto residents will be indicative of the success of the implemented policy framework. In terms of long-term determinants of success of the aggregate economy of targeted communities, annual percentage change in local private investment, and annual GDP growth in the context of Greater Johannesburg will also be key indicators to consider.

Another key criterion is efficiency. It will be important to weigh the current policy options against alternatives under consideration based on an evaluation of the cost of each, in the context of both the short and long term intended achievements. It will also be important to calculate the cost of changing policies and the fiscal impact of reconstructing the infrastructure to implement those policies. Examples of such costs include the creation of new offices or divisions, hiring additional staff, and merging political entities.

A final criterion is equity of each of the policies to be considered for adoption as well as the equity of the existing policy structure for the population under the jurisdiction of the City of Johannesburg. To determine equity, geographical distribution of physical SMME support infrastructure will be critical, as will monitoring the residential area, race, and socio-economic status of the constituents who utilize the implemented policy structure.

Current Policy

Beginning in 1994, South Africa's national policy focus on the SMME sector of the economy was derived from the conceptualization of three key roles for SMMEs in the post-apartheid economic reconstruction era. These roles included SMMEs as agents of employment promotion, as grassroots tools to redistribute wealth, and as a method to improve global competitiveness. The 1995 White Paper on Small Business expressed goals of improved and decentralized access to information, training, markets, finance and technology (Department of Trade and Industry, 1995). It also expressed the need for improvements in business infrastructure and the market environment and the strengthening of networks between enterprises to address the apartheid legacy of the disempowerment of black business.

Since this point, various policy supports have been implemented at the national level to support this sector of business namely the Small Enterprise Development Agency, the Small Enterprise Finance Agency, the National Youth Development Agency, and the Tshumisano Trust (Department of Trade and Industry, 2010). The national framework intended to support the SMME sector of the South African economy has been beset with its own distinct set of challenges, but analytical focus has been placed on the city government of Johannesburg because it is the level of government which has the largest potential for direct impact on the communities of Johannesburg in dire need of stimulation and growth. Notably, these same communities stand to be crucial asset to the South African economy as a whole. Current policy instruments at the national level have failed to effectively address the SMME challenges experienced by marginal Johannesburg communities, like Soweto, due to their inaccessibility to residents, a lack of awareness of their existence, and their sparse physical presence in these communities.

The City of Johannesburg therefore holds the key to enacting SMME sector policy with the capacity to effectively harness the economic and entrepreneurial potential of Soweto to provide an essential boost to the Johannesburg economy and take steps toward inclusive growth in the region. The Department of Economic Development for the City, charged with spearheading policy initiatives in this realm, has implemented a series of three core policy projects through its SMME Development and Support Directorate: Jozi Rising, the Dirang Ba Bohle Community Finance Institution, and the Jozi Skills Hub.

Jozi Rising was launched in 2010 with the goal of offering a comprehensive range of business support programs due to the lack of coordination within the sector among the numerous public and private institutions, making it virtually impossible for entrepreneurs to navigate they system in seeking support (City of Johannesburg, 2015). Jozi Rising is meant to provide a platform to simplify how entrepreneurs access SMME support from public and private development players within the City, thereby taking steps toward creating a simplified and integrated business support platform.

Despite the inception of Jozi Rising, in practice, the Department of Economic Development plays virtually no role in its execution. The work of the policy has been contracted out to various organizations, which has negatively impacted coordination. The University of Johannesburg's Centre for Small Business

Development has been hired as the project manager of Jozi Rising on a day-to-day basis, while the University of the Witwatersrand Business School's Centre for Entrepreneurship has been charged with conducting research on supply-side factors of the economy necessary to the effective implementation of the policy (City of Johannesburg, 2015). A national initiative, the Sector Education Training Authorities, have also been brought in to introduce and develop sector development programs, "...in order to leverage and grow local competencies in industries that show growth potential" (The City of Johannesburg, 2014, p. 1). While involving various development partners in developing an effective framework has potential benefits, the fragmented implementation strategy of Jozi Rising has led to a lack of accountability for the policy, a lack of coordination of constituents passing through each arm of the policy, and an insufficient deployment of resources to crucial regions of the municipality.

The Dirang Ba Bohle (DBB) Community Finance Institution, the second component of the SMME development framework in the City, was implemented in 2011 to serve as a community microfinance institution to assist emerging entrepreneurs in the city in accessing financial services (City of Johannesburg, 2015). While data on the work of DBB were unavailable for analysis, the organization does publicize its focus and preference in funding SMEs involved particularly in city-owned and driven projects, which significantly limits the scope of support the DBB provides and further inhibits access to the institution for entrepreneurs in economically-depressed communities on the margins of center city, such as Soweto, who are far less likely to be able to engage in city-driven projects. This speaks specifically to the lack of equity and effectiveness of the DBB in providing fiscal support to all segments of the Johannesburg population. Further, the city has recently rolled out the Jozi Equity Fund, which has leveraged 180 million Rand in external funding to fund thirty-six SMEs, all of which are businesses that support city-owned and city-driven projects. This focus significantly mitigates the success of the policy in bringing finance to the poor, one of its stated core objectives.

The final institution of the triad of SMME supports implemented by the Department of Economic Development is the Jozi Skills Hub (JSH). Established in 2010, the JSH is intended to serve as quasi-public employment support and placement service with the mission of increasing the employability of particularly vulnerable job seekers and vulnerable businesspersons. This policy has not introduced anything new to the existing framework of resources in the realm in the city, but attempts to better organize and deploy what is already available and to adjust the mismatch between skills supplied and demanded. The City of Johannesburg has invested 20 million Rand over the course of the first five years of the initiative.

Unfortunately, while recognized under the Department of Economic Development's SMME Development and Support Directorate, the JSH does not serve a community of entrepreneurs in the city, but instead simply targets the unemployed. The actions undertaken by this initiative to increase employability of its constituents does not offer support to increasing entrepreneurialism in the city and is therefore deemed ineffective in the realm of SMME support.

When utilizing the evaluative criteria selected to examine these three core policies, the effectiveness of each one has been called into question. When examining SMME start-up data, survival and long-term growth rates, physical support infrastructure, and capital accessibility, significant improvements have not been experienced on a city-wide scale since the implementation of these policies over the course of the past four years. Therefore, this policy framework is deemed inefficient when compared to the public investment made through the cost of administrative infrastructure and implementation of the program. The millions of Rand invested, intended to be returned to entrepreneurs of the community, have not made a significant positive impact on either short or long term expected outcomes.

Finally, the evaluative criterion that has revealed the largest disservice to the peripheral and economically depressed communities of the city is the lack of equity demonstrated by this framework since its inception. The lack of township outreach through these policies is a major impediment to the success of these initiatives in providing equal access and distribution of their benefits to the region. Insufficient levels of local

awareness regarding existing tools and support infrastructure exist in the parts of the City that have been traditionally politically isolated and marginalized due to this lack of outreach.

Policy Options

In considering the way forward for the City of Johannesburg's public support of SMME development and in adoption of a revised policy framework, there will be a need for a multifaceted approach in constructing a policy bundle, as opposed to choosing among options. As the Department of Economic Development seems to have realized, there is no single lever that will be strong enough on its own to impact the course of this issue, but a series of levers might begin to target and unlock the necessary infrastructure to support this critical sector of the economy. The recommended policy alternative for consideration of the Department of Economic Development will include the implementation of a policy to directly target geographically and economically marginalized communities of the city of Johannesburg.

The first component of the recommended policy framework is the establishment of Urban Enterprise Zones (UEZs) in Soweto and all regions of the city that are operating at an Economic Contribution/Population Ratio (ECPR) score of less than 0.5. This index has been formulated to assess the extent to which a region's population, compared to the City of Johannesburg as a whole, matches its economic contribution to the city. For example, the Soweto region, as previously discussed, represents forty-three percent of the population of the city, yet contributes only four percent to the economy of the city, thus giving it a ECPR score of 0.09, significantly below the benchmark identified for targeted policy attention. This will ensure that the communities of the city in dire need of support will be provided additional infrastructure needed to facilitate the growth of the SMME sector by granting benefits for businesses to start up in these economically depressed areas as opposed to regions that are more economically attractive.

Once these communities are identified and qualify for UEZ status, they will be eligible for publicly provided fiscal inducements, including subsidies and tax breaks to reduce the private investment risk in starting a SMME in these targeted zones while increasing entrepreneurial activity and economic growth. Barnekov and Rich stress the importance of stimulating the demand for labor in low-income areas and the potential to achieve this by subsidizing the costs of doing business there, "using public policy to gain advantage in a bidding war for investment and employment, using tax credits, contract incentives, location subsidies, and a range of other incentives that may be attractive to private firms and entrepreneurs" (forthcoming, p. 22).

The implementation of UEZs will also be critical in the implementation of a strategy to address the uneven geographical distribution of service providers and support infrastructure, which has led to a lack of awareness and access to initiatives in economically depressed and marginal communities of the city. In each UEZ, there will be a requirement for the establishment of at least one Jozi Rising office and additional offices depending on the square mileage of the area in question. The Jozi Rising initiative will be revamped to be composed of Department of Economic Development staff who are expert navigators of the framework of local, provincial, and national policy supports regarding SMME establishment, development, and growth. This will push public efforts in combating the lack of local business networks outside of the central business district to expand to marginal communities of the city.

Analysis has revealed a lack of clarity about the roles and responsibilities of different levels of public sector, which has caused their efforts to be uncoordinated and less effective. It has also presented an issue of circulating clientele, which results in an inefficient allocation of resources due to a lack of coordination between organizations. By establishing one central authority for UEZ community members to access, staff will be able to tailor support packages to aspiring entrepreneurs by directing them to the necessary organizations and reduce the circulating clientele issue.

Further, according to Turok, over the course of the past two decades, a pattern of policy neglect of microenterprises and the informal economy has been uncovered (2011). During this post-apartheid era, emphasis has been placed on policy supports for SMMEs, where white ownership is dominant, while microenterprises and survivalist informal sector businesses have been underserved. Microenterprises are the majority of businesses operating in Soweto, so this style of policy disproportionately favors white-business, further diluting the path toward inclusive growth. In an attempt to shift toward an increased focus on microenterprise, the existing DBB infrastructure will be adopted in concert with the reconstructed Jozi Rising policy and the physical infrastructure it will establish in UEZs.

In crafting public policy around SMME development and support it is critical to differentiate between opportunity-driven entrepreneurship, an active decision to launch a new enterprise based on the perception that a business opportunity exists, and necessity-driven entrepreneurship, which is when one is pushed into entrepreneurship as a survival mechanism due to a lack of employment opportunities. Opportunity-driven entrepreneurs intend their entrepreneurial ventures to eventually result in high-growth firms and which will manifest in the creation of new employment opportunities. Based on analysis of South Africa's Global Entrepreneurship Monitor (Turton & Herrington, 2012), Acs (2006) determined that necessity entrepreneurship has no effect on economic development while opportunity entrepreneurship has a positive and significant effect.

Acs reveals the discernible trend that occurs between the ratio of opportunity-to-necessity entrepreneurship and the per capita income of a country. South Africa, a nation with relatively low per capita income, has struggled with an unemployment crisis that has produced a great deal of necessity-driven entrepreneurs, or survivalists. Due to the large emphasis South Africa's National Development Plan places on SMME sector growth as a solution to the nation's unemployment crisis, it is imperative that policy solutions targets opportunity-driven entrepreneurs.

'How is entrepreneurship good for economic development?' The answer depends clearly on what one means by entrepreneurship. If one means self-employment, either in agriculture or very small-scale industry, then in most cases entrepreneurship will not lead to economic development because there is no mechanism to link the activity to development. In fact, we know that self-employment declines as economies become more developed. It is only when economies are able to remove people from self-employment that we start to see an increase in development. To quote Adam Smith, when the division of labor increases, so will economic development. Our data clearly indicated that the ratio of opportunity-to-necessity entrepreneurship is a key indicator of economic development. As more and more of the population becomes involved in opportunity entrepreneurship and as more and more people leave necessity entrepreneurship (self-employment), the more we see rising levels of economic development. (Acs, 2006, p. 102)

GEM reports that in 2012, thirty-two percent of South African entrepreneurs had necessity-driven motivations (Turton & Herrington, 2012).

The importance of opportunity-driven entrepreneurship for a country can be seen in the number of jobs that have been created, in comparison to those that have been created by necessity-driven businesses [...] a mean of 6.1 people have been employed by the early-stage opportunity-driven entrepreneurs, compared to just 2.1 employees for the necessity-driven entrepreneurs. (Turton & Herrington, 2012, p. 41)

According to the arguments of Acs (2006) and Turton and Herrington (2012), the economic growth potential of SMME sector growth and development in South Africa hinges the ability of public policy to effectively target and leverage this group of opportunity-driven entrepreneurs.

Conclusion

For policymakers in South Africa pursuing the creation of an economic renaissance in Soweto, lessons can be learned from the plight of marginalized and segregated black communities in the United States. Scholars have cited various economic implications of residential segregation on the basis of race. In William Julius Wilson's (1987) *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*, Wilson pushes an intricate economic argument to convey segregation as the cause of systematic disadvantage. The argument maps a self-sustaining cycle of how factors such as low property values, bank disinvestment, a low tax base, poor public services, business flight, poor job opportunities, low business ownership rates, isolation from social networks, and concentrated poverty are both caused by and contribute to, deepening segregation. This cycle, unfettered, accounts for the grossly elevated levels of segregation that persists today and along with it the urban poverty, blight, and stagnation experienced by African American communities.

While all of these factors are critical in assessing the economic consequences of segregation and their policy implications, the core of economic disadvantage of such communities is lack of productivity. Productivity is the key to making strides toward inclusive economic growth and economic equality, which have been stifled by laws enforcing residential segregation. Raising productivity levels and thus economic growth is the only way to achieve sustainable poverty reduction to combat segregations effects (Taylor, 2003). Productivity is also critically related to standard of living.

Marginalized hyper-segregated black enclaves in the United States, returning to the Wilsonian (1987) argument, have lower levels of productivity than that of their white counterparts due to the lack of sustainable market infrastructure manifesting in a lack of jobs and formal economic activity in these communities. This is a direct consequence of historical legal institutions establishing racially divided communities, which have directed investment away from inner-city neighborhoods. The result is effectively the transformation of such communities into dormitory spaces, completely devoid of any quality goods and services upon which to build a sustainable market infrastructure. The lack of formalized and sustainable markets culminates in minimal productivity levels and a poor standard of living. Citizens of these communities are forced to travel far and expensive distances to shop and work creating substantial market leakage. In essence, because no market structures are in place to provide either a place for citizens to spend and invest their money, nor to employ them, any money that exists within the community is funneled out.

Experiences in the United States and South Africa demonstrate the impossibility of untangling residential segregation and economic stratification, and their lasting impact. Moving forward, the key to chipping away at the economic stratification that has been created, and eventually the segregation that caused it, is reducing the disparity between the human capital potential and economic output of such communities by introducing interventions that elevate productivity levels to meet their potential. Building a sustainable market infrastructure in these communities must be a priority. Creating an infrastructure to support the growth of the SMME sector in Soweto is one powerful intervention that will begin to build sustainable formal markets in the region and pave the way towards inclusive growth.

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Guidelines for Developing an Open Geospatial Response to Emergencies (OGRE)

Benjamin D. Wallace
University of Delaware

Disaster response typically requires high levels of coordination, necessitating effective communication and information management. Geographical Information Systems (GIS) are useful tools that are constantly being developed and used in many fields, including emergency and disaster management. They are useful in all four stages of the disaster management cycle (mitigation, preparation, response, and recovery) and they have the potential to become even more important to disaster response. This paper considers how GIS is used in emergency management, then suggests guidelines for developing a GIS-based, networked disaster response platform that includes public participation. This could allow visualization and management of the response to events (resources, personnel, hazards, incidents, evacuation routes, shelters). Additionally, it could facilitate communication between officials, members of the public, and other responders. The conclusion of this paper discusses factors relevant to development of this system, including information infrastructure, social media, and crowdsourcing, and considers basic guidelines for developing an Open Geospatial Response to Emergency (OGRE).

Introduction

This paper shows that computerized mapping systems already play an important role in emergency and disaster response, and argues that using these systems as platforms for public participation could have important benefits. Disasters are increasing in frequency and severity (Mitchell & van Aalst, 2008). Almost one million people were killed by disasters in the past decade, 2.6 billion people were affected, and over one half trillion US dollars in damage was done (Madry, 2015). Fortunately, developing tools such as Geographical Information Systems (GIS), satellites, handheld devices, and the Internet create new options for responding to disasters. According to Madry (2015), GIS “are at the heart of disaster management data integration, analysis, and sharing,” and many disaster organizations using these systems (p. 99). Furthermore, new

communication devices, such as cell phones with internet access, enable medical professionals to coordinate rescue and relief work (Zhou, Shi, Mao, Tang, & Zeng, 2012), and space systems (e.g. satellites) are now a “key element in the improved response capabilities for all types of disasters” (Madry, 2015, p. 9). Disaster management is conceptualized as a cycle of mitigation, preparation, response, and recovery, and GIS is used during all four phases (Birkmann & Teichman, 2010). The focus here is on the response phase, and basic guidelines are suggested for a GIS-based platform that allows communication and information sharing with the public.

Benjamin Wallace is a Masters student in the University of Delaware's Disaster Science and Management program. Wallace is currently finishing his thesis on the intersection of disaster risk reduction and climate change adaptation in coastal cities. **Email:** benw@udel.edu

The proposed system developed in this paper is referred to as an Open Geospatial Response to Emergencies (OGRE). The idea is that it could present layers of geospatial information about hazards, vulnerabilities, people, resources, infrastructure, and more in a network accessible to emergency management officials, stakeholders, and the public. The inclusion of the public is important because they respond regardless of official efforts, and this has changed recently due to the dynamic nature of social networking technology that allows knowledge sharing from all involved parties (Freeman, 2011).

Incorporating social media, GIS, and other new tools may be challenging because Emergency Management (EM) culture is highly structured and hierarchical and is often seen as conservative with regard to adoption of new technologies (Mandry, 2015; NRC, 2007). However, public participation is important because there is potential for it to improve disaster response, which naturally involves the public, and should not be approached in a command and control manner (Drabek & McEntire, 2002). The commonly held view that disasters cause chaos and disorganization is widely believed to be false in the disaster science community, and the emergency managers who emphasize coordination and communication instead of command and control are much more effective (Phillips, Webb, & Neal, 2011). Calling for change, one researcher says, “The organizational systems that respond to extreme events must be open systems that allow information to be gathered from and transmitted to the public and nongovernmental organizations in addition to standard governmental sources” (Harrald, 2006, p. 270). Some disaster researchers argue that public response to disaster is “inevitable, natural, neither necessarily dysfunctional nor conflictive, and cannot be eliminated by planning” (Stallings & Quarantelli, 1985, p. 98). Many of the prerequisites for increasing public participation already exist (technology, information infrastructure, software, social media), so research and policy should focus on the potential for increased effectiveness in responding to disaster. It may be that “most of the problems associated with the use of geospatial data and tools are institutional and not technical” (NRC, 2007, p. 146).

GIS & Disasters: Mitigation, Preparation, Response, and Recovery

According to the Federal Emergency Management Agency (FEMA), GIS is “a computer-based system to capture, store, retrieve, analyze and display spatial information and its associated attributes. It combines spatial and tabular information to produce maps and to perform spatial analysis” (FEMA, n.d.c). The four components of a GIS are hardware (desktops, handhelds, data storage, GPS, cameras, satellites, scanners, remote sensors), software (used for thematic mapping, labeling, geocoding, determining quantities, tracking), data (from GPS units, paper maps, photographs, addresses, satellite images), and users (FEMA, n.d.c). This tool’s ability to provide easy, low cost access to multiple users is one of its most appealing features, and GIS can visually present large amounts of data from multiple sources in real-time, thereby facilitating coordination between individuals and organizations, which is a key factor in disaster response (Harrald, 2006; Santos-Hernández, Rodríguez, & Díaz, 2008).

Using a GIS to visualize and track disaster events, incidents, resources and emergency management personnel, relevant populations and vulnerabilities, and hazards and related damage can greatly improve a decision maker’s ability to mitigate, prepare for, respond to, and recover from disaster events (Bernard et al., 2006; Intergraph, 2012; Santos-Hernández, Rodríguez, & Díaz, 2008). Fortunately, advances in GIS technology have increased the accessibility and mobility of GIS tools, which has created an unprecedented ability to visualize and manage disasters (Tran, Shaw, Chantry, & Norton, 2008). The following sections discuss GIS use throughout the disaster management cycle to both illustrate the tool and its potential, and provide relevant context for understanding an OGRE.

Mitigation

The mitigation phase of disaster management aims to reduce or prevent risk from hazards through social or physical intervention. An example of this kind of use of GIS is FEMA’s development of hurricane and earthquake modeling software capable of estimating direct and indirect economic loss, shelter requirements, casualties, ground shaking, cost of building repairs, housing loss, quantity of debris and direct loss of

function, as well as having special features for hospitals, schools and fire stations (FEMA, n.d.a). A second example is the US response to the 2011 Fukushima catastrophe in Japan, where a natural disaster caused a nuclear meltdown. Seismic risk assessments for nuclear reactors were conducted throughout the U.S., and web-based, interactive maps were created for the public, showing information about their risk from nuclear reactors (Sternberg, 2011). Like FEMA's software, this is a useful risk assessment tool for disaster mitigation.

Preparedness

GIS can also help during disaster preparedness, including evacuation planning, hazard tracking, and modeling. Evacuation can overload transportation infrastructure, so congestion can be problematic, regardless of infrastructure damage and driving conditions. An example of GIS use in evacuation planning comes from FEMA's dedicated Enterprise GIS servers, which host dynamic maps showing evacuation routes (FEMA, n.d.b). GIS can also model hazards, and an example is the Makai Voyager software, which is capable of visualizing 3D and 4D data anywhere on Earth, and can model large temporal environmental events in real time, such as hurricanes, with the help of remote sensors (Makai Voyager 1.1, 2012).

Response

A basic understanding of the role GIS plays throughout the disaster management cycle is important because the use of geospatial tools and data "must be habitual rather than exceptional" (NRC, 2007, p. 146). An ideal GIS-based disaster response system would be familiar to users, and, in addition to training and exercises, it could be beneficial to use the system in other phases of disaster management. This is why the other phases are discussed in this paper, but the focus is on disaster response. GIS already plays an important role in disaster response, and is the glue that brings data together, supporting situational maps, press briefings, and hundreds of additional uses (Madry, 2015). Some researchers say that:

[T]he ability to synthesize information from multiple sources and to make available up-to-date maps and location information is of critical importance in ensuring a timely and effective response. Broader use of geospatial technologies, including Geographic Information System (GIS), Remote Sensing, and Global Positioning System (GPS), provide the key for doing so in the future. (Kawasaki, Berman, & Guan, 2013, p. 201)

For example, after the 2001 attacks on the World Trade Center, a variety of geospatial technologies (aerial imagery, light detection and ranging, satellite images, hand-held devices with GPS, internet, GIS) were used to enable a more comprehensive response to the tragedy (NRC, 2007). Another example is Intergraph Corporation's computer aided dispatch (CAD), which is used to coordinate police, fire, EMS, and search and rescue services for almost 10% of people worldwide (Intergraph, 2012). Intergraph's automated dispatch software integrates a range of functions (alerting, remote printing, paging first responders, managing records, resource optimization tools), which can facilitate record management (Intergraph, 2012). A third example is the Puerto Rico Disaster Decision Support Tool, which is an internet-based GIS used by various decision makers to assess geographically tagged information. This system only requires a basic computer and can be accessed through a web browser. It allows "first responders to channel aid more efficiently and effectively to the population groups with the greatest needs" (Santos-Hernández et al., 2008, p. 22). This less expensive system may be good for developing societies which have more trouble responding to disasters (Kahn, 2005).

One of the places GIS can play a critical role is emergency operations centers (EOCs), which are an important part of disaster response that bring multiple actors together to coordinate efforts (Drabek & McEntire, 2002). An EOC plays a central role in many disaster responses and "coordinates the multi-agency, intergovernmental response to an incident into an effective and efficient effort" (Perry, 2003, p. 151). Perry argues that accurate and timely information collection and delivery for officials, responders in the field, and members of the public is important in order to avoid issues arising from convergence, and most large EOCs use software to manage incidents, which includes GIS capabilities. For instance, after the attacks on the World Trade Center, the city EOC's GIS displayed maps of critical facilities and systems, but was destroyed

when the building containing them collapsed. In a remarkable demonstration of resilience, local students, professors, and a company responded to the need for geospatial data, aiding the city's GIS specialists by providing equipment and support. This response created a "map production and distribution capability, much greater than existed at 7WTC [building where GIS was contained] and amounting essentially to a mapmaking factory" (Kendra & Wachtendorf, 2003, p. 47). This example illustrates convergence, which is relevant to an OGRE in the sense that volunteers collaborated to work with geospatial information and helped coordinate disaster response.

Recovery

GIS is also useful in the final phase of recovery. An example is the response to Hurricane Katrina in Gulfport, Texas, where local officials used an extant infrastructure GIS to create maps which allowed the user to locate assets under debris, and served as a damage report database. This information was also used by the town to demonstrate infrastructure damage, which helped them secure a FEMA grant worth over US\$100 million, and by residents who sought federal and insurance aid (Government Engineering, 2009). A second example comes from the conflict in Kosovo during the 1990s, when the US State Department created a GIS database used by national government agencies and non-governmental organizations (NGOs) to address damage and track landmines and unexploded ordinance. The data was collected in simple ways (paper and pen) in order to avoid a steep learning curve and accommodate different data inputs (Smith, 2001). The cooperative efforts highlighted in this case make it an illustrative example of the utility of employing GIS as a collaborative platform.

GIS Limitations and Issues

Despite apparent benefits, some limitations and other issues related to GIS should be considered when developing a GIS-based OGRE. Lejano (2008) notes that although GIS does increase analytical power, it is limited to a spatial analysis and neglects important social factors. Systematic use focuses on problems in the digital world, which may result in missing real world issues, and GIS's reductionist quality simplifies representations of a much more complex reality. Thus, while GIS can handle physical ground-truthing fairly well (gathering proper objective data to determine truth), social ground-truthing is often lacking. Professionals are working in offices instead of on the ground where their decisions take effect. In his words, "In GIS, unlike the visual, what one sees has already been determined. You cannot come down from your elevated perch to see what's there in GIS, there is no 'there' there" (Lejano, 2008, p. 654). Nevertheless, Lejano sees great potential in GIS, as long as users and decision makers are mindful of the inherent limitations embedded in this tool. Alexander expresses similar concerns, saying that:

In principle, any retreat from reality is likely to be damaging. The 'video game' view of hazards and disasters tends to reek of 'disaster pornography' and superficial attitudes to human suffering. The creation of an electronic elite will do little to ease the socio-economic disparities that are at the root of disasters. Truly, all that glitters is not gold. (2000, p. 150)

Put simply, when disaster managers are removed from direct work on the ground, they may be missing out on important parts of the reality they are trying to address. So, certain uses of GIS can influence EM by limiting scope, promoting information quantity rather than quality, substituting itself for intuition and good decision-making, and removing users from the social and physical context surrounding their choices (Quarantelli, 2007).

Guidelines for an OGRE System

With a basic understanding of GIS and EM in place, guidelines for developing an OGRE can be introduced. The purpose of an OGRE is to use developing technology to facilitate inclusion of stakeholders and the public in disaster response. A networked GIS-based platform with support for two-way communication would be the platform for this kind of system, and a range of tools could improve collaboration (social media,

satellites, mobile devices, crowdsourcing). There is a need for public involvement and information exchange in emergency response, and many components needed for an OGRE already exist (Harrald, 2006). Some authors argue that “during large disasters, the use of the same framework and foundation data by responders in various parts of the country is vital for close coordination.” (NRC, 2007, p. 103), which makes sense because the location of urgent requirements, the current situation (road closings, power outages, available airports and hospitals), and updates (resources, current efforts) is a “constantly changing matrix that requires frequent updates” (Madry, 2015, p. 15).

This kind of system would have several key aspects, including reliability, public participation, and the ability to layer geospatial information coming from multiple sources. Public participation would mean two-way communication with the public (deliver warnings, accepting input, responding to concerns and requests), and layers of information could include social media, base maps, traffic data, satellite readings, GPS tracking, and more. The actual design and implementation of an OGRE system would depend significantly on relevant context, and there are several factors that officials interested in developing an OGRE system should consider, including location, information infrastructure and technology, devices, collaboration, funding, and desired layers of information.

Location

The clear global trend towards urbanization may promote development of an OGRE (IPCC, 2012). Urban areas tend to have more extensive communication infrastructures and high population density, which may increase public participation because of their ability to network and the number of people impacted. With more than half the world’s population living in urban areas, which might experience higher levels of destruction from traditional hazards in the future, regularly updated global urban maps that would help improve preparations for and response to natural disasters are needed, so information needed to support an OGRE may be more available in urban areas (Potere & Schneider, 2007).

Information infrastructure and technology

Emergency management officials often use tools such as satellites and digital radios that do not rely on terrestrial infrastructure, but the public is likely to use landline and cellular networks which are more vulnerable to hazards. An OGRE would require reliable and accessible communication for both officials and the public. Communication methods independent of terrestrial networks should be considered, including two-way radios, ad-hoc, mobile-to-mobile networks, and satellite telecommunication. During Superstorm Sandy’s impact on one of the most developed and prepared places, mobile phone networks were frequently down, demonstrating why networks should be resistant to damage, redundant, diversified, and able to activate backup systems (Alonso, Schuck-Paim, & Asrar, 2014). A system designed for public participation should incorporate typical public communication options. Since the need to communicate with the public has been elevated by risks like terrorism and telecom infrastructure is necessary for many popular forms of communication, availability and reliability of landline and cell networks is important (Perry, 2003). However, infrastructures can be severely affected by disasters, and government capabilities become quickly saturated due to demands for assistance (Alonso et al., 2014). Communications systems are often disrupted during disasters, and people designing OGRE systems must consider the communication needs of various participants as well as communication methods’ reliability (NRC, 2007). A challenge for EM organizations is to be sure that they are using the technologies used by citizens, including social media and other methods (Freeman, 2011).

Satellites and unmanned aerial vehicles

Satellite networks are already used in disaster response, and they can support interoperability and reliability (Madry, 2015). While they provide a reliable method of communication, they are also expensive (Alexander, 2000). There is a trend of government space agencies and private entities supplying satellite imagery during disaster response, and the wait between updates has been shrinking. For example, within five days of the 2010

Haitian earthquake, over 15 organizations from eight countries had provided satellite images. More than half were commercial entities, and responders used GIS systems based on these satellite images to coordinate their efforts. This type of high-resolution satellite imagery is imperative for comprehensive disaster response (Kawasaki et al., 2013). However, it should be noted that “the technology requires continued commitment and an ever-increasing scale of investment for benefits that tend to be eclipsed or overtaken by new developments in technology” (Alexander, 2000, p. 155). Thus, satellite systems provide disaster managers with powerful tools to respond to disasters, and, in addition to being a vital aspect of our global infrastructure, they are often the only systems providing communications, data, and imagery immediately after a disaster (Madry, 2015). Madry (2015) notes that a full three weeks after Katrina, only 60% of the area’s cell service was operating, but satellite services were fully functional, with over 20,000 satellite phones deployed and an over 3000% increase in traffic for one network. Satellite services are still growing at a significant rate, and many EM organizations provide their key members with satellite phones to ensure communications (Madry, 2015). Thus, “establishing a backup satellite communications system to transmit voice and geospatial data can be extremely useful to obtain reports quickly from the field and to transmit information to other locations around the state or the country” (NRC, 2007, p. 144).

A fascinating and developing new possibility for disaster response communication is the use of unmanned aerial vehicles (UAVs). According to Madry (2015), UAVs can provide excellent telecom, data, and remote sensing capabilities by loitering at very high altitudes for weeks at a time. He points out that they can provide excellent damage assessment at specific times and higher resolutions than satellites, and have been used for this purpose since 1994. The size of UAVs now range from small, hand-launched quadcopters which are useful for searching hazardous areas and delivering aid, to US military drones with long range and high-quality remote sensing systems. It is likely that these small aerial systems will be used more often in the future as the necessary technology continues to develop, so their use as part of an OGRE’s infrastructure should not be overlooked (Madry, 2015).

Digital radio

While not a common public communication method, digital radio can play an important role in disaster response when more popular infrastructure systems are not available. One company’s communication interface allows radio, digital radio, and telephone integration, in addition to recording information about the call, and having the ability to interface with external applications (Intergraph, 2012, p. 5). This is a good example of a system that integrates more dependable and popular methods of communication.

Devices

The devices used in an OGRE should also be considered because a network’s reliability is inconsequential if it cannot be utilized. Mobility is generally desirable, desktop computers are rarely self-powered, and they generally use wired connections, so self-powered mobile devices with wireless capability are appealing. Mobile devices come in many forms such as laptops, tablets, and phones, and in some regions they have high market saturation (Blodgett, 2012). Recognizing this, FEMA developed smartphone applications that provide maps with important locations and the ability to submit geotagged photo reports with disaster information (FEMA, 2014). If an OGRE user has a mobile connection, they can access information, communicate, and coordinate with other users. Additionally, satellite, GPS, GIS, and weather data can be integrated into real-time warning systems with maps, web data, and warnings output to specific geographic areas (Madry, 2015). Mobile phones have played an increasingly positive role in disaster relief and have proven to be extraordinary tools during these situations; however, care should be taken by disaster managers tempted to rely on this technology, especially given the likely collapse of terrestrial telecommunication infrastructure after disasters (Alonso et al., 2014).

Smartphones are self-powered, can connect to multiple networks, are capable of many types of communication, often feature a GPS chip, camera, and other sensors (allowing for data collection and reporting), are very portable, and may have additional benefits such as the ability to be used as flashlights. An ideal system could deliver a full-featured experience for users with more capable computers, and a

smartphone-friendly version for mobile users. According to Business Insider, the US smartphone market is more than halfway penetrated, with over 110 million users nationwide, and 78% of 15-64 year olds owning a smartphone (Blodget, 2012). It is worth noting that the short battery life of smartphones can be a major limitation in emergencies, as electrical grids can be damaged during disasters. However, solar powered phones have already been used in disaster response (Alonso et al., 2014).

Collaboration: Social media, crowdsourcing, and citizen science

The utility of an OGRE is closely tied to adoption, thus making social factors an important consideration. According to a recent article published in *Disaster*, “opportunities for volunteers to assist in disaster response via mapping and spatial analysis have grown significantly in size and in scope. It is safe to assume that these trends will continue in the near future” (Kawasaki et al., 2013, p. 209). Indeed, social media and crowdsourcing can now play important roles in disaster response (Haddow & Haddow, 2014).

Social media

An intriguing developing technology, social media networks, can allow citizens to access information that is geographically-specific and searchable. The benefits of using social media “as a complementary means of providing information far outweighs the negative issues and this is why authorized emergency management organizations are starting to utilize the technologies” (Freeman, 2011, p. 77). McClendon and Robinson (2012, p. 2) argue that “geospatially-oriented social media communications have emerged as a common information resource to support crisis management.”, so implying that incorporating social media in an OGRE is important. Receiving this kind of information from the public, especially field data collected with mobile devices that can take pictures and gather other information, could be useful for officials in need of information. Notably, this information could be gathered even in the absence of intentional public participation. That is to say, people share useful information about disasters on social media regardless of the presence of an OGRE system. However, two-way communication would be useful for many reasons, including warnings, responding to requests for information, and seeking specific input.

While social media technology has been considered an ideal technology for disseminating information about natural disasters, a major drawback is that “there is no quality of service regarding the transmission of posts” (Freeman, 2011, p. 71). Additionally, EM use of social media can be complicated by the digital divide (some people do not participate in these networks), potential loss of control as multiple sources of information are available to citizens, and loss of Internet connectivity (Freeman, 2011, p. 77). According to Madry (2015), there is active debate in the disaster management community about how these tools can be incorporated, but there may also be policy issues and drawbacks. Notably, an individual intentionally sent false information to responders during Superstorm Sandy, and approximately 9 out of 10 US government agencies have little or no budget to support or staff dedicated to social media activities (Madry, 2015, p. 118-119). Unknown cost to governments and information overload, including provision of redundant information are also worth addressing (Mandry, 2015; McClendon & Robinson, 2012).

Despite drawbacks, “future platforms developed with the volunteer community in mind will need to incorporate social media as one piece of an overall strategy to support situational awareness and response and recovery featuring effective two-way communications with citizens through social media” (McClendon & Robinson, 2012, p. 10). Many citizens have gained emergency information and say they would contribute emergency information through social media. With a billion and a half people using mobile devices to access the internet, “we can reasonably expect the use of social media in disaster response to increase in the future” (McClendon & Robinson, 2012, p. 2). An example of this came from Superstorm Sandy, when the city’s emergency management office provided updates and evacuation orders via Twitter, and the governor of New Jersey used his account to relay relevant information. Twitter and Facebook were used “extensively by individuals, first responder agencies and utility companies to relay messages and information, share evacuation orders and provide updates on the storm” (Cohen, 2013).

Crowdsourcing

Crowdsourcing (non-skilled assistance) is being considered by a wide range of organizations at the national and international levels (Alonso et al., 2014). It “has rapidly become an essential source of data in disaster response,” and its utility has been enhanced by maps based on extracted location data (McClendon & Robinson, 2012, p. 2). While it is new to the disaster community, it has great potential, and mobile internet should be used to collect bottom-up disaster information (Madry, 2015; Zhou, et al., 2012). Remote support operations can be very valuable in disasters and have been used several times to provide a continuous operation as work shifts between time zones. Major players in this community include Crisis Mappers, The Humanitarian OpenStreetMap Team, Digital Humanitarian Network, and GISCorps. This rapidly evolving world will have a major impact on disaster response in the future (Madry, 2015, p. 121).

Social buy-in and collaboration are important, but relying on crowdsourcing can mean a loss of control and unexpected outcomes. An example of this is the New Delhi Disaster Management Cell’s use of a call center designed as a one-stop hub for all disaster management operations. The intention was that members of the public would report incidents such as floods, transportation accidents, and terrorist attacks. The caller’s information would be taken and the system would automatically deliver relevant contact information to the user and send out text messages to various stakeholders. Unfortunately, the center has been used improperly to report traffic incidents, complain to the municipality, and request information for children’s homework (Sobhana, 2008). While this system may have the potential, it has not had the desired outcome because of the way the public perceives and responds to it.

Citizen science

Citizen science (using skilled workers as remote support), is similar to crowdsourcing in some ways, also has great potential, and there are many striking examples of remote support for disaster response (Madry, 2015). Tweak the Tweet and Ushahidi are applications that create crisis maps of content from social media during disasters (Okolloh, 2009; Starbird & Palen, 2011). Other efforts to use crowdsourced information during disasters include the Sahana platform and the Crisis Mappers Network (Currion, de Silva, & Van De Walle, 2007). After the 2010 Haiti earthquake, the Director of FEMA said the Ushahidi Haiti map was the most comprehensive and up-to-date map available (Heinzelman & Waters, 2010). It is likely that it saved lives, and even US Marines and Coast Guard responders used it (McClendon & Robinson, 2012; Ramirez, 2010).

In another example of a remote support response to this earthquake, 1,000-2,000 text messages a day were passed through an automated system, translated by volunteers, and filtered to determine location (Meier & Munro, 2010). A project was set up to provide assistance via cell phone calls and texts (with a peak volume of over 5,000 calls an hour), which were routed, translated, enhanced with appropriate data, and then reported in a standardized way to response organizations (Madry, 2015, p. 118).

An interesting example of citizen science and remote support came three weeks after the 2004 Chuetsu earthquake in Niigata, Japan which caused extensive economic, human, and topographical damage. A web-based GIS was opened to the public which included imagery from remote sensing, base maps, and an advanced data-creating tool using volunteers to support the development of datasets remotely over the internet. The groups that established the portal aimed to use the internet to “collect, integrate, and distribute information from outside of the damaged area, and to support response activities from within and without the disaster zone” (Kawasaki et al., 2013, p. 204). Another example of a GIS-based remote response to disasters emerged the next year when Hurricane Katrina struck, with some commentators arguing this demonstrated the coming of age of the online disaster response community (Laituri & Kodrich, 2008), and showed the importance of publicly available geographic data such as satellite images (Butler, 2006). Many people thought the federal response to the catastrophe was inadequate, so they set up their own donation locations, message boards, and maps of aid sites (Kawasaki et al., 2013). Google quickly updated satellite imagery of the affected area, showing the extent of damage (Hanke, 2006). Shortcomings of the official response prompted a spontaneous reaction from the broader population, with internet and mobile

applications being supported and utilized by government, private and relief organizations, and members of the public who used mobile equipment to collect and disseminate information (Kawasaki et al., 2013).

A more recent example of a remote support came after earthquakes in China, Haiti, Chile and Japan from 2008-2011, when the Center for Geographic Analysis (CGA) at Harvard University set up portals to collect and distribute geospatial data. Their goal was to support swift integration and analysis of information during the disaster response after these events, and they made GIS data, remote sensing images and news reports freely available to all users in the short term, and as an archive for researchers in the long term. The site was open to all, but targeted at professionals, and user contributions were encouraged from the beginning (Kawasaki et al., 2013). Following the 2008 Sichuan earthquake in China, the Chinese government released live updates on response activities, including disaster inspection reports, maps, and videos. A great number of international organizations and teams conducted surveys and rescue activities, creating significant domestic and international demand for geospatial data. The CGA realized that many individuals and organizations wanted to help but lacked the geospatial data necessary to properly support their efforts. Furthermore, although a variety of government agencies and other organizations were publishing information, there was no initiative to coordinate the process. This led them to launch the China Earthquake Geospatial Research Portal, which offered downloadable datasets, over 100 online postings, and a collection of hundreds of related news articles.

Within hours of the 2010 earthquake in Haiti, CGA recognized the need for geospatial data in order to coordinate the disaster response. The following day they created base maps of the area and opened up a portal which made use of the Military Grid Reference System. The portal was publishing GIS layers within 2 days of the event, including high resolution satellite images and printable maps. CGA also set up a portal following the 2011 earthquake and tsunami in Japan, which was running by noon the next day, and emails were sent requesting data for the portal. Within the first weekend several dozen resources were available and nearly 100 emails were received offering or requesting data. One week after the event the portal received more than 20,000 visits every day. CGA received a letter from the US Geological Survey thanking them for their efforts on behalf the Japanese authorities (Kawasaki et al., 2013). These examples are far from exhaustive, but they clearly show that there is potential for collaborative responses to emergencies and disasters by connecting people and geospatial information. Importantly, the web-based, open nature of this kind of effort allows worldwide collaboration, as opposed to a response limited to officials in a particular region.

Funding

In addition to location, information infrastructure, devices, and collaboration, a primary factor that must be considered is the cost associated with the development, implementation, and maintenance of an OGRE system. A 2008 report from UN-Habitat, an organization focused on human settlement and environmental preservation, pointed out that there were roadblocks for developing countries trying to use technology, especially satellites, to manage disasters because the required financial investment often exceeds the budget of the countries most affected by disasters (UN-Habitat, 2008). Due to the correlation between low development and vulnerability to hazards, financial constraints leave more people at risk (Nicholls et al., 2008). Trends indicate this may get worse (Alexander, 2000). However, even these populations at risk could benefit from low-budget OGRE systems.

As has been shown, there is often collaboration between governments, the private sector, nonprofit organizations, and many individuals offering help in response to disasters. While owning satellites may not be feasible, there are many examples of companies and nations donating the use of their satellites during disaster response. Staffing in the form of highly trained professionals who are familiar with the disaster area may be limited, but professionals and laypeople will volunteer to help remotely in many cases. Disaster zones in less affluent countries can be mapped rapidly, and a global infrastructure can support at least a basic communication platform. At the least, information on aid requirements and vulnerability can be collected in

the response phase, allowing more efficient aid during recovery (Kawasaki et al., 2013). Thus, even in areas where funding is limited, an OGRE could play an important role.

Layers

A final and important factor to be considered is the selection of layers to include in the OGRE system. The GIS portion of an OGRE system would be composed of geospatial layers superimposed over a base map, which could work in tandem with a communication system that facilitates warnings, field reporting, crowdsourcing, and other information exchange. Some layers could contain sensitive information such as the location of people and resources, official communications, and information on vulnerabilities. Therefore, the ability to restrict access to layers of the system or channels of communication could be important. On the other hand, some layers such as hazard tracking, evacuation routes, and location of shelters could be open to the public. A few potential layers are discussed here, including resources, personnel, social information, hazards, and evacuation routes, but these only highlight a few possibilities.

Resources

In order to get the most out of an OGRE, tracking resources should be a consideration. Not only would the ability to track resources be useful for officials, first responders, and other workers, but it would also allow members of the public to seek and offer various supplies or other assistance. An example of GIS used to track resources can be found in the India Disaster Resource Network (IDRN) which is an online inventory designed to support decision making by government administrators and emergency management officials. The inventory includes equipment and human resources, as well as details about NGOs and the private sector, including 5,000 corporate members and 33,000 builders, contractors, and construction companies (IDRN, n.d.). If this information was available as a layer in a GIS, it could help decision makers deliver aid effectively and in a timely manner.

Personnel

As with the CAD system developed by Intergraph, tracking the location of responders and other personnel can be important and this GIS layer could be useful for officials. Toronto is an example of a city that already has the capability to track personnel in this way. For emergency managers, this ability to quickly visualize and communicate the “big picture [which] defines the very essence of disaster response” is important (Drabek & McEntire, 2002, p. 215).

Hazards

Just as one can superimpose a layer of real-time weather information on a GIS, an OGRE could include a layer that shows real time threat from hazards, such as information about a hurricane or tornado tracked by remote sensors. Flooding, tsunamis, storm conditions, and other hazard information could also be incorporated. An OGRE with the layers described so far would allow officials to track the location of their resources and personnel, while also gathering input from the public and tracking hazards and their impacts. This all leads to another important potential layer on an OGRE system, which is evacuation routes.

Evacuation routes

As mentioned previously, current technology has the potential to give officials and the public real-time, dynamic information on the best evacuation route based on their exact location, current traffic, and infrastructure information. Many smartphones can recalculate a user’s route based on a wrong turn or automated traffic information, and it seems clear that using this same approach to get people out of danger would be useful. An OGRE could provide real time navigation assistance to both officials and the public, as mobile phones can enable rapid data collection and track real-time population movements (Alonso et al., 2014). Computer models can determine the most efficient evacuation routes for urban areas and could act as a starting point for navigation assistance (Chiu et al., 2008).

This discussion of the potential layers in an OGRE highlights only some information that could be managed by an OGRE system. The layers proposed here may be important parts of most OGRE systems, but there is no real limit on the number of layers or participants. Satellite, light detection and ranging information, radar, user photographs and videos, field reports, impact projections, and a wide range of other data could be included.

Warnings

An OGRE could be used to deliver warnings and target them based on user location. In addition to official warnings, unofficial warnings could play an important role. According to Parker and Handmer (1998, p. 45), “unofficial approaches to warning tend to be particularly well developed where there is no official activity; but, also, occasionally flourish in competition with government.” Thus, the potential for unofficial warnings distributed through an OGRE system, via a social network such as Twitter or more directly, should not be overlooked.

Additional considerations

Use of standards and appropriate computer setup are also important factors relevant to the development of an OGRE system. Incorporating data from a range of sources could be important and using industry standards could facilitate collaboration, increase ease of use, and promote the integration of new data. Fortunately, there is movement toward developing international GIS standards. The Open Geospatial Consortium is a collaboration of 441 companies, government agencies, universities, and individuals. R.K. Srivastava, the joint secretary of the Disaster Management Division of the Ministry of Home Affairs in India, supports this idea, saying that “there is a need to enhance the data sharing protocols and mechanism at the national and state level” (Srivastava, 2011, p. 11).

A central server or group of servers that is managed by emergency management officials would be needed to host the software and data, thereby acting as a platform. Reliability would be critical, so a network approach, use of backups, and secondary power sources should be considered. Traffic would likely peak during events, so the system may need to handle a large number of connections and high volume of data, including secure information. A browser-based system would likely be the most accessible, but applications developed for specific operating systems might be more efficient and effective. Many kinds of GIS software are already available, and some are already used for coordination and communication, so there are frameworks that could be developed in order to support an OGRE.

Conclusions

Implementation of an OGRE system would require careful planning due to the many factors coming into play, and it could be expensive to develop and maintain, with dependability being just one potential problem. While these factors do not preclude development of a GIS-based communications platform for coordinating emergency and disaster response, any such system with the high level of functionality discussed here may be feasible in only relatively wealthy areas with the required infrastructure, technological saturation, and funding.

Looking ahead, emergency and disaster researchers and practitioners can expand upon the basic guidelines laid out in this paper. The abilities of various agencies and organizations to utilize GIS in disaster response and data sharing have already “been transformed into a more dynamic, more transparent, and decentralized form with a wide participation” (Kawasaki et al., 2013, p. 201). Planning should take public participation in disaster response into account (Stalling & Quarantelli, 1985), and this response “will be more effective to the degree that emergency managers successfully overcome the problems that emergent groups sometimes create while also harnessing their potential contributions” (Drabek & McEntire, 2002, p. 214). Indeed, “Society must plan in advance for disasters and cannot afford to wait until the next one happens, as it inevitably will. Investment in infrastructure is an important part of preparedness, and the kind of infrastructure represented by geospatial data and tools is a very important part of that investment” (NRC, 2007, p. 146).

A GIS-based, officially-supported platform that promotes public participation and incorporates information sharing is possible, and many of the prerequisites are already in place. This kind of open system could improve coordination among those involved in disaster response, saving lives while creating a foundation for recovery. A National Academy of Sciences workshop concluded that revolutionary leadership is needed to overcome challenges to incorporating advanced technologies in disaster management, and this may happen over time as a new generation of workers enter the EM community (Madry, 2015; NRC, 2005).

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Impact of the Drug Regulatory Authority, Pakistan: An Evaluation

Hira Rashid
University of Delaware

Drug regulation has been identified as a crucial impediment to the progress of Pakistan's health sector, particularly in the wake of the 'Fake Drug Crisis' of 2012. In 2010, control of the Drug Regulatory Authority of Pakistan (DRA), shifted from the federal government to provincial governments. However, after two years, the Drug Act of 2012 re-established direct federal jurisdiction over the DRA. Since its formation, the media and the international community have criticized the DRA. However, to date there have been no official or academic performance evaluations of the DRA. This paper aims to add to the limited body of literature analyzing DRA's effectiveness in the following areas: regulating the pharmaceutical industry, encouraging its development and, managing the supply of therapeutic products in the country. This research supports that there are significant policy shortfalls in the DRA's operational functions, organizational and financial structure, that limits the impact of the organization and its constituent units in regulating the pharmaceutical industry in Pakistan. Finally, crucial policy recommendations are highlighted that focus on maximizing the efficacy of the DRA while taking into account the contextual political, social, and economic factors in which it operates.

Introduction

Since its formation in 1947, Pakistan has passed 12 pieces of legislation pertaining to the pharmaceutical industry regulations and drug delivery mechanisms of health service facilities. In 2010, control of the Drug Regulatory Authority of Pakistan (DRA), shifted from the federal government to provincial governments. The DRA has the responsibility of implementing policies and protocols laid out in the Drug Act of 1976. However, the Drug Act has many exploitable covenants and gaps that have emerged as a result of recent trends in technology, advertising, and WTO agreements. (Nishtar, 2012). Many provisions of the Drug Act of 1976 have been poorly executed in the past due to bureaucratic hurdles that emerged as a consequence of direct

Hira Rashid¹ is a Fulbright Scholar and a graduate student at the University of Delaware pursuing a Master of Arts degree in Urban Affairs and Public Policy. Her research interests are health equity, social determinants of health and public health delivery systems. She has worked in public health infrastructure development and community health projects. **Email:** hrashid@udel.edu

¹ Hira Rashid is an Associate Editor for *New Visions for Public Affairs*. Her identity was not disclosed to other members of the board as they considered whether to accept this piece for the peer-review process. Rashid recused herself from voting on this piece. The only board member aware of the author's identity as an Associate Editor prior to publication was the Editor-In-Chief.

federal control, unclear designation of responsibilities, and the absence of an accountability structure. One such piece of legislation remains in the pipeline, the Tibb-e-Unani, Ayurvedic, Homoeopathic, Herbal and other non-Allopathic Medicine Act, 2008. The Drug Act of 2012 reinforced the Drug Act of 1976 and broadened the scope of federal regulation. The DRA operates within a complex socio-economic, political, and cultural context. Rates of drug prescription and consumption in Pakistan are higher than the average rates in developing countries (Zaidi, Bigdeli, Aleem, & Rashidian, 2013). This culture of pharmaceutical use largely stems from patient's perception that they have received inadequate care if medication is not prescribed during a provider-patient encounter (Sudhinaraset, Ingram, Lofthouse, & Montagu, 2013). The public health system faces significant challenges in terms of the availability of essential drugs in pharmacies and drug stores (Zaidi et al., 2013). Due to production shortages and regulatory lags in licensing and distribution, only 15 percent of the demand for essential drugs in the public sector and 31 percent in the private sector is being met (Zaidi et al., 2013). Despite pricing regulations enforced by the DRA, proliferation of originator brands and wide price variability raise concerns about the affordability for consumers (Zaidi et al., 2013).

The purpose of this paper is to identify criteria for evaluating the DRA's effectiveness, to discuss the measures it has taken to fulfill its role, and to examine its impact on health service delivery. This paper also identifies the broader nexus of supply-side issues, reliability of health systems, government regulation, and access to medicines. The conclusion outlines policy recommendations to improve DRA's efficacy and expand its scope of service.

Political Background

The 18th Amendment, voted into Pakistan's constitution in 2010, dissolved the Federal Ministry of Health and its constituent units, including the DRA. The administrative and regulatory powers were delegated to the five provincial health departments. This decentralization initiative proved to be disastrous for Pakistan's health service delivery system because the provincial governments lacked the resources as well as the administrative infrastructure. Furthermore, the political turmoil surrounding the passage of the 18th Amendment prohibited the possibility of establishing an accountable and coordinated decentralized health system. Both the pharmaceutical industry and public health advocacy groups stressed the need for a federally administered drug regulatory body. The provincial governments, particularly Punjab, resisted federal regulation even after it became clear that a vacuum had been created in pharmaceutical regulation after the passage of the 18th amendment in 2010. This resulted in a two-year political scuffle between the two tiers of government, which precluded effective drug regulation at the national or the provincial level (Nishtar, 2013).

Amidst an outbreak of multiple communicable diseases such as dengue virus, malaria, measles, and polio in January 2012, 125 cardiac patients died at the Punjab Institute of Cardiology (PIC) in Lahore. This tragedy came to be known as the "Fake Drug Crisis". An investigation ordered by the Supreme Court traced the responsibility of this incident to three laboratories supplying medicines to PIC, who were found to have been operating with expired licenses. The medicines that caused the deaths were found to be spurious, which in this case meant that they contained traces of medication used to treat malaria. This incident focused national attention on the repercussions of the ineffective decentralized drug regulatory system that had been in place since 2010. In response, the President of Pakistan, Asif Ali Zardari, authorized the creation of a Federal Drug Regulatory Authority by signing the Drug Act of 2012 into law in November 2012. The DRA was established as an autonomous body under the administrative control of the Federal Government and includes an independent policy board (Senate Secretariat, 2012).

Legislative Groundwork

Under Part II of the Federal Legislative List, regulation of manufacturers of consumer goods and services falls under the purview of the Federation. Since the passage of the Drug Act 2012, several regulatory institutions are under the domain of the National Health Services, Regulations and Coordination Division (NHSRC). In 2011, one year after the abolition of the Federal Ministry of Health, Article 144 of the

constitution established the NHSRC as a Federal governance body to oversee the operations of the decentralized health system. The DRA serves an important function in this structure. The regulatory framework and revised responsibilities of the DRA were outlined in the Drug Act of 2012 and were published in two documents in January and November 2013 respectively: “Regulatory Framework on Health and OTC Products” and “Medicines and Health Products (Enlistment) Rules”. These documents detailed the scope of authority of the DRA, and came into effect immediately, thereby establishing the DRA’s judicial control over all domains of operation laid out in the Drug Act of 2012 which are discussed in the subsequent section of the paper.

Financial Structure

A wide network of monitoring and accountability frameworks will be required to fully assess the policy implications of the DRA’s revised responsibilities since the Drug Act of 2012. In order to institute these accountability frameworks, the DRA must focus on recruiting qualified personnel. It will also require a significantly larger allocation of funds, for which no efforts have been initiated to date. In fiscal year 2013, the DRA operated with only 500 employees, and an insufficient budget of USD 5 million. The sources of DRA’s funding are:

- Federal grant-in-aid in for salaries and retirement benefits of existing staff.
- Donations and endowments.
- Grants and loans provided by the Federal and Provincial Governments
- Grants and loans that the Federal and Provincial Governments receive from national and international agencies that are to be allocated to the DRA.
- Charges and fees collected by the DRA to recover the costs of regulation activities and services, including Inspection Services for local or imported pharmaceutical products, or sale of any publications produced by pharmaceutical companies.
- Proceeds from investments made by the DRA with prior approval of the board.
- Central Research Fund collected by the DRA from the pharmaceutical industry as a part of the licensing and operation costs (Senate Secretariat, 2012).

Because the Federal Government allocates funding only for existing employees, the DRA cannot carry out the workforce expansion that is so critical to its successful functioning. According to the Senate Secretariat, the DRA holds the authority to “create an organizational structure for employees and appoint employees, consultants and experts as deemed necessary on prescribed terms and conditions including their salaries and remunerations with consultation and approval of the (Policy) Board” (2012, p. 6). The NHSRC’s authority does not extend to the financial operations of the DRA because the DRA’s federal funding is directly allocated, rather than being channeled through the NHSRC. This combination of organizational autonomy, financial entitlement, and limited financial accountability to the Federal Government has created a situation in which the DRA’s current administrative members receive substantial remuneration, benefit packages, and are reluctant to expand (Senate Secretariat, 2012).

Organizational Structure and Functions

The DRA is comprised of four administrative boards: the Policy Board, the Central Licensing Board (CLB), the Registration Board (RB), and the Provincial Quality Control Board. These boards are responsible for implementing the policy guidelines laid out by the Drug Acts of 1976 and 2012. The DRA also includes 13 divisions that ensure adherence to the decisions of the respective boards. The CLB and RB are responsible for the licensing of new pharmaceutical manufacturing units and registration (or changes in labeling) of new therapeutic products, as well as the regulation of imports (quota setting), exports, advertisement, distribution, and market availability of therapeutic goods. Finally, they are responsible for ensuring adherence to the prescribed cautionary steps for scheduling and labeling of drugs in the Drug Act of 1976. Pricing of therapeutic products also falls under the purview of the RB, and these price regulations are enforced by the Board’s Cost and Pricing Division (Senate Secretariat, 2012).

The Appellate Board is a subset of the Policy Board which is responsible for responding to complaints against the CLB or RB, as well as to appeals submitted for further reconsideration in the event that an application by pharmaceutical manufacturer or distributor to the CLB and RB has been denied (Senate Secretariat, 2012). While quality control and supervision is conducted at the provincial level, DRA's Provincial Quality Control Board inspectors have the authority to inspect, seize, and submit for quality assessment, any product being manufactured or sold as a therapeutic product, and to inspect the manufacturing unit where such products are being produced (Senate Secretariat, 2012). The DRA also provides policy guidelines to provincial health departments and consults with provincial governments to ensure that performance standards are met and regulatory laws are enforced. It also conducts safety inspections of drug related research initiatives and drug manufacturing to ensure strict adherence to drug specifications and laboratory practices (Senate Secretariat, 2012).

The DRA is also responsible for capacity building measures such as awareness campaigns, health seminars, development and promotion of pharmacy services, safety guidelines, and training of technical staff. The Federal Government has also encouraged the DRA to push for the pharmaceutical industry's adherence to internationally recognized quality assurance guidelines in order to expand the market share of Pakistani pharmaceutical exports (Senate Secretariat, 2012). The DRA's policy-making mandate and regulatory prerogatives complement one another. Their mutually beneficial relationship is crucial to achieving greater uniformity in the pharmaceutical sector, as well as the broader outcome of improving Pakistan's health indicators (Nishtar, 2013).

Existing Conditions

Approximately two years after the DRA was established by the Drug Act of 2012, its impact on integrating the health delivery systems and the pharma-industry has been negligible. Nishtar states, "as it stands today, the DRA is no different from previous regulatory arrangements of the Ministry of Health" (2013, p. 62). Nishtar goes on to say that "Substandard and/or counterfeit medicines are burgeoning, as are incentive-intensive marketing practices, and inappropriate prescribing and dispensing" (2013, p. 62).

The Pharmaceutical Industry

Production

The pharmaceutical industry in Pakistan has rapidly developed since the country's independence in 1947. There are 411 registered manufacturing units and 30 multinational companies in the country that meet approximately 35 percent of domestic demand. Raw materials for local drug production are almost entirely imported (Zaidi et al., 2013). The total size of the pharmaceutical market stands at USD 2.2 billion and the export share of the pharmaceutical industry stands at USD 190 million (Rind, 2014).

In terms of drug development and registration, there are 1,100 – 1,200 registered molecules, and 50,000 registered drug products. Pakistan's Essential Drug List (EDL) currently comprises 335 medicines and this list of medicines is informed by reviewing the needs of 80 percent of public sector facilities (Zaidi et al., 2013). There are regulatory provisions with respect to pricing of therapeutic products targeted at manufacturers, wholesalers, and retailers (Zaidi & Nishtar, 2011). Flat price control on the sale of the majority of pharmaceutical products has prevented manufacturers from increasing the prices of over 40,000 drugs ("Senate Body Meeting", 2013). The issue of counterfeit and spurious drugs has also raised concerns internationally. In the wake of the 2012 Fake Drug Crisis, Sri Lanka banned pharmaceutical imports from Pakistan. Reports from pharmaceutical manufacturers of the European Union and US Trade Office have claimed that nearly 50 percent of the drugs being sold in Pakistan are spurious or counterfeit (Nishtar, 2006).

Quality assurance ideally must have two tiers of policy regulation: at the production level and at the provider level. The deficiency in quality assurance policy at the production level is evident from the fact that there are no drug manufacturing units that are internationally recognized or accredited. This condition also limits the export of domestically produced drugs (Nishtar, 2010). In addition, Nishtar (2010) notes that wide variation in the quality of registered production units indicates that legal provisions requiring manufacturers

to be licensed and to comply with Current Good Manufacturing Practices (CGMP) have been ineffective. It is pertinent to note that CGMP was adopted from manufacturing standards employed in the UK and USA (Zaidi et al., 2013). However, Pakistan lacks the technological capacity to ensure adherence to these practices, which has led to difficulties in implementing effective licensing practices.

In the vacuum created by scarce inspection and ambiguous standards of quality, pharmaceutical manufacturing entities attempt to avoid the costs of regulatory compliance by pressuring regulators to get their products registered, speed up approval processes, and get favorable prices or have their drugs included in the pharmacies of various hospitals and institutions (Nishtar, 2010). Although market surveillance conducted by the provincial departments of health involves sampling of drugs on the market, Nishtar (2010) points out there continues to be a high proportion of counterfeit drugs. This may be attributed to the presence of unqualified retailers serving as pharmacists, who are unable to recognize spurious drugs when purchasing them from suppliers (Butt, Gillani, Nanan, Shiekh & White, 2005). The DRA must mandate a multistage program to bridge the gap between the locally and internationally accepted quality assurance standards for therapeutic products.

Data and exclusive marketing rights are not protected by law in Pakistan, which has led to excessive registration of drugs without any regard for patent rights. According to one estimate, as many as 125 drugs with duplicated labels are currently registered (“Non-functioning of DRAP”, 2014). Multiple generic copies of patented drugs are in circulation in the market, despite the internationally well-recognized convention of releasing generic versions of drugs only after a drug’s patent expires (Zaidi et al., 2013). The agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) (1995) has allowed pharmaceutical companies the use of patents and protect intellectual property rights. However, the limited capacity and ambiguous quality standards of local pharmaceutical manufacturers have thwarted the implementation of TRIPS in Pakistan (“Non-functioning of DRAP”, 2014).

Provision

Private retail outlets are the predominant sources of drugs for both private and public sector patients. However, the existence of nearly 80,000 drug stores, one of the highest rates among developing countries, makes general regulation an insurmountable challenge. Most of these outlets are manned by untrained shopkeepers instead of qualified pharmacists. (Zaidi & Nishtar, 2011). Pharmacist availability is low across public and private sector, with only 0.06 pharmacists available per 10,000 people, far below the recommended ratio of 5 pharmacist per 10,000 people (Zaidi et al., 2013). While licensing and registering provisions for pharmacies and pharmacists exist, National Good Pharmacy Practice Guidelines published by the Pharmacy Council in 2011 have not been made public by the government (Jooma, 2011). In 2009, a Pharmacy Council was formed to develop and oversee standards of conduct for pharmacists and allied staff, standards of accreditation for pharmacists, to maintain registers of qualified pharmacists and pharmacy technicians, and to coordinate continuing training programs (Pharmacy Council Act, 2009). However, the Pharmacy Council’s authority is limited to the relatively few licensed pharmacists in the country. The Council has no jurisdiction over the vast number of unregistered pharmaceutical stores and untrained and unlicensed sellers of pharmaceuticals (Jooma, 2010).

Another serious breach of operating procedures occurs in the domain of public sector drug facilities. A survey of public sector facilities found that the manual for procedures was available in only five percent of these facilities, refrigerators were working in 60 percent and temperature control was present in 24 percent (Hafeez, Kiani, Din & Muhammad, 2004). Supply management in the private health sector is also substandard. According to Hafeez et al. (2004), only 50 percent of private facilities comply with the national EDL and only 19 percent of drug retail outlets meet licensing requirements. Likewise, drug dispensing does not adhere to standard safety measures, while delays in dispensing drugs prevent patients from properly following medical instructions. Drug dispensing at community pharmacies is also problematic because there is very little restriction on over-the-counter medicine purchases by patients (Hafeez et al., 2004).

At the moment, there are 130,000 traditional practitioners in the country that do not fall under the purview of the Drug Act of 2012 (Nishtar, 2013). Similarly, due to weak regulation, only four percent of pharmaceutical product sales are reported to come from trained pharmacists (Sharif & Anis, 2012). Eighty-eight percent of medications are prescribed by their brand names, indicating that pharmaceutical companies are influencing prescription practices by providing incentives to physicians (Zaidi & Nishtar, 2011). An evident distribution chain malpractice is the collusion between pharmaceutical industry representatives and health providers to promote the use of particular medicines, products, and technologies without regard for cost, quality or appropriateness of use (Nishtar, 2010).

Pakistan Medical and Dental Council (PMDC), which operates under the NHSRC has passed an ordinance on the relationship between the pharmaceutical industry and registered doctors and dentists, however the parameters of this regulation are vague at best. It stipulates that pharmaceutical companies may give gifts, inducements, or promotional aids to registered practitioners, provided these transfers do not compromise professional integrity (PMDC, 2011). In response to the wide exploitation of this ill-defined provision, the Awareness and Prevention Division of the National Accountability Bureau tasked the DRA in April 2014 with instructing all pharmaceutical companies to share on their websites information on marketing expenditures and incentives given to doctors (“Drug regulator’s initiative”, 2014). So far, three pharmaceutical companies have been instructed by the DRA to share this information (“Drug regulator’s initiative”, 2014). It is pertinent to note that DRA was instructed by the State Minister for NHSRC, Saira Afzal Tarar, to upload information regarding pharmaceutical companies on the DRA website in February 2014, but so far the DRA’s only action in this regard was to send letters to three pharmaceutical companies (“Drug regulator’s initiative”, 2014).

Weak advertising regulations for pharmaceutical products have also promoted irrational drug use in Pakistan (Vakani, Naqvi & Amin, 2011). A sample study of the pharmaceutical advertisements in Karachi found that a considerable portion of the advertisements issued by the pharmaceutical companies are poorly organized and contain what Vakani et al. describe as “irrelevant and misleading claims” (2011, p. 168). In particular, “the term ‘safety’ was used frequently without supporting scientific evidence. Essential information was missing, inaccurate, or illegible due to being printed in small, difficult-to-read fonts” (Vakani et al., 2011, p.168). Furthermore, price information was left out in most of the advertisements (Vakani et al., 2011). These practices are in violation of the advertisement guidelines laid out in the Drug Act of 1976, the enforcement of which falls under the purview of the DRA (Drug Act, 1976). Vakani et al. (2011) state that physicians in Pakistan view drug advertisements as a means to keep up to date on new products, and therefore these advertisements have a strong influence on prescribing behavior. MNC’s are reported to be more stringent in following the codes of advertisements as compared to local manufacturers, possibly because of the stricter checks on adherence to company laws (Vakani et al., 2011).

Access

Despite pricing measures, drug affordability continues to present problems, mainly due to proliferation of originator brands and wide price variability. The amount spent on drugs in the public sector is below the critical threshold of \$2 per capita per year recommended by the WHO to avoid medicines shortages (Zaidi et al., 2013). The shortage of price controlled essential drugs for generic conditions leads to a shift from the public sector towards informal providers, which increases the risk of exposure to counterfeit drugs. Additionally, the price ratio of branded products to international reference price ranges between 0.72 and 26.2, showing excessive price variability (Zaidi et al., 2013). According to Zaidi et al. (2013), the cost of managing chronic conditions in Pakistan is almost 7 times as prescribed by the WHO’s Affordability Index (which has a threshold of one day’s income for lowest paid government worker for one month’s standard treatment of chronic illness or for one episode of acute illness). This shortcoming in price regulation leads to the bulk of the health care costs being borne by households, for whom medicines account for a substantial 43 percent of total household health expenditure (Zaidi et al., 2013).

Irrational drug use is also a widely prevalent issue that drives up costs, and makes access to medicines more difficult (Zaidi et al., 2013). Zaidi et al (2013) find that the average number of drugs prescribed per patient in Pakistan is over 3, compared to an average of 2–3 in Low and Middle Income Countries. The prescription rate is even higher in the private sector in Pakistan, at 4.5 prescriptions, compared to 2.77 in the public sector (Zaidi et al., 2013). They also note that 60 percent of patient encounters involve an injection and high rates of antibiotics use continues to lead to antibiotics resistance in the long term and preventable side effects (Zaidi et al., 2013). As noted earlier, interaction between health care providers and the pharmaceutical industry is not restricted and visits by pharmaceutical sales representatives to health care providers are linked with increased prescription of the sponsored medications (Zaidi et al., 2013).

Impact of the Drug Regulatory Authority

After its inception in June 2012, the DRA levied numerous excessive taxes and fees for provision of services during its first meeting (Junaidi, 2013). Junaidi (2013) states that in the initial phase of processing long-pending drug registration applications, manufacturing license applications and contract extensions, the DRA accrued as much as USD 4 million in 2 months. The pharmaceutical industry has expressed outrage over this spike in manufacturing costs, as it is already operating within the confines of high production costs, inflation, and a 12-year moratorium on prices of 40,000 drugs (Khan, 2013). Pakistan Pharmaceutical Manufacturers Association (PPMA) has also criticized the DRA for incompetence and for driving numerous MNCs out of the country (Khan, 2013).

Since 2012, the DRA registered 3,295 drugs in the short span of one year (January 2014) and approved 29 new drug manufacturing licenses and 61 new drug manufacturing investments (Achakzai, 2014). On the other hand, a recent report shows that 125 drug labels registered in the country have been registered twice for separate medications (“Non-functioning of DRAP”, 2014). The DRA has advocated for eliminating pharmaceutical companies that are noncompliant with the practices standards set by the Drug Act 1976, and has withdrawn manufacturing contracts for 198 pharmaceutical products (Achakzai, 2014). The DRA also restricted the outsourcing of drug manufacturing to third party firms and denied big pharmaceutical companies the required licenses to continue production (Achakzai, 2014). This hasty process of registration, contract-cancelling, and duplication raises questions about the integrity and functions of the DRA.

The DRA has been operating with a total of 225 drug inspectors for over 80,000 dispensing units across the country (Zaidi & Nishtar, 2011). Analyzing these figures with regards to access, quality and market share, the measures taken by the DRA have had no impact outside of generating more profits for pharmaceutical companies by registering more drugs (Amin, 2011). The DRA’s failure to regulate price setting by has also diminished the market share and profits of foreign companies. Eleven foreign pharmaceutical companies have closed their operations in Pakistan due to poor law and order, the energy crisis, and the high cost of doing business (Amin, 2011). At the same time, the manufacturing of about forty essential drugs has been stopped due to Rupee devaluation, inflation, and escalated expenses, which reflects on the unfavorable political and economic climate of Pakistan (“Essential drugs not being produced”, 2013).

The task of revising the EDL, previously under the federally administrated Ministry of Health, now rests with the DRA. Since provincial health departments must comply with the EDL in procuring drugs, they must report issues of drug availability to the DRA. The RB within the DRA must then issue ‘show cause’ notifications to the licensed manufacturer for its lag in production and failure to meet market demands. Although noncompliance regarding availability of registered drugs in the market is a punishable offence (u/s 4 of section 27 of Drug Act, 1976), the RB has never exercised the option of prosecution in Drug Court on contravention of this condition of registration.

One year after inception, the DRA had inadequate service, financial or operational capacities, which bring into question the legitimacy of its activities during this time. In response to increasing demand by the pharmaceutical sector to raise prices of essential medicines (previously on a 12-year moratorium) by at least 15 percent, the DRA issued a notification on November 27, 2013 raising the cost of all essential medications,

except lifesaving drugs (Junaidi, 2014). On November 28, Prime Minister Sharif instructed the DRA to withdraw the notice. Despite this, in April 2014, it was brought to the attention of the Federal Government that the DRA had allowed drug prices to go up by 30 percent during the past five months, suggesting that DRA officials had colluded with pharmaceutical companies to enable this price hike (Junaidi, 2014).

The DRA has emphasized increasing the pharmaceutical industry's manufacturing capacity to meet the export target of \$1 billion by the end of fiscal year 2015-16, an increase from the current export of \$200 million ("Pharma industry", 2013). However, the DRA has provided little to no support in matching the efforts of the pharmaceutical companies ("Pharma industry", 2013). Furthermore, the DRA's own lack of coordination and capacity has led to active protests by the pharmaceutical giants ("Pharma industry", 2013). According to a recent report, DRA regulations have brought about a significant decline in the growth of the country's pharmaceutical exports: 17 percent during 2012-2013 compared to 35 percent growth in the preceding year ("Essential drugs not being produced", 2013).

Structural Deficiencies of the Drug Regulatory Authority

The Pharmaceutical Industry Expo Center

The major public health challenge facing Pakistan, now delegated as the responsibility of the DRA, is to ensure the safety, quality, and affordability of medicines. However, the DRA has thus far focused primarily on promoting the export potential of the pharmaceutical industry. These activities have been counterproductive to the DRA's main responsibility of regulating the pharmaceutical industry. Increasing export revenue should not be a function of the DRA, as evidenced in how this role affects similar regulatory bodies worldwide (Nishtar, 2013).

Composition of the Governing Board

The DRA's four constituent boards are lopsided in terms of representativeness and conflicts of interest. In particular, the Policy Board is comprised of representatives from key ministries, the provinces and experts from the public and private sectors (Senate Secretariat, 2012). The autonomous function of the DRA in the Drug Act of 2010 is significantly undermined by the presence of government-appointed bureaucrats on the Board. A clear conflict of interest exists as other Policy Board members have been drawn from the pharmaceutical industry, with two seats held by public health specialists (Senate Secretariat, 2012). Therefore, the DRA's ability to fulfill its intended role in a highly politicized system continues to be a challenge.

Funding of DRA

The two major issues concerning DRA's funding are:

1. Lack of a sustainable funding source: The DRA is primarily financed by the Federal Government. A clear indication of the DRA's underfunded state is that it has operated with a mere 225 drug inspectors in the past two years. Despite severe regulatory shortcomings, only 52 new appointments have been made, none of which have been finalized.
2. Absence of accountability to the NHSRC (Federal Government): The DRA is only accountable to its own board members for allocation of funds. This limited accountability has disincentivized the DRA to take necessary steps to regulate the pharmaceutical industry at the national level.

Uncertain Dynamics

In May 2013, the NHSRC issued a notification to remove the controversial Senior Joint Secretary Arshad Farooq Fahim (Acting CEO of the DRA) in the wake of a drug pricing scam. The National Accountability Bureau (NAB) charged the former CEO with raising the prices of drugs to benefit a few select drugs manufacturers ("DRAP CEO Sacked", 2013). This incident has led to a severe dip in national confidence in the DRA. It is also one of the most significant reasons for the departure of numerous multinational pharmaceutical companies from Pakistan in late 2013 ("Non-functioning of DRAP", 2014). Compounding the unstable regulatory mechanism of the DRA is the fact that the organization has never had a permanent

CEO. The post has been temporarily occupied by acting CEO's with inadequate credentials and limited authority to formulate and enforce legislation. The DRA has acted in contradiction with its own constitution by undertaking numerous actions that in principal could not have been initiated under an acting CEO. Most significantly, it has violated the rule that an acting CEO will not occupy this post for over three months (Senate Secretariat, 2012).

Limited Authority

The Drug Act of 2012 gives the DRA more regulatory powers than any drug regulation system in the past. This brief has argued that the DRA's major shortcomings lie with the implementation of existing policy. However, there are certain deficiencies in policy that enhance this policy-practice gap.

1. Federal government employees that have been found to be involved in rampant corruption in drug regulation do not fall under the jurisdiction of the Anti-Corruption Establishment (ACE); "the substandard interferon vaccine case is one example whereby many senior officials were arrested by the provincial units of ACE but could not be convicted" ("Substandard medicines", 2013, p. 1).
2. Healthcare providers such as hospitals and clinics do not have qualified pharmacists capable of identifying fake or spurious drugs. Staff members who act in these capacities also play a role as middlemen, putting new price tags on medicines before selling them, thereby undermining the authority of the DRA. These practices make it difficult to identify the parties responsible for unregulated price increases (Wasif, 2013).
3. Many NHSRC officials argue that the inadequate sentencing practices for offenders involved in the manufacture and sale of spurious or counterfeit medicines do nothing to disincentivize the growth of the black market. The average sentence for an individual convicted in such a case is three to eleven years (Maqbool, 2014; "Dangerous Medication", 2014). The manufacturer of the medicines responsible for the deaths of 125 cardiac patients was held liable for only USD 5,000 per patient ("Contaminated Medicine", 2013).
4. Raids to seize counterfeit or spurious drugs and manufacturing-related items are under the purview of the Federal Investigation Authority (FIA). A raid however, cannot be conducted without the area drug inspector accompanying FIA's team. Subsequent bureaucratic hurdles in the prosecution process, such as gaining permission from the Quality Control Board, take up valuable time and resources (Kharal, 2014).

Conclusion

Drug regulation in Pakistan has been hindered by a persistent policy void between the health sector and the pharmaceutical industry. This disconnect creates shortages in therapeutic products and access to adequate health care services. Healthcare seekers are forced to turn to informal health services where care providers are usually unlicensed, quality of care is frequently substandard and inconsistent, and the volume, quality and authenticity of drugs prescribed and/or sold are unregulated. In the absence of regulatory structures and sufficient resources, the Drug Act of 2012 has failed to significantly impact any aspect of the health sector. It has led to the creation of largely ineffective institutions for regulating the pharmaceutical industry and bridging the gap between production and demand of drugs. These institutions are not regulated and lack accountability mechanisms. Policy interventions must therefore aim at streamlining the process of production and procurement of essential drugs to eliminate drug shortages, and address the issue of cost escalation to ensure access to formal medical treatment options. On the demand side, the DRA must initiate awareness

² In 2009, a severe form of drug-resistant Hepatitis-C virus spread in various parts of Pakistan due to the use of substandard Chinese biomedicine being used in government -run programs. The drugs, procured by the federal and provincial governments under the Prime Minister's and Chief Ministers' Program for Hepatitis Control, led to the discovery of deep rooted corruption in these programs. In the aftermath of the hepatitis surge in 2009, legal action against the officials involved was taken by the supreme court of Pakistan (Naurukh, 2009).

campaigns to enable consumers to make informed decisions regarding health seeking behavior. While an extensive policy reform is needed to address the declining health status of Pakistan, this paper captures the role of health financing, human resource planning, service delivery and governance structures in regulating the pharmaceutical industry of the country. Future research should analyze policy options to address the institutional deficiencies of the DRA, recommend best pharmaceutical practices within the Pakistani context, and explore opportunities for greater integration of the pharmaceutical industry into the health delivery system of the country.

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Fundraising Challenges for Land Trust Organizations: A National Survey

Meredith Barnes
Shannon K. Orr
Tara Schuler
Tao Tang
Sarah Tekle
Christopher Van Newhouse
Bowling Green State University

The ongoing challenges associated with the economic downturn in the United States are significant for nonprofit organizations facing declines in government grants and foundation support, as well as challenges in attracting and retaining individual donors. Fundraising may mean the difference between fulfilling a mission and closing operations. The purpose of this study is to identify best practices for fundraising and donor recruitment/retention based on a national web survey of land trust organizations in the United States.

This research has implications for other small nonprofit organizations without professional fundraising staff that are looking to expand or improve their fundraising practices since the global economic downturn. This research not only contributes to the academic literature on nonprofit management in difficult economic times and fundraising/donor best practices, but will also be of use to land trust practitioners looking to improve their current practices.

Introduction

In an increasingly competitive economic climate, nonprofit organizations often struggle financially. In 2008, at the beginning of the economic recession charitable giving fell by almost 6% compared to the previous year (Wasley 2009). The challenges facing many small nonprofit organizations in such an environment can be significant; and insufficient experience, lack of time, low public interest, and an economically depressed region compound the difficulties (Turbide and Lurin, 2014; Medina-Borja and Triantis 2014).

With a decline in government grants and foundation support, fundraising—in particular attracting and retaining donors—may mean the difference between fulfilling a mission and closing operations. The purpose of this study is to identify best practices for fundraising and donor recruitment/retention based on a national survey of land trust conservation organizations in the United States. Land trust organizations are nonprofits organizations committed to conserving land by undertaking or supporting the acquisition of land or conservation easements. This research has implications for all nonprofit organizations that are looking to expand or improve their fundraising practices since the global economic downturn. Land trust organizations must compete not only with each other for an increasingly smaller share of potential supporters, but also with other nonprofit organizations; pitching conservation against the arts against social issues. This research not only contributes to the academic literature on land trust organizations, nonprofit management in difficult

economic times and fundraising/donor best practices, but will also be of use to land trust professionals looking to improve their current practices.

Fundraising

For most nonprofit organizations, fundraising is an important part of their mission and daily operations. Fundraising in the United States is now a multi-billion-dollar industry - in 2012 an estimated \$316 billion was given to nonprofits by individuals, corporations, and foundations (Blum and Hall, 2013). Individuals are the largest source of philanthropic giving. In 2013, individuals, as the largest source of philanthropic giving, accounted for 80% while foundations accounted for just 15%, and corporations for only 6% (Blum and Hall, 2013).

One of the major challenges for nonprofit organizations is that they must be constantly engaged in the practice of fundraising in order to be successful. Fundraising is an investment in an organization's future that requires long-term planning, personnel, and resources to succeed (Bray, 2008). Whether it is planning events, nurturing relationships with donors, seeking out and writing grant applications, or creating a social media campaign, for most nonprofit organizations fundraising needs to be at the forefront of operations and planning. Too many organizations believe that having a compelling mission and purpose is sufficient to attract funding dollars, but the literature does not support that belief; an active fundraising program is imperative to actually receive funds (Higgins and Lauzon, 2003; Orr and Weiss 2012).

According to Brooks (2006), "a nonprofit's "mission service" (e.g., feeding homeless people) is inherently a loss-making endeavor, the organization must divide its energies and resources between activities (such as selling a more profitable service or fundraising) that raise net revenues and core services that lower them" (p. 306). This raises the question, how does an organization balance the need to raise revenue—a time intensive undertaking—with the demand for its valuable services, also time intensive. Unfortunately, many nonprofit organizations, particularly those with limited or no full-time staff, focus almost exclusively on program/service delivery thereby compromising their long-term sustainability as an organization (Bielefeld, 1994; Burk, 2004). As a result of the financial downturn, there is heightened competition for grants and donors, and nonprofit organizations are using up important cash reserves (Hoefler, 2012).

While the evidence for the need for fundraising is compelling, many nonprofit organizations struggle with this essential task. In fact, a 2010 study of nonprofit organizations found that 25% of nonprofit organizations that were surveyed did not anticipate breaking even financially (Nonprofit Finance Fund, 2010). Respondents to the survey of land trust organizations presented in this research identified many reasons for failing to adequately fundraise including lack of time, too many failures in the past, staffing constraints, concerns about losing sight of the mission, and most importantly, insufficient knowledge. This research is an effort to identify best practices for small nonprofit organizations in the current economy to help overcome these challenges.

Land Trust Organizations

According to the Land Trust Alliance, the national association of land trust organizations, there were 1723 land trusts in the United States (national, state and local as of 2010) with more than 100,000 volunteers and 5 million members, conserving 47 million acres of land in the United States (Land Trust Alliance, 2014). Working with landowners and the community, land trusts may accept donations of land, purchase land directly, or negotiate private/voluntary conservation.

A conservation easement is a legal agreement negotiated between a landowner and a nonprofit or government agency that permanently restricts use of the land. Conservation easements are a valuable mechanism to protect public values in land, such as aesthetics, recreation, wildlife habitat, open spaces, water, or the future productive capacity of the land. A landowner who participates in a conservation easement with a land trust relinquishes certain rights to the land, as specified in the contract. The landowner may give up the right to build on the land for example, but still retain the right to grow crops. Easements are developed to respect the rights of the landowner, while ensuring conservation goals are met. These agreements are not tied to the

landowner, but to the land itself, so conservation easements also apply to future owners of the land (Sundberg 2006).

Land trust organizations are dependent on donations, grants and general fundraising to support their operation costs, as well as the cost of acquiring land and overseeing easements. Many land trust organizations are operated solely by volunteers, making day-to-day operations a particular challenge (Moore and McKee, 2012; Sundberg 2006). The challenges facing land trust organizations are not unique to their field, they are shared by many small nonprofits across the United States.

Methodology

This research is based on both quantitative and qualitative data collection tools, but is rooted in a quantitative epistemological position. The entire population of nonprofit land trust organizations in the United States (1,113) were identified through the Land Trust Alliance website (Land Trust Alliance, 2014), and contact emails were sourced from that website or through Google searches. Organizations were contacted via email with a link to the survey, which was developed in Qualtrics. The survey included a mix of both close-ended and open-ended questions. A series of demographic questions (e.g. budget, size, staff numbers) were also asked in order to get a better sense of the makeup of the organizations that were responding. The questions were developed in consultation with a local land trust organization to ensure that questions were appropriate given their scope of work, and to ensure that all terminology was correct. The final response rate of the survey was 14.02%, based on 145 responses out of the 1,034 invitations successfully sent (79 invitations bounced back as undeliverable). The response rate was predicted to be a challenge given the fact that so many of the land trust organizations rely on volunteer staff and do not check their email on a regular basis. The survey invitation was sent three times over a period of three weeks to encourage responses. Those who were interested could request a copy of the final results.

The demographic background of the survey respondents highlights the challenges facing these nonprofit organizations. Many organizations reported having no or few paid staff: 37% of the organizations do not have any full-time paid employees at all, and 75% of the rest of the organizations have five or less full-time paid employees. 41.5% of organizations have twenty or less volunteers or unpaid staff in their organizations. In terms of volunteers, 11.1% have one hundred or more volunteers or unpaid staff that work with them, although most of these are on an infrequent basis. With respect to budgets, most of the organizations are quite limited, 39.4% of organizations have an annual budget of \$10,000 or less, and 48.5% of organizations have an annual budget of \$100,000 or less. Only 8.4% of the organizations indicated an annual budget of greater than one million dollars. In terms of land, the vast majority of organizations (71.8%) have 10,000 acres of land or less under their responsibility, while only 17.6% of organizations indicated total easement acre more than 10,000 acres.

Fundraising Practices

Overview

The results of the survey paint an interesting picture of nonprofit organizations struggling to formalize their fundraising. Of the respondents, most relied on the Board of Directors (29%) or the Executive Director (24%) to do their fundraising. Fifteen percent of organizations relied on staff that had other duties, and 13% used volunteers/interns. Only 7% reported having full-time development staff, and 5% indicated part-time development staff. Surprisingly, only 3% used external fundraising consultants. Indicative of the need for fundraising, just 1% indicated that they did not need to fundraise at all. Ninety-one percent of the respondents indicated that fundraising was important to their organization; yet clearly successful fundraising is a challenge.

When asked in an open-ended question about the biggest fundraising challenges for the organization, the most overwhelming response was lack of staff time to get it done, as well as the lack of ideas and knowledge of how to fundraise. Many also indicated that the economy was an issue, particularly given the

competing demands from other organizations. Many organizations specifically cited the challenge of recruiting new donors and members, while retaining donors seemed to be less of an issue. Interestingly, many indicated that they had significant challenges getting board members to support the organization financially, or to take the lead in fundraising and promoting the organization. It was clear from these responses that while some organizations are highly professional and excel at fundraising to meet their needs or goals, many more organizations are struggling with a lack of time, resources and ideas.

When asked whether or not the respondents met their fundraising goals last year, 35% met their fundraising goals, 27% indicated they exceeded their fundraising goals, 17% did not have fundraising goals but do fundraise and 16% did not meet their goals (5% did not respond). When asked if respondents were satisfied with their fundraising last year, 24% indicated some level of dissatisfaction, 23% were neutral and 52% indicated some level of satisfaction, which includes those who do not need to fundraise. Organizations were asked which sources of funding were most important to them (respondents could select multiple responses). Ranking in order based on the sources selected as "very important," organizations indicated the following:

- Donor Retention (60%)
- Individual memberships at all donor levels (54%)
- Medium individual donors (\$251-\$1000) (39%)
- Board giving (37%)
- Small individual donors (\$51-250) (34%)
- Government grants (31%)
- Micro individual donors (less than \$50 per year) (30%)
- Foundation Support (26%)
- Fundraising events (22%)
- Endowments (20%)
- Landowners (19%)
- Corporate donors (14%)
- Planned giving (10%)
- Fee for service (9%)
- Non-cash gifts (8%)
- Employee giving (3%)
- Merchandise Sales (0%)
- Land levy (0%)

This suggests that individual donations are the most important source of funding for these organizations. One of the challenges of relying on individual donations is that they are time intensive to identify, recruit, and retain, and can be unreliable in times of economic downturn or shifting public priorities. More corporate-based fundraising initiatives such as fee for service or merchandise sales were very low on the list. When asked which general fundraising efforts were most effective, the following options were highlighted as being "very effective" (respondents could choose more than one response):

- Writing grant/foundation proposals (29%)
- Major gifts (28%)
- Face-to-Face solicitation (24%)
- Special events (22%)
- Direct Mail (17%)
- Accepting credit card/pay pal donations via the website (13%)
- Planned legacy giving (7%)
- Partnering with other nonprofit organizations (4%)
- Gifts in kind (4%)
- Automatic payments (3%)
- Social media (1%)
- Telemarketing (1%)
- Media advertisements (1%)
- Donor boxes (spare change collection jars) 0%
- Sale of goods (0%)

When asked for other effective fundraising methods, the organizations suggested an interesting range of ideas, which could be adapted by many other organizations. Many indicated that building an active Board of Trustees and requesting that the organization be in their top three donations was highly effective, as well as asking board members to reach out to their own networks by sending personal appeals. Many cited the

importance of a personal touch, for example having Directors write personal notes on annual appeal letters, and thanking donors personally by phone/email or note for their donations. Many also indicated that they had not thought strategically about fundraising, but have come to realize that this is important for the long-term sustainability of their organization. These ideas and others will be discussed in greater detail below.

Attracting New Donors

Respondents to the survey were asked to identify how to attract new donors, and those responses were identified as follows:

- Board referrals (17%)
- Member referrals (15%)
- Public speaking opportunities (14%)
- Direct mail (10%)
- Volunteer events (10%)
- Free public events (9%)
- Landowner referrals (8%)
- Tabling at events (7%)
- Newspaper/Magazine advertising (3%)
- Radio advertising (1%)
- Facebook ads (1%)

Table 1 highlights the best practices identified for attracting new donors based on type of donor (size of donation) and broad general categories. Donor categories include micro/small donors (less than \$250 per year), medium donors (\$251-\$1000), and finally major donors (\$1001 or more). Solicitations indicate methods that do not have direct person-to-person interactions but are more impersonal such as newsletters, both digital and direct mailing, and social media sites like Facebook. Attracting interest is marketing the organization by drawing attention to the organization or cause through initiatives such as open invitations to visit the lands, media interviews, and publicizing the benefits and/or accomplishments of the organization. Personal interactions indicate fundraising methods that involve person-to-person interaction such as personal calls and thank you letters, setting up tables at public events and giving public presentations. Incentives are any form of reward or benefit for donating to the organization such as tote bags or t-shirts, membership to the organization, or other form of recognition (such as on a plaque or the donor's name in the newspaper). Friend referrals are word of mouth recruitment of donors from supporters of the organization, and outside refers to external agents including fundraising contractors.

Table 1: Best Practices for Attracting New Donors

	Micro/Small (Less than \$250)	Medium (\$251-1000)	Major (\$1000+)
Solicitation	36%	19%	5%
Attract interest	34%	25%	12%
Personal Interaction	12%	38%	49%
Incentives	6%	4%	6%
Friend Referral	2%	2%	4%
Outside	1%	1%	6%

N=145; Values rounded to nearest whole number

One of the most striking observations about Table 1 is that it highlights how different the best practices are depending on the type of donor. For example, to attract micro/small donors, solicitations and attracting interest were identified as the most effective. Personal interactions, however, were identified as far more important for medium level donors, and even more so for major donors. What this suggests is that organizations need to not only develop a fundraising plan, they must also think carefully about the type of donor they are trying to attract, and plan accordingly. As the size of the donation increases, the level of

personal interaction and attention goes up accordingly. Table 2 highlights more specific ideas provided by respondents for attracting donors at all levels.

Table 2: Attracting Donors

Micro/Small Donors	Medium Donors	Major Donors
<ul style="list-style-type: none"> ● Special events that match the mission ● Creating volunteer opportunities to engage those with shared interests ● Small incentives (e.g. tote bags or reduced program fee) ● Database of leads ● Membership program to create identity for donors ● Website with valuable services not just information about the organization ● Annual newsletter ● Buying conservation donor list ● Public name recognition (e.g. website, newspaper ad, outdoor plaque) ● Always have donor forms available at every event and online ● Participate in community events such as fairs and farmer’s markets ● Tell different stories about the organization to forge connections with people with different interests 	<ul style="list-style-type: none"> ● Annual mailing ● Hosting events ● Face-to-face visits ● Establishing business connections in the community such as joining community organizations ● Direct mail ● Demonstrating progress and achievements of the organization ● Using board members to make connections ● Asking for referrals from other donors ● Large scale events ● Developing a publicity campaign to ensure high profile coverage of the organization and its successes ● Asking micro/small donors to upgrade their donation ● Providing special events just for donors ● Using a county property owners list to identify those with high property values 	<ul style="list-style-type: none"> ● Invite potential donors to lunch ● Connect donors with the board and executive ● Highlight successes of the organization and ability to successfully meet goals ● Publicize a long term vision for the organization ● Emphasize the importance of the organization to the community ● Create a planned giving campaign

Retaining Donors

Retaining donors is important to an organization’s efficiency. It takes less effort to retain the same donors and develop long-term relationships, compared to searching for potential donors, and getting them to commit to a donation or other form of support. The most effective strategies for retaining donors were identified as follows (respondents could choose more than one response):

- | | |
|--|--|
| <ul style="list-style-type: none"> ● Thank you card sent in the mail (23%) ● Email newsletter/magazine (18%) ● Renewal reminder via mail (15%) ● Thank you phone calls (10%) ● Donor only events (6%) ● Thank you gifts (e.g. water bottle) (4%) | <ul style="list-style-type: none"> ● Public recognition of the donation (4%) ● Renewal reminder via email (4%) ● Automatic payments (3%) ● Social media (3%) ● Discounted or free event tickets (2%) ● Renewal reminder via telephone (2%) |
|--|--|

What is clear from these responses is that retaining donors requires personal outreach and communication. Donors want to feel appreciated and are trying to establish a connection with the organization, and that connection needs to be reciprocated. Donors are highly discriminating and selective; they want to get a sense

that their donation is meaningful and will have an impact on both the organization and the mission. It is up to the organization to convince them of that achievement. Table 3 highlights some of the specific ideas that non-profit organizations shared to successfully retain donors.

Table 3: Retaining Donors

<ul style="list-style-type: none">● Thank donors immediately after their donation● Remind them of their donation periodically throughout the year● Ask them to renew their donation● Personalize correspondence● Make donors feel special● Keep them informed of organizational successes● Have new projects or events on the horizon to keep donors interested● Maintain an accurate database of donors so it is easy to stay in contact● Provide plenty of opportunities for donors to be involved in the organization● Make donations/renewals easy● Share impact stories about how donations have helped to make a difference● Use social media to keep people informed and engaged with the organization● Have a media/publicity plan to ensure that the organization has a high profile

Best Practices Recommendations

Attracting Donors

Based on the responses and recommendations of the land trust organizations that participated in the study, it is clear that successful fundraising is a time intensive initiative that requires consistent effort to maintain. The first step is setting goals based on how much money is needed and a timeline to achieve those goals. The next step is to establish a plan of action. The organization should focus on either micro/small donors, medium donors, major donors or a combination. Next it is important to identify the target audience based on who has money to give and would be likely to have an interest in the organization, and how best to reach them. A number of respondents stressed the importance of collecting a database of all of those who express an interest in the organization whether it is through phone calls, website visits or stopping by a table at a public event. That database of people can then be contacted with a personal letter for a donation or invited to future fundraising events.

Many organizations who self-identified as being successful at fundraising also emphasized the importance of marketing and publicity. Websites, social media, newsletters and press releases should be focused on highlighting the successes of the organization in an engaging way. For land trust organizations, talking about the number of acres conserved is not engaging, but sharing stories about the landowners and their commitment to conservation is much more likely to get people interested in donating. Every organization should have a compelling story that engages people in the work that is being done, and that story should be shared widely. Potential donors should feel that their support is meaningful and foster a sense of goodwill. Organizations must provide that narrative to the donors.

Similarly, respondents also mentioned tapping into the network of supporters to create a ripple effect of support. Asking board members to solicit donations from ten people, or requesting volunteers to invite three people to a special event are ways to share the story of the organization and identify those who may have a shared interest.

Major events such as concerts and races can be successful ways to raise money, but they also require a lot of work and have their own associated expense. If there is a disconnect between the major event (e.g. a 5K urban street race) and the mission of the organization (e.g. land conservation) it is unlikely that those participants will be interested in joining the organization as a supportive member on an annual basis which is a missed opportunity. Events that keep with the mission are a more effective way to build a database of

potential donors with a shared interest, for example nature hikes or creek clean ups to identify those with an interest in land conservation.

A special event is one of the most widely used fundraising tools for nonprofit organizations. While a successful special event can be a major source of fundraising revenue, special events can also “set the stage for huge public embarrassments” if they fail (Bray 2008, p. 240). Special events are also time intensive and it is important to assess whether the benefits truly outweigh the costs. A successful special event should align with an organization’s overall goals and strengths, and serve as a way to engage people with the mission of the organization and recruit long-term supporters. Many communities are now saturated with fundraising races, raffles, and dinners, and the challenge for organizations is to think of new event ideas that will generate sufficient revenue to offset the costs of holding the event.

The Internet and social media can be effective fundraising tools, but are often overlooked and/or underdeveloped (Bray, 2008; Miller, 2010). Online tools can be a cost effective method for reaching a wide audience. Social media can be a way to create buzz about an organization, to share success stories and to keep the organization in public consciousness. Despite evidence in the literature of the importance of social media for fundraising, social media did not appear to be of great importance to many of the organizations. It is unclear if this represents an overstatement of the literature or oversight of the organizations to fully take advantage of the opportunities afforded by social media. Based on the theme of overworked staff members, it seems likely that this represents a failure on the part of organizations to take advantage of sites such as Facebook and Twitter to reach out to potential donors by sharing the stories and successes of the organizations. With the opportunity to buy sponsored posts and tweets, it is now possible to share information about an organization to thousands of potential donors who are pre-screened based on geography, demographics and interests. Once those people start to follow or like your organization on social media, organizations can share their story and publicize for free to their captured audience.

Attracting medium and major donors requires a personal touch. Tapping into networks of people, asking board members to reach out to their networks to solicit those who may share interests and taking time to cultivate connections with those who have an interest are all important and can be highly effective. Organizing special events (in keeping with the mission of the organization) with a higher ticket price may be another way to identify potential donors in these categories, and to begin developing a relationship with them. Retention of these donors should focus on appreciation of the gift, continued engagement with the individuals and the achievements and vision of the organization. Nurturing those relationships once they are established are critical for retention, for example personal thank you phone calls, public recognition of the donation, lunch with the executive and finding varied ways to keep them informed and connected. Medium and major donors need to be convinced that their donation is being used meaningfully and that the organization is achieving its goals. Getting these donors excited about strategic planning and future projects can help with retention.

Retaining Donors

It is also important to retain donors at the same time as recruitment. Sending thank you notes and regular updates via newsletters, and holding special member events are ways to engage donors beyond check writing and help to keep the organization in mind. Every donor should also be contacted prior to the anniversary of their donation with an acknowledgement of their past donation and a request for a renewal.

Assessment

All fundraising should be done with the intention of assessment, another challenge for nonprofits that lack evaluation capacity. Staff should record the response rate for each initiative, the immediate return on investment, and total amount raised. Also taking note of what works and doesn't work in a given year and has this changed over time. Relying on the same fundraising initiatives every year because they are easy may represent a lost opportunity to engage more people with the organization and create more secure streams of funding.

General Advice for New or Struggling Land Trust Organizations

Respondents were asked to provide advice to a new or struggling organization. While many identified themselves as being in that category, many also took the time to provide guidance in line with what has been identified above. Selected responses included the following:

- Develop a strong board that believes in the organization and will get others excited about the mission
- Go out there and ask for donations, do not wait for donors to find you
- Most giving comes from individual donors, focus on the individuals and make them feel important
- Be visible to the public through newsletters, compelling stories, the media and providing a public good
- Tangible focused projects are easier to get funding for than general support of the organization
- Develop corporate friends who can help to network and provide advice
- Put a donation envelope in everything you send out
- Have a clear message
- Keep in touch with your audience
- Friend-raise before you fundraise
- Partner with others if necessary
- Do not give up, tenacity is important because it takes time to raise the profile of the organization
- Develop grant writing expertise
- Fundraising is really awareness raising about the organization and the issue
- Tell your story in multiple mediums
- Harness the popularity of outdoor recreation and other trendy past-times
- Become a part of the community
- Figure out how the organizational mission relates to other aspects of people's lives
- Serve on community committees to network and raise the profile of the organization
- Be clear with the board about fundraising expectations
- Maintain a steady cycle of news to drive awareness through activities that encourage membership and donations
- Get community leaders on board

Conclusion

According to Brooks (2006) "many nonprofits create public goods and services — arts, education, social services — which people want, but have limited incentive to pay for voluntarily with donations, and hence the ratio of costs to revenues can appear unfavorable." As governments reduce services and programming, many nonprofits step in to fill the gap, providing valuable services for communities (Henderson, 2002), but without the steady foundation of resources necessary to be effective and financially secure.

Fundraising is not easy and requires a thoughtful approach in order to be successful. The respondents to the survey were asked to identify what future fundraising challenges they anticipate. One of the often-cited responses was increased competition with other organizations coupled with a decline in government grants and a loss of donors due to the continued economic downturn. Many also cited their own organizational challenges, specifically the lack of staff to take on fundraising and the lack of knowledge about how to fundraise effectively. A number of organizations also expressed concern about the aging membership, and the challenges associated with recruiting a younger generation of donors who may be less engaged with a direct mail campaign. One respondent commented, "our supporters are aging and we are struggling to bring the next generation into the fold." Organizations of all types are facing these constraints, and it is a challenge to find space in the community calendar for yet another fundraising initiative.

Donors' decisions to give are not random. They are the result of careful thought and long-standing relationships with an organization (Worth, 2014). Donors receive countless solicitations from nonprofits, through various methods. The variety of solicitations represents a competition in essence for donors, leading to winning and losing organizations. Land trust organizations must demonstrate that supporting their cause will bring a greater benefit than supporting another cause or organization (Silverman and Patterson, 2010). Thus land trust organizations must seek donors that are attracted to their mission and work to build strong relationships. While it may seem like a lot of effort to recruit those micro and small donors, forging a relationship with those supporters may eventually lead to a larger donation in the future or a bequest.

How can land trust organization put this advice into practice? It is clear that many land trust organizations lack a clear fundraising vision and plan. Fundraising requires year round attention with a particular attention on nurturing personal relationships, highlighting the strengths and initiatives of the organization and making donors feel like their contributions are making a difference. In the highly competitive environment of nonprofits, all of whom have compelling reasons for people to donate, nonprofit organizations must be proactive in identifying sources of fundraising revenue, planning, implementing and evaluating the results (Cohen et al., 2011). While large organizations may be able to hire professional fundraisers to further their mission, most land trusts lack the funds and resources to do so, relying on volunteers or overworked staff to do their best with limited resources and support. Organizations need to have a plan. They need to ascertain their objectives for fundraising, identify a target market of donors that matches the objectives, and develop ways to reach those donors, implement the plan and then evaluate the results. They must invest in training for their volunteers and staff to become educated about fundraising best practices, and the use of tools such as Raiser's Edge software which can facilitate the management of donors and donations

Frumkin (2004) states that nonprofits have "a set of unique advantages that position them to perform important societal functions neither government nor the market is able to match." Unfortunately many organizations will never be able to realize their full potential because of their failures to secure the funds necessary to fulfill those functions. Land Trust organizations fulfill an important function in society by protecting land in perpetuity, but their future depends on their ability to raise funding to support their mission.

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