



PDGP

PUBLIC DIPLOMACY & GLOBAL POLICYMAKING IN THE 21ST CENTURY

الدبلوماسية العامة وصنع السياسة العالمية

The 2014 Doha Conference:

Findings from the
Student-led Public Diplomacy Program

Rice University's Baker Institute for Public Policy

in partnership with the
Qatar Foundation and Hamad bin Khalifa University

*The 2014 Doha Conference:
Findings from the Student-led Public Diplomacy
Program*

A Special Report by the Public Diplomacy and Global Policymaking in the
21st Century Program

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Executive Summary

Spring 2014 marked the fifth undergraduate exchange of the Public Diplomacy and Global Policymaking (PDGP) program of Rice University's Baker Institute. The mission of the PDGP program is twofold. First, the program brings together Rice students from various academic disciplines to research, debate, and present a formal policy argument. Second, students actively participate in public diplomacy through an international exchange with Qatari students through the Qatar Foundation and Hamad bin Khalifa University (HBKU). The PDGP program broadens Rice students' horizons by allowing them to collaborate on an international level to tackle global issues and to foster development for 21st century policymaking.

The 2014 PDGP conference was a four-day event, hosted at the HBKU Student Center at the heart of Education City in Doha, Qatar. The discussion topics included promoting socially sustainable transportation, obtaining water sustainably, combating threats of bioterrorism, fostering appropriate humanitarian response to the Syrian conflict, and improving health outcomes in low socioeconomic populations in the United States and Qatar. In addition, a new component of selecting an overarching theme was added to the conference this year. The policy discussions focused on the role of civil society organizations (CSOs) in order to help encourage thoughtful, creative, and relevant policy recommendations.

This report includes research papers written by the Rice delegates, conference findings from the four-day event, and background information acquired through the Baker Institute course "Public Diplomacy in Qatar." Each group conducted research on the given topic throughout the semester and incorporated this knowledge into their overarching policy recommendations. The multidisciplinary backgrounds of the Rice delegation gave the 2014 PDGP program a unique balance that developed resourceful adaptations of the role of CSOs in each conference topic. The students utilized their diverse experiences, as well as the open nature of the conference, to express their personal beliefs regarding policy issues of global concern.

The PDGP program hopes to continue promoting international engagement, public diplomacy, cultural awareness, and policymaking among undergraduate students to better prepare them for an ever-globalizing world. To this end, the Baker Institute and the Qatar Foundation are currently planning for the March 2015 colloquium.

Introduction

by Maithili Bagaria

After September 11, 2001, President George W. Bush increased the US government's public diplomacy efforts in the Middle East, from the Shared Values advertising campaigns to State Department student exchange programs and Foreign Service positions (Douglas and Neal 2013). These initiatives have aimed at engaging the Arab and Muslim worlds to promote mutual understanding and to advance national interests during a volatile and uncertain time in US foreign policy. In the 2003 report "Changing Minds, Winning Peace," a State Department advisory group on public diplomacy for the Arab and Muslim world emphasizes that public diplomacy requires "a seriousness and commitment that matches the gravity of [the US] approach to national defense and traditional state-to-state diplomacy" (Djerejian 2003). However, by coupling this soft power strategy with often-controversial military involvement in the region, the US government has faced difficulty in avoiding politicization and gaining the trust of the local citizens. As the aftermath of the Arab uprisings plays out, public diplomacy efforts must incorporate different individuals and groups as priorities and power structures in the region shift. This changing landscape of increasingly dynamic and assertive publics requires engagement at all levels of society, not just through government-led efforts.

With these changes in mind, the Public Diplomacy and Global Policymaking (PDGP) program focused this year's policy discussions on the role that civil society organizations (CSOs) can play in transforming political landscapes. Public diplomacy engagement through CSOs offers a diverse and flexible alternative for interaction between foreign citizenry. Moreover, the PDGP program itself aims to promote student-to-student engagement across cultures, disciplines, and national boundaries while reevaluating stereotypes and setting aside the politics of their countries of origin. The program allows students "to actively participate in public diplomacy by listening to, learning from, and engaging with cohorts from around the world" (PDGP 2014).

The twofold structure of the program includes a spring semester course for Rice undergraduates, "Public Diplomacy and Global Policymaking in the 21st Century," and a conference with students at Hamad bin Khalifa University (HBKU) in Doha, Qatar. The course, taught by Baker Institute fellows Kirstin R.W. Matthews, Ph.D., and Joe Barnes, seeks to inform Rice students about Arab history, culture, and politics through lectures, readings, social media, and conducting background research. The Rice students then use this foundation to engage in face-to-face policy discussions with their HBKU counterparts during the week-long conference. In addition to learning firsthand about

policymaking and cross-cultural interaction, the Rice students publish a comprehensive report on their findings from each conference discussion.

This year was the third year of the collaboration between the PDGP program and the Qatar Foundation (QF) and HBKU. Following the alternating pattern of hosting the conference in Doha in 2012 and Houston in 2013, Rice students returned to Qatar this year. The four-day conference was hosted at the HBKU Student Center in the heart of Education City. Education City is home to HBKU's six US university branch campuses: Virginia Commonwealth University School of the Arts, Weill Cornell Medical College, Texas A&M University, Carnegie Mellon University, Georgetown University School of Foreign Service, and Northwestern University, in addition to HEC Paris, University College London, and the Qatar Faculty of Islamic Studies (HBKU 2014). Each year the HBKU participants come from various branch campuses and represent different ethnic and linguistic backgrounds. Their diverse perspectives and areas of expertise have helped to make the conference all the more interesting and fruitful.

The 2014 Student Conference and Report

Similar to the HBKU delegation, the Rice delegation comprised 12 students with varying specializations in engineering, social sciences, natural sciences, and humanities. These students worked in small groups on different conference topics with their HBKU counterparts. The five conference topics selected this year were: socially sustainable transportation, obtaining water sustainably, biotechnology and biosecurity, appropriate humanitarian responses to the Syrian conflict, and improving health outcomes for populations with low socioeconomic status in the United States and Qatar.

In addition, in this year's session the delegates focused their recommendations on the roles CSOs play in improving and responding to these issues. In past years of the PDGP program, policy discussions and recommendations revolved around the role of governments. Although the state is the primary actor in implementing policies, the entire concept of public diplomacy is premised on the relevance of nonstate actors. Therefore, it was appropriate to choose CSOs as the overarching theme of the 2014 conference.

According to the World Bank, civil societies are a "wide array of non-governmental and not-for-profit organizations that have a presence in public life" (The World Bank 2013). CSOs can include "community groups, non-governmental organizations (NGOs), labor unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations" (The World Bank 2013). Moreover, a central component of these groups is "the absence of intention to govern the policy" (Schmitter 1997, 240).

In their preparation for the conference, students initially found it challenging to analyze issues through the lens of CSOs after being accustomed to a government-focused framework. However, choosing CSOs as the theme fostered creative thinking and an

analytical approach to problems that CSOs would be especially adept at addressing. Throughout the discussions, PDGP members were able to recognize the unique position of CSOs in policy formulation and implementation.

In a conference preparatory session, the Rice and HBKU students met in discussion teams to identify the major policy challenges of their topics and draft recommendations for the roles that CSOs could play. During the conference, PDGP students discussed each topic individually. For each conference discussion, the students who had conducted research and written background papers on the topic moderated the discussion. In order to encourage free and open conversation, the talks were not recorded. Furthermore, none of the report sections explicitly name an individual student's thoughts.

The following report seeks to explore pressing global issues, especially those concerning the United States and Qatar, and develop unique solutions. In each section, the authors define the issue, explain the problem at hand, and then suggest policy recommendations. The report's conclusion identifies general themes that ran throughout the conference and the papers. These themes serve a dual purpose: to initiate further conversations on issues that matter to students, policymakers, and the general public, and then to motivate positive changes in the world.

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Socially Sustainable Transportation

by Zach Bielak and Shayak Sengupta

Current automobile-centered transportation systems pose a compelling number of challenges to urban societies worldwide. Although a backbone of economic activity, fossil-fueled forms of transportation exacerbate air pollution and greenhouse gas (GHG) emissions. These effects, in turn, endanger human health and intensify climate change. In the United States, transportation is responsible for a quarter of the country's GHG emissions; globally, it is responsible for 15 percent of GHG emissions (US EPA 2013; International Transport Forum 2010). Vehicular emissions of volatile organic and nitrogen oxides act as precursors to tropospheric ozone, a powerful oxidant and lung irritant (US EPA 2011). The infrastructure that supports these systems also causes environmental damage because using land for transportation development leads to habitat loss and diminishing biodiversity (Litman and Burwell 2006). Furthermore, runoff from streets and parking lots carries toxic heavy metals that affect water quality (Bannerman et al. 1993). In addition to being environmentally problematic, modern transportation patterns are economically unsustainable. Current market prices do not account for the numerous externalities of existing transportation, such as congestion, air pollution, and accident damages (Tumlin 2012). Transport affects economic welfare by imposing additional direct costs on the consumer (e.g., taxes and maintenance) and indirect costs to society (e.g., depletion of resources and time lost to traffic). Moreover, current transportation models encourage increased private and public consumption, thus opposing long-term economic sustainability (Litman and Burwell 2006).

Creating more sustainable transportation options would have noticeable environmental and economic benefits, but one important element is missing. Even though many "technological advances and technical standards" addressing environmental issues have already been developed, the results "have not been impressive" (Button and Nijkamp 1997). These unsatisfactory results stem mainly from the neglect of social factors, which are a vital aspect of the definition of sustainability. Harald Minken, a widely cited transport economist at the Norwegian Centre for Transport Research, maintains that sustainable transportation should provide "access to goods and services in an efficient way" for everyone, "protect the environment, cultural heritage, and ecosystems" for current generations, and not compromise the "opportunities of future generations to reach at least the same welfare level as those living now" (Black et al. 2002). Minken's broader definition offers a comprehensive assessment of transportation options to meet multiple societal goals while also ameliorating environmental effects (Button and Nijkamp 1997). Within this inclusive framework, civil society organizations (CSOs),

such as environmental organizations, arts groups, and international associations, can play a large part in addressing social goals for transportation. Here, we present three recommendations for CSOs to address social sustainability in transportation: developing sustainability indicators, informing social aspects of public transport design, and cultivating grassroots movements in transportation.

Why Is Social Sustainability an Important Issue?

Fundamentally, transportation and sustainability require multidisciplinary solutions—considerations from social, economic, and environmental perspectives. Current discussions often neglect this social element, as its causes and consequences are yet to be fully understood (Button and Nijkamp 1997). However, recent and ongoing research is steadily revealing the mechanisms through which society and transportation impact sustainability. For example, urban transit directly affects the social cohesion of a community by impacting the mobility and dynamics of public areas (Litman and Burwell 2006). Varying degrees of access to transport networks similarly affect the social inclusion and political unity of a region (Button and Nijkamp 1997). Specifically, the lack of current urban transport systems elevates car dependence and restricts the social activity space of low-income and elderly people, further exacerbating the social exclusion of marginalized groups (Pickup and Giuliano 2005). Transport also affects public health; nearly 1.3 million people die from urban air pollution each year (WHO 2011), and reduced mobility causes increased incidences of obesity (Stanley et al. 2007).

Together, these factors engender social disparities and complications that obstruct long-term sustainability. Undoubtedly, governments will have a large part to play in certain areas, such as taxation and transportation infrastructure; however, these efforts must be complemented by society-focused grassroots endeavors. With their social and community foundations, CSOs in numerous sectors have the capacity to begin tackling these issues. Thus, it is imperative that CSOs, particularly environmental, educational, and arts organizations, start to address the social aspects of transportation to achieve true sustainability.

Indicators

An internationally standardized set of indicators to measure sustainability of transportation systems—especially social sustainability—will allow for a better measure of efforts to improve conventional transportation systems. Currently, existing indicators mostly quantify items such as vehicle miles traveled and number of transit boardings per year; however, there is no comprehensive indicator to take into account environmental, economic, and social aspects on an international level (Sinha 2003). Although researchers such as Litman and Burwell (2006) have proposed sets of integrated indicators, none of them have become widely adopted on a multinational scale. Furthermore, only limited data is currently available concerning these proposed social indicators. Therefore, CSOs specifically could begin collecting data and developing these standards. CSOs are

particularly well-equipped because they contribute to “mobility management,” which takes a more multifaceted approach to solving transportation problems by incorporating a variety of perspectives that complement conventional governmental action (Black, Paez, and Suthanaya 2002). Additionally, CSOs have the flexibility and agility to handle these abstract social concerns, as they have fewer bureaucratic decision-making processes than national governments.

Many CSOs are already promoting indicators for sustainability. One of the most visible is the US Green Building Council, which develops the Leadership in Energy and Environmental Design (LEED) standards for newly constructed buildings (US Green Building Council 2014). LEED standards allow maximum adaptability for developers by awarding credits for adoption of sustainable strategies and building materials. In turn, the number of credits determines the level of certification. For example, the construction of a new dormitory at Rice University sought LEED certification by installing dual-flush toilets, increasing wall insulation, and recycling 90 percent of construction waste, among other initiatives (Evans 2010). A set of indicators for transportation could employ a similarly versatile system of standards without the necessary certification at the end. More directly related to transport, other CSOs are currently working with individual cities to replicate best practices in public transport that improve local sustainability and quality of life. An example of such a CSO is Embarq, an arm of the World Resources Institute that serves to implement sustainability initiatives related to urban transportation on local, national, and international levels (Embarq 2014). However, instead of utilizing a standardized list of indicators, Embarq and other CSOs are currently applying only experiential lessons on a case-by-case basis.

A set of international and publicly accessible indicators for transportation would allow governments and CSOs to rate the sustainability of both new and old urban transportation networks. These indicators would consider the entire mobility networks of a region rather than single modes of transport. For example, when rating a metro system, factors that could be taken into account include interconnectedness of services (e.g., buses, light rail, and bike-share stations), the role of local communities in determining station design, and proximity to essential locations such as hospitals, grocery stores, and schools. Additionally, these indicators could draw upon Maslow’s hierarchy of needs (Maslow 1943), which prioritizes human necessities from basic physiological needs to more complex social needs. For instance, the indicators could emphasize the satisfaction of transport safety and mobility needs as necessary for the fulfillment of self-esteem and belonging needs (Tumlin 2012). In order to provide a complete perspective of sustainability, these indicators must also include quantifiable measures concerning the environment and economy.

Organizations such as the World Conference on Transport Research Society (WCTRS) and the International Organization for Standardization (ISO) could draw upon their own expertise to help fashion these indicators. Specifically, the WCTRS, a “forum for the interchange of ideas” between researchers, policymakers, and educators, could

serve to spearhead and publish the final inventory (ISO 2014). Meanwhile, the ISO's "multi-stakeholder process" of evaluating standards, which involves industry experts, academics, governments, and CSOs, could ensure that the design of the specifications is thorough (ISO 2014). In all, a set of indicators would serve to define concrete, objective goals for sustainability in urban planning and transportation.

Design

CSOs can promote sustainable transportation by informing socially appropriate designs and planning. Although governments will eventually fund and construct these transportation systems, CSOs have the resources to solicit, organize, and share the vital opinions of the public with government planners. Specifically, CSOs should focus on addressing public transportation options, such as light rails, buses, metro systems, pedestrian-friendly streets, bike routes, and bike-sharing programs. These public transportation projects have great potential to address all three sides of sustainability, particularly the social aspect.

Transportation inherently involves groups rather than individuals. Therefore, the implementation of sustainable solutions in transportation must take into account the cultural biases, history, and values of entire communities and regions. History has shown that "future cities" designed by "master architects" never successfully come to fruition, as they lack the "human need to own and alter [one's] immediate habitat" (Tumlin 2012). In order achieve sustainability, then, humans must feel "capable of and permitted to" alter their transport to fit their needs, which is exactly why CSOs that accrue collective opinion and influence transport design are needed (Tumlin 2012).

The importance of this idea became clear during the student conference in Doha, where both Hamad bin Khalifa University (HBKU) and Rice University students expressed the need for social characteristics when designing and planning sustainable transportation. HBKU students expressed the need for any sustainable transportation system, especially public transportation, to take Islamic values into account (e.g., separate cars for men, women, and families). Rice and HBKU students also believed that while infrastructure is necessary to reduce automobile dependency, CSOs can act to curb biases that view automobiles as the only source of mobility.

CSOs can thus act as crucial players by gathering information on social views to better inform planners. CSOs such as neighborhood organizations and religious institutions represent a myriad of cultures and opinions, all of which might not be adequately represented in governmental spheres. Therefore, these types of CSOs can accumulate valuable insight from their members and provide design feedback to city planners. Such feedback could range from where to position stops and routes, the physical accessibility of systems, and other considerations such as gender segregation, moderated advertisements, and cleanliness. With public transportation systems more suited to these

communal needs, individuals will choose to use them with more frequency. Furthermore, CSOs can cultivate a sense of community in promoting the adoption of sustainable transportation methods that the planners create. Religious organizations, for example, could encourage their members to use public transportation to commute to services and gatherings. In keeping with this sense of ownership and community, CSOs could also collaborate to influence the physical construction stops for a public transportation system. Recently, the ruler of Dubai, Sheikh Mohammed bin Rashid Al Maktoum, announced his intentions to turn stations of the Dubai Metro into public art galleries (BBC 2014). Similarly, community art organizations could take the lead in developing the architecture, decoration, and naming of stations to reflect the individual communities they serve.

The Need for More Grassroots CSOs

In recent years, CSOs have promoted sustainable transportation through encouraging stricter fuel economy standards, conducting high-caliber research, and influencing transportation policy from national and international perspectives. However, there is a noticeable deficit of grassroots CSOs whose goals are to change the mindsets of citizens and spur individuals to action. Grassroots efforts are imperative to achieving true transport sustainability. Grassroots movements have a “very substantial effect on ... modern societies, especially postindustrial societies” because they create “positive change,” maintain societal cohesion, and enable “continuing citizen participation” (Smith 1997). Additionally, as aforementioned, grassroots groups provide crucial feedback and information to policymakers and officials.

An excellent example of the role of grassroots efforts in increasing sustainable transportation comes from Smogbusters, a community-based program in Australia that ran from 1994 to 2002 and aimed at reducing car dependency and advocating other transportation options. By reaching out at the personal level, Smogbusters sought not only to spread awareness through educational campaigns but also to galvanize individual action, such as helping community members write to policymakers. Smogbusters illustrates the importance of individual behavioral change by stimulating community dialogue for “local solutions to transport problems” (Manners et al. 2009).

More grassroots CSOs are needed to create awareness and education initiatives, develop community programs, and champion social inclusion. They should alter their approaches for each demographic, focusing more on educating younger students about the three sides of transport sustainability, while engaging college students and adults to actually engender change. Additionally, as was highlighted in the Doha conference, CSOs must pay special attention to framing the issue of transport sustainability in order to effectively communicate its relevance to every sector of the population.

Conclusion

Developing internationally standardized indicators, ensuring socially-informed transportation design, and furthering the development of grassroots efforts are recommendations crucial for societies worldwide to achieve more sustainable transportation. Environmental and economic aspects are common targets of groups and governments across the globe when considering solutions to transportation sustainability. Therefore, it is imperative that other groups address the often neglected social aspects. CSOs in particular are well equipped to engage in these social issues on a personal level, by collecting and disseminating the opinions of the individual and the smaller community. By focusing on the social side of transportation and employing the recommendations made in this paper, CSOs can begin to make societies across the planet more sustainable.

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Obtaining Water Sustainably

by Michael Donatti and Walter Hurst Williamson

“We never know the worth of water till the well is dry.”

~Thomas Fuller, *Gnomologia*, 1732

Water is undeniably the most important resource in the world, yet developed societies often take water supplies for granted. The United States and Qatar, both of which have large ecological footprints in water consumption—each American uses an Olympic pool’s volume (2,500 cubic meters) of water annually, while Qatar consumes approximately 12 times its renewable water resources—must find a balance between continued usage and conservation of their aquatic resources for future generations (The Global Footprint Network 2010; Luomi 2012; Streeter 2009; El Sayed and Ayoub 2014). The problems with water usage are complex, including inefficient agricultural practices, ineffective government tariffs, and wasteful behavior. Civil society organizations (CSOs) can play an important role in helping these two countries achieve more efficient water supply and consumption systems.

Water sustainability can be divided into four categories: 1) protecting clean water sources from industrial pollution and purifying tainted water; 2) promoting water efficiency through education about the need for water conservation; 3) preventing man-induced climate change, such as desertification from overusage of local water sources; and 4) preserving water ecosystems for future generations (National Resource Defense Council 2014). While national governments are ultimately responsible for water sustainability policy, CSOs must play a role in raising awareness to counterbalance the social perception that water is an infinite resource.

In this paper, we will focus on how civil society can address the first three categories of water sustainability mentioned above, with the understanding that the preservation of water ecosystems may not be an achievable priority in developing countries. First, we will give background on the issue of water sustainability. Then, we will suggest three recommendations for CSOs: 1) change the culture of water usage, 2) rate infrastructure on its water sustainability, and 3) brand products to show water-sustainable production. These recommendations will hopefully address many of the global concerns surrounding water sustainability.

Sustainable Water Procurement and Current Technologies

Communities around the world obtain their water in many different ways. Around the Houston area, water for homes and agriculture comes primarily from either the Gulf Coast Aquifer or from surface water, such as Lake Houston and the Trinity River (The Nature Conservancy 2014). Overuse of the aquifer¹ has depleted it significantly, which has led to slight desertification in the eastern part of Texas. Houston has transitioned to surface water in an effort to combat the depletion of the aquifer, but surface water has its limitations. With increasing drought conditions across the United States—the Houston area is in “moderate drought,” according to the US Drought Monitor (2014)—surface water has become less reliable. Furthermore, both surface water and groundwater are susceptible to pollution.

Qatar’s water sources are also a topic of debate. National Public Radio (NPR) reports that Qatar has depleted virtually all of its freshwater aquifer (Siegel 2013). In the past 100 years, the freshwater aquifer that made Doha possible has all but disappeared, pushing the city to primarily use desalinated water. Outside of a small radius of the city, most agriculture depends on the limited remaining groundwater. According to the NPR report, Fahad al-Attiya, the executive chairman of the National Food Security Program in Qatar, aims to change that trend. Currently, Qatar produces about one million cubic meters of desalinated water per day—accounting for about 75 percent of its total water consumption (El Sayed and Ayoub 2014)—and al-Attiya wants to increase that amount by about 700,000 cubic meters so that it can entirely support agriculture. While doing so would increase Qatar’s food security, it could also potentially have damaging environmental effects. Desalination consumes about twice as much power as conventional methods and raises the salinity of the ecosystems around it.

Desalination is not just occurring in the Middle East. In California, the Israeli company IDE Technologies, Ltd. is helping to construct what will be the largest desalination plant in the Western Hemisphere. According to an article in Bloomberg, Israel leads the way in water technologies, including “desalination of seawater, reuse of treated sewage for agriculture, software creating an early-warning system for leaks, computerized drip irrigation and careful accounting of every drop” (Odenheimer and Nash 2014). In creating sustainable water technology, all of these options must be considered.

Protecting Clean Water and Ecosystems from the Threats of Climate Change and Pollution

The Water Project is a nongovernmental organization (NGO) that works alongside communities in developing nations to construct sustainable water infrastructure. According to the Water Project, climate change and unsustainable agricultural processes expedite desertification, especially in the Middle East. Desertification refers to an area

¹ An aquifer is a source of freshwater in underground permeable rock.

becoming more arid as its freshwater sources become depleted. For example, the water table² in the United Arab Emirates (UAE) has dropped approximately one meter per year for the past 30 years. As Middle Eastern countries deplete their already limited freshwater sources, they turn to desalination of seawater to meet their water needs—an economically unsustainable process that consumes eight times more energy than groundwater and reclaimed wastewater projects (El Sayed and Ayoub 2014). In fact, 70 percent of the world’s desalination plants are in the Middle East. In addition to the huge amount of energy that desalination plants require, which generally comes from fossil fuels that are heavily subsidized in Qatar, the plants dump the extracted salt back into the sea, raising the salinity of the water, upsetting the ecosystems of the area, and making future desalination more difficult (The Water Project 2014).

Even where freshwater is readily available, populations need to worry about water pollution. According to the Natural Resource Defense Council, as rain flows through city streets back into rivers or into the ground, it picks up dirty trash, chemicals, and bacteria. In the United States especially, factory farming poses a major environmental threat to water sources. The “farms” deposit dirty water, containing nitrate pollutants and disease-causing pathogens, back into the adjacent ecosystems, polluting wildlife and freshwater sources. The NGO FarmForward, which promotes sustainable agriculture, estimates that factory farming produces 99 percent of the meat that Americans consume (FarmForward 2014). Similarly, runoff from industrial plants and fracking for oil and natural gas can contaminate water sources. Between these technologies and factory farming, industrialized states pollute a large amount of their water sources.

Change the Culture of Water Usage

In addition to advertising campaigns to raise awareness and educate populations about sustainable municipal water usage, CSOs should focus on changing the culture of water usage within the agricultural and industrial sectors. Agriculture alone uses 70 percent of the world’s accessible water, of which 15–35 percent is extracted unsustainably, wasting between 1,500 trillion and 2,500 trillion liters of water each year (World Wildlife Fund 2014). For large crop-producing nations such as the United States, China, India, Pakistan, Australia, and Spain, leaky irrigation systems, wasteful field application methods, and the cultivation of crops not suited to the local environment are overstressing domestic, renewable water resources (World Wildlife Fund 2014). In the UAE, Qatar, and Bahrain, which are experiencing rapid economic growth in a condensed period of time, economic gain has incentivized them to deplete otherwise sustainable resources at a much faster rate (Luomi 2012). The agricultural sector consumes nearly 60 percent of Qatar’s water, even though it accounts for 0.1 percent of GDP and less than 2 percent of the land is arable (Aquastat 2005; CIA World Factbook 2013). Lack of sustainability will further transform water into a transboundary issue as global loss of water leads to climate change and a reduction in energy and food supplies (Luomi 2012).

2 The water table is the level below which ground is saturated with water.

Toward this end, organizations such as the American Farmers Association, which acts as a quasi farmers' union, should incentivize regional farmers to use sustainable irrigation technology and create water management plans. At the most basic level, civil society's initial goal in the agricultural sector will be to address farmers' need for cheap water. As populations continue to grow, the demand for water resources will increase, thus making short-term access to cheap water a priority for farmers. Unfortunately, this trend does not lend itself to long-term sustainability (Georgia's State Water Plan 2014). Therefore, CSOs like the Georgia Farm Bureau in the United States should provide benefits, such as subsidies, for farmers who adopt sustainable water technologies. The subsidies can be paid for from a portion of farmers' membership fees, as well as water conservation techniques. Keeping with the US example, CSOs must also solidify water sustainability measures across state lines. For example, while the Georgia Farm Bureau has regional water councils that measure surface and ground water availability and monitor the state water plan with an advisory panel of scientists and engineers, the Texas Farm Bureau does not (Georgia's State Water Plan 2014; Texas Farm Bureau 2014). Establishing a consistent standard of water sustainability that takes regional challenges into account should be a key goal of civil society in order to limit project failure due to lack of community understanding and involvement in the project (Water and Sanitation Program 2000).

Rate Infrastructure on Its Water Sustainability

Today, ratings for environmental sustainability are becoming increasingly common. For example, the US Green Building Council coordinates the Leadership in Energy and Environmental Design (LEED) certification program (USGBC 2014). Buildings, homes, and even neighborhoods around the world can seek LEED certification, which comes in four different levels of environmental sustainability: "Certified," "Silver," "Gold," and "Platinum," from lowest to highest. Each rating applies to a different point range, and building projects gain points by achieving certain design goals in nine categories of sustainability, such as sustainable sites and indoor environmental quality. Fundamentally, buildings with LEED certification have reduced negative environmental impacts.

Although the program is American, many builders seek LEED certification for their projects abroad. While in Qatar, the Rice delegation toured the residential part of Education City, and the tour guide extensively discussed the buildings' LEED Platinum certification. Most new buildings at Rice University in Houston, Texas, and many skyscrapers in downtown Houston have some level of LEED certification. The newest Rice residential halls are LEED Gold, for example, and some academic and recreational buildings are LEED Gold or Silver. Clearly, the LEED label can motivate organizations to build more sustainably.

Our second recommendation is to create a similar rating system, but one that deals specifically with water sustainability. The US Green Building Council (USGBC) shows that nonprofits can create and manage effective rating systems. In fact, the USGBC could be

instrumental in creating the rating system for water sustainability that we recommend. It could even modify its existing LEED certification by requiring more stringent water achievements for points or by creating a “LEED Water” rating.

Brand Products to Show Water-Sustainable Production

In addition to rating infrastructure on its water sustainability, CSOs could play a role in better branding of products. The branding would reflect food, clothes, electronics, etc., that are produced by methods that use water sustainably. CSOs could call the label “Blue Organic,” based off the rapidly growing organic food sector, which sees 20–25 percent growth per year (Hattam and Scialabba 2002).

The organic label for food in the United States comes primarily from the US Department of Agriculture (USDA), a government agency. For a product to be organic by the USDA’s standards, it must be produced without genetic engineering, radiation, or sewage and cannot have been exposed to synthetic fertilizers or pesticides. Overall, the label does push for more sustainable agricultural processes. The USDA highly regulates it, and it has garnered international legitimacy.

Even though the main American “organic” label comes from a government agency, the idea of branding food with such a label does not need to restrict itself to government. Similar to how the USGBC developed and regulates LEED, CSOs such as Certified Naturally Grown (CNG) could develop and regulate a “Blue Organic” label. CNG is a civil society parallel to the USDA for organic labeling (Certified Naturally Grown 2014). It could use its existing infrastructure to brand products as water-sustainable just as it brands products as naturally grown.

A “Blue Organic” certification could function similarly to LEED. It could entail a thorough, point-based review, and products that receive a certain number of points would receive the certification. Points would depend on many factors: water usage and sourcing, water efficiency, and geographic considerations. For example, factory-farmed meat would likely not receive many points, as it entails highly water-intensive production.

The “Blue Organic” certification would provide consumers with an easy way to practice conscientious consumerism, and it would likely contribute to water sustainability in the same way that the organic certification has contributed to environmental sustainability.

Conclusions

Effective promotion of water sustainability is a critical issue that states will have to face as the global population continues to grow and as agricultural, industrial, and municipal demands for water increase. In both the United States and Qatar, there is ample room for CSOs to promote and engage in changing the culture of internal water usage, developing

the rating infrastructure on its water sustainability, and branding products to show water-sustainable production. Through establishing uniform practices, incentivizing sustainability, and promoting “Blue Organic” products, CSOs in both Qatar and the United States can adequately combat overusage of water and assist in changing the social norm that water is an infinite resource.

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Biotechnology and Biosecurity

by Katherine Cai and Baek Ho Jang

In 2011, infectious diseases, such as smallpox, anthrax, and tuberculosis, accounted for more than 9 million (16.2 percent) of all deaths worldwide, making them the second leading cause of death (Baylor College of Medicine 2013). Taking into account the potency of infectious diseases, weaponized and directed biological agents can pose a major security threat. They can inflict mass casualties in a short period of time and are difficult to detect. While few countries are suspected of even funding bioweapons programs, events in the past include the 2001 anthrax mail attacks in the United States, the 1998 unmasking of Iraq's extensive bioweapons program, and the 1979 anthrax explosion in a Russian military compound that killed up to 1,000 people (CSIS 2006; Calisher 2007).

Bioterrorism is traditionally defined as “the use of biological agents, such as pathogenic viruses, bacteria or agricultural pests, for terrorist purposes” (Calisher 2007). Man-made biological weapons constitute a form of weapon of mass destruction (WMD) comparable in production cost, accessibility, and capability to chemical weapons. A few countries are believed to be developing weaponized biological agents, including Iran, North Korea, and Syria. Meanwhile, several other countries, including Russia, Canada, France, Germany, Japan, the United States, and the United Kingdom, previously had infrastructure in place for research on weaponizing various biological agents (CNS 2008).

Advancements in life sciences and molecular biology techniques open these pathogens to greater exploitation than ever (Drell, Sofaer, and Wilson 1999). The threat posed by biological warfare agents has shifted from “traditional” biological weapons agents that are largely nature-made, such as smallpox, to genetically modified agents, such as *E. coli*, and finally to “advanced” biological warfare with the ability to attack bodily functions such as respiration, blood pressure, heart rate, adaptive immune responses, and body temperature (Kelle, Nixdorff, and Dando 2012). These advanced forms add to the traditional bioweaponry arsenal consisting of conventional weaponized anthrax, typhoid fever, and smallpox.

The 1972 Biological and Toxin Warfare Convention (BWC), which now has 170 signatory countries, aimed to curtail the use of biological weapons (Collina 2013). The BWC prohibited the development, production, and use of biological weapons (Rissanen 2003). Yet even with the BWC, the surveillance, formal verification regimes, and measures needed to effectively enforce accountability and transparency are severely lacking. Revelations surrounding the Soviet Union's biological weapons program, Biopreparat,

serves as an infamous example. The clandestine program was in operation until 1992 and involved more than 60,000 people in the research, development, and production of biological weapons (National Research Council 2004). Lack of enforcement and transparency continues to be an issue. In 2005, the US State Department identified China, Cuba, Iran, Iraq, Libya, North Korea, Russia, and Syria as possessing biological weapons, even though all but Syria had signed the BWC (Katona, Sullivan, and Intriligator 2010).

The research, development, and employment of countermeasures to biological weapons largely fall within the scope of government and military responsibility, limiting the role of civil society organizations (CSOs). However, in our recommendations, we highlight three niche areas for CSO involvement: 1) cultivating a culture of responsibility, 2) aiding in the development of response mechanisms and the provision of medical aid, and 3) mitigating fear among the people. We believe CSOs can play a significant role in combating man-made threats of bioterrorism and establishing effective global biosecurity measures.

Cultivating a Culture of Responsibility

Behind each and every potential weapon is an academic who understands the sophisticated inner workings of weapon research and development. At both the domestic and international levels, scientists have formed groups to express their concern for the misuse of the technologies they have so carefully developed. For example, the Union of Concerned Scientists (UCS) is a nonprofit organization that advocates for scientific solutions to issues such as the nuclear weapon threat (UCS 2014). Since its inception in 1969, the UCS has been instrumental in advocating for a worldwide reduction in nuclear weapons to promote greater global security, while simultaneously working to build public opposition against the nuclear arms race (Bernstein 2008).

The influence of the UCS demonstrates the importance of involving researchers in the dialogue concerning the use and development of weapons. Today, the life sciences community is experiencing an explosive increase in the volume of knowledge about microbes and human biology (National Research Council 2005). While technological advancements have promoted life sciences research and development internationally, they have also increased concern for malicious dual-use—life sciences research that is intended for benefit but might easily be misapplied to do harm (WHO 2013). With the advent of online search engines, such as PubMed and Thomson Reuters' Web of Science, making this knowledge accessible across the globe, exploitation remains a concerning possibility and compels the greater involvement of scientists in protecting the world from the threat of bioterrorism.

During the PDGP discussion in Doha, students identified the main role of academic CSOs to combat the spread of bioweapons as making scientists aware of the risk of dual-use of technologies and helping them find ways of working with governments to make sure that research does not harm international biosecurity. Scientists are already becoming aware

of the potential misuse of some research for biological weapons. Further outreach from science societies such as American Society for Cell Biology (ASCB) and the Biomedical Engineering Society (BMES) could help researchers better understand the risks associated with their research projects. In addition, major academic CSOs, such as the American Association for the Advancement of Science (AAAS) or the European Molecular Biology Organization (EMBO), should organize workshops to review and develop appropriate codes of conduct for life scientists. This form of self-governance will aid in establishing a culture of responsibility in the long term.

Response Mechanisms and the Provision of Medical Aid

Acts of bioterrorism involve a number of extremely lethal agents that require immediate medical treatment and attention for victims. Prior to 2001, hospitals and first responders had little to no training on how to respond to bioterrorist attacks. In fact, few, if any, practicing clinicians had even seen a case of smallpox, anthrax, or the plague (O'Toole 2000). This landscape was significantly altered in the United States after the September 2001 anthrax attacks, when letters laced with anthrax were sent by mail to a number of news organizations, including ABC News, CBS News, and the New York Post, as well as Democratic senators Patrick Leahy and Tom Daschle (CNN 2001). These attacks not only generated a newfound awareness of the threat posed by biological weapons, but also demonstrated the necessity of large-scale efficacy within the medical community to effectively respond to acts of bioterrorism and significantly reduce casualty rates. Two years later, in 2003, 85 percent of hospitals had developed some sort of plan for responding to biological weapon attacks, and 89 percent of staff members at hospitals had received training in the identification, diagnosis, and treatment of biological agents (Niska and Burt 2005).

While the United States has developed response mechanisms that directly involve hospitals and physicians to provide patient treatment and facilitate patient intake, at an international level, these mechanisms are largely absent and severely lacking where they do exist. For example, the European Commission Task Force on Bioterrorism, established after the 2001 anthrax attacks, has centered its efforts on early detection of released, weaponized biological agents and cooperative surveillance techniques to track the spread of released agents (Tegnell et al. 2003). Yet, despite these efforts and the commission's compilation of a number of articles to help clinical management identify and recognize these diseases, no direct training programs exist to ensure understanding of the available material, treatment plans, and procedures. Moreover, this narrow focus on surveillance and containment of disease is shared by the Middle East Consortium on Infectious Disease Surveillance (MECIDS) and other regionally based groups tasked with responding to threats posed by infectious diseases and biological weapons (Gresham et al. 2009).

International CSOs like International Medical Corps, Médecins Sans Frontières/Doctors Without Borders, and Crisis Response International should work with governmental organizations to play a direct role in strengthening these preexisting response

mechanisms at an international level. In particular, they can use the procedures and trainings developed for hospitals and physicians in the United States as a template to incorporate more direct medical response mechanisms. The US Centers for Disease Control (CDC) and American Red Cross programs, which focus on the immediate identification, diagnosis, and treatment of biological agents (Niska and Burt 2005), can also be used as additional resources in the development of these training programs. PDGP delegates suggested granting formal certification to physicians and first responders who complete the training programs developed by international CSOs.

PDGP delegates also proposed creating a tiered ranking or awards system to recognize and express appreciation towards physicians and other volunteers who involve themselves in such high-risk engagements.

Mitigating Fear among the People

Faith-based and grassroots CSOs can play an important role in the event of a bioterror attack by promoting psychological resilience through spiritual and emotional support, helping the public gain access to accurate information, and maintaining a physical safe haven or shelter. These efforts can be made at the local level through churches, mosques, and temples, as well as at domestic and international levels through preexisting faith-based networks and organizations. In fact, CSOs with state-level chapters and affiliates, independent churches, and international ministries, such as Somebody Cares International, have already been actively engaged in providing short- and long-term relief and support in response to natural disasters (Somebody Cares 2014). Similarly, the Evangelical Free Church of America (EFCA) network, an association of over 1,250 autonomous churches, is divided into 17 regional districts, mostly in the Midwestern United States, and provides support for local ministries to offer senior housing, children's homes, and camp facilities (EFCA 2014). During bioterrorist attacks, the efforts of these faith-based CSOs can be extended to provide greater religious support through chaplains and ministers, among others, to appease the fears of individuals and communities. Thus, these faith-based organizations can provide not only material aid but also spiritual comfort and support.

Grassroots organizations can also play a role in enhancing psychological resilience by providing emotional support and delivering information on bioterrorism to local communities. For instance, Bering Omega is a grassroots CSO based in Houston that provides housing and health care to patients who are discharged from the hospital and confronted with the possibility of imminent death from HIV/AIDS (Bering Omega 2014). Similarly, the Covenant House is dedicated to providing emotional counseling, housing, food, and immediate crisis care for all homeless and runaway youth, servicing more than 21 cities across the United States, Canada, and Central America (Covenant House 2014). Since grassroots organizations like Bering Omega and Covenant House already provide support in the form of shelter, care, and counseling, these services can be developed

further to proffer greater psychological support in the event of bioterrorism. These CSOs can also be involved in spreading accurate information on bioterrorism to mitigate the public's fears, irrespective of personal religious belief.

Conclusion

Public perception of biological threats is increasing and is greater than or equal to the concern surrounding nuclear weapons (CSIS 2006). The top two reasons for this concern rest on the increasing availability of technology in life sciences, making biological weapons acquisition easier. The BWC, even with 170 countries as signatories, has only a limited ability to enforce its prohibition, making it difficult to ensure transparency and accountability of biological weapons around the world. While militaries and governments play a major role in the development and employment of biological weapon detection programs, CSOs can influence three areas in combating acts of bioterrorism: 1) fostering a culture of responsibility, 2) developing response mechanisms and directly supporting the provision of medical aid and treatment, and 3) countering media sensationalism of bioterror by promoting psychological resilience through religious and nonreligious CSOs.

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Appropriate Humanitarian Responses to the Syrian Conflict

by Maithili Bagaria and Melody Tan

March 2014 marks three years of the Syrian civil war with President Bashar al-Assad's regime still at odds with opposition groups. As of December 2013, the United Nations (UN) estimated that more than 100,000 people had died and 6.5 million had been internally displaced, with these numbers increasing daily. A total of 9.3 million are in need of humanitarian assistance, 46 percent of whom are children (UNOCHA 2013b). Yet the crisis does not end at the Syrian borders. Approximately 2.4 million registered refugees are in neighboring countries, primarily Jordan, Iraq, Egypt, Turkey, and Lebanon (UNHCR 2014). Arab governments, including the Qatari government, have responded by providing arms and financial and diplomatic support to the opposition, with their efforts aimed at bringing about the end of the Assad regime. The United States, to a lesser extent, also supports removing President Assad from power, although it is wary about providing lethal aid that could fall into the grasp of jihadist groups (Laub and Masters 2013).

The UN has called the conflict "the worst humanitarian disaster since the end of the Cold War" (LaFranchi 2013). At the heart of the humanitarian crisis is a lack of food and medical aid. The World Health Organization (WHO) reported that Syria and its neighboring countries face an increased risk of disease epidemics, especially diseases carried in water, such as hepatitis, typhoid, and cholera. These poor health outcomes are primarily due to poor sanitation practices and decreasing availability of and access to clean water (WHO 2013).

More troublingly, the Syrian government has laid sieges across Syria, deliberately blocking food and medical aid from reaching opposition-controlled areas to gain an upper hand in the conflict. Government shelling has destroyed local hospitals, forcing medical personnel to treat patients in improvised field clinics. In addition, Syrians are experiencing severe food shortages as a result of these restrictions (Human Rights Watch 2013). However, the Syrian government is not the sole actor in imposing blockades. Inside the city of Aleppo, opposition fighters have prevented supplies from reaching government-controlled areas. Under international humanitarian law, all combatants involved in an armed conflict are obligated to facilitate rapid and unimpeded humanitarian assistance to all civilians in need (Human Rights Watch 2013). To address the international law, on February 22, 2014, the UN Security Council unanimously adopted Resolution 2139 requiring the opposing parties to stop blocking the delivery of humanitarian aid (United Nations News Center 2014).

Current State of Humanitarian Aid in Syria

Foreign states, international organizations, and nongovernmental organizations (NGOs) have all contributed to provide humanitarian relief. In 2012 and 2013, the United States, through the US Agency for International Development (USAID) and other government agencies, delivered nearly \$385 million of aid items to Syria. The Gulf Arab states pledged the first tranche of at least \$900 million in 2013, with Qatar giving \$100 million in aid (Doherty and Char 2013). However, these contributions are insufficient against the overwhelming need for aid in Syria. To provide a frame of reference for the magnitude of this contribution, a total of \$10 billion in aid was promised to three million people in Haiti to help them recover from the 2010 earthquake (Kushner 2014).

Even where aid is delivered, it is often inadequate or distributed unfairly or inefficiently. In one example taken from a Lebanese refugee camp hosting over 800,000 Syrian refugees in 2013, the UN World Food Program began to cut recipients of food aid in the name of “efficiency.” However, according to aid workers in the region, the cuts were done randomly and perhaps unwarrantedly, excluding individuals who should have been eligible for aid (Hersh 2013).

The primary coordinator for international humanitarian aid for the Syrian civil war is the UN Office for the Coordination of Humanitarian Affairs (OCHA), led by Under Secretary-General Valerie Amos. As delineated in its mandate, OCHA is responsible for bringing together humanitarian actors to form a coherent response to emergencies. Its mission entails mobilizing and coordinating humanitarian action, advocating for the rights of the people in need, promoting preparedness and prevention, and facilitating sustainable solutions (UNOCHA 2013a). The main framework for this coordination is the Syrian Humanitarian Assistance Response Plan (SHARP), through which humanitarian organizations commit to delivering humanitarian aid with full respect to the sovereignty of the Syrian government. As a result of OCHA-SHARP, delivery of aid has improved.

However, several challenges remain, especially with regard to inequitable distribution and politicization of aid. One limitation of the OCHA-SHARP program is its heavy dependence on support from the Syrian government. Therefore, the Syrian government greatly influences where, when, and how much aid is delivered to a given area. UN aid is flown to a regime-held airport and is then disseminated from there, resulting in diverted and delayed provision (Sands 2014). Rebels have also alleged that aid to the country has been unequally distributed, with rebel-held areas receiving virtually no aid (McTighe 2013). This issue is closely tied to concerns regarding the politicization of humanitarian aid. As certain countries wield greater power in the UN, any UN-organized aid effort may inevitably favor the agenda of one side over another in a conflict. Civil society organizations (CSOs) can overcome this obstacle by providing unbiased, non-politicized humanitarian aid.

The partnership of the International Committee of the Red Cross (ICRC) with the Syrian Arab Red Crescent is an example of CSOs that have been providing humanitarian aid (UNOCHA 2013b). Their aid has predominantly been in the form of water, food, and medical care (British Red Cross 2013). In addition, Médecins Sans Frontières (MSF), or Doctors Without Borders, has six field hospitals and two health centers in Syria. MSF has treated over 100,000 patients for violence-related injuries, has performed thousands of surgical procedures, and has delivered more than 1,000 babies. MSF is unique among most international aid organizations in that it provides assistance to civilians in both opposition and regime-held areas. Conversely, many other organizations' reach is limited to regime-held areas (Médecins Sans Frontières 2014).

The Assistance Coordination Unit (ACU) is an aid agency established in 2012 at the diplomatic initiative of the United States, the United Kingdom, France, and other major donors, to lead the coordination of humanitarian aid in rebel-held areas of Syria. It is part of the Syrian National Coalition, the main umbrella organization of all groups (political actors, armed militia, and civilians) opposed to the Assad regime, and correspondingly, the ACU works to deliver aid to areas outside the regime's control (Whewell 2014). Mark Ward, senior advisor on aid to Syria for the US State Department, has said that the creation of the ACU has made humanitarian programs more effective, as international donors are able to gain an improved understanding of needs on the ground and form better contacts with aid workers within Syria (Slavin 2013). However, ironically, former employees of the ACU have alleged that the organization has mismanaged and wasted donations, and has generally lacked financial accountability (Santamaria 2014). The problems that plague independent aid organizations—aid not delivered at all, delivered late, or delivered to the wrong place—continue to plague the ACU (Whewell 2014).

Delegating One Organization the Responsibility of Coordinating

Given the politicized nature of current coordination units, the PGDP delegates recommended selecting a single CSO to act as an umbrella organization to coordinate aid efforts. One organization that can take on this responsibility is the Global Logistics Service (GLS), which works in tandem with the International Federation of Red Cross and Red Crescent societies to provide humanitarian logistics services (International Federation of Red Cross and Red Crescent Societies 2014). As of now, the GLS relies on Red Cross-Red Crescent networks to reach people in need, however, additional partnerships with other CSOs can increase its reach to more Syrians deprived of humanitarian assistance.

Nevertheless, delegating the coordination of agencies providing humanitarian assistance to GLS risks redundancy with the UNOCHA. Although UNOCHA's inefficiencies as a coordinator warrant the need for a better organization, it still has networks in place that may overlap with those of the GLS. Prior to beginning coordination efforts, the two organizations must work together to prevent clashes in the delivery of aid. Moreover, similar to the ACU, the GLS risks becoming politicized. Indeed, there has been some suspicion toward the Syrian Arab Red Crescent (GLS's partner organization) due to ties to

its president, Abdul-Rahman Attar. Attar allegedly has business connections to President Assad's cousin, Rami Makhlouf (Ahsan 2013). The other impediment any umbrella organization would face is managing the distinct agendas of various NGOs working under its oversight. Different NGOs have varying priorities: some focus on meeting immediate needs, while others work on longer-term issues, distinct protocols, or work processes (i.e., the establishment of food-distribution networks or registration for services). The umbrella organization must ensure these priorities do not compete in a way that hinders the efficient delivery of humanitarian aid.

Collaborating with Local Organizations and Using Culturally Sensitive Workers

In addition to introducing an organization responsible for coordination, the gap between NGOs and aid recipients must be addressed. CSOs can tackle this need by tapping into existing local networks in Syria. Local leaders, whether tribal, ethnic, religious, or business, have grown to be quite influential since the conflict began. Religious organizations, such as the Syriac Orthodox Church, are especially instrumental in delivering aid, because during times of crisis many people turn to their faith to seek material assistance and emotional solace. In February 2014, Father Francis of the Syriac Orthodox Church in Homs released a video appeal describing the extreme level of starvation and the urgent need for medical assistance and food (SyriaDirect 2014). Such leaders and organizations understand the situation on the ground better than an external NGO can and, hence, can direct aid to areas where people most need it. The danger of tapping into local networks is indiscriminate retribution against communities whose leaders are identified by the regime as assisting the opposition. Extremist members of the regime are likely to carry out retribution, despite UN Resolution 2139 requesting safe passage of humanitarian aid.

CSOs, especially NGOs, can also better address the needs of aid recipients by using culturally sensitive workers. Cultural sensitivity entails recognizing aid recipients' dietary restrictions and having an awareness of the gender and social norms. For instance, individual recipients should not be discouraged from seeking aid because they are not comfortable interacting with an aid worker of the opposite sex or because the food aid provided is not halal. This is not to say that every aid package must be customized, because in such crisis levels, the more standardized the aid, the faster it can be delivered. However, a basic effort must be made to recognize the customs and beliefs of aid recipients so that they comfortably seek out and use the aid provided. These culturally sensitive aid workers can be both foreign and local, yet the difficulty of using foreign workers is ensuring adequate training in a limited time. On balance, a higher proportion of foreign aid workers is more probable because of the shortage of local workers. In such a crisis, many potential local workers—who do not require training in cultural sensitivity—would prioritize fulfilling the needs of their family and friends before stepping out to help others.

Providing More Medical Aid by Task Shifting Low-Risk Procedures

Another problem that must be addressed is the overwhelming need for medical aid. Even with the multitude of CSOs in place providing medical assistance, the aid is insufficient. The PDGP delegates propose task shifting low-risk procedures (i.e., first-aid procedures) to locals who can undergo basic health training. Possible organizations that may assist with training are MSF and the Union of Syrian Relief Medical Organizations (UOSSM). The latter seems especially positioned to provide assistance because of its extensive experience in providing urgent medical attention. It has concentrated efforts on managing the war-wounded inside Syria as opposed to transferring them to neighboring countries to avoid delays in treatment (Ahsan 2013). However, since there is a limited level of resources, using supplies for training leaves less stock to meet current needs (i.e., caring for the wounded). In addition, this setup risks local workers misusing the medical supplies provided to them for their own benefit. Thus, the distribution of supplies by CSOs should be more carefully monitored to prevent their mismanagement.

Conclusions

It is important to reassert that agencies and states are already in place delivering humanitarian aid to Syrians. However, the aforementioned policy proposals focus on the particular role of CSOs in boosting aid efforts. Current approaches, spearheaded by the UNOCHA, are not adequately meeting the demands of Syrians, partly due to the bureaucratic obstacles faced by the UN. As an intergovernmental organization, the UN must first respect the sovereignty of the Syrian Arab Republic, which requires working with the regime despite the minimal aid provided to areas outside of governmental control (Ahsan 2013). While CSOs must respect Syria's sovereignty (in compliance with UN Resolution 2139), their primary objective, unlike the UN, is not to consider the political interests of all member states. Given this difference between CSOs and the UN as well as the fact that Resolution 2139 prevents warring parties in Syria from blocking the delivery of aid, CSOs can take a more active role in providing humanitarian assistance.

The policy suggestions made by the PDGP delegates aim to enhance CSOs' efficacy in three ways: 1) delegating one organization the responsibility of coordinating other aid-delivering organizations, such as the GLS; 2) responding directly to the needs of aid recipients by collaborating with local organizations and using culturally sensitive workers; and 3) providing more medical aid by task shifting low-risk procedures to trained local workers. These policy proposals have been made with the knowledge that the delivery of aid will never be perfectly efficient. However, the PDGP delegates believe the proposals will increase the reach of aid to more Syrians, which is an accomplishment in itself.

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Improving Health Outcomes for Populations with Low Socioeconomic Status in the United States and Qatar

by Peter Abraham, Jacinta Leyden, and Matthew Stampfl

Significant health disparities exist across the socioeconomic gradient in both the United States and Qatar. According to the Institute for Health Metrics and Evaluation, large geographic variations in health are common in the United States (IHME 2011). For example, in 2007, the male life expectancy in Fairfax County, Virginia, was 81.1 years, which was the longest life expectancy in the country. However, a half-hour drive away in Petersburg, Virginia, the life expectancy of men was only 66.9 years, which was among the lowest in the country for 2007 (Brown 2011). Although these areas are not far apart, Fairfax County is one of the wealthiest in the United States with a median household income of \$108,383, while Petersburg has a median household income of \$35,126 (United States Census Bureau 2014a; United States Census Bureau 2014b). This large discrepancy between nearby counties exemplifies the potential importance of socioeconomic factors in determining health.

In Qatar, less data is available regarding health variations. However, from the limited available data, the existing disparities are considerable. In contrast to global trends, the healthy life expectancy of Qatari females is about three years lower than that of males (64 vs. 67 years), making Qatar one of only eight countries identified by the WHO as having a lower female healthy life expectancy (Weill Cornell Medical College in Qatar 2009). Women in Qatar experience lower status than their male counterparts (Amnesty International 2011), which could be related to their poorer health outcomes. Moreover, the poor living and working conditions of migrant workers in Qatar and the other Gulf states have negative health consequences. In the United Arab Emirates (UAE), which similarly has a large migrant worker population, an academic review detailed numerous health disparities with regard to workplace accidents and hygienic standards (Sönmez et al. 2011, 17–35).

These large health variations show room for improvement in the health outcomes of disadvantaged populations in both the United States and Qatar. In each country, disadvantaged groups experience markedly poorer health outcomes in comparison to the country as a whole. In assessing why these groups have poorer health outcomes, one important aspect is the social determinants of health, which are regarded as a fundamental cause of disease (Link and Phelan 1995, 80). According to the World Health Organization (WHO), the social determinants of health are “the conditions in which people are born, grow, live, work, and age. These circumstances are shaped by the distribution of money, power, and resources at global, national, and local levels” (WHO

2014). Examples include occupational prestige, stress levels, income, and education level (Dixon 2000). With regard to such issues, civil society organizations (CSOs) contribute to the basic patterns of life from which the social determinants of health emerge.

One practical way for CSOs to improve the health of disadvantaged groups is to focus on these social determinants. A social determinant that encapsulates many of the aspects impacting disadvantaged groups is socioeconomic status (SES), which is defined as “the social standing or class of an individual or group, often measured as a combination of education, income, and occupation” (APA 2014). Many of these aspects of SES have been linked with health outcomes, but the existing literature varies on which of these SES factors are the most important in predicting health outcomes (Braveman, Egerter, and Williams 2011; Duncan et al. 2002; Wagstaff and van Doorslaer 2000; Wilkinson and Pickett 2006). Methodological difficulties confound this puzzle, as some scientists argue that wealth—total accumulated economic resources—most accurately indicates health outcomes, whereas others claim absolute income—the unaltered sum of one’s total earnings—is a superior measure (Duncan et al. 2002; Braveman, Egerter, and Williams 2011; Braveman et al. 2005). However, the impracticality of measuring an individual’s wealth leads many researchers to opt to study income instead, as it is easier to quantify (Duncan et al. 2002).

It is unclear whether or not a causal relationship exists between income and health, although a positive correlation has been established. Two theories that may explain this causal relationship are absolute income theory and relative income theory. The former holds that a lack of income harms health through material deprivation; the latter supposes that psychosocial effects from having less are ultimately what harm health (Kawachi, Adler, and Dow 2010). The literature disagrees on the issue of causation as a whole, though, as some researchers point to a strong forward causal relationship between income and health, and others point to reverse causation as a significant factor (Braveman et al. 2005; Muennig 2008). The longitudinal studies that point to a forward causal relationship between income and health suggest that this relationship is stronger for younger populations (Braveman et al. 2005), as increasing the income of older adults generally does not have a significant effect on their health.

Regardless of whether or not this causal relationship exists, the fact that a correlation has been well-established means that targeting low-income groups is in effect targeting those with poorer health. The PDGP discussion thus focused on how CSOs could work to improve the health outcomes of populations with low income or socioeconomic status. The three main recommendations that emerged for CSOs are to: 1) increase collaboration with other organizations; 2) focus on establishing community and implementing springboard policies; and 3) conduct more research on the causal relationship between income and health.

Increasing Collaboration

The first recommendation emphasizes the need for collaboration between CSOs and other organizations in order to achieve the maximum possible impact. Increased collaboration would reduce the wasteful duplication of effort that occurs when CSOs are unaware of similar initiatives and programs of other organizations. For example, it would be redundant for a church to develop its own printed resources that promote healthy nutrition if they can use materials from a nearby food bank. Additionally, developing an initiative without considering the context of other CSOs may lead to missing out on the potential for shared insights and support from other groups. Thus, the PDGP group felt that CSOs ought to be aware of their target populations and understand what other existing programs or expertise are available.

Several examples were discussed to clarify this point. For instance, faith-based organizations could partner with technical schools to provide job training to the disadvantaged. Another example was the potential for food stamp programs to collaborate with CSOs such as nutritional groups to educate consumers of the most health-conscious decisions available to them in their environment. Local food banks could provide nutritional advisors to meet with low-income individuals and help them decide how to best utilize their food stamps. This collaboration between food stamp programs and food banks would help improve the nutrition of low-income populations, which would subsequently improve the health of those populations.

In considering how these ideas could be implemented, the Patient Discharge Initiative (PDI) at Baylor College of Medicine provides a model of successful collaboration among CSOs. PDI provides support for socially disadvantaged individuals who have been discharged from the hospital. Volunteers are primarily recruited from Rice University to follow-up with patients discharged from the Ben Taub Harris County District Hospital and help ensure they get the care they need. This collaboration among separate educational institutions as well as the county hospital sets a precedent that can be followed by other CSOs looking to coordinate similar efforts. To consider a broader example of collaboration, there are nonprofit organizations in New York, Boston, and Milwaukee that ask local employers about the kinds of jobs they want to fill, and then train people to fill these job descriptions. An evaluation at the second-year mark of the program found that people who had been trained by these organizations were earning \$4,000 more than a control group (“A Memo to Obama” 2014).

In reflecting upon this recommendation, one potential impediment that appeared was the difficulty of connecting and creating collaborations between individual CSOs. Initially, the challenge is one of awareness, as it is not possible for CSOs to work together if they are not aware of each other’s existence or expertise. However, even once the potential for collaboration is recognized, a further obstacle is the non-triviality of achieving cooperation between different organizations, particularly when they have differing institutional cultures. Finally, one other difficulty present in Qatar is the lack of potential partners for collaboration, as Qatar’s civil society is still establishing itself.

International collaboration could be a powerful tool, not only in increasing the operational effectiveness of Qatar's CSOs, but also in promoting the development of civil society in Qatar. One possibility to bring CSOs together that came up in the conference was utilizing umbrella-networking organizations to facilitate these connections. Increasing the number of organizations like Ashoka, a CSO that establishes networks among like-minded people and organizations, could greatly reduce problems of awareness (Ashoka United States 2014). Dealing with the clash of organizational cultures is challenging, but it should be recognized that organizations do not need to abandon their distinctive approaches as long as they can coordinate their activities in a productive manner.

Establishing Springboard Policies

Another PDGP recommendation was the potential for religious organizations to dedicate a greater portion of charitable funds to establishing a sense of community and honing job skills for low-income individuals. These efforts have been labeled as "springboard" policies because of their potential for a lasting impact in comparison with more short-term aid efforts such as soup kitchens (Dixon 2000). Some possible programs that were advocated during the session included creating community gardens, providing community meals and education on better food choices, and fostering networking opportunities. By providing these community events, religious organizations will facilitate more interaction between like-minded individuals, which will naturally lead to the establishment of strong social networks. Members of the community could then leverage these social networks to obtain better employment and health care. The PDGP discussion brought up the Sikh community as a practical example. Sikh temples serve as a social meeting ground, which often results in Sikhs connecting each other to open employment opportunities. Similar networks could be leveraged across other religious organizations to improve the health of low-income individuals, as strong social networks are related with better health (Smith and Christakis 2008).

One possible impediment with this strategy is the need to prove that "springboard" policies are more effective than current practices. Seeking to establish a sense of community and improve job skills is more nebulous and less practical than simply handing out food, water, and clothing (or other uses of resources). Specifically, it should be demonstrated whether "springboard" policies are more effective in improving health. That point leads into our next recommendation, which calls for more research examining income, social determinants, and health outcomes.

Conducting More Research

Increasing the amount of research that examines the link between income and health is the final recommendation that resulted from the conference. The nature of the body of research linking income inequality, social determinants, and health outcomes was discussed at length in the conference session, and it was widely agreed that more

research was needed. It was noted that essentially no research exists that looks into the relationship between income and health outcomes in Qatar. Although it may be reasonable to assume that similar trends would be seen in Qatar as in other nations, research specific to Qatar would strengthen the case for initiatives designed to improve poor health outcomes in the country's low-income populations. Therefore, Qatari CSOs, such as the Social and Economic Survey Research Institute (SESRI), should research the relationship between income level and health outcomes in the country, as well as explore whether or not a causal relationship exists between low-income levels and poor health outcome. Since the correlation between income and health has already been established in the United States, US universities should focus their research efforts on determining whether or not a causal relationship exists between income and health.

One challenge associated with encouraging Qatari CSOs to conduct research is that many CSOs in Qatar, including SESRI, are government-owned. This governmental control calls into question the independence of these organizations. Thus, there is reason for concern that they may have a conflict of interest in sharing their results with the broader public. To avoid this issue, governments could potentially conduct this research in collaboration with international institutions and universities to ensure transparency and distribution of the findings.

Conclusions

The PDGP discussion ultimately led to three main recommendations for civil societies to improve health outcomes of populations with low economic status in the United States and Qatar. The delegations recognized the need for increased collaborations between CSOs and other organizations, the importance of focusing on "springboard" policies and establishing a sense of community within disadvantaged populations, and finally, the need to conduct more research on the causal relationship between income and health so that these results may better guide future efforts in addressing the factors that lead to poor health outcomes.

Further discussions on how Qatari and US CSOs can improve health should go beyond SES to focus on other social determinants of health. For example, the disparate effects of race, age, and gender should be topics of investigation, as well as specific factors like housing conditions, workplace environments, and nutrition. Focusing on these other social factors would lead to additional insights that were not addressed in this discussion. An emphasis should similarly be placed on research to determine whether any of these social factors, when isolated, are predictive of health.

Another interesting perspective to discuss in the future would be the role of government in improving the health outcomes of low-income populations. Discussing the US and Qatari governments' ability to address the issue would result in a different set of recommendations that could complement the efforts undertaken by CSOs. Similarly, it would be useful to discuss the role of government in addressing the social determinants of health more broadly in order to get a well-rounded view of the issue.

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Conference Conclusions

by Monica Matsumoto

The 2014 PDGP conference included five discussions on the role of civil society organizations (CSOs) in addressing major policy issues. This year's student cohort highlighted water sustainability; sustainable transportation; bioterrorism and biosecurity; appropriate responses to humanitarian conflict; and health outcomes for low income populations in the United States and Qatar. The focus on CSOs served to structure the discussions as well as to encourage the student to produce creative, yet realistic recommendations for CSO involvement and actions. From the discussions, four broad themes emerged: 1) prioritizing integration and coordination, 2) raising awareness through education, 3) incorporating new research and creating standards, and 4) pressuring governments and policymaking bodies.

The discussions focused on the strengths of CSOs, while also recognizing points of weakness. Local groups, such as neighborhood or college-campus affiliated associations seemed to be especially promising actors because of their ability to appeal to a broad base on local issues of importance. Faith-based organizations were also mentioned numerous times because of their pre-existing infrastructure, membership, and methods of disseminating information. Professional groups, such as the American Medical Association (AMA), Union of Concerned Scientists, and the American Institute of Architects, can get involved in researching and developing initiatives, hosting educational campaigns, and advocating for changes in governmental policies. Furthermore, increasing global interconnectedness allows for greater international collaboration among CSOs.

Prioritizing Integration and Coordination

Through the discussions, students found that CSOs could play an important role in helping to integrate new projects within the local framework and to increase their sustainability. Integration may require coordination with systems currently in place to maximize resources, such as expanding or renovating current public transportation networks. For example, having the local community vote on the location of stations or contracting with local artists to design aesthetically pleasing spaces could increase usage of public transportation. Conversely, integration may call for the creation of an entirely new system, such as delivering humanitarian aid to displaced Syrians who are still in war zones or collaborating between food-stamp programs and farmers markets to promote healthy, sustainable, and affordable food options. One delegate noted that in the case of providing humanitarian aid, CSOs are not aiming to resolve the conflict but are trying

to ameliorate the situation and encourage resilience and survival. Furthermore, CSOs can work to integrate local culture and traditions into their initiatives, such as sending aid workers who speak the local language and understand the religious traditions. Coordinating between different groups and organizations that have diverse members, goals, and policies can be an extremely difficult task, so CSOs would have the unique opportunity to unite these groups under a common purpose and give each group a stake in a successful outcome.

Several of the discussions envisioned CSOs as umbrella organizations that could appeal to and organize various groups. This idea seemed especially relevant to aid delivery in Syria and surveillance of bioterrorist threats. Ideally, umbrella organizations can coordinate efforts and resources without wasteful duplication. For example, CIVICUS, an international alliance dedicated to strengthening citizen action and civil society, hosts an annual World Assembly as a venue for civil society researchers, practitioners, activists, and even government representatives to gather and exchange ideas about improving citizen involvement (CIVICUS 2013). Even if CSOs cannot fill the role as this broader organizational body, they could specialize in a particular area of a project, such as gathering and donating medical supplies for international aid or recruiting instructors to teach workshops on disaster relief. Independent CSOs, such as Médecins Sans Frontières (“Doctors Without Borders”), may have a unique advantage over government-led coordination by being able to provide services without privileging populations with specific political or religious beliefs.

Raising Awareness through Education

Education is a critical component of promoting awareness among the public, whether it is about proper disaster response to a bioterrorist attack, more sustainable water usage habits, or risk factors for health problems. Several of the discussions highlighted the role that CSOs can play in hosting and staffing training and skills workshops. For example, CSO-sponsored first aid or biosecurity certification programs could assist in emergency situations by taking care of the low-risk procedures and moving people safely out of danger, while allowing those with more specialized skills to care for the most serious cases. Greater levels of education and awareness could benefit large segments of the population.

Advertising through both traditional and social media, as well as branding, can be an extremely powerful tool for raising awareness and influencing habits and opinions. For example, a branding campaign of “Blue Organic” could encourage consumption of sustainably produced water, while advertisements for donating to humanitarian relief could help gather much-needed materials, such as medical equipment for administering aid in the Syrian civil war. However, the PDGP delegates believed it was important to distinguish between spreading paranoia and raising awareness responsibly. Especially for issues that do not pose an imminent threat, such as bioterrorism, CSOs should aim to conscientiously inform the population without causing panic. Therefore, campaigns would have to be well

designed and informative so they are taken seriously, but at the same time not breed false beliefs or conspiracy theories that could lead to hysteria or paranoia.

Incorporating Research and Creating Standards

Many of the groups saw the huge potential of incorporating research into the action of CSOs. The idea of ratings and certification, such as the Leadership in Energy and Environmental Design certification established by the US Green Building Council, surfaced repeatedly as potential tools for not only raising awareness, but also promoting long-term change. More specifically, the groups discussed the possibility for establishing credible ratings for sustainable water practices, disaster response and preparedness, and urban transport efficiency. CSOs can play a role in gathering data, conducting research, and campaigning for the adoption of protocols, such as responding to bioterrorism attacks or providing arms to Syrian groups. The establishment of protocols requires extensive research and modeling but is critical to minimizing both short- and long-term damage. The students realized a major limitation would be establishing credibility for and widespread adoption of ratings, but they did not believe it was outside the scope of CSOs' capabilities.

In disaster relief situations, such as the ongoing humanitarian crisis in Syria, CSOs can help conduct and/or fund research investigating prior crises, response initiatives, and successes and failures of similar situations. By learning from historical examples, or even from the previous three years of the Syrian conflict, CSOs can help develop evidence-based policies and programs to maximize efforts in an environment of limited resources. CSOs can also help to organize bioterrorism-specific discussions at international conferences to promote an ongoing, productive dialogue. These conference-centered activities would ideally bring together the experiences and perspectives of experts in the field, and is a step forward in promoting collaboration.

Pressuring Governments and Policymaking Bodies

Finally, CSOs have the capacity to put pressure on governing bodies in order to inform policymakers and to advocate for change. Through their demands, CSOs have successfully pressured governmental institutions to increase transparency, which can give greater power to the public while ensuring accountability. For example, an Egyptian CSO, One World Foundation for Development and Civil Society Care, partnered with Transparency International to oversee the January 2014 constitutional referendum (Transparency International 2014). The PDGP delegates identified particular opportunities for CSO involvement in tracking government aid to Syria to make it publicly accessible and thus to ensure that the intended recipients, such as refugees and displaced persons, are the beneficiaries. In addition, spending for large urban planning projects, such as public transportation systems, should be monitored to ensure that the projects are carried out responsibly. CSOs, therefore, can serve as “watchdog” organizations to track issues and inform the public.

Many CSOs specialize in a particular aspect of an issue and can thus be effective lobbying and advising bodies. The World Bank published a review of its civil society engagement from 2010 to 2012, which included hundreds of policy consultations in areas from youth education to disaster relief (The World Bank 2013). Government consultations with CSOs can target the local, state, federal, or international levels. For example, AMA advocates on a number of issues, including helping patients navigate changes implemented by the Affordable Care Act and adopting meaningful use of health information technology (AMA 2014). Many CSOs can be especially effective when combining their expertise with grassroots mobilization in order to influence policymakers. The students believed that nonpartisan agendas would be most influential among the public.

While the students recognized the work of CSOs in pressuring policymakers and government institutions, they also acknowledged several weaknesses. The students did not want to focus recommendations merely on having CSOs pressure governments because the conversation would devolve into a discussion about the role of government. In addition, the nongovernmental nature of CSOs often necessitates that they appeal to certain donor pools and interest groups, thereby restricting their potential audience. A narrow audience can limit the organization's credibility and flexibility in decision-making, thereby decreasing its influence among the general public. The CSO may risk losing supporters if people do not agree with the message and policies, and will therefore be limited in its actions.

Conclusion

While each group developed unique policy recommendations pertaining to the topic, the four overarching themes resurfaced throughout the conference discussions as focus areas for CSO action. In contrast with governments, CSOs cannot directly create or implement policies. This constraint requires CSOs to take alternative approaches in order to promote change while negotiating restricted resources and limited agency to write and implement broad policies. During the conference, the students highlighted many of these opportunities for CSOs, but countless other solutions likely exist or are currently being developed. CSOs are a fascinating component of the policymaking process and merit research and attention.

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PDGP Delegation



From left: Walter “Hurst” Williamson , Michael Donatti, Matthew Stampfl, Shayak Sengupta, Baek Ho “Beko” Jang, Zack Bielak, Peter Abraham, Kirstin Matthews, Melody Tan, Jacinta Leyden, Monica Matsumoto, Katherine Cai, Maithili Bagaria.

Rice Student Leaders

Monica Matsumoto '14, student director, is a senior at Rice University studying Asian studies, with a focus on the Middle East, and biochemistry and cell biology. After graduation, Monica will travel to Jordan for nine months on a Fulbright Student Research Grant to research stem cell policy and cord blood banking. She will begin medical school at University of Chicago in 2015 to pursue a future career in clinical medicine as well as international health policy, concentrating on improving US-Middle Eastern collaborations. Monica grew up in Charlottesville, Virginia, and has studied abroad extensively in the Arab world in Egypt, Jordan, and Morocco. She is fluent in Arabic and is currently studying Urdu with hopes to use both of them professionally in the future. Monica is on the board of the Houston chapter of the Japanese American Citizens League and is captain of the women’s club Ultimate Frisbee team at Rice, leading them to a

Division-III National Championship for the first time this year. She has been a research intern for Dr. Kirstin Matthews for the past three years in the Science and Technology Policy Program and is this year's student director of the PDGP program.

Zach Bielak '15, deputy director, is majoring in mechanical engineering, with a focus on environmental sustainability. After graduation, he plans to combine these two passions into a career of engineering sustainable solutions. He is specifically interested in conducting alternative energy research and creating practical, green applications for developing countries. Zach is a co-founder of the Rice University Biodiesel Initiative, which aims to produce biodiesel from waste vegetable oil to use on campus buses and maintenance equipment. He is also co-leading a committee within Engineers Without Borders, working to create a gravity-fed water distribution system for a community in El Salvador. Zach is involved in numerous activities across Rice, including researching material science and nanotechnology with Professor Pulickel Ajayan, and acting as PDGP's deputy director for outreach and social media. Outside of these interests, he enjoys singing in Rice's oldest a cappella group, designing websites, and traveling.

Walter "Hurst" Williamson '15, deputy director, is double majoring in history and political science, with a focus in international relations. After graduating, he plans to pursue a career in diplomacy and is particularly interested in the evolving relationships between the United States and sub-Saharan Africa. Hurst was born in Charlotte, North Carolina, and spent a number of years in Denver, Colorado, before moving to Atlanta, Georgia. Hurst speaks French and is an avid outdoorsman, enjoying hunting, fishing, horseback riding, and whitewater rafting. This is Hurst's second year with the PDGP program, and he is serving as the deputy director for outreach and logistics. Hurst serves as the chair of the Rice Honor Council; is president of Rice's improvisation comedy troupe, Spontaneous Combustion; and is a research intern for Dr. Kirstin Matthews in the Baker Institute's Science and Technology Policy Program.

Rice Student Delegates

Peter Abraham '14 is majoring in religious studies with a minor in biochemistry and cell biology. He spent the summer of 2013 interning at the Urban Institute Health Policy Center in Washington, DC, where he studied the hospital costs of gun violence and Kentucky's Medicaid program. After graduation, Peter plans to attend medical school while also pursuing a degree in bioethics. Peter is an undergraduate research intern with Dr. Elaine Howard Ecklund in the Religion and Public Life Program and conducts research at Baylor College of Medicine through the Health, Humanism, and Society Scholars Program. He also served as president of his residential college during the 2012-2013 year. In addition, Peter loves to swim and plays on the Rice club water polo team.

Maithili Bagaria '16 is a sophomore majoring in political science and policy studies with a focus in Middle Eastern relations. After pursuing a graduate degree in public policy, she wants to work in a public policy think tank or an intergovernmental organization. In the

future, she hopes to be directly engaged in diplomatic talks at the forefront of conflict resolution in the Middle East. Maithili is currently interning the Baker Institute Center for the Middle East conducting research on US-Iranian relations and the Syrian Civil War. In July 2013, she published an opinion article on the US-Russian deadlock on Syria in the Houston Chronicle. Maithili was born in Mumbai, India, and was raised in Bangkok, Thailand. She is fluent in English, Hindi, and Thai, moderately proficient in Spanish, and is currently studying Arabic.

Katherine Cai '15 is studying political science and policy studies, with a focus in urban and social change. After graduation, she plans on attending law school, where she can pursue her interests in criminal and constitutional law. Having interned with the American Civil Liberties Union in Washington, DC, health education nonprofits based in Houston, and a private law practice, she is passionate about exploring the intersection between public policy, law, and social justice at the state and national levels. Katherine was raised in San Jose, California, and has yet to study abroad or travel outside of the country as an undergraduate. At Rice, Katherine serves on the leadership teams for her residential college, the Baker Institute Student Forum, the Rice Pre-Law Society, and the Rice chapter of the American Civil Liberties Union.

Michael Donatti '16 is a sophomore studying mechanical engineering. Born in Houston, Texas, to Argentine parents, he has travelled extensively across all but two continents (Antarctica and Africa). He is particularly interested in environmental sustainability and energy policy and will intern this summer with British Petroleum. Through this internship, he is hoping to get an inside look at the energy industry and potentially open doors for a career after graduation. At Rice, he is active in the student body government as the representative of his residential college, and he has worked extensively to create and secure funding for the Rice Environmental Society, a club to unify environmental groups on campus. He leads a technical sub-team for Engineers Without Borders, where he has helped to oversee the design of a water distribution system for over 1,000 people in Nicaragua.

Baek Ho “Beko” Jang '16 is majoring in bioengineering at Rice University. He currently conducts research with the Texas Children’s Hospital investigating human immunology with a focus on natural killer cells. Beko also serves as the student director for the Rice Center for Engineering Leadership Lecture Series. After graduation, he plans to pursue a medical degree with the ultimate goal of practicing medicine, formulating policy, and collaborating with researchers and diplomats on an international stage. Born in Seoul, South Korea, he served in the Korean Army from January 2010 to October 2011. As a first-generation Korean American, he spent most of his teenage years in the Midwestern United States, including Illinois, Kansas, and Nebraska.

Jacinta Leyden '14 is originally from Calgary, Canada. She is a current bioengineering, global health technologies student at Rice. She will be attending medical school in the fall of 2014 and ultimately aims to address global health inequalities through a career in global health policy and research. Jacinta has developed novel nanocrystals for breast

cancer diagnostics in the Rice Bioengineering Department, led a health education trip to Ecuador, and worked at the National Science Foundation (NSF) in the Office of Legislative and Public Affairs in Washington, DC. Most recently, she interned in the Medical Devices unit at the World Health Organization in Geneva, Switzerland, on a project aimed at increasing access to medical devices through local production. She is currently leading a campus organization, Rice MedicOwls, which aims to increase use of medical technology in developing countries through comprehensive troubleshooting manuals. Jacinta is fluent in English, French, Mandarin, and Spanish.

Shayak Sengupta '15 is a third-year student studying civil and environmental engineering. As a future environmental engineer, he hopes to use science and engineering to contribute technical solutions to policy-relevant environmental issues. Currently, he conducts research with the Cohan Research Group, studying greenhouse gas emissions footprints of conventional and alternative fuels. Most recently, he has partnered with the city of Houston to undertake a study of environmental and economic characteristics associated with the city's alternative-fuel municipal vehicles. He recently had the opportunity to present this work at the King Abdullah University of Science and Technology in Thuwal, Saudi Arabia. In addition to being a researcher, Shayak is a member of the University Honor Council and Basmati Beats, Rice's South Asian a cappella group. Shayak was born in Baton Rouge, Louisiana, but has lived most of his life near Houston, Texas. After graduation, he hopes to pursue a graduate degree in environmental engineering.

Matthew Stampfl '15 is majoring in chemistry and policy studies with minors in global health technologies and biochemistry. Hailing from Green Bay, Wisconsin, Matthew has a passion for travel, and he loves to visit new parts of the world. He spent the fall of 2013 studying the health systems of northern Europe in Copenhagen, Denmark, at the Danish Institute for Study Abroad. In the future, Matthew intends to attend medical school at the Baylor College of Medicine and complete a master's degree in health policy. Ultimately, he hopes to split his time between clinical practice and work related to the development of health policy in the United States and abroad. He is certified as an advanced emergency medical technician and is in training to become a supervisor with the Rice Emergency Medical Services. Matthew is also involved with the Baker Institute Student Forum, and his favorite publication is *The Economist*.

Melody Tan '14 is studying bioengineering and global health technologies. During her time at Rice, she has been involved with Beyond Traditional Borders and Engineers Without Borders, and has traveled to Guatemala, Ecuador, Nicaragua, South Africa, Ethiopia, and Liberia for service and global health work. These experiences, which have exposed her to various health-related inequalities in developing countries and the need for effective health interventions, have shaped her direction for the future. Melody conducts research with the Peter Hotez, Baker Institute fellow in disease and poverty and professor at Baylor College of Medicine, focusing on the development of vaccine delivery systems for the neglected tropical diseases (NTDs). Additionally, she has co-authored an

editorial with Dr. Hotez that addresses NTD treatment in Indonesia. After graduation, she intends to pursue a graduate degree in bioengineering or global health, with the ultimate goal of working on the design and implementation of health technologies and interventions for low-resource settings.

Rice Faculty Advisors

Kirstin R.W. Matthews, Ph.D., Fellow in Science and Technology Policy, Baker Institute; Lecturer, Department of Natural Sciences; and Adjunct Lecturer, Department of Sociology, Rice University

Joe Barnes, Bonner Means Baker Fellow, Baker Institute

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Finally, the Rice University delegation thanks the previous student directors of the PDGP program, Sean Graham (2010), Tom Campbell (2011), Graham West (2012), and Rohini Sigireddi (2014), whose inspiration and commitment to student-led efforts in public diplomacy have led the PDGP program to become what it is today.



Visiting Qatar

Over spring break, Rice students enjoyed the local attractions and landmarks of Doha. They visited the Fanar Islamic Cultural Center and the Museum of Islamic Art, toured Shell Oil's Pearl Gas-to-Liquid facility in Ras Laffan Industrial Park, went on a sand dune excursion, and attended a Qatar-Bahrain soccer match.







Down to Business

Held in Doha in March 2014, the PDGP conference included four days of discussion on policy topics and a final session on the future of the program. The conference, hosted by the Qatar Foundation and His Excellency Sheikh Abdulla bin Ali Al Thani, was held at Hamad bin Khalifa University in Education City.

