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Guyana loses approximately 83% of its highly skilled labor force to Canada, the US and the UK, leading the world in this practice. It ranks 97th on the Human Development Index and migrant remittances account for approximately 24% of the country's GDP. While most research on these migrant connections focus on monetary or in kind remittances, far less attention has been paid to diaspora knowledge networks as an intervention that can possibly convert "brain drain" into a "brain gain". In what ways might these networks play an integral role in the design and development of sustainable infrastructure needed in home countries? This paper uses Guyana as an example and builds upon the diaspora involvement in disaster relief efforts to explore opportunities for continuous, long term engagement that can contribute to home country sustainable development, especially in terms of infrastructural systems (e.g. water).

About 75% of Guyana's population resides on the low lying coastal zone, including ~30% in urban areas. Floods in January 2005 affected 85% of the total population and Guyanese in the diaspora mobilized to provide disaster relief. Through the internet and other means, this event engaged Guyanese in discussions on water infrastructure and the sustainability of living on a low lying coast in the face of global climate change. Drawing on the researcher's involvement in a website intervention in relation to the floods, this paper discusses how the response of the Guyanese diaspora to disaster relief efforts highlighted the potential to contribute on multiple fronts to improve Guyana's infrastructure: design; management; and infrastructure recovery from disaster. It also highlights the limitations to engagement and offers some possible solutions to overcoming those limitations so that the diaspora can truly contribute to the sustainability and resiliency of Guyana's coastal communities – something that is slowly being recognized as essential in the face of globalization.

Introduction

Natural disasters have long term effects on human life and often recovery from damaged physical and social infrastructure (e.g. water and waste water, transportation, waste disposal, communications, electricity, health, education) is long and costly, with varying impacts on a country's GDP. For example, hurricane Ivan cost the Cayman Islands 138% of its GDP in 2004 and floods in Guyana affected 59% of Guyana's GDP in 2005 (UNECLAC, 2005). This region is particularly vulnerable to global climate change with predictions of increased hurricane frequency and intensity and changing rainfall patterns. Until major adaptation measures are taken one expects the impact from natural disasters to increase. Immediate relief efforts usually ensure food, shelter and healthcare for those affected, with international organizations like the Red Cross frequently leading the way. Migration patterns, especially those from developing countries, has led to the creation of diasporic communities in developed countries that maintain

personal and even professional relations with their countries of origin and which may mobilize to assist with relief efforts after disasters in the home country. Infrastructural improvements, usually of physical dimensions, follow with government investment and funding from organizations like the World Bank and the European Union; here there tends to be much less involvement by the diaspora community. Apart from their contribution to relief efforts, remittances from diaspora communities are significant and many times far greater than foreign direct investment, foreign assistance or performing sectors of the local economy like manufacturing. These remittances and the technical skills of the diaspora community, however, are not utilized for typical infrastructure projects. More recently, planning and decision-making processes are being recognized as crucial to build critical infrastructure including those of human, political and ecological dimensions that can support resilient coastal communities like New Orleans after Hurricane Katrina in 2005 (Glavovic, 2008). For this expanded view of sustainable and resilient coastal development, especially after disasters, Glavovic (Glavovic, 2008) proposes five principles and 10 operational imperatives to guide efforts (Table 1).

Table 1: Principle and operational imperatives for sustainable and resilient coastal communities (Glavovic, 2008).

Principles	Operational Imperatives
1) Put people first 2) Develop responsive and participatory processes 3) Prioritize empowerment 4) Prioritize ecological sustainability 5) Adopt a proactive and strategic but precautionary approach	1) Adopt an integrated, multi-level and holistic approach. 2) Vigorously manage mitigation and ‘mainstream’ natural hazards planning into decision-making processes. 3) Adapt to local circumstances, build and mobilize local capacity and foster local responsibility. 4) Identify, understand and address the needs of vulnerable communities and groups. 5) Focus on priority sectors and critical assets. 6) Strengthen information networks and proactively share information to inform, solicit feedback and raise public awareness. 7) Focus special attention on securing the buy-in and commitment of leaders from the State and private sectors and civil society. 8) Capitalize on disaster. 9) Adopt flexible and iterative processes in the face of a dynamic and uncertain future. 10) Monitor, review and adapt planning and decision-making processes.

Despite the post Katrina research emphasizing these new approaches, the current rebuilding efforts in New Orleans seem to have reverted to “business as usual”. Yet Glavovic’s proposals are a useful point of departure for thinking about the contributions of diaspora communities in the context of disaster preparedness and preventative measures. At the same time it should be recognized that such groups are rarely, if ever, strategically engaged by many home country governments who themselves may not be addressing resilient recovery strategies. The significant role that the diaspora plays in terms of remittances, however, can be used to bargain for more engagement on developmental patterns.

This paper uses Guyana as an example and builds upon the diaspora involvement in disaster relief efforts to explore opportunities for continuous, long term engagement that can contribute to home country sustainable development, especially in terms of infrastructural systems (e.g. water, health, and human empowerment). The paper first offers a brief overview of the diaspora literature as it relates to remittances, whilst detailing the situation as it relates to Guyana. Drawing on the researcher's involvement in a website intervention in relation to 2005 floods, the

paper then discusses how the response of the Guyanese diaspora to disaster relief efforts highlighted the potential to contribute on multiple technical fronts to improve Guyana's infrastructure: design; management; and infrastructure recovery from disaster. Lastly, it highlights the limitations to engagement and offers some possible solutions to overcoming those limitations so that the diaspora can truly contribute to Guyana's sustainable development.

Migration and Remittances

Countries in the Organization for Economic Cooperation and Development (OECD) have approximately 7.8% foreign born residents; the numbers being 12.3, 19.3 and 8.3% in the U.S., Canada and the United Kingdom respectively – the main destination for English speaking Caribbean nationals (Dumont & Lemaitre, 2005). Table 1 summarizes statistics on migration and remittances for a few representative nations in the Caribbean region. Diasporic communities contribute significant amounts of money to the home country through remittances. Worldwide flows to developing countries were estimated at \$240 billion in 2007 with the highest percentage going to Latin America and the highest remittances/GDP going to many of the Caribbean region, including Guyana (Ratha & Xu, 2008).

Table 1: Statistics on five Human Development Index (HDI) ranked Caribbean nations, including Guyana. Taken from UNDP Human Development Reports on October 18, 2008 (<http://hdrstats.undp.org/buildtables/>).

HDI Rank		GDP per capita (US\$)	Population (millions)	% Highly skilled Expats ^a	Stock of emigrants as % of population	Remittances ^b (millions \$)	% GDP from remittances ^b	Number 501(c)s in U.S. ^c
		2005	2005	2000	2005	2006	2006	2008
31	Barbados	17,297	0.3	47.1	42.2	140 (2005)	4.5 (2005)	5
59	Trinidad and Tobago	14,603	1.3	76	27.7	92	0.5	5
97	Guyana	4,508	0.7	83	55.6	218	24.3	15
101	Jamaica	4,291	2.7	81.9	39.1	1946	18.5	135
146	Haiti	1,663	9.3	78.5	9.8	1070	21.6	474

a. Taken from (Dumont & Lemaitre, 2005).

b. Taken from "Migration and remittances factbook" (Ratha & Xu, 2008) online database (<http://go.worldbank.org/59JJA306X0>).

c. Taken from organizations registered in the U.S. that contain the name of the country in the IRS database of 501(c) organizations (<http://www.irs.gov/app/pub-78/>) accessed 10/18/08.

Remittances accounted for 13% of GDP in the Caribbean in 2002 and are underestimates given that only a portion of remittances is officially counted (Mishra, 2007). In Guyana, remittances accounted for 24.3 % of GDP in 2006 (Ratha & Xu, 2008), and when compared with the foreign exchange inflows from manufacturing exports and official development assistance the remittances were 117% and 147% respectively. Except for Barbados, the four countries listed in Table 1 top the list in terms of the percentage of highly skilled migrants to OECD countries (OECD, 2005). Though significant, the official remittances to the Caribbean do not fully replace economic losses due to high-skill migration and two emerging solutions to deal with this

phenomena are the minimization of losses of the highly skilled and/or the adoption of a “diaspora approach” by the Caribbean countries (Mishra, 2007). The engagement of the diaspora is rapidly gaining support around the world and the concept of a “brain drain” or “brain desertification” from developing to OECD countries is being replaced with that of a “brain gain” with many supposed success cases in places like India (Meyer, 2001; Ouaked, 2002). Studies are needed on effective mechanisms to harness the potential of the diaspora in a variety of ways, eg. knowledge networks, recruitment of knowledge, skills, and assets; and attraction of improved forms of remittances (Meyer, 2001; Mishra, 2007). Indeed, the focus has been on remittances: how to better capture them through official accounting measures; how to capitalize on the transfer mechanism; how to make the transfer mechanism more affordable and efficient; and how to direct those transfers into enterprise building projects (Kirton, 2006; Orozco, 2002).

Since 2000, the contribution of remittances to Guyana’s economy has grown by approximately 50% and along with eight other Caribbean nations it is listed in the top 30 of the countries receiving remittances based on remittances/GDP (Kirton, 2006). When compared to the population at home, Caribbean emigrants represent a significant number which in most cases is regarded as an underestimation (Ratha & Xu, 2008). For example, during the 1980s Guyana actually suffered negative population growth, largely due to the haemorrhaging of people through migration. More recently there has been little population change with current numbers estimated at 770,794 (CIA, 2008). In 2005 the number of Guyanese migrants was estimated to be 55.6% of the home population with indications that this number may actually be greater than 100% (Orozco, 2002; Ratha & Xu, 2008). In addition to the remittances, Caribbean migrants return for visits and in Guyana it is estimated that approximately forty percent of migrants to the US return at least once per year (Kirton, 2006). Metropolitan cities like New York, Toronto, Washington D.C., Orlando, and London have the largest Guyanese emigrant populations and like other nationalities, these groups have organized into many organizations/associations along residential, sport, educational, social, cultural, religious, ethnic and political lines (Orozco, 2002). The most comprehensive list of Guyanese associations in the diaspora (including inactive ones) includes close to 200 organizations, with more than half based in the U.S (Landofsixpeoples.com, 2008), and the majority having small economic bases (Orozco, 2002). These associations have contributed to community and educational upgrades including books, equipment and sporting gear, provision of medical equipment and services, and donations of various kinds and their mobilization increases during holiday seasons or during stressful situations like the 2005 floods (Kirton, 2006). In terms of formally registered organizations, the numbers are smaller. In the U.S for example, only 22 organizations having a title that includes “Guyana” or “Guyanese” are registered as a charitable 501(c) organization, some of which (e.g. Guyana Relief Council of Florida) formed after the 2005 floods and will be discussed later.

Floods of 2005 and diaspora response

Guyana is the only English speaking country in South America, wedged between Venezuela, Brazil, Suriname and the Atlantic ocean. Seventy five percent of its population lives on the low lying coastal zone, and the floods that started on January 15th, 2005 affected 85% of the total population some of whom lived in areas inundated with between 1 to 5 feet of water for over 7 weeks (UNECLAC, 2005). Thirty four lives were claimed, 21 from an outbreak of leptospirosis and an estimated \$465 million US was needed for flood recovery (Liverpool, Francis, Liverpool,

Dean, & Mendez, 2008; UNECLAC, 2005). The coast lies 6 feet below sea level during high tide and its sea defense and irrigation system originally designed by the Dutch includes sea walls, kokers and sluice gates, canals, conservancies, and pumping stations, most of which have been poorly maintained and were not functioning properly prior to the floods. In January 2005 the area received 43.6 inches of rainfall, the highest since record keeping began in 1888 (UNECLAC, 2005). Figure 1 will be used to highlight the threat, especially to coastal communities between the Demerara and the Mahaica river. The East Demerara Water Conservancy (EDWC) regulates freshwater flows to the lower lying coastal areas and supplies water for irrigation of the agricultural fields. Designed to hold 100 billion gallons of water, the threat of this conservancy breaching and/or overtopping in 2005 were real as its water levels approached the maximum it was designed for. Releases from the conservancy to the rivers were limited because of non functional or blocked canals, and simply high river levels. In addition to the threat imposed by the conservancy, the communities north of it were faced with rising floodwaters that could not be released rapidly enough to the ocean due to inadequate pumping capacity, blocked drainage, and malfunctioning kokers and sluice gates (a concrete sea wall protects these communities from tidal inundation).

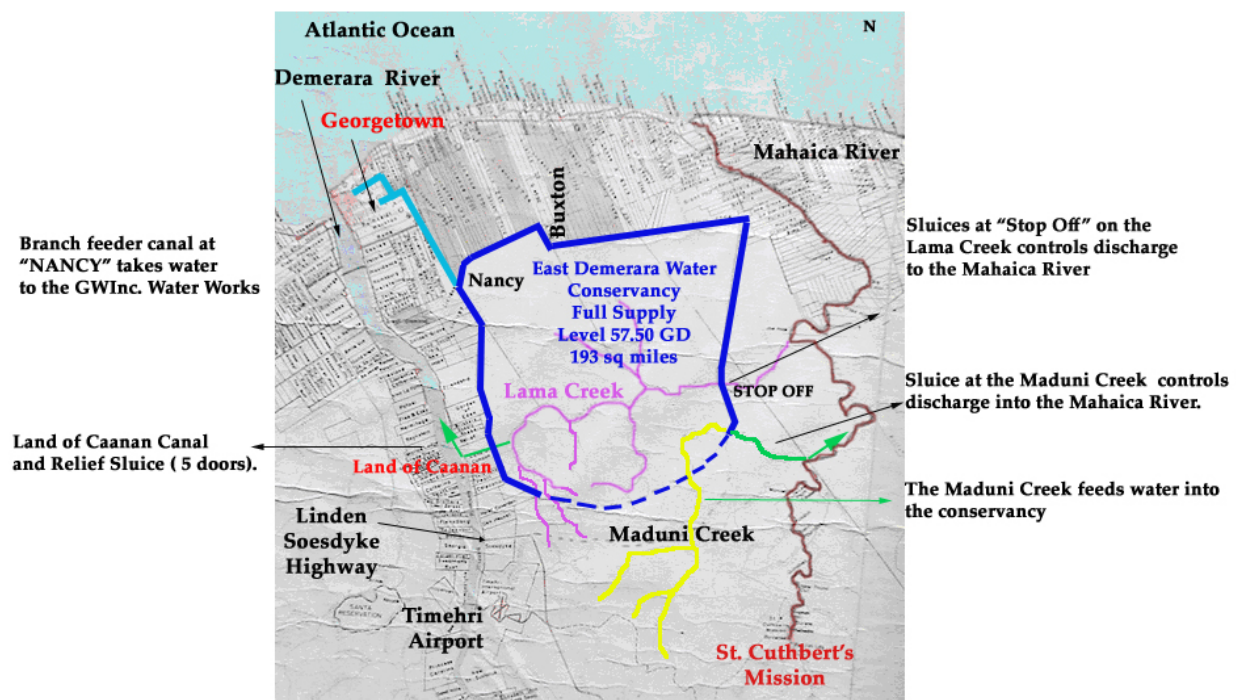


Figure 1: Map showing the East Demerara Water Conservancy which was designed for water levels of 50-57.5 ft relative to Guyana Datum (GD), which is 1.8 ft above Mean Sea Level. Image is taken from www.jouvay.com/guyana, based on a 1982 Guyana Land and Surveys Department Map of Region 4: Demerara/Mahaica 1:100,000.

On March 31st, 2005 UNECLAC released a socio-economic assessment of the damages and losses and some of those results are summarized in Table 2 to provide an overview of the impact on some of the infrastructure (UNECLAC, 2005). They also covered productive sectors, other physical infrastructure and issues like governance, financing and insurance and the environment.

Table 2: Summary of UNECLAC findings on the January 2005 floods in Guyana (impact of floods on specific sector, response of government to the impact, and recommendations of the agency for further action by the Government of Guyana) (UNECLAC, 2005).

	Impact	Response	Recommendations
Drainage & Irrigation (D&I)	<ul style="list-style-type: none"> • Damage to sluice gates, intake structures and kokers, culverts and canals, Crown Dam and Conservancy embankment • Extensive canal siltation 	<ul style="list-style-type: none"> • \$3.5 million US for immediate rehabilitation • \$50 million earmarked for 1-3 year horizon • \$200-\$300 million US earmarked for 10-15 year horizon 	<ul style="list-style-type: none"> • Strengthening of D&I board • Post graduate training in hydraulics and hydrology with bonding agreements with agency
Water Supply & Waste Water Disposal	<ul style="list-style-type: none"> • Temporarily out of service • Destruction of well heads • Sewage contamination 	<ul style="list-style-type: none"> • Immediate distribution of bottled water and tanks • Advisories on water consumption and contact with flood waters • \$1.9 million US for water and sewage infrastructure 	<ul style="list-style-type: none"> • Improve water quality testing • Provide water storage • Repair sanitary facilities

News of the flooding and its potential impact spread through the diaspora community days before official governmental declarations of a state of emergency, governmental requests for international assistance and any press releases from the Caribbean Disaster Emergency Response Agency (CDERA). Emails and telephone calls describing the event and requests from various organizations, relatives and businesses were supported by online newspaper updates and a very limited number of Guyanese websites. One of the most informative and popular sites at the time (<http://www.bryanmaxx.netfirms.com/>) was and still is constantly updated with photographs and observations initially taken from the webmaster's home showing levels of water and then covering all areas affected along the coast. International media coverage of the event was small and Guyanese in the diaspora relied heavily on internet sites for information. The potential impact of the flooding as it evolved became central to many discussions amongst Guyanese at home and in the diaspora and this process, along with the absence of a centralized place to find information (relief efforts, donation places etc.) led to the development of an internet site, jouvay.com/guyana, dedicated to providing this type of informational material. The information on the site relied on the input of Guyanese in the diaspora and at home, including engineers, scientists, and social scientists. The main contributor based in the U.S. was a part of a team of media representatives from the US invited to the flooded regions in February 2005 under the sponsorship of the Government of Guyana and private companies.

Mr. Piggott, a Guyanese agronomist retired from the Guyana Sugar Corporation (GUYSUCO) with much knowledge of all of the drainage and irrigation systems along the coast provided information (e.g. maps, water levels, state and use of kokers) and an in country tour of the various canals and pump stations that were presented on the website (e.g. Figure 1). Mr. Terrence Fletcher, a Civil Engineer, also supplied technical information for the site. A linked forum board enabled discussions on topics like the coast's vulnerability to floods and future options for Guyana's development. Should the coastal communities which occupy only 7% of Guyana's land mass move to higher ground and what are the types of studies needed to inform such decisions? These issues have been and continue to be raised in columns to the country's main newspapers etc., however, the flood at the time provided an opportunity for widespread

engagement. Hurricane Katrina raised similar issues and awareness, especially owing to widespread media coverage (Glavovic, 2008; Olshansky, 2006). Whereas the government of Guyana's long term plan for investment in drainage and irrigation infrastructure included enhancements of the country's existing layout, limited discussions have ensued on a redesign of the coast that looks at more holistic solutions (Glavovic, 2008). The experience with creating an informational website with input from Guyanese all over emphasizes the importance of building on people's knowledge and skills, passed down through generations. Not just or only or even relying on top down levels of expertise, but getting information out in a timely manner, and also ensuring bottom up participation. While beyond the scope of this paper, this requires ensuring democratic and participatory mechanisms at the local village level, which is where people are first affected by floods, and unfortunately in Guyana local village elections are flawed.

The World Bank recently approved a \$3.8 million US project, "The Conservancy Adaptation Project", to map and analyze the EDWC and coastal drainage patterns and strengthen the institutional capacity for managing water and floodwater levels, and to guide interventions to reduce Guyana's vulnerability to floods (World Bank, 2007). This information will be used to inform the design of larger infrastructural projects to expand draining capacity. With 83% of the highly skilled labor force emigrating each year, institutional capacity building faces serious challenges and has affected all aspects of Guyana's infrastructure. The number of Guyanese who know about these bank funded efforts is likely small and limited to government. Was the opportunity to engage and meaningfully involve Guyanese, at home and abroad, lost in the design of such a project? The diaspora community trained in these fields can contribute to this area through educational and outreach programs that, for example, coincide with visits home. The diaspora can work with local organizations and communities in Guyana to build capacity on issues related to water management, and should target funding opportunities that support this. Many of the more active diaspora organizations are associated with primary and secondary schools in Guyana and usually raise funds to improve facilities. These organizations also have members who can help to improve curriculum to encourage a focus on nurturing the science and engineering skills needed in the country (This will require a different kind of model for many of these diaspora organizations, which presently operate more or less as funnels for monies and equipment to home institutions). The University of Guyana already requires senior undergraduate theses, most of which address real issues facing the country like ecosystem destruction (e.g. mangroves) and flood vulnerability in the Environmental Studies Unit. Regional organizations committed to climate change efforts in the Caribbean have sponsored the training of Guyanese in a master's program on Coastal Zone Management at the University of the West Indies in Barbados. The theses fill important research areas in the Caribbean countries as exemplified by Dalrymple's thesis, "Assessment of the physical vulnerability of Vreed-en-Hoop and Good Hope on the coast of Guyana to accelerated sea-level rise" (Dalrymple, 2004). Mechanisms for communicating those academic findings locally and throughout the diaspora are important, as are facilities (labs, equipment) that can support and train individuals. Retention of the collective knowledge of the trained students from this type of program is also important as many find jobs in Guyana outside of the field, or emigrate for work or further graduate training. Members of the diaspora should consider how to engage during project development and implementation. A major assumption here is that there are members of the diaspora who would like to see this type of "sustainable" development in Guyana and that for those members not

familiar with the fields, access to resources is readily available given their location in major OECD cities.

In Guyana, lack of coordination amongst aid organizations, multiple relief efforts and governmental offices at the time of the 2005 floods, led to the creation of a now registered and very visible NGO, the Guyana Citizen's Initiative (GCI). GCI immediately established an office space equipped with technology (e.g. GIS mapping) to help effectively plan relief efforts based on information provided by the multiple stakeholders providing aid, including the government. GCI's nightly informational meetings and contributions to local media helped to raise awareness of the general population on the current situation, and on the larger state of the coastal infrastructure. The United Nations (UN) provided overseas consultants to assess the dam and this began some 20 days after flooding started. The two Dutch engineers were hired for the project to give unbiased opinions which are important in Guyana's political landscape. Most of the information discovered by the consultants had already been established through the diaspora network and local Guyanese and posted online for discussion. Even the government waited patiently for this report to "assess" damages and the state of the conservancy dam. Organizations like the Guyana Association of Professional Engineers were not invited to assess the dam and even made a public appeal for access to the EDWC at the onset of the floods. Since 2005 this organization has established building codes that would add resiliency to housing infrastructure, however, these are yet to be legalized by the government. Given that issues are so easily politicized, potentially meaningful contributions to national issues (e.g. the need to implement building codes that protect against flood damage) are often sacrificed on the altar of political infighting or suspicion; is it possible that involving the diaspora might broaden the landscape of participation, and defuse these local and predictable outcomes?

The Alicea Foundation, a non-profit organization registered in Guyana that was providing relief to communities received a small grant from Johnson and Johnson's Jamaica office to assist mothers with babies after recognizing the special needs of this vulnerable group. Red Thread, a Guyanese NGO, also organized a community meeting to discuss the particular concerns of women and children as it related to flood impacts, flood relief and flood recovery after recognizing gender related issues in the field (UNECLAC, 2005). The information was then shared with other relief organizations and government to better serve these communities and used as the basis of demands from the government – eg. debt relief for working families, subsidies etc.. Much of the work of the NGO groups like GCI and Red Thread informed international donor agencies and reports like that of UNECLAC referenced earlier.

Diaspora contributions supported local relief efforts and soon after flooding began "typical" material donation requests for disasters of this type were replaced with more tailored donations based on efficiency. For example, collection of items like canned goods and clothing to be shipped from US ports was less efficient and more costly than the transfer of money to a local agency that could then purchase materials in non-flooded regions of the country or from neighboring countries. Mechanisms to transfer money, however, were also costly and resulted in less donations when done by individuals (owing to transfer fees) than collectively. The internet proved a convenient way to solicit monetary contributions from the diaspora (e.g. through paypal), however, banking mechanisms were missing, especially for groups based in Guyana.

Since the floods, the Guyana Relief Council of Florida, for example, has officially registered as a 501(c) organization in the US. Its Guyanese counterpart operated a shelter during the 2005 floods and will benefit significantly from this recently formalized mechanism for fundraising and activism in the diaspora. International donor agencies also contributed directly to organizations like the Guyana Red Thread, sometimes, instead of to the government of Guyana. Economic growth, health sectors and democracy and governance are the three USAID target areas in Guyana, the last of which emphasizes the complex political landscape.

The diaspora and local responses to flood relief efforts must be placed within the context of the political polarization in Guyana that is built on a history of race based voting amongst the two main groups, Indo and Afro Guyanese. The history of slavery of Africans and indentureship of East Indians in Guyana has resulted in coastal communities that are adjacent to each other, but in many instances, are seen as an Indo-Guyanese or Afro-Guyanese village or a stronghold that is loyal to the ruling or main opposition party. The media trip during the floods included an entire afternoon with Guyana's President, Mr. Jagdeo, spent visiting villages along the coast, most of which consisted of strong supporters of the ruling party (PPP). A similar visit was made the next day with the leader of the main opposition party (PNC), Mr. Corbin, that time visiting villages within their stronghold. Evident on both visits was the suffering and worry of communities, the filthy waters, the abundant trash, their knowledge of the source of the problem and recognition of local warning signs, and the indomitable spirit of perseverance. That is to say, the shared concerns and vulnerabilities. Apart from complaints that government agencies were unevenly distributing assistance with more going to their strongholds, little discussion focused on politics or race for those living in the floodwaters. The political divisions that exist in Guyana are perpetuated in some of the diaspora communities and must be considered if one wants to fairly engage the diaspora in development when not faced with a serious disaster or crisis. Framed another way, can one use the flood experience which is still vivid and fresh on people's minds to once again engage Guyanese on issues of development without having them evaporate in the face of entrenched political differences? The government of Guyana has sponsored diaspora meetings, however these have been limited to private enterprise investment in Guyana and potential export markets for Guyanese products. Are NGOs, like the non-partisan Guyana Citizen's Initiative, potential organizations that can forge coalition building around the question of sustainable development, and what support can diaspora communities give to guarantee success?

Diaspora Opportunities

The floods in Guyana and local and diaspora responses discussed above directly address four of the ten operational imperatives (see Table 1) needed to guide Glavovic's (Glavovic, 2008) five principle's for sustainable, hazard resilient communities:

- 3 – Evolution of new organizations like GCI and formally registered foreign based counterparts like Guyana Relief Council of Florida. Response of local organizations like the Guyana Association of Professional Engineers with building codes for flood hazard resilience which are yet to be considered by the government. Mobilization of local contributors like Mr. Piggott to the development of information to raise public awareness on critical issues.

- 4 – The work done by Red Thread and the Alicea Foundation on women and women with babies with support from diaspora communities and foreign, private grants. Different organizations did target other vulnerable populations like the elderly and disabled.
- 6 – The work done by members of the diaspora and local Guyanese in creating online spaces with information on the coastal vulnerability and actions to assist with relief efforts.
- 8 – The engagement of multiple groups in Guyana and throughout the diaspora in flood relief efforts, but more importantly in discussions on critical developmental issues that relate to vulnerability of the coastal community and potential solutions.

Though post Katrina recovery continues with much of the same, can Guyana capitalize on Glavolic's (Glavovic, 2008) framework and institute real changes that increase the resiliency of its coastal communities? In addition to the Guyanese diaspora groups discussed before, the Caribbean diaspora is also mobilizing as a whole. In June 2007, CARICOM organized the "Conference on the Caribbean: A 20/20 Vision" held in Washington, D.C. that included a special forum on the diaspora. The formation of a foundation for Caribbean science and engineering and an association for the Caribbean diaspora to support science, technology and innovation was announced at a September 2008 meeting organized by CARISCIENCE in Trinidad and Tobago where energy, food and water and the interface of all three were highlighted as critical need areas for the region. There is hope that these organizations succeed and share the skills and resources with the region to promote more sustainable communities. The memory of the 2005 floods is still strong and that disaster must continue to be capitalized in order to revisit developmental options for Guyana's coastal communities.

The possibility to recruit a core set of diaspora skills in the case of Guyana to deal with in the first instance the vulnerability of the coasts to inundation must be explored. The general idea would be to form these groups to address specific development challenges for the home country, engage with the government and civil society to let them know of their existence, their capacity and willingness to contribute, and if the government does not avail themselves of that capacity then work with the civil society groups. UNESCO has identified these "diaspora knowledge networks" as evolving entities that can contribute to home country. Although funding agencies are keen to channel development funds through civil society organizations these usually lack the technical capacity to make the best use of these funds and as a result fail in their attempts to do so. This was definitely an issue in Guyana during the floods where some of the organizations expressed a lack of resources to properly manage the "reporting" required of international funding agencies. Given the government's reticence to engage meaningfully with these groups then maybe this is the niche area for technical diasporic intervention – helping local civil society groups to develop proposals for access to development funds, identifying funding sources, and providing the technical backbone and support for subsequent implementation. Like the rest of the Caribbean, Guyana for instance is not making use of the allocations available under the Global Environmental Facility (GEF) for implementation of the Multinational Environmental Agreements (MEAs). In country civil society groups can access \$50K US for community based activities under the sustainable development agenda from the GEF small grants country program – several of these grants are available nationally, but are not taken up because of the lack of capacity nationally among civil society groups to articulate national needs and to implement. Another area of engagement should be through the tertiary institutions (in Guyana and in the

diaspora) – partnership with the diaspora cluster group to carry out specific research and to develop and implement programs of national import. Such a group may also explore possibilities of bidding for implementation of national projects funded by overseas donors.

The increased interest of financial institutions in formalizing remittances for Guyanese in the diaspora coupled with the extremely high level of remittances already sent are reasons to believe that the diaspora can enable developmental change. Leaders in the diaspora who can visualize and communicate the benefits of designing more resilient communities through integrated and participatory processes will be important to catalyze these changes, especially when the local government and international aid agencies seem to be promoting more of the same.

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