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POPULAR MOBILIZATION AND SOCIAL UNREST IN GUYANA'S BAUXITE MINING TOWN

Letroy Cummings

ABSTRACT

Social activism in Linden exploded when lethal violence by the police killed three unarmed protestors and injured several others. A mass collectivity of dissatisfied people took over the streets to protest the injustice and the harsh socioeconomic conditions made harder by the imposed electricity reform announced by the minority government amidst dire economic circumstances. This study explored the month long unrest in Linden in order to understand and describe its nature and dynamics. Phenomenological and unobtrusive designs were used to detect the underlying meanings of the unrest. Data was obtain from multiple sources and content analyzed to identify relationships, themes and patterns. The analysis points to economic plight, active resistance, popular support, political support, presidential malaise, police negligence, military occupation and resistant leadership, which emerged as important interconnected themes. It was found that unconventional action tilted in favor of a radical formation. The analysis also shows that resistance was conditioned by economic deprivation and residents' dissatisfaction with the electricity reform policy.

***Keywords*:** Unrest, protest, Linden, resistance, residents

INTRODUCTION

The minority People's Progressive Party Civic (PPPC) government announced an increase in electricity tariff aimed at integrating Linden into the national grid. This reform policy was made at a time of dire economic

circumstances and exacerbated feelings of discontent. On July 18, 2012, mobilized residents proceeded on a "shut-the-town-down" protest march. Police intervention resulted in shooting and killing of three persons and gunshot injuries to several others. This changed the course of the event and unrest broke out and lasted for one month. Economic life came to a standstill, vehicles and buildings were burnt and roads and bridges were blocked. During that time the state coercive forces were challenged to maintain order as Lindeners stood in conflict with the government.

This study explores, describes and provides insights into the nature of the upheaval and its impact on the socioeconomic and political life in Linden. It identifies and examines the factors which influenced people's resistance and how they constructed the unrest. Phenomenological and unobtrusive designs were employed to unearth the meanings attached to the unrest. Data was provided by multiple sources and content analysis was used to detect themes, patterns and relationships. The analysis points to economic plight, active resistance, popular support, political support, presidential malaise, police negligence, military occupation and resistant leadership, which emerged as important interconnected themes. It was found that unconventional action tilted in favor of radical formation. Active resistance by Linden residents attracted popular and political support alongside security operations. Also, the unrest which was conditioned by economic deprivation and dissatisfaction brought several related issues together.

LITERATURE REVIEW

Conceptualizing Unrest

Unrest, planned or spontaneous, is an extreme form of popular protest and unconventional collective behavior. It is a phenomenon of ordinary people against the status quo to emancipate themselves from unfavorable conditions. Renn, Jovanovic and Schröter (2011) postulated that unrest "is an expression of collective dissatisfaction with the political system and manifests itself in unconventional forms of protest behavior" (p. 20). It is a

high risk behavior and a situation of disturbance and turmoil involving extreme actions with the potential for physical and psychological damage which includes; blocking of roads, destroying public and private property, rioting and bringing harm to human life. Unrest represents a class-based movement of poor people protesting against an undemocratic government and the lack of inclusion in economic development (Forsyth, 2010).

Factors Influencing Participation in Unrest

Individuals engage in protest when they perceive that a group with whom they identify has been treated unjustly and further believe that collective action will be effective in correcting the injustice (Klandermans, 1984 as cited in Kelloway, Francis, Catano, &Teed, 2007). Perceived injustice, identification with the group and perceived effectiveness of participation influences the decision to participate in protest action which increases loyalty and militancy (Kelloway, Francis, Catano and Teed, 2007). Unrest is driven by a willingness to participate, which is a function of the perceived costs and benefits of participation (Klandermans, 1984). Frajman (2009) contended that the main causes of protest are citizens' dissatisfaction with political leaders and the manner in which initiatives are negotiated and communicated. Structural deficiencies in the forms of rising cost of living, high levels of unemployment and scandals involving high ranking governmental officials are also sources of protest and unrest (Karamichas, 2009).

Mass demonstration opposing a government initiative to deregulate the electricity service erupted in Costa Rica in 2000 (Frajman, 2009). The inability of the policy-makers to articulate a position acceptable to the citizenry left public space under the dominant influence of social organisations that opposed the initiative (2009). Fatal police shooting of a teenager in Greece, in 2008 sparked a three week uprising, which brought together a myriad of issues that unleashed pent up anger (Karamichas, 2009). In 2010, nearly 90 citizens in Thailand were shot dead and more than 2,100 injured as protestors clashed with armed soldiers in resistance to an undemocratic government and the lack of inclusion in economic development (Forsyth, 2010).

Patterns of Social Protest in Guyana

Protest and unrest in Guyana can be traced to slave rebellions, anti-colonial struggles, and labor resistance. Poor working conditions united sugar workers against the colonial system, which unleashed lethal violence that claimed many lives (Carpen, 2008). The period 1961–1964 was characterized by racial conflict as the most extreme form of unrest (Scott, 2012; Scott, 2004). Between 1969 and 1979 a series of strikes occurred in Linden (Scott, 2004; Hinds, 2002). In 1969, protesting Lindeners blocked the Wismar/Mackenzie Bridge for a fortnight and a similar protest was held there in 2004 (Lewis, 2012 as cited in Jordan, 2012). Protests heightened during the latter half of the tenure of Burnham and the People's National Congress (PNC). Mass demonstrations, civil rebellion and protests evolved into a leftist People's Power Movement shaped by Walter Rodney and the Working People's Alliance (WPA) (Cummings, 2000; Kwayana, 1988 & Lewis, 1998). This pressure group later became a political party and the victim of state violence.

Political tension in Guyana skyrocketed during and after elections and often descended to violent protest and demonstrations. After PPPC won elections in 1992, 1997 and 2001 popular demonstrations rocked the capital city of Georgetown (Ishmael, 2005; Asselin, Arnusch, Graham & Ticas, n.d.). Following the 2011 elections, opposition protestors were shot by the police using rubber bullets (Granger warns police, 2001 & Wilkinson, 2001). These post electoral demonstrations symbolized the opposition's dissatisfaction with the outcome of the elections.

Conceptual Issues of Unrest

Unrest encompasses the closely related features of collective behavior, mass mobilization and mass participation. Tilly (1978) argued that collective behavior involves contentious gatherings, publicly visible assemblies in which conflicting interest are clearly in play and based on shared interest which binds people together for a common cause. Collective action is about power and politics and it inevitably raises questions of right and wrong, justice and in justice, hope and hopelessness (Tilly, 1978).

Tilly (1978) linked collective action with mobilization which is a process by which collective control over resources is acquired for collective action. Those resources may be labor power, goods, weapons, votes and any number of other things that are usable in acting on shared interests (Tilly, 1978). People are an important resource for mass mobilization which is "… organically driven and part of contentious politics involving the coming together of lower class people in a struggle with the political administration" (Wikipedia, n.d.). Mass mobilization is a social movement activity facilitating change through mass gatherings, rallies, meetings and parades as part of participatory democracy grounded in contentious politics (Wikipedia, n. d.). These tenets provided a framework for examining the unrest which occurred in Linden.

RESEARCH QUESTIONS

People participate in unrest when they perceive that there is injustice. Recognizing that injustice is a potent force which unites people for participation in unconventional behavior, this study answered the following questions: What were the underlying factors of the unrest? What impact did the unrest have on the socioeconomic state of Linden?

METHOD

Study Design and Data Sources

The phenomenological and unobtrusive designs were employed to uncover the meanings attached to the unrest. This study utilized multiple data sources which included; interviews, observation and media reports.

Arising out of several casual conversations the first interviewee was selected using a purposive judgmental technique and the other six (6) by a system of referral. The result of which were four (4) males and two (2) females. Additionally, four (4) newspapers (Guyana Chronicle, Stabroek news, Guyana Times and Kaieteur news) were subjected to a simple random

sampling. This process was conducted by assigning a reference number to each newspaper using the year and their order of existence. Guyana Chronicle = 2014 – 01, Stabroek News = 2014 – 02, Kaieteur News 2014 – 03 and Guyana Times = 2014 – 04. These numbers were placed in a bag and two (2) were chosen by a blind folded individual. The process resulted in the selection of the Stabroek News and Kaieteur newspapers. The dates of each of the papers spanning the period July 19 to August 20, 2012 resulted in a sample frame of sixty six (66) newspapers. From this, forty six (46) newspapers (31 Kaieteur News and 15 Stabroek News) were selected by a random process. The units of analysis (articles) were selected on the basis of title and content resulting in seventy (70) articles from the Stabroek Newspapers and one hundred and forty four (144) articles from the Kaieteur Newspapers.

Data Extraction and Analysis

Five (5) in-depth face-to-face interviews and two (2) telephone interviews were conducted using a semi-structured interview schedule. The schedule asked respondents for their opinion on; the circumstances surrounding the unrest, why bridges and roads were blocked, role of government and the opposition and how the delayed visit of the President of Guyana impacted the unrest. Data was also obtained from media reports by a process of content analysis.

Repetition of ideas and inductive reasoning resulted in the identification of coding categories. Coding categories were used to reduce and organize the data into a manageable format to allow for thematic, pattern and relational analyses. A process of constant comparison resulted in higher order themes and categories. They were compared with independently derived coding schema and codes and categories were refined through a consensual process. Several higher order categories were grouped into the following themes; economic plight, active resistance, popular support, political support, presidential malaise, police negligence, military occupation and resistant leadership. These delineate significant aspects of the unrest and were used as organizing context to narrate the findings.

FINDINGS

Active Resistance

On July 18, 2012 residents of Linden embarked on a protest march following widespread consultations, a protest in April, 2012, and an awareness meeting conducted by religious leaders in early July, 2012. The march was the beginning of a planned five day "shut-the-town-down" protest to call attention to the prevailing socioeconomic conditions and a perceived worsening of such by the electricity reform policy of the minority Peoples Progressive Party Civic (PPPC) government. The tariff increase came at a time when there were concerns about the general socioeconomic conditions, unemployment, absence of a land selection committee and absence of a television (TV) station.

The idea of integrating Linden into the national electricity grid was articulated in 1976 by the late President Forbes Burnham (Guybau News, 1976). At that time conditions were different and more favorable and protected against resistance. Respondent five (R5) in a telephone interview pointed out that there was no problem becoming part of the national grid, but economically people lacked the means to respond favorably. This view was substantiated by a protestor who expressed frustration and economic plight in these words:

This bill we cannot pay that, we don't have jobs. How much people like me and others are going to be on the street begging? We cannot go to the President to beg for a plate of rice, we cannot go to [Prime Minister] Sam Hinds and ask for nothing. We are here struggling fighting for our lives (Bhagirat, 2012, p.13).

The reference to unemployment and the inability to satisfy basic needs highlight the economic woes of the people. With regards to the March respondent five (R5) had this to say:

> People were marching from Wismar to the Call Center in McKenzie for a protest rally and when they got to the

> Wismar/McKenzie Bridge they stopped for a moment to rest. This was entirely a decision by the people.
>
> (Male Interviewee, 2012)

When asked why the Bridge was used as a stop point, Respondent five (R5) stated:

> It was the only place the march could have stopped and get (sic) the necessary attention … the intent was being heard and given the necessary attention… there was no consultation with the people in this process. This was the people's way of saying, we're not happy with your decision, you haven't even looked at whether we could make this … increase.
>
> (Male Interviewee, 2012)

It is evident that the Wismar/McKenzie Bridge, which spans the Demerara River and provides an important vehicular link to the hinterland, became a location for the protestors to make a statement that "enough is enough." According to a protestor "only when we go on the bridge then we does (sic) get attention" (Kaieteur News, 2012). Their presence on the bridge rendered it impassable and raised concerns regarding the nature of the protest. Police intervention to remove the protestors was met with resistance as explained by Respondent four (R4):

> The intervention of the police with a loudhailer to disperse the crowd failed resulting in armed police advancing towards unarmed protestors who also began advancing towards the police. This caused the police to back off and leave but the people remained on the Bridge.
>
> (Female interviewee, 2012)

In spite of this show of defiance the police returned in the early hours of the evening of July 18, 2012. While in the process of removing protestors shots were fired. According to Bhagirat (2012) a protester reported:

> … no one fired or created unrest when the police arrived… earlier during the day, members of the riot squad were there with a loud speaker pleading with the protesters to go home but no one heeded their call, resulting in them leaving and returning armed (, p. 25)

Respondent three (R3) recapped the incident in these words:

> The police returned and started shooting. It was unclear if a megaphone was used to warn people and if it was it could not be heard. What was heard was shooting and people screaming and shouting. This was unnecessary because People were not attacking the police; we were playing music, praying and singing.
>
> (Male Interviewee, 2012)

According to Kaieteur News (2012) one protestor recalled that the police "went with the intention to kill. They released teargas, then shoot pellets at the crowd and lastly, fired live rounds. The crowd got angry when the police start shooting" (p. 11). Three Afro-Guyanese males were shot and killed and several persons injured from subsequent shooting incidents. The killings sparked outrage resulting in blockades to the town's primary and secondary roads and bridges and millions of dollars in destruction to equipment and infrastructure.

The President of Guyana announced an investigation while calls were made for him to visit Linden. The Head of State demanded that the blockades be removed and that the situation be normalized. According to Respondent One (R1) "the police was informed of the planned protest but their reaction is (sic) nothing but poor preparation." This was noted by the absence of shields, baton, and other critical riot gears. The inability of the police to engage in effective crowd control led to the deployment of a military contingent and several military camps dotted the landscape of Linden. The presence of the police and the military added to the tension but did not stimulate fear among the protesters. An intense social crisis ensured when

unarmed residents clashed with armed uniformed ranks. The Regional 10 Chairman captured one incident in the following words:

> … at 2 am that day the armed forces invaded Linden firing tear gas and forced men, women and children and the elderly onto the streets…the armed forces declared the area a war zone as they proceeded to antagonise and brutalise the residents and buildings were again destroyed.
>
> (Fraser, 2012, p. 13)

As the unrest gained momentum residents resisted appeals by the security forces to disperse and discontinue the blocking of roads. As fast as blockades were cleared other parts were made impassable. The struggle by the Joint Forces to gain control of the situation was further complicated when the President cancelled a visit to meet with protesters.

A scene at the Kara Kara Bridge (another main access and exit), was captured in these words:

Amidst shouts of 'no retreat no surrender' residents insisted that they would not be removed. They then formed themselves into human barriers, backing the soldiers and rolled several lengths of lumber onto the bridge where they remained.

The joint services then advanced again on the bridge and attempted to clear the blockade. As the loader lifted a piece of lumber, angry residents ran under the bucket and insisted that they would not be moved. There was wailing and weeping as some cried (Richards and Abraham, 2012, p. 9)

This act of civil disobedience is indicative of the courage of the protesters but the security ranks eventually took control of the Kara Kara Bridge in an early morning operation on July 29, 2012.

Contentious Issues of Protest March and Unrest

Figure 1- *Contentious issues of Protest March and Unrest*

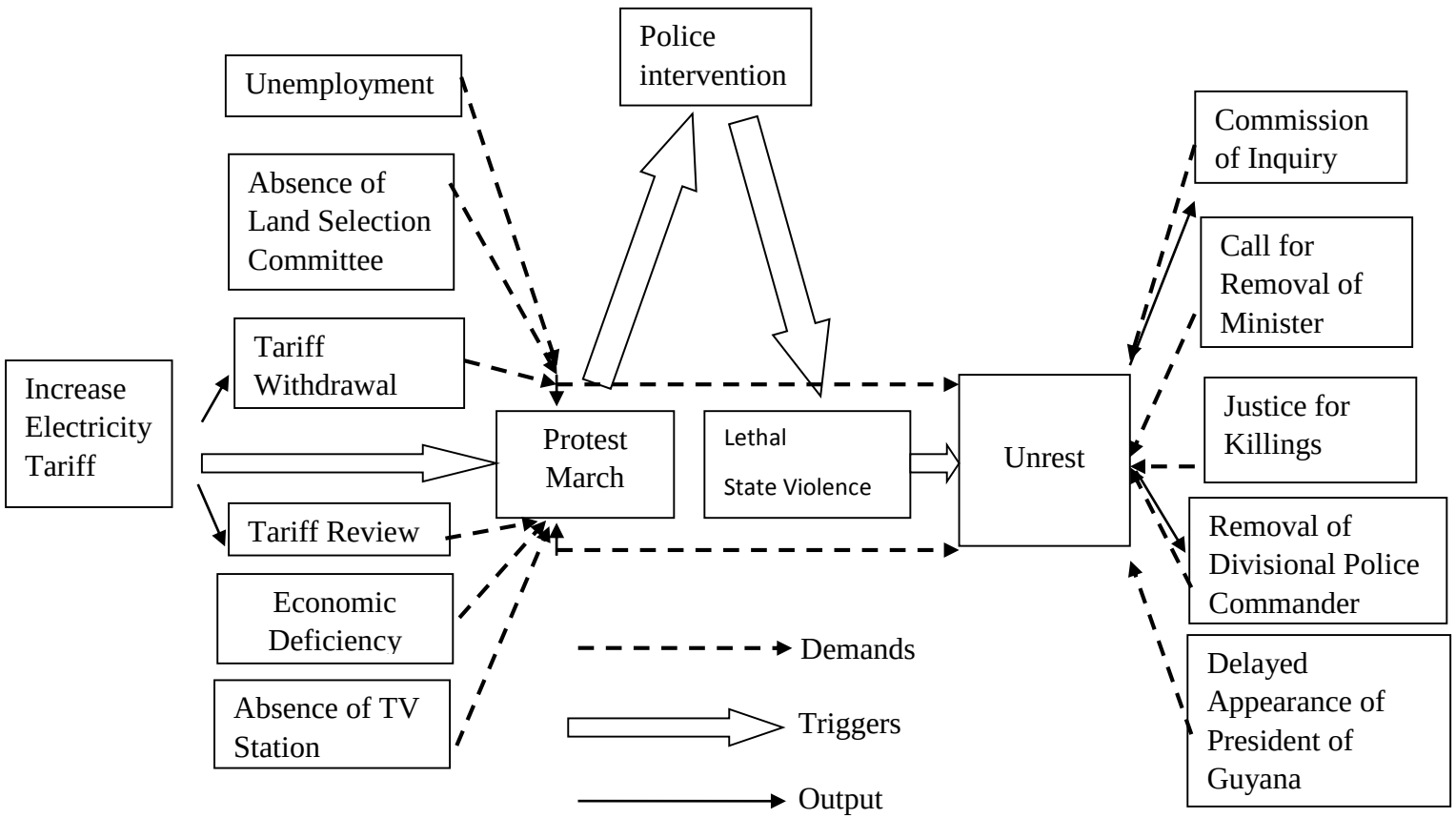

Figure 1 above depicts that increase electricity tariff triggered the protest march which was shaped by preexisting concerns. These are unemployment, absence of a land selection committee, economic deficiency, absence of a television (TV) station, withdrawal and review of tariff. Withdrawal and review of tariff came out of the proposed increase. People considered these issues to be fundamental to their livelihood and used them as boosters for the unrest which erupted after police unleashed lethal violence. Figure 1 also depicts that the unrest widened the scope of the people's demands to include interrelated issues such as; a call for a commission of inquiry, a call for the removal of the Home Affairs Minister, justice for the killings, removal of the Police Divisional Commander and delayed appearance of the President of Guyana. The call for the removal of the Minister of Home Affairs and the Police Divisional Commander calls attention to the failure of the leadership to protect the safety of citizens. Justice for the killings assumes importance because people were concern that the perpetrators would not be held accountable for their actions. This underscores the call for a commission of inquiry to investigate into the cause of the unrest. The delayed appearance of the President exacerbated the tension which residents felt worsened the situation and fanned the flames of the unrest. Figure 1 also depicts that the commission of inquiry and removal of the Police Divisional Commander were outputs of the unrest.

Popular and Political Support

Figure 2

Supportive Network

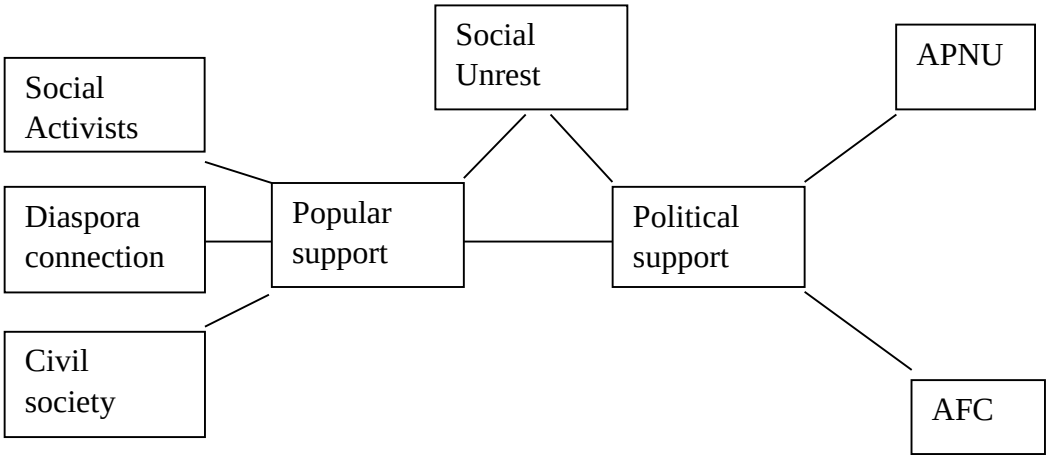

Figure 2 depicts that popular support (popsup) and political support (polsup) were the two main sources of support constructed from initiatives of social activists, Diaspora connections, civil society, and the two parliamentary opposition political organizations, APNU (A Partnership for National Unity) and AFC (Alliance for Change). Figure 2 also depicts that while popsup reflected broad base involvement, polsup was limited to the role of APNU and AFC.

It was observed that opposition political leaders and their representatives along with social activists were on site "grounding" (a term used by Walter Rodney to mean reasoning) with Lindeners in a time of crisis. The APNU and the AFC pushed for an independent commission of inquiry (Kaieteur News, 2012) while the APNU moved a no-confident motion in parliament against the Home Affairs Minister (Eleazar, 2012) with ministerial oversight for the Guyana Police Force. The motion was met with strong objections from the minority PPPC government (2012) but was eventually passed by the opposition controlled national assembly (2012). The APNU and the AFC were part of the negotiating team but played a secondary role

to the Linden leadership. The APNU was also part of the team that drafted the terms of reference for the Commission of Inquiry.

Internal to Linden, some women manned makeshift kitchens and prepared meals for the protestors while others occupied positions on the frontline. The church presence cannot be denied as mentioned by Respondent five (R5):

> The church helped to preserve the struggle by soliciting and distributing food items to sustain food camps and by extension the unrest while offering hope and direction. Religious leaders sought a divine intervention into the crisis through prayer services and encouraged people to look to the supernatural power for a solution. The religious community was a critical force in restraining the people from descending to revenge behavior.
>
> (Male interviewee, 2012)

In the capital city, 65 miles away from the unrest, supportive events were held in the vicinity of power centers mainly; Parliament Building, Office of the President, State House, Passport and Immigration Office and Freedom House (headquarters of the PPPC). An all-night vigil and a people's parliament, which was disbanded by the law enforcement agency, also occupied the vicinity of Parliament Building. A march led by political opposition forces from the Square of the Revolution to Parliament Building to recognize a day of mourning also added to the many solidarity initiatives.

Internationally, demonstrations were held by the Guyanese Diaspora in London; Toronto Canada; New York (Trotz, 2012) and at the United Nations. Alongside these unconventional initiatives, concerned individuals (locally and international) adopted conventional behavior and contributed letters to the editors of the local newspapers expressing opinions regarding the unrest.

Table 1: Distribution of Opinion Letters to the Editor by Newspapers

	LETTERS TO THE EDITOR			
NEWSPAPERS	Support	Neutral	Nonsupport	Total
STABROEK NEWS	15	2	2	19
KAIETEUR NEWS	31	3	0	34
TOTAL	46	5	2	53

Table 1 show that of the fifty three (53) letters, forty six (46) or 87% expressed support for the unrest. Of the forty six (46) supportive opinions, thirty one (31) or 67% were reported in the Kaieteur News and fifteen (15) or 33% in Stabroek News. The high level of conventional support draws attention to the fact that participation in collective action goes beyond unconventional involvement.

Contrasting Leadership

Resistant leadership was demonstrated by the then Chairman of Region Ten (10) whose position facilitated his role of chief negotiator for Linden in talks with the government. Contrary, malaise was evident from the tone of an extract of the letter issued by the then President of Guyana. The extract of the letter states:

We proposed a phased programmed of reductions of the subsidy. This phased reduction would have resulted in gradual increases in tariffs in a way that would have avoided hardships. We also suggested other models to minimize the impact of the increases on the vulnerable, such as bauxite pensioners. At the same time we encourage conservation. All these things were not told to you because desperate 'extremist' wanted to use this issue to promote their personal agenda for power (Ramotar, 2012, para. 6).

Here the then President of Guyana highlighted strategies to mitigate discomfort but also blamed others for the unrest. Labeling others as "extremist" was rejected by a protestor in these words "… if they want to label us they can call us revolutionaries cause that is what we are" (Ramsaroop, 2012). The eventual visit by the then President of Guyana, was

made at a time when the sitting Regional Ten (10) Chairman was in the city meeting with governmental officials and advancing the people's cause, vowing that the unrest will only end when government respond responsibly to the issues affecting Linden.

DISCUSSION

This study explored and described the unrest, which erupted in Linden, Guyana's bauxite mining town, on July 18, 2012 and ended August 17, 2012. Content analysis unearthed important themes which provided insights into the unrest. Consistent with findings by Karamichas (2009) the relationship between Lindeners and the government became polarized and defined by multiple socioeconomic issues.

The plethora of issues impacting the well-being of people suggests that the unrest was not shaped by one issue only. Similar to the Costa Rica upheaval in 2001 (Frajman, 2009) the reform brought the grievances together and caused an already combustible situation to ignite and an imminent resistance that was in the making was hastened by irresponsible police actions. This being so the cause of the unrest can be found beyond the immediate obvious catalyst of police brutality (Karmichas, 2009). Therefore, the unrest called attention to the problems of Linden, which has to be understood in terms of how people felt and responded to what became significant for them. Basically, Lindeners had an awareness of where they stood in the developmental trajectory and should the trend of economic decline continue the impact on their well-being and identity of a prosperous town would be affected. As such, Lindeners found themselves resisting a further decline in their standard of living.

After several attempts to attract the government's attention, residents were left with the options of either protesting or accepting the tariff increase. Faced with economic challenges emanating from both situations discontented people rejected political politeness and transformed Linden

into a contested space for the realization of radical possibilities. An organic struggle took shape and deepened the unity and consciousness of people engaged in sowing a revolutionary seed, which was not fertilized and nurtured to maturity.

At the time of the unrest, socioeconomic conditions in Linden tilted in favor of radicalized formation involving ordinary people who put aside their differences to confront the state. People were demonstrating the capacity to reject the present in order to redefine their future. Klandermans (1984) finding that there is a willingness to engage in collective action was supported by the activism which represented the collective will of Lindeners. In this atmosphere Presidential malaise characterized by delay became evident and resistant leadership emerged in the role of representative of a class who by their own self activity and discipline were beginning the process of becoming self-emancipated.

The unrest took on an unpredictable life of its own and with its own energy rendered the town socially and economically lifeless and a fragile socioeconomic culture tilted on the verge of collapsing. Also threatened were the fledging economies of small surrounding communities. These became collateral damages, as unconventional collective behavior produced ripple effects which were manifested in shortages of essential commodities.

The struggle evolved in a politically charged environment and could not avoid such influence. This was deepened by parliamentary debates on the terms of reference for the Commission of Inquiry and the no confidence motion against the Minister of Home Affairs. Given the strategic advantage arising out of a new dispensation after the 2011 elections, the unrest presented the parliamentary oppositions (APNU and AFC) with plausible political opportunities which were not fully exploited. The supportive role of the political oppositions must be understood in terms of concern for their image and how they can affect the organic process and nature of a community action. Popular and political support expanded the struggle beyond Linden but did not go beyond peaceful picketing exercises to engage in similar popular demonstration.

As negotiations continued with government, residents stood firm and displayed courage against the coercive lethal force of the state. This does not suggest that the coercive machinery had lost control but that another force was at work, one which sought to break the absolute dominance of the minority government. In contrast to the state's lethality, people's only weapons were the combined use of their bodies and the physical infrastructure. The heavy presence of the military suggested that the police had failed to return the community to normalcy and as a result failed to execute its mandate of service and protection.

CONCLUSION

The Linden struggle revealed that people in oppressive situations are a potent revolutionary force. They are likely to challenge the status quo when; (1) pushed to a point of discontent and (2) alienated from political decisions that impact their social and economic well-being. In going forward, it is wise for government to: (1) consult with the masses and articulate a position consistent with their needs. (2) Reform police training to include courses in behavioral sciences such as sociology of collective behavior, crowd control and emotional intelligence. Riot training needs to be upscale to include the use of humane tactics. Language such as "this is your final warning, disperse and go to your homes" only serve to incite rather than quell and should be avoided. Therefore, the need to be more engaging when dealing with protesting crowds is paramount.

This study opens doors for further research particularly in accounting for and analyzing; (1) the political dynamics of the struggle, (2) the impact of policy reform on human reaction, (3) the failure of protest by civil society and the unrest to erupt into comparable events countrywide, (4) the role of women in the struggle (5), the role of the private sector (6), the role of the church as a conservative stakeholder in a radical formation and (7) psychosocial impact assessment to determine how residents cope with the traumatic experience as they picked up the pieces.

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THE DEVELOPMENT AND VALIDATION OF PUBLIC SERVICES MOTIVATION

EXPLORING THE LITERATURE

Hector Edwards

ABSTRACT

The concept Public Service Motivation (PSM) which was posited by Perry and Wise (1990) has been gaining the attention of researchers over the last three decades. Perry (1996) also provided a construct to measure the various dimensions in PSM, which are widely used to varying degrees by researchers to study PSM over the years. A critical review of the literature indicated that various tests were done using more advanced analytical tools over time, as well as a wide cross section of individuals in the empirical studies to test the measurement scale. The various tests all supported the PSM model, though some of the studies were done in different countries. However, there is a consensus that further testing is required to enhance the scale, not only in terms of dimensions, but also in terms of the number of items that are desirable for various studies, if a specific scale cannot be developed. PSM does not replace other types of motivation, but assist public administrators in understanding the behavior of public employees.

Key Words: Public Service, Motivation Measurement

INTRODUCTION

The desire of various stakeholders for a better service by public servants in the USA during the 1960s and 1970s (Rainey *et al.*, 1976; Frederickson and Hart, 1985; Perry and Wise, 1990; Delfgaauw and Dur, 2008) was similar in other countries including Guyana, where an economic downturn was making it difficult to sustain the level of funding by Government. This desire was great since during the same period, private sector entities were perceived as being more effective (Perry and Porter, 1982). It was posited by some academics that the public sector should adopt the methods used by the private sector to improve its performance (Crewson, 1997). Various techniques such as pay-for- performance (Ingraham, 1993; Houston, 2000) were suggested and adopted as a way forward for the public sector. However, there were mixed views in relation to the applicability of these techniques (Ingraham, 1993; Houston, 2000; Camilleri, 2006, 2007), as some were of the opinion that the mission (Crewson, 1997) and objectives of the two sectors are fundamentally different (Golembiewski, 1996; Wright, 2001), and as such would not achieve the same results. It was then recognized that the difference in reward motivations must be considered when addressing the performance of Public servants.

Motivation which relates to the direction, level and persistence of effort (Wright, 2001; Steers *et al*., 2004) is a very important issue when addressing the attitude and behavior of public sector employees. Some researchers have also posited there is a difference in motive between public and private sector employees (Houston, 2000), and unless these motives are understood and the appropriate action taken, performance would be affected (Crewson, 1997). The motives seen as important to public service employees were later defined as public service motivation. This was defined by Perry and Wise (1990) as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations" (p.386). This concept though it originated in the USA has been adopted by other scholars to describe the attitude of public servants in other countries (Taylor, 2007: Australia; Kim, 2005, 2008: South Korea; Castaing, 2006: France; Vandenabeele, 2007, 2008a, 2008b: Belgium; Camilleri, 2006, 2007: Malta).

The present paper seeks to critically review the development of a public service motivation (PSM) concept that was posited by Perry and Wise (1990), and a subsequent construct to measure (PSM) by Perry (1996). The construct's validation and acceptance by various researchers over the decades have been in developed economies. The review of previous studies on Public service employees' motives and Public Service Motivation is undertaken to provide a better understanding of the concept so that future studies can be done in a less developed or developing economy.

THE DEVELOPMENT OF PSM – A CRITICAL REVIEW

The need for enhanced performance in the Public Service has influenced researchers to study the factors that contribute to employees' behavior. In addition to an individual's ability, experience, and resources available, motivation is also considered an important variable that is related to performance in the workplace. Determining the motives that will influence the behavior of Public Servants is therefore critical in the study of employees' motivation in the Public Service.

Work Motivation

Work motivation is seen as the force that directs an individual's behavior (Perry and Porter, 1982; Wright, 2001; Steers et al., 2004), as well as the persistence and intensity of their actions (Wright, 2001; Steers et al., 2004), so as to satisfy specific needs. Motivation theories can be grouped into two broad categories, content and process (Carmilleri, 2007), with content addressing the needs aspect, while process the persistence and direction of effort. Motives emanating as a result of psychological deficiencies or needs are related to content theories of motivation (Carmilleri, 2007). These needs can be classified as intrinsic - those controlled and generated by the individual internally, and extrinsic - those controlled or provided by others (Crewson, 1997; Rainey and Steinbauer, 1999; Houston, 2000; Bright, 2009). Some academics are of the opinion that public employees are

motivated more by intrinsic rewards (Crewson, 1997; Buelens and Van den Broeck, 2007), while others have indicated that public sector employees have a greater desire for some extrinsic rewards (Maidani,1991), depending on the level of employment within their organizations (Gabris and Simo,1995; Bright, 2005). Others are of the opinion that the difference is more specific to certain rewards (Moynihan and Pandey, 2007).

While Crewson (1997) indicated that employees from the two sectors have different motivation and expectations, Wright (2007) found that the work motivation of public sector employees was similar to private sector employees. However, it should be noted that though the motivation may be similar, the motives for such motivation may differ. Some researchers have posited that these differences seem to coincide with the sector, as it was found that public sector employees placed a higher value on public service, but lower value on monetary reward than private sector employees (Wright, 2001). Others are of the opinion that there is no significant difference between the needs of private sector as against public sector workers (Gabris and Simo, 1995). Some of the academics that are of the opinion that there is a difference in motive between public and private sector employees, are also of the opinion that identification of the difference is important if performance is to be maximised (Wright, 2001) in the public sector. Positive behaviour should only be expected if there is congruence between incentives and individuals' motives. Further, providing rewards (viz. extrinsic), that are not consistent with a given motive may reduce the expected effect of future related rewards (viz. intrinsic), on performance (Crewson, 1997). Rewards that are intrinsic in nature are important to public service employees, since it is felt that these rewards compensate for low levels of extrinsic rewards (Wright, 2007).

These extrinsic rewards are examined below:

Job Security

An extrinsic reward that has been widely debated in terms of its importance to both public service and private sector employees is Job security. Houston (2000) found job security to be valued more by public sector employees, which was contrary to Rainey (1982), who found no difference between the

two sectors (Lewis and Frank, 2002). However, the higher value placed on job security by some public service employees may be responsible for their employment in the sector, so as to enjoy greater security (Baldwin, 1987). Public employees are protected through the grievance procedures which are time consuming and complex (Baldwin, 1987). The difficulty to punish public service employees provide them with greater protection from dismissal (Lewis and Frank, 2002). The job security received by public servants resulting in more stable careers compensates for the lower income in comparison to private sector pay (Lewis and Frank, 2002), since the lower the risk, the lower will be the expected return. This is consistent with Bellante and Link (1981) who "found that the public sector attracts more 'risk averse' employees than the private sector" (Baldwin, 1987; 185). This further reinforces the preference of some public service employees as it relates to rewards, and also noted by Perry and Wise (1990), that public servants with high PSM are likely to pursue the public interest out of self-interest (Bright, 2009), but in a much wider context in terms of their safety. Though job security is not the only factor that influences the selection of jobs by individuals, which will be addressed later in this paper, it is an important variable that can also assist in understanding the attitude of some public service employees. Their attitude can impact the level of their public service motivation, and ultimately their performance.

Monetary Reward

Another extrinsic reward that has also been discussed in terms of its importance in the public service is monetary reward. Wright (2007) posited that public sector employees place a lower value on financial rewards than their counterparts in the private sector. Some academics however found the difference in relation to some variables was not substantial (Baldwin 1987), or as was earlier stated, no significant difference existed (Gabris and Simo, 1995). However, the various studies have lacked consistency in findings, as it relates to the difference in the desire for monetary rewards between employees from the two sectors (Wright, 2001). Crewson (1997) found no significant difference between the sectors in terms of their preference for monetary reward, while Buelens and Van den Broeck (2007) found that public service employees were significantly less motivated by monetary reward. They also found that older employees are less motivated by

monetary reward in terms of salary. Houston (2000) found that private employees placed more importance on higher pay than their public sector counterpart, which was similar to Lawler (1971cited in Rainey *et al*., 1976:241). On the other hand Maidani (1991), while looking at hygiene and motivator factors among public and private sector workers, found that public employees valued salaries significantly more than private employees. However, though they may value salaries more, it does not imply that they are motivated by monetary reward. They may have given greater value due to lower extrinsic rewards in the public sector (Wright, 2007). The needs or preferences of the employees are important as they can assist in providing appropriate incentives to the various sectors. The use of incentives that are not consistent with their needs can be counter-productive to the future behavior of employees (Crewson, 1997). Some researchers have argued that the use of monetary reward is more effective in the private sector than the public sector, due to greater importance being placed on such reward by private sector employees (Houston, 2000). Employees in the public sector were not only less motivated by monetary reward, but placed greater value on intrisic rewards (Houston, 2000).

The greater value placed on intrinsic rewards including to serve the public interest by public sector employees (Wright, 2007) has played a significant role in determining the type of incentives to be provided, so that effectiveness can be improved in these organizations. Due to the difference between the sectors identified in earlier studies, further studies of the motives of public servants have become a necessity for both academics and human resource practitioners. The motive to serve the public interest is a normative one that has formed a part of the concept "public service motivation" (PSM). The realization that public service employees have different desires and motives also reinforces the need for a better understanding of the factors that will influence their behavior, which can ultimately enhance decision making in this sector.

PUBLIC SERVICE MOTIVATION (PSM)

Theoretical Groundings of PSM

Public Servants play an integral role in the realization of governments' goals, and the execution of the various functions. Some researchers in their quest to determine whether public service employees were motivated by different motives had undertaken various studies over the years (Rainey *et al*., 1976, Perry and Porter 1982, Balwin 1987, Perry and Rainey 1988, Maidoni 1991, Gabris and Simo 1995, Crewson 1997), with a more recent contribution to this area being that of Buelens and Van Den Broeck (2007). While it has been accepted by some that there is a difference in reward motivations, Rainey *et al*. (1976), Crewson (1997), Houston, (2000), Balwin (1987) and Gabris and Simo (1995) were less satisfied that differences did exist, as they either saw little evidence, or it was not substantial enough. However, the importance as to whether they have different motives cannot be over emphasized, since if there is a difference, the incentives would have to be dissimilar from those that are traditionally associated with work motivation in the private sector. The theoretical grounding of work motivation is still applicable to public service employees, though their motives may vary to some degree from private sector employees. As Camilleri (2007) posited, public service motivation has its domain within content theories.

Though most of the emphasis has been on content theories, Perry (2000) recognized the need to include social and institutional variables to the motivation equation so as to strengthen the theory of motivation. A process theory of PSM was presented, which is based on reciprocal causal relationships taking into consideration environmental influences, cognitive and other personal factors and behavior (Perry, 2000; Camilleri, 2006). The dimensions identified were socio-historical context, motivational context, individual characteristics, and behavior (Perry, 2000). The influence of parents and mentors on the development of sound public service attitudes and values (Pattakos, 2004) are seen as essential building blocks for the motivation model. The impact of these social groups- has also influenced individuals in their selection of work sector (Lewis and Frank, 2002; Pattakos, 2004). However, not much had been done by researchers in this

area besides Moynihan and Pandey (2007) partial testing of the proposed theory, using two of Perry's four dimensions of PSM – attraction to policy making (APM) and, commitment to public interest (CPI).

Motives and Dimensions in PSM

Due to the acceptance that there was a difference in reward motivations, as was earlier stated, Perry and Wise (1990) defined Public Service Motivation (PSM) as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organization" (p.368). More recently other researchers have built on Perry's definition (Brewer and Selden, 1998, Rainey and Steinbauer, 1999, and Vandenabeele et al., 2006). Public service motivation is not restricted to employees working in public institutions, but also some individuals in other sectors also exhibit similar motives (Rainey and Steinbauer, 1999; Brewer *et al*, 2000). As Moynihan and Pandey (2007) posited, private sector employees also exhibit PSM to varying degrees.

In looking at the motives of public servants, three types were highlighted by Perry and Wise (1990). The motives referred to by Perry and Wise (1990) were rational, norm-based and affective. This was not in keeping with rational choice theories that were associated with contemporary public administration thinking. Rational and public choice theories used to explain the behavior of public servants were seen as limited (Hondenghem and Vandenabeele, 2005; Vandenabeele *et al*., 2006), since certain actions - compassion for other persons and self-sacrifice, by public employees were inconsistent with the general explanation offered by these theories. Fredrickson and Hart (1995) made reference to public servants displaying idealist traits as against careerist, with the resultant behavior being attributed to 'patriotism of benevolence'. The behavior of such employees is based on an individual's feelings or emotions, which is associated with the affective motive. Another set of behaviors not explained by rational choice theories are pro-social or altruism (Perry, 2000), which include making a difference in society and social equity.

Altruism has been discussed by researchers in PSM as the motive of individuals to serve the public interest. Perry and Hondeghem (2008)

discussed the context of altruism in public service motivation, however Perry (1997) noted that the dimensions compassion (COM) and self-sacrifice (SS) which are central to PSM were aligned with altruism. Moynihan and Pandey (2007) indicated that through parental socialization individuals learn altruistic behaviour, which contributes to overall PSM. However, as Perry and Hondeghem (2008) indicated, rational self-interest may play a greater role in understanding public service motivation. Its role therefore should not be understated, even though it does not address all of the issues related to public service motivation. PSM therefore is a mix of the various motives (Brewer *et al*., 2000) varying in levels and also in combination from person to person, which may also vary based on the prevailing circumstances within the society. These motives can be influenced from within the organization through its culture (Taylor, 2007), which is developed through 'social processes that shape individuals' normative beliefs and emotional understanding' (Moynihan and Pandey, 2007; 41), as well as outside the organization (Taylor, 2007), due to socio-historical factors before employment within the public service (Moynihan and Pandey, 2007).

Perry (1996) also provided a construct to measure the various dimensions in PSM, which serve as an attraction to public policy making (APM) – a rational motive, commitment to public interest (CPI) and civic duty – normative motives, compassion (COM) – an affective motive, and self-sacrifice (SS). These dimensions are widely used to varying degrees by researchers for the study of various aspects of PSM over the years (Alonso and Lewis, 2001; Kim, 2005 and 2008; DeHart-Davis, Marlowe, and Pandey, 2006; Vandenabeele et al., 2006; Moynihan and Pandey, 2007; Coursey and Pandey, 2007; Bright, 2007, 2008 and 2009; and Taylor 2007). Perry's dimensions were based on the work of earlier academics. Though it is felt that some aspects of behavior are learnt from various institutions (Perry, 2000; Moynihan and Pandey, 2007), others have been associated with individual utility maximization (Perry, 1996), and as such rational choice. The third of the motives are related to individuals' emotional response to help others (Perry, 1996). A careful look at these motives highlights what is expected of public servants by the various stakeholders, including politicians. Though three of the dimensions are related to specific motives, Perry (1996) felt that the fourth dimension - self-sacrifice was

essential to PSM, since reference was frequently made of it in public administration literature (Perry, 1996). He persisted with self-sacrifice even after he found that it had a high correlation with commitment to the public interest. However, the four-dimensional model that included self-sacrifice had a better goodness-of-fit index (GFI) than the three-dimensional model based on differential chi square test (Perry, 1996; Coursey and Pandey, 2007).

Factors That Impact Public Sector Motivation

Perry (1997) posited that some factors such as parental socialization, political ideology, professional identification, individual demographics and religious socialization can influence the level of an individual's PSM. This was substantiated by his findings which indicated that there were positive relationships between PSM dimensions attraction to policy making and compassion, and the variables education level and age, while a negative relationship existed between commitment to public interest and income level (Perry, 1997). Other researchers also contributed to the understanding of the relationship between antecedents and PSM. Bright (2005) found a significant positive relationship between PSM and the variables education level, management level and gender (female), with management level being the strongest predictor of PSM. The finding in terms of women and high PSM was also supported by Naff and Crum (1999) and Camilleri (2006, 2007) who found women had higher PSM than men. Moynihan and Pandey (2007) also found higher educational level to be positively related to PSM, while tenure was negatively associated with PSM. Naff and Crum (1999) however found that age and tenure had not accounted for any significant difference in PSM scores in the organization, which differed from Moynihan and Pandey's (2007) finding where there was a negative relationship between tenure and PSM.

In addition to the levels of PSM, the variations in dimensional levels can also be influenced by antecedents including parental socialization and religious socialization. Perry (1997) investigating four demographic variables – gender, age, level of education, and income, found that men were more likely to have PSM in the dimensions of Public interest and self-sacrifice, which was similar to the findings of Camilleri (2007), while

income was negatively related to the dimension public interest, implying that as wealth increases PSM would decline. Though Naff and Crum (1999) found that age and tenure had not accounted for any difference at the macro level of PSM, Camilleri (2007) at the micro level of PSM dimensions found a high positive correlation between age and organizational tenure, and the PSM dimensions public interest, compassion and self-sacrifice. Moynihan and Pandey (2007) also found that women were more attracted to policy making, which was similar to the finding by DeHart-Davis *et al.* (2006), but dissimilar to Perry (1997). Women also had a higher need for compassion (Camilleri, 2007; DeHart-Davis *et al*., 2006). Another demographic variable that influenced attraction to policy making was education, which was positively related to this dimension, but negatively related to compassion (DeHart-David et al., 2006). Income had no significant relationship with PSM dimensions (DeHart-David et al., 2006; Taylor, 2007), as well as the demographic variable race (DeHart-David et al., 2006). The findings of various studies indicate that antecedents have relationships with levels and dimensions of PSM and also provide a better understanding of the factors that are likely to contribute to high PSM of employees.

TESTING OF PUBLIC SERVICE MOTIVATION (PSM)

Perry's (1996) original test of a measurement scale for PSM was a six dimensional construct, which was revised to four dimensions, with commitment to public interest, social justice, and civic duty being collapsed into a single dimension commitment to public interest-civic duty. Initially Perry (1996) eliminated items that were low in variances and weakly correlated to the overall scale. After this failed to provide an acceptable model fit, he eliminated variables that had loaded on multiple dimensions. This was followed by combining of dimensions that had a high correlation between them, since they lacked discriminant validity (Perry, 1996). Coursey and Pandey (2007) tested Perry's (1996) measurement scale using a three dimensional construct – excluding self-sacrifice, as well as a reduced number of items, as the original scale was considered too long for practical

application. The test was also seen as important since an independent validation of Perry's (1996) scale had not been undertaken, and the use of more advanced procedures and techniques for confirmatory factor analysis (CFA) were available (Coursey and Pandey, 2007). Perry's measurement scale (Perry, 1996) was also tested by Kim (2008) due to low loading of attraction to policy making in other studies Carmilleri (2006) and Kim (in press), while Vandenabeele (2008a) wanted to determine its ability to measure the PSM concept in the European context.

The selection of items by Coursey and Pandey (2007) was based on reliability and validity results from Perry (1996) and 'subjective assessment of the face validity, distinctiveness, and clarity of the items' (Coursey and Pandey, 2007; 550). While Perry (1996) included self-sacrifice, though there was relatively no difference in fit between the three and four dimensional models – however a comparison based on chi square indicated the four dimensional model is superior to the three dimensional (Perry, 1996), self-sacrifice was eliminated by Coursey and Pandey (2007) to provide a shortened version as recommended by some academics (Perry, 1996; Coursey and Pandey, 2007).

Though a shortened version was recommended by some academics to facilitate validity testing, and testing of hypothesis relations (Coursey and Pandey, 2007), Kim (2008) used the four dimensional scale, but with 14 items instead of Perry's (1996) 24 items scale. Based on earlier studies by Lee (2005) - APM dimension performed poorly, Carmilleri (2006) and Kim (in press) - APM had low factor loading, and Coursey and Pandey (2007) - need for more development for APM, the need for a strengthening of APM dimension became the main focus of Kim (2008). In addressing the weakness of this dimension, Kim (2008) changed the wording of the items in this dimension, which he felt represented politics rather than public policy. By so doing the items better represented the rational base of PSM, thereby providing valid measures and a more appropriate assessment of APM (Kim, 2008). Another study that could have contributed to a similar conclusion as Kim (2008) but not considered at the time, was Perry's (1997) findings that professional identification is negatively related to attraction to policy making, while using the wording of the original items of the dimension that represented politics. The second order factor model was also

used by Kim (in press) to address measurement errors and the relationship between the construct and the dimensions (Kim, 2008). Previous tests by Perry (1996) and Coursey and Pandey (2007) operationalized the construct by summing the scores on the dimensions (Kim, 2008). The revised scale was reduced to 12 items after testing the PSM model that initially consisted of 14 items (Kim, 2008).

Vandenabeele (2008a) tested the measurement scale to determine its usability in environments outside the United Sates. The first phase in the process was the widening of the concept - public service motivation, which was defined as 'the belief, values and attitudes that go beyond self-interest and organizational interest, that concern the interest of a larger political entity and that motivate individuals to act accordingly whenever appropriate' (Vandenabeele, 2007; 549). This definition facilitated the inclusion of three additional dimensions, equality, bureaucratic values, and customer orientation, with customer orientation eventually being removed and the other two being collapsed into one dimension called democratic governance. Though this dimension showed low composite reliability it was however retained, due to its theoretical value as it relates to continental Europe (Vandenabeele, 2008a).

A more thorough assessment of the studies indicated that while Perry (1996) used confirmatory factor analysis (CFA) in his initial 35 items scale, Coursey and Pandey (2007) and Kim (2008) used it to analyze their shortened versions. Factor loading for Perry's (1996) PSM scale ranged from .39 to .78 indicating how well they measure the latent dimensions. In relation to Coursey and Pandey's (2007) study, all the items except PSM 24 (loaded .27 maximum likelihood (ML) and .26 diagonally weighted least square (DWLS) and PSM 34 (loaded .40 ML and .39 DWLS) loaded well. In Perry's (1996) study the R^2 which measures the reliability ranged from .15 to .61 indicating varied reliability, while in Coursey and Pandey (2007) the R^2 values were similar or better than Perry's (1996) except for PSM 4, PSM 24, based on DWLS results. In terms of model fit a (GFI) of .88 and adjusted goodness of fit index (AGFI) of .86 was indicative of a good four dimensional model in Perry's (1996) study. Using more stringent and advanced measures Coursey and Pandey (2007) had an estimated root mean square error for approximation (RMSEA) value below .10, which indicated

that there was a good absolute fit. In comparison to Perry's results using similar measures the model fit values using (GFI) and (AGFI) were mostly above .90, indicating a good fit (Coursey and Pandey, 2007).

Kim (2008) used two samples, the first for scale validation and the second to cross validate the factor structure from the first sample. In addition to the two samples Kim (2008) also used second order factor model as was earlier stated, thereby requiring the testing of both the first and second order models. Alterations in the first model of the first sample had to be made after the initial test revealed poor fit with comparative fit index (CFI) and incremental fit index (IFI) being too low - .894 and .895 respectively, and RMSEA being too high - .082. The two items that cross-loaded to other factors were removed, which resulted in an enhanced model fit with both CFI and IFI having values above the acceptable .9 - .955 for each, while the RMSEA value was now .059. The loading for the items ranged from .540 to .807, which was also better than Perry's (1996) study. The second order model fit was also satisfactory with CFI and IFI of .925 and .926 respectively, and RMSEA of .075, while factor loading of the dimensions APM, CPI, COM and SS were .683, .855, .725, and .640 respectively. The t coefficient of .68 also indicated the extent to which the second order model explains the variance among the first order factors in the first sample (Kim, 2008). The other study that used two samples for validation and cross validation, but rather than separate samples a split data set was used by Vandenabeele (2008a). Though second order factor model was not used as Kim (2008), additional dimensions were used. Except for RMSEA with a value that was acceptable, since it was below .06, the other fit indices – GFI, normed fit index (NFI) and CFI all indicated poor model fit. After deleting items with low loading – below .40, and cross loading on factors, a model with five dimensions was tested. A second model that collapsed self-sacrifice and commitment to the public interest was also developed by Vandenabeele (2008a). Both models demonstrated good fit with the five dimensional model having a value of .053 for RMSEA, GFI of .983, CFI of .963 and NFI of .957, while the four dimensional model had RMSEA of .056, GFI of .980, CFI of .959 and NFI of .952. Both models also demonstrated significant factor loading (Vandenabeele, 2008a).

In cross validating the model from the first sample in Kim (2008), the items were tested with the second sample. The first order model in relation to the second sample had a good fit with CFI and IFI values of .954 and .955 respectively and RMSEA of .060. The factor loading ranged from .452 to .856 (Kim, 2008). The second order also had a good model fit with CFI value of .952 and IFI value of .953. The t coefficient was also better than the validation model with a value of .96, which almost explained all of the variances among the first order factors. The factor loading for the dimensions was also significant. However, except for SS the other dimensions had not done as well as the first order model (APM - .630, CPI - .819, COM - .545 and SS - .646). In Vandenabeele's (2008a) study both 'loose' and 'partial' cross-validation were applied to the second sample, where it was found that the models had good fit, with both based on the goodness of fit indices for the five and four dimensional models . There was also no measurement variance between the models in the two samples thus indicating the models were cross validated (Vandenabeele, 2008a).

The various tests conducted by Perry (1996), Coursey and Pandey (2007), Kim (2008) and Vandenabeele (2008a) all supported the measurement scale used to measure PSM using confirmatory factor analysis. However of significance was the approaches of Kim (2008) where two separate samples were used and Vandenabeele (2008a) using two samples from an initial sample, with the intention of cross validating the model fit, as distinct from Perry (1996) and Coursey and Pandey (2007) earlier studies where a single sample was used to test the PSM measurement scale. The general consensus from the studies is that further testing is required to enhance the scale, not only in terms of dimensions, but also in terms of the number of items that are desirable for various studies, if a specific scale cannot be realized. The data type used by the various researchers varied in terms of collection, thereby impacting on the outcome of the studies. While Perry (1996) used a small heterogeneous sample which was not randomly selected, Coursey and Pandey (2007), Kim (2008), and Vandenabeele (2008a) all used homogeneous samples that were above 500 respondents, thus providing more statistical power to their studies. Couresy and Pandey (2007) and Vandenabeele (2008a) samples were census based, however the samples of Kim (2008) and Vandenabeele (2008a) were above 1,000, thereby restricting the types of goodness of fit test that are available, since chi square

test is sensitive to sample size (Coursey and Pandey, 2007). However, the normed chi square measure (X^2/df) which makes adjustment for the degree of freedom, can be used to assess model fit (Kim, 2008), in addition to goodness of fit index (GFI) as used by Perry (1996) and Vandenabeele (2008a), adjusted goodness of fit (AGFI) as used by (Perry, 1996), and more advanced tests such as comparative fit index (CFI), and the root mean square error of approximation (RMSEA) - the best measure of absolute fit (Coursey and Pandey, 2007), as used by Kim (2008), Coursey and Pandey (2007) and Vandenabeele (2008a), incremental fit index (IFI) as used by Kim (2008) and Coursey and Pandey (2007), and normed fit index (NFI) used by Vandenabeele (2008a) are tests that have been used in testing the PSM model. The various tests all supported the PSM model, though some of the studies were done in different countries.

Unlike other studies, Brewer et al. (2000) tested Public Service Motivation using Perry's (1996) forty original questions and Q-methodology, which requires an evaluation of each item to the others, while other studies evaluated each item independently (Brewer *et al.*, 2000). Emerging out of the study were four concepts that described individuals with varying combinations of the four dimensions. The groups were classified as Samaritans, humanitarians, patriots and communitarians. They also concluded that 'PSM is more complex than depicted' in other studies, and that no group of motives 'emerged as dominant' (Brewer *et al.*, 2000: 261). In addition to directly testing the measurement scale, other researchers had also tested the scale while examining the relationships between PSM and antecedents as well as attitudes and behavior of public service employees (Alonso and Lewis, 2001; DeHart-David *et al*. 2006; Moynihan and Pandey, 2007; Vandenabeele, 2008b, 2009). Due to the propositions by Perry and Wise (1990), as well as other theoretical expectations based on historical and behavioral studies (DeHart-Davis *et al.* 2006), the relevance of PSM has been studied since the scale was developed by Perry (1996). The outcomes of the testing of the measurement scale and the propositions were influenced to some extent by the research designs, which included data collection and data analysis using available techniques and applications at the time of the various studies. The approaches have contributed to some of the inconsistencies in findings of some of the studies. Despite those inconsistencies in some of the studies, the similarities of some of the results

using different sampling frames and approaches have provided support for scale generalizability as it relates to PSM (Coursey and Pandey, 2007:552).

Data Type

The type of data used after Perry's (1996) initial study varied to some extent depending on where and when the studies had taken place. Also of significance is the influence of the categories of public service employees and the basis of data collection on the outcome of the studies. Many of the empirical studies and more so some originating in the US had respondents at the management level from the various organizations (DeHart-Davis, 2006; Moynihan and Pandey, 2007; Coursey and Pandey, 2007), other studies used both management and non-management levels (Perry, 1997; Naff and Crum, 1999; Brewer *et al.*, 2000; Bright, 2005, 2007, 2008), while Vandenabeele (2008b) used non-public servants (masters students). Some of the recent studies in other countries also had respondents from both management and non-management levels within the public service (Kim, 2005; Camilleri, 2006, 2007; Taylor, 2007; Vandenabeele, 2008a, 2009). The type of public service agency in relation to the tier of public service also varied as some studies utilized employees at federal or national/central agencies (Brewer and Selden, 2000; Alonso and Lewis, 2001; Coursey and Pandey, 2007; Camilleri, 2007), while some at the state or regional/provincial agencies (DeHart-Davis, 2006; Moynihan and Pandey, 2007; Coursey and Pandey, 2007; Vandenabeele, 2008a, 2009), and others at the local agency level (Bright, 2009). Some studies were more heterogeneous with all Levels being studied (Kim, 2005). The studies of PSM utilizing various respondents provided further evidence of the existence of the motive in the public service, though some of the relationships in some of the studies were inconsistent as was earlier stated.

The researchers in their studies of PSM also used various methods of data collection, which could have varying effects on response bias (Bright, 2009), as well as response rate, with Internet technology being used to administer questionnaires via e-mail (Vandenabeele, 2009; Bright,2009) among other methods, while Vandenabeele (2008a) and Taylor (2007) used a web-based survey. These modes however are likely to result in a lower response rate than paper-and-pencil survey (Sax et.al, 2003). Self–

administered Questionnaires (Perry, 1997; Camilleri, 2006, 2007; Kim, 2005, 2008; Brewer *et al*., 2000) or by mail (Bright, 2005, 2007, 2008), which were over extended periods of time were the more preferred mode in many of the studies. Others relied on secondary data (Naff and Crum, 1999; Alonso and Lewis, 2001; Moynihan and Pandey, 2007; Coursey and Pandey, 2007). While most of the studies used a five-point-likert scale, Bright (2007, 2008, and 2009) used a seven-point scale. Though the seven-point scale is expected to increase validity (Preston and Colman, 2000), the five point scale provided better comparability with earlier studies that used a similar scale. The scope of the studies as well as the resources available would have however influenced the methods used by the various researchers. The use of various approaches and the subsequent similarity in findings of many of the studies also provided support for scale generalizability (Coursey and Pandey, 2007).

THE APPLICABILITY OF PSM TO OTHER ECONOMIES/COUNTRIES

Since its development in the US, the concept public service motivation has gained acceptance, analyzed as well as it was tested by academics in various countries, with some referring to PSM by different names (Camilleri, 2007). The existence of PSM has emanated from various backgrounds, but with a common thread a desire to serve the public interest. Its usage and popularity has been growing not only in the more developed economies, but also in some developing economies. Though culture contributes to the behavior of public service employees, there is commonality as it relates to public values of the Western world (Vandenabeele, 2008a). The public values found in part of continental Europe have been influenced by French administration (Vandenabeele, 2008a). To determine its applicability outside the United States both normative and empirical studies have been undertaken by academics. The significance of these studies in relation to the development of Perry's PSM concept has been the comparison of his concept with

various European variants, such as customer orientation, equality, and bureaucratic governance.

Academics have looked at the factors and context in which public servants operate in various European countries in addition to other emerging economies. Alterations to a few items in the measurement scale were required in some of the studies due to cultural interpretation and meanings of terms Taylor (2007), Kim (2008) and Vandenabeele (2008). Though the PSM model has been adopted with a few modifications to the scale in some emerging economies, it was felt that a wider definition was required for European economies as was earlier stated, due to their historical background. PSM concept was analyzed in relation to some European countries such as France, Netherland, Germany, the United Kingdom, Belgium and Malta by various academics (Hondeghem and Vandenabeele, 2005; Castaings, 2006; Vandenabeele *et al.*, 2006). The findings of the various studies revealed similarities between the US public servants and some European public servants. Perry (1996) posited that PSM is an antecedent of organizational commitment, which is also seen as applicable to the French civil service (Castaing, 2006).

Perry (1996) also posited that commitment to the public interest was a norm-Based motive. This was built on Perry and Wise's (1990) classification of desire to serve the public interest as a norm-Based motive, since it was seen as a norm to be loyal to one's country and a nationalist. Though Hondeghem and Vandenabeele (2005) posited that 'public interest seem to be more of a duty to government' in France, which was based on the literature studied (Hondeghem and Vandenabeele, 2005; 11), Castaings (2006) posited that commitment to public interest relates more to desire -an affective motive, than duty to serve others – a normative motive, in the French civil service. This was due to the findings that PSM (commitment to the public interest) is a better predictor of affective organizational commitment than normative commitment (Castaings, 2006). However, though commitment to serve the public interest is common in both the US and French societies, the motive appears to be more from an individual's emotions in the French society than the US where it is an obligation or duty to serve.

The preferences or needs of the various employees are also important across the US and European countries studied. Similar to the US where Houston (2000) found that public employees were less motivated by monetary reward, it was posited that as it relates to French civil servants 'little attention is devoted to monetary rewards' (Hondeghem and Vandenabeele, 2005; 17). This was also similar to findings in Belgium where public sector employees were less motivated by money than their counterparts in the private sector (Buelens and Van den Broeck 2007). In addition to Perry and Wise's (1990) proposition regarding utilitarian rewards, it was also posited that individuals with high PSM are more likely to be attracted to the public sector (Perry, 1996). A study in Belgium found that individuals with high levels of PSM were more likely to prefer public service employment (Vandemabeele, 2008b).

While most of the studies used Perry's (1996) four dimensions or less, following the testing of PSM in a European context with additional dimensions (Vandenabeele (2008a), Vandenabeele (2009) used the additional dimension democratic governance in the study of PSM-performance relationship and mediating variables. The inclusion of this dimension may be important from a European context, but may not have the same relevance in other countries outside of Europe, due to the difference in historical and cultural values. Democratic governance which is a norm based dimension may not have the same level of importance in political systems that are radically different from Western Europe. As such, consideration should be given to the political system operating in a country when testing PSM. The system and political practice in the country can also influence changes to some of the items in the measurement scale in various dimensions as in the case of Kim (2008), if they are to have the desired ability to measure the dimensions.

CONCLUSION

There has been considerable development regarding the concept public service motivation over the years. The various academics utilized more advanced analytical tools over time, as well as a wide cross section of individuals in the empirical studies to test the scale and propositions. However, further studies in this area would contribute towards solidifying the concept. Various antecedents were investigated in studies including those that emanated from the organization's culture, the level of employees' contact with members of society as distinct from tenure. However, both categories of antecedents in terms of public organization and public service employment have not been investigated. The existence of a relationship between the level of employees' contact with members of society and PSM, or any of its dimensions, will help administrators and researchers understand the likely effects of citizen's issues on public service employees. Motives arising from within the organization through socialization may be either affective - due to concerns for them, or normative - due to learning that it is one's duty or responsibility. As such, future studies can be undertaken to determine whether a relationship exist between the respective variables.

The level of economic development or underdevelopment of a country, and the extent of PSM and the levels of the dimensions are issues that can be studied. While studies of PSM have been undertaken in more developed countries, similar studies should be done in less developed and underdeveloped countries, to determine the extent of PSM. Another viable area for study is the nature of government in terms of participation of citizens in the election of the legislative arm of government, which will ultimately influence the values and culture in the country and consequently PSM.

As it relates to the internationalisation of the concept, PSM can be seen as a 'valid concept in a European environment', even though alterations are needed to the measurement scale, since the core elements remain as initially set out (Vandenabeele, 2008b;1103). The findings to date also suggest that the concept public service motivation has universal relevance (Vandenabeele, 2008a), due to the testing of the measurement scale and

propositions on various types of individuals and countries. However, 'PSM does not replace other types of motivation' (Vandenabeele, 2008b; 1103), but assists public administrators in understanding the behaviour, and making predictions of public employees. A better understanding of the forces that influence public service employees can result in improvement in the human resource management in public organizations.

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USING NATIONAL CENSUS DATA TO ASSESS SOCIAL VULNERABILITY OF VILLAGES TO MAJOR FLOODS: EAST COAST DEMERARA, GUYANA

Sherwood Lowe

ABSTRACT

Objectives. *Village-level socioeconomic and demographic data were used to construct an index of social vulnerability to major flood events for seventy villages in Guyana.* ***Methods:*** *Data for eight indicators commonly used in such assessments were selected, normalized, weighted equally and summated to produce an initial social index for each village. These indices were then treated by a special factor based on the identification of so-called high-impact vulnerability factors to arrive at final composite indices.* ***Results:*** *Composite indices were separated into quintiles and results displayed on Google earth maps.* ***Conclusion.*** *The use of the special weighting factor to calculate indices of social vulnerability produced meaningful results that could be used to inform flood disaster management plans.*

Key words: Social vulnerability, floods, villages

INTRODUCTION

In Guyana, a major rain-induced coastal flood in January 2005 affected approximately 275,000 persons (about 35 per cent of its population), claimed an estimated 34 fatalities and left an estimated damage of US$ 465 million (Civil Defence Commission of Guyana, 2012). A year later,

according to the same source, in February 2006, a second flood affected 35,000 persons and caused an estimated damage of US$ 160 million.

Due to global climate change and local factors, flood events in Guyana are expected to increase in frequency and magnitude. Large parts of the country will be affected as a result of sea level rise, storm surges, increases in rainfall intensity, breaches of conservancy dams and sea defences, and overtopping of large rivers even in inland regions.

To what extent can communities in Guyana cope with such events? What socio-economic factors and conditions determine the capacity of citizens to resist and recover from repeated major floods? What measures could be taken to reduce the damage potential of floods and other natural hazards at the level of individuals, families and communities? These and other questions rest at the core of the concept of social vulnerability, the idea that the ability of people to resist and recover from a disaster depends not only on the magnitude of the disaster, but also on their social and economic conditions, such as their education and income levels.

This paper describes a recent study to measure social vulnerability at the scale of individual communities in Guyana by processing eight socio-economic indicators. Over seventy (70) villages along the coast, where most of the country's population and agriculture resources are, were included in the assessment (**Table 1** and **Map 1**). The main source of socio-economic data was the 2002 national population and household census, the most comprehensive that is available for the country.

Assessments of vulnerability at a local scale can provide specific answers to questions such as who is likely to be affected, to what extent, where and why (United Nations Environmental Programme, 2003). Such knowledge can be used to inform and guide key components of a disaster management plan, such as emergency preparedness and response, education and awareness, and loss reduction.

In addition, such studies fall within the ambit of Guyana's Low Carbon Development Strategy (LCDS). In its LCDS policy statement in 2009, the Government of Guyana identified a portfolio of urgent, near-term

investments in areas where population and economic activity are concentrated. Initiatives which relate to flood disaster management include strengthening building codes; expanding the early warning system and building an emergency response system; and developing financial and risk/insurance measures to boost resiliency post-flooding. These decisions and initiatives are informed by flood risks and vulnerability assessments. Already, some work has been completed in this regard, especially in terms of risk assessment and the economic dimension of vulnerability. The current study therefore sought to complement the on-going efforts by looking at the social dimension of vulnerability: that is, the capacity of individuals, households and communities to withstand and recover from floods based on such social factors as their gender and education level.

VULNERABILITY: SELECTED CONCEPTS AND METHODS

In the natural disaster literature, several definitions of vulnerability exist. In a 2003 report on assessing human vulnerability to environmental change, the United Nations Environmental Programme (UNEP) reviews the use of the term across several studies and researchers. The UNEP report distils vulnerability to be a function of two elements: damage potential and coping capacity. This study adopted this definition for its wide usage and simplicity.

Three dimensions of vulnerability are recognised (see, for example, Kumpulainen et al, 2006): (i) economic (any actual or potential damage that affects the economy, such as damage to infrastructure in terms of roads, communication, and power supply; and damage to commercial activities in terms of the production, distribution and consumption of goods and services); (ii) environmental (the extent of fragility of ecosystems and how they can withstand and recover from a disaster); and (iii) social (related to the characteristics of the people and their living conditions, and how these affect their ability to prepare for, respond to, and recover from a disaster).

The economic dimension of vulnerability is normally measured in monetary terms, while the environmental dimension is reported in terms of damage to ecosystems and habitats. On the other hand, the social dimension of vulnerability focuses directly on people as individuals, families and communities. The social dimension recognises, for example, that old people are more vulnerable than younger adults, poorly educated people are more vulnerable than the educated, and small farmers are more vulnerable than public servants and small miners. This study looked at this aspect of vulnerability.

The three main methods for vulnerability assessment are: analysis of statistical data, spatial analysis, and modeling. This study was mainly based on an analysis of statistical data.

FLOOD EVENTS IN GUYANA

Flooding events on the coast of Guyana have several characteristics that directly bear on the threat, risks and vulnerability they pose. These include:

i. Floods have multiple causes. Floods may be due to high rainfall; overtopping of conservancies and seawalls; release of excess water from conservancies through outlet canals; swelling of rivers; high tides and storm surges in the sea; and failures of sea and river engineering protection structures. Events are therefore frequent, with some areas experiencing several floods a year.

ii. Flood events are mainly slow onset in nature. The rise in water level during flood events on Guyana's flat coastland is much slower compared to events in countries with hilly topography. Flash floods and associated rapid and devastating mass movement events (such as mudflows and slumps) are therefore unheard of on Guyana's coast. The fact that most flood events onset slowly helps to reduce their impact by providing extended preparation and response time.

iii. Wide geographic extent. The global-scale rainfall zones that affect Guyana and the flat coastal topography allow floodwater to extend over extensive regions. Flood depths can reach as much as 2 metres.

iv. Substantial damage potential. Because most of the country's population and agriculture assets are concentrated on the coast, the potential for flood damage is high.

This study treated floods as uniform in magnitude and nature across all coastal communities. No account was taken of any differences such as causes of flooding, rate of onset, flood depth, and velocity. We posit that the results of the study would in no way be affected by this assumption.

PREVIOUS STUDIES IN GUYANA

Previous studies in Guyana on vulnerability of the coast have mainly focused on the economic and environmental dimensions of vulnerability, and mainly at the national scale. We describe three significant cases here to highlight differences in objectives, scales of observation, and methodologies from the current study.

(i**)** *Second National Communication (SNC) to the Conference of Parties of the United Nations Framework Convention on Climate Change.* This project, proposed in 2007, was geared to allow Guyana to comply with its obligations under the United Nations Framework Convention on Climate Change. Several vulnerability and assessment surveys were undertaken, with one focused on Guyana's Coastal Zone sector. Among its stated objectives, the study evaluated the impacts and vulnerabilities of climate-driven sea level rise and extreme storm surges on sensitive coastal zones, ecosystems and human settlements in Guyana. The project concentrated on the economic and environmental dimensions of vulnerability (but not on the social dimension) and on physical damage potential (but not on coping capacity of the population).

The methodology consisted of, first, the creation of the Digital Elevation Maps, followed by the identification of regions and land uses affected by future sea level rises, using the appropriate modules of the ARCGIS GIS software. Three future scenarios (for years 2031, 2051 and 2071) were constructed based on the Hadley Centre Atmosphere-ocean General Circulation Model simulations of sea level rise and storm surges, which were superimposed on local topography, land use, ecosystems and infrastructure facilities. The resolution used was 25 x 25 metres.

The results produced several flood hazard maps and calculations of economic loss in financial terms. In general, the results highlighted the high level of vulnerability of the coastal zone of Guyana to climate-driven sea level rise and the potential impacts of extreme events such as storm surges.

(ii) *Design and Implementation of an Integrated Disaster Risk Management Plan, Civil Defence Commission - 2010.* The stated objective of the IDB-funded project was to improve disaster risk management through the determination of a robust System of Indicators, developed by the Institute of Environmental Studies (IDEA in Spanish) of the National University of Colombia, Manizales. The System of Indicators, which could be used by countries as well as banks, has three specific objectives: i) improvement in the use and presentation of information on risk to assist policymakers in identifying investment priorities to reduce risk (such as prevention and mitigation measures), and to direct the post disaster recovery process; ii) to provide a way to measure key elements of vulnerability for countries facing natural phenomena. It also provides a way to identify national risk management capacities, as well as comparative data for evaluating the effects of policies and investments on risk management; and iii) application of the methodology to promote the exchange of technical information for public policy formulation and risk management programs throughout the region.

Four national indicators were calculated:

- The Disaster Deficit Index, DDI, measures country risk from a macro-economic and financial perspective when faced with possible catastrophic events.

- The Local Disaster Index, LDI, identifies the social and environmental risk that derives from more recurrent lower level events which are often chronic at the local and sub national levels.
- The Prevalent Vulnerability Index, PVI, is made up of a series of indicators that characterize prevailing vulnerability conditions reflected in exposure in prone areas, socioeconomic fragility and lack of resilience in general.
- The Risk Management Index, RMI, brings together a group of indicators related to the risk management performance of the country.

(iii) The Guyana Red Cross and other NGOs have conducted several street-level vulnerability assessments in selected communities across Guyana. The method normally involves house-by-house interviews. These assessments directly map social vulnerability. While, they are valuable to enable local people to organise to resist a flood, they provide no regional or national perspective.

SELECTION OF STUDY AREA

In any given year, several areas of Guyana experience severe flooding. The villages along the East Coast of Demerara on the country's Atlantic coast were selected for this study because of the severity and damage potential of floods there (MAP 1, TABLE 1). The extreme flood events in 2005 and 2006 were particularly devastating for the region. A total of 222,522 persons or 72% of the region's population were, for example, severely affected in the 2005 flood.

Because the national census contains the same datasets for all ten administrative regions of Guyana, such a study could be readily and uniformly replicated for other flood-prone areas, such as the West Demerara and the Pomeroon. We recommend such studies using the metric proposed in this study.

TABLE 1: Study area by village and NDC

List of NDCs (East Coast Demerara, Region #4)	Number of villages	Names of villages
Cane Grove Land Development Scheme	**8**	Cane Grove, Virginia, Uplands, Bagatelle, Strathavon, Joyce Phillips, La Bon Mere, Mary's Hope.
Vereeniging / Unity	**15**	Vereeniging, Supply, Belmont, Helena No.1, Helena No.2, Good Hope, Hand En Veldt, Voorzigtigheid, Good Intent, Cambridge, Tranquility Hall, Spring Hall, Mosquito Hall, Lancaster, Unity.
Grove / Haslington	**19**	Grove, Orange Nassau, Greenfield, Bee Hive, Clonbrook, Ann's Grove, Two Friends, Dochfour, Hope, Lowlands, Nooten Zuil, Belfield, Victoria, Craig Milne, Cove, John, Nabacalis, Golden Grove, Haslington.
Enmore / Hope	**2**	Enmore, Hope.
Foulis / Buxton	**12**	Foulis, Paradise, Bachelor's Adventure, Elizabeth Hall, Enterprise, Non Pariel, Coldingen, Strathspey, Bladen Hall, Vigilance, Friendship, Buxton.
La Reconnaissance / Mon Repos	**7**	La Reconnaissance, Annandale, Lusignan, Nog Eens and Two friends, Good Hope, De Endragt, Mon Repos.
Triumph / Beterverwagting	**2**	Beterverwagting, Triumph.
La Bonne Intention / Better Hope	**9**	La Bonne Intention, Chateau Margot, Success, Le Resouvenir, Felicity, Montrose, Brothers, Vryheids Lust, Better Hope.
Plaisance / Industry	**5**	Plaisance, Sparendaam, Goedverwagting, Ogle, Industry.

RESEARCH OBJECTIVES

The study sought to accomplish three objectives:

- to measure and map the level of social vulnerability of coastal communities of Guyana to flood hazards;
- to highlight any variations in social vulnerability across these communities;
- to propose and demonstrate the use of a metric to measure social vulnerability in Guyana which can be adopted as the standard approach to facilitate comparisons across time and space.

METHODOLOGY

The methodology involved five steps:

i. Setting down criteria for selection of indicators;
ii. The selection and assessment of social indicators of vulnerability;
iii. The normalisation and orienting of the selected social indicators;
iv. Calculation and ranking of social vulnerability across communities;
v. Verification of vulnerability assessment through other sources.

Setting down criteria for selection of indicators

Following the advice of Dwyer et al. (2004), this study selected vulnerability indicators to meet several criteria. In summary, these criteria are validity, data availability and quality, simplicity, recognition, objectivity and the able to be quantified.

Selection and assessment of social indicators of vulnerability

The study used the 2002 national census as the main source of data on indicators. The census datasets are disaggregated by villages. Within villages, the census disaggregates data by number of persons (e.g., to

quantify ethnicity and gender) and by number of households (e.g., to determine access to drinking water, and home ownership). For the study, the units of analysis used were the number of villages, the number of persons in a village, and the number of households in a village.

Eight variables from the Guyana 2002 census data were considered and are discussed in **Table 2**.

TABLE 2: Discussion of selected variables

SELECTED SOCIAL INDICATORS	**DISCUSSION**
Age	The two demographic groups most affected by disasters are children and the elderly. The higher the proportion of these categories in the population, the higher the level of vulnerability at the individual, household and community levels. Children and the elderly are more vulnerable during natural disasters because they are less independent and less able to move on their own. The study categorised children as persons under 5 years and the elderly as over 65 years.
Gender	Social vulnerability studies normally consider females to be more vulnerable than men in the face of natural disasters (see, for example, Cutter et al, 2003). The ECLAC report on Guyana's 2005 flood supports this hypothesis by identifying four causes of female vulnerability in Guyana: (i) the significant proportion of women who have responsibility for household management, estimated at over 30% of households. The report points to the continued emigration of men to the Caribbean and North America in search of employment as possibly exacerbating the situation. We can add another factor that of the exodus of men from coastal villages to the Hinterland mining districts in search of gold and diamonds. (ii) The low labour force participation rate of women (approximately 39% compared to the male rate of 81%, and the high level of female unemployment at 18%, twice that of the male rate). (iii) The burden for the rearing of children, and care for the elderly.

	(iv) Other forms of economic disempowerment, such as lack of access to bank credit, lack of training and other forms of support. (v) Incapacity to recover from flood losses, as a result of the factors stated above. In the absence of specific data at the village level on the female condition, this study used the proportion of women in the village population as a proxy measure of this indicator of social vulnerability.
Education	Persons with less education are considered more vulnerable than those with higher levels of education. This study considered persons with less than secondary education as the indicator of vulnerability.
Water	Households that depend on their drinking water supply from the pipes in the yard or standpipes are considered more vulnerable than the other categories in the census data.
Ownership/tenancy	Cutter et al (2003) argue that renters are more vulnerable than home owners because they are likely to be poorer and have fewer shelter options. We further assumed that renters, apart from having less financial resources than home owners, are likely have to wait on the willingness of their landlords to effect repairs to their dwellings caused by flooding. Renters are therefore less able to resist a flood as well as to recover from it.
Occupation	Villagers who engage in, and depend for a livelihood on, agriculture activities (such as cash crop farming, and animal rearing) and fishing are more vulnerable from flood damage. They are at risk of suffering greater financial losses. Their recovery depends on acquiring bank credit and government support.
Disability	Disabled persons are more vulnerable due to their less mobility.
Toilet type	Households who depend on pit latrines are more vulnerable because they would be unable to use the facility during a flood and may be at a greater health risk.

The census data do not provide a few other key indicators (either at all or at the suitable unit of analysis) useful for a social vulnerability assessment at the village scale in Guyana. These include family size within households (bigger households are considered more vulnerable than small ones), type of dwelling by height above ground (houses with ground floors would be more vulnerable than those raised on posts), and complete information on the living conditions of women (considered an important factor of coping capacity).

Ethnicity was not used as a possible indicator of vulnerability despite its use in several well-recognised studies (for example, see Cutter et al, 2003). Guyana is an ethnically diverse society in which real or perceived differences exist in how the national and local governments relate to citizens. The political climate in Guyana has long been characterised by persistent charges of discrimination, victimization and lack of transparency in the allocation of state resources such as land, contracts and job opportunities.

The response efforts by the government during the 2005 flood did not escape these allegations. Communities (mostly populated by Afro-Guyanese) that support the main opposition party felt they were receiving less aid than communities that supported the government electorally (mostly indo-Guyanese). Though ethnicity is an empirically-supported and commonly-used indicator in social vulnerability measurements, this study did not consider it for several reasons. For one, it would be difficult in Guyana to separate perception from reality. Secondly, hard and objective datasets are unavailable that compare the various ethnic groups in terms of their family structure, propensity for saving money, community support structures and other factors that may affect their relative vulnerability.

In addition, this study did not differentiate between the indicators that speak to people's capacity to resist a flooding event (such as income level, and type of dwelling) and those that relate to their capacity to recover after a flood (such as their source of livelihood, extent of family support network, and effectiveness of national and local administration). While resistance and recovery are a worthwhile distinction, the census data do not provide adequate indicators to make separate assessments of these two aspects of vulnerability.

It is acknowledged that an analysis based on twelve-year old census datasets may seem locally to be of limited value today. Notwithstanding the fact that no recent census data has been released, the use of the 2002 data carries two essential advantages for work of this nature:

(i) the major floods on the coast in 2005 and 2006, occurring several years after the census, could allow the conclusions in the study to be tested and

verified against actual events. This study did not undertake any such testing in this phase but strongly recommends such an approach should funding become available.

(ii) the analysis of 2002 data establishes a reference point for future vulnerability assessments using the next and subsequent census reports. Guyana can begin to track any trends in the social vulnerability of its people to floods.

Normalization and orienting of selected social indicators

For each selected indicator, the census datasets were normalised to per cent (or to the decimal equivalent) to convert the absolute values to relative numbers. These relative values for each indictor were then selected so that higher values would mean higher levels of social vulnerability, and lower values lower levels.

Determination and ranking of social vulnerability across communities

The study calculated a composite index of all the indicators for each village. The index was first calculated by attaching equal weight to all eight indicators and simply adding together their values. The use of equal weights is advised in light of the absence of local studies on the relative importance of the indicators. Regardless, we recommend the use of equal weights to avoid disparities across studies based on possible disagreements among researchers in determining relative weights.

In several other studies, the totals from the addition would then be categorised into high to low vulnerability by using quantiles or standard deviations above and below the mean. For our purposes, this initial computation of composite indices did not, however, disaggregate the villages in a satisfactory manner. Several villages, for instance, ended up with similar scores but had different distributions of values across the eight social indicators. The indicators in the village of Success, for example, were close to the average value for each indicator. Similarly-indexed Virginia, a village on the Upper East Coast, on the other hand, had several values well above the mean (**Table 3**).

Nor did the initial indices provide any idea of how many indicators were the main contributors to the index. Villages with similar scores could be vulnerable on account of one major social indicator or several high-value indicators. Without these insights, it is posited, a vulnerability assessment would be less useful for decision-making.

To compensate for these defects in the initial composite indices, the study introduced a second factor based on the number of high-impact vulnerability indicators for each village. A high-impact factor was defined as an indicator whose value is significantly higher than the mean of all values of that indicator across the villages. Through several iterations, it was found that 0.8 (80%) of the standard deviation provided the most appropriate one-size-fit-all threshold value across all indicators to identify high-impact indicators.

High-impact vulnerability indicators were identified for each village as those values equal to or greater than these threshold values, (shaded cells in **Table 3**). The number of such high-impact factors was multiplied by the initial composite indices to arrive at final composite indices. For villages with no high-impact indicator, the initial composite indices were used to rank them.

This approach allows a clearer insight into the causes and differences in vulnerabilities across villages. For example, the villages of Buxton, Helena No 1, Victoria and Lancaster have similar **initial** composite indices and consequently share the same ranking, although Buxton and Victoria are highly vulnerable across several social indicators, while Helena and Lancaster are less so (**Table 3**). Introducing the number of high-impact indicators in the index calculation separates the villages: Buxton and Victoria are now in the top 20% of vulnerable villages, Lancaster in the second 20% and Helena No. 1 in the fourth quintile. This approach therefore more effectively identifies villages that have several unfavourable social indicators.

The ranking of villages was based on quintiles (20% divisions), producing five groupings: high, high to medium, medium, medium to low, and low. The use of quintiles allowed for a more refined separation of indices and

prevented villages with large differences in indices to end up in the same class. Quintiles are also more likely to be understood by local stakeholders as compared to the rankings based on standard deviation.

Verification of assessment from other sources

In an attempt to test the measurements and conclusions on social vulnerability made in this study, we looked for evidence from other studies or reports. While this effort produced very little and inconclusive results, some lines of evidence supported the assessments in the study. We list these below:

(i) The Civil Defence Commission (CDC) in Guyana (the agency responsible for disaster preparedness and response) reports that in two agricultural villages just outside the eastern flank of the study area, the flood of 2005 damaged over 2000 acres of rice and several hundreds of thousands of US$ worth of cash crops. The 2008-2009 flood was worse, with water reaching about 7 feet (2.1 metre) in the agricultural land.

The study identified occupation (agriculture and fishing) for villages in this area as a high-risk indicator of vulnerability. The CDC data provide some good justification for this conclusion.

(ii) As reported on the website of the United Caribbean Trust, the Guyana Citizens Initiative for Flood Relief (GCIFR), a group of professionals formed to contribute to the national response to the disastrous 2005 flood, issued special appeals for aid for three communities: Buxton, Bachelor's Adventure, and Good Hope (**Table 3**), suggesting the existence of exceedingly dire circumstances in these villages. These villages have several high-risk vulnerability indicators and are in the first (high), second (high to medium) and third (medium) quintiles, respectively.

PRESENTATION AND DESCRIPTION OF RESULTS

For objectives 1 and 2, the results were shown in tables and maps. **Table 3** shows all the normalised values for the eight selected social variables for each village, in addition to the initial composite indices, the type and number of high-impact factors (shaded cells) and the final composite indices. **Table 4** shows the ranking by quintiles of the social vulnerability of villages to floods.

Results were also shown in overlays on Google Earth maps for each village within the study area. Only maps using the final composite indices were made. The colour code is explained underneath each map. Each of the maps shows the villages within their NDCs (see **Map 3 and 4** as examples). Displaying the village results by NDC allows assessments and interventions to be made conveniently within established local government units. **Map 5** shows the village results on one map.

Results for twelve villages were "not shown" on the map, either because of incomplete data on the selected indicators or extremely small populations at the time of the census.

TABLE 3: Determination of indices of social vulnerability of ECD villages to floods (orange cells indicate values => 80% SD + mean)

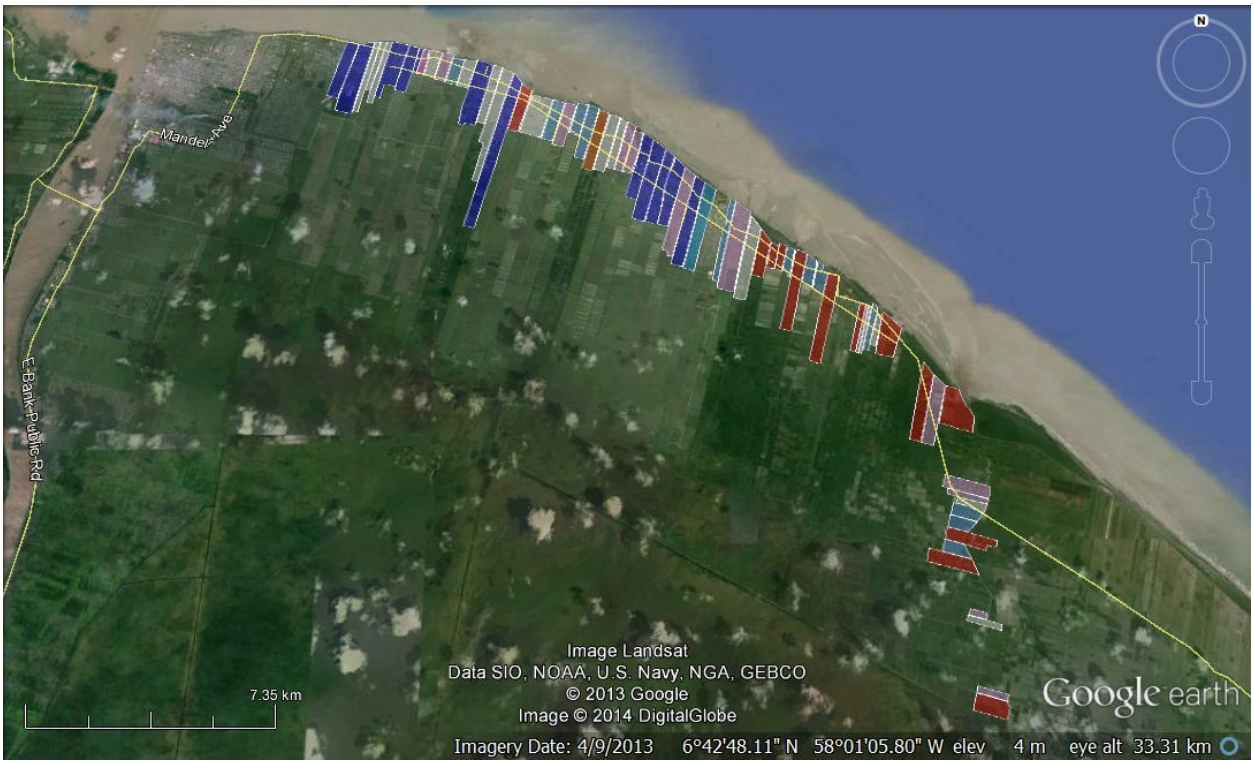
Vill #	Village name	AGE	GENDER	EDUCATION	WATER	OWNERSHIP	OCCUPATION	TOILET	DISABILITY	INITIAL COMPOSITE INDEX (C+D+E+F+G+H+I+J)	NUMBER OF HIGH IMPACT INDICATORS	FINAL COMPOSITE INDEX (K * L)
		% persons 5 yrs and younger and 65 yrs and older	% Females	% persons with education below secondary	% use of yard or standpipes by households	% renters by households	% persons engaged in agriculture and fishing	% latrines by households	% disabled			
A	B	C	D	E	F	G	H	I	J	K	L	M
5	Cane Grove	0.15	0.49	0.52	0.37	0.04	0.65	0.77	0.04	3.02	3	**9.07**
6	Virginia	0.17	0.49	0.35	0.31	0.08	0.55	0.70	0.03	2.68	3	**8.04**
11	Uplands*											-
12	Bagatelle	0.13	0.50	0.36	0.01	0.06	0.51	0.72	0.05	2.35	2	**4.69**
13	Strathavon	0.16	0.47	0.46	0.84	0.05	0.43	0.73	-	3.14	2	**6.29**
15	Joyce Phillips*	0.13	0.49	0.60			0.18		0.02			-
16	La Bon Mere*											-
18	Mary's Hope*											-
19	Vereeniging	0.18	0.51	0.54	0.52	0.03	0.44	0.89	0.01	3.14	4	**12.54**
20	Supply	0.18	0.49	0.47	0.59	0.09	0.39	0.76	0.02	2.99	1	**2.99**
21	Belmont	0.14	0.48	0.50	0.71	0.05	0.40	0.79	0.03	3.09	3	**9.28**
22	Helena No.1	0.17	0.49	0.43	0.57	0.15	0.28	0.76	0.02	2.86	1	**2.86**
23	Helena No.2	0.14	0.49	0.41	0.19	0.16	0.48	0.72	0.02	2.61	1	**2.61**
24	Good Hope	0.14	0.50	0.40			0.43		0.02	1.49	1	**1.49**
25	Hand En Veldt	0.15	0.51	0.44	0.53	0.13	0.34	0.81	0.03	2.93	2	**5.87**
26	Voorzigtigheid	0.15	0.52	0.23	0.65	0.14	0.15	0.85	0.02	2.71	3	**8.13**
27	Good Intent*											-
28	Cambridge*											-
29	Tranquility Hall*											-
30	Spring Hall*											-
31	Mosquito Hall	0.18	0.47	0.82	0.88	0.03	0.73	0.93	0.01	4.04	5	**20.21**
32	Lancaster	0.14	0.49	0.48	0.23	0.09	0.64	0.74	0.03	2.84	2	**5.68**
33	Unity	0.11	0.50	0.37	0.65	0.08	0.51	0.78	0.04	3.04	3	**9.13**
34	Grove*											-
35	Orange Nassau*											-
36	Greenfield	0.15	0.48	0.50	0.58	0.04	0.76	0.94	0.03	3.48	4	**13.93**
37	Bee Hive	0.17	0.52	0.48	0.02	0.07	0.35	0.63	0.02	2.25	2	**4.49**
38	Clonbrook	0.14	0.49	0.40	0.30	0.12	0.46	0.62	0.02	2.56	1	**2.56**

A	B	C	D	E	F	G	H	I	J	K	L	M
39	Anns Grove	0.19	0.50	0.34	0.39	0.16	0.13	0.73	0.06	2.50	2	**5.01**
40	Two Friends	0.18	0.50	0.28	0.48	0.14	0.19	0.82	0.02	2.62	2	**5.24**
41	Dochfour	0.18	0.50	0.41	1.00	0.08	0.60	0.99	0.01	3.76	4	**15.05**
42	Hope*											-
43	Lowlands	0.14	0.46	0.67	0.61	0.02	0.88	0.94	0.01	3.73	3	**11.19**
44	Nooten Zuil	0.13	0.49	0.42	0.46	0.03	0.26	0.79	0.02	2.60	0	-
45	Belfield	0.20	0.51	0.22	-	0.08	0.07	0.36	0.06	1.49	2	**2.98**
46	Victoria	0.18	0.50	0.29	0.70	0.18	0.18	0.80	0.01	2.84	4	**11.35**
47	Craig Milne	0.16	0.48	0.43	0.55	0.14	0.26	0.74	0.03	2.80	1	**2.80**
48	Cove	0.10	0.51	0.55	0.96	0.10	0.49	0.71	0.04	3.46	4	**13.85**
49	John	0.17	0.52	0.55	0.52	0.17	0.10	0.69	0.06	2.79	4	**11.14**
50	Nabaclis	0.20	0.53	0.29	0.66	0.18	0.18	0.69	0.02	2.74	4	**10.96**
51	Golden Grove	0.18	0.52	0.29	0.50	0.13	0.17	0.69	0.02	2.49	2	**4.98**
52	Haslington	0.18	0.51	0.30	0.65	0.08	0.22	0.78	0.02	2.74	2	**5.47**
53	Enmore	0.15	0.53	0.43	0.40	0.11	0.18	0.68	0.02	2.50	1	**2.50**
54	Hope*	0.14	0.49	0.43			0.25		0.04			-
55	Foulis	0.13	0.50	0.47	0.45	0.03	0.24	0.86	0.01	2.68	1	**2.68**
56	Paradise	0.14	0.52	0.29	0.25	0.10	0.09	0.35	0.01	1.76	1	**1.76**
57	Bachelor's Adventure	0.20	0.50	0.34	0.59	0.08	0.16	0.82	0.02	2.72	2	**5.44**
58	Elizabeth Hall	0.15	0.51	0.34	0.28	0.10	0.13	0.44	0.02	1.98	0	-
59	Enterprise	0.15	0.50	0.38	0.32	0.09	0.13	0.42	0.02	2.01	0	-
60	Non Pariel	0.15	0.50	0.45	0.37	0.06	0.31	0.60	0.01	2.45	0	-
61	Coldingen	0.17	0.47	0.43	0.32	0.11	0.04	0.49	0.02	2.06	1	**2.06**
62	Strathspey	0.15	0.52	0.48	0.50	0.10	0.18	0.85	0.02	2.79	2	**5.58**
63	Bladen Hall	0.14	0.52	0.37	0.62	0.06	0.18	0.78	0.02	2.68	2	**5.35**
64	Vigilance	0.16	0.52	0.40	0.54	0.08	0.13	0.77	0.02	2.61	1	**2.61**
65	Friendship	0.18	0.53	0.41	0.47	0.17	0.06	0.73	0.03	2.58	3	**7.75**
66	Buxton	0.18	0.54	0.29	0.72	0.20	0.17	0.76	0.03	2.88	5	**14.41**
67	La Reconnaissance	0.15	0.50	0.42	0.55	0.15	0.18	0.70	0.03	2.68	1	**2.68**
68	Annandale	0.13	0.51	0.48	0.41	0.15	0.30	0.68	0.03	2.70	1	**2.70**
69	Lusignan	0.15	0.49	0.52	0.42	0.10	0.20	0.77	0.03	2.68	2	**5.36**
70	Nog Eens and Two fri	0.14	0.49	0.47	0.50	0.11	0.12	0.70	0.03	2.54	1	**2.54**
71	Good Hope	0.16	0.49	0.50	0.40	0.05	0.15	0.80	0.02	2.56	2	**5.11**

A	B	C	D	E	F	G	H	I	J	K	L	M
72	De Endragt	0.13	0.50	0.51	0.57	0.09	0.22	0.80	0.04	2.86	3	**8.57**
73	Mon Repos	0.12	0.49	0.43	0.40	0.12	0.18	0.68	0.02	2.46	0	-
74	Triumph	0.14	0.50	0.38	0.53	0.19	0.17	0.61	0.03	2.56	2	**5.13**
75	Beterverwagting	0.17	0.51	0.27	0.46	0.24	0.12	0.58	0.02	2.37	2	**4.75**
76	La Bonne Intention	0.13	0.50	0.36	0.32	0.15	0.10	0.46	0.02	2.05	0	-
77	Chateau Margot	0.12	0.50	0.41	0.41	0.21	0.13	0.55	0.04	2.37	2	**4.74**
78	Success	0.15	0.49	0.46	0.58	0.14	0.14	0.68	0.02	2.67	0	-
79	Le Resouvenir	0.14	0.50	0.56	0.37	0.16	0.28	0.69	0.03	2.73	2	**5.46**
80	Felicity	0.13	0.51	0.49	0.02	0.23	0.04	0.25	0.01	1.67	2	**3.34**
81	Montrose	0.13	0.54	0.39	0.14	0.27	0.06	0.24	0.03	1.80	3	**5.39**
82	Brothers	0.14	0.52	0.38	0.30	0.13	0.18	0.42	0.02	2.09	1	**2.09**
83	Vryheids Lust	0.13	0.51	0.33	0.52	0.15	0.08	0.50	0.02	2.24	0	-
84	Better Hope	0.14	0.50	0.39	0.39	0.16	0.13	0.64	0.04	2.38	1	**2.38**
85	Plaisance	0.16	0.53	0.23	0.46	0.37	0.03	0.45	0.02	2.26	2	**4.52**
86	Sparendaam	0.16	0.53	0.29	0.45	0.25	0.03	0.52	0.02	2.26	2	**4.52**
87	Goedverwagting	0.15	0.52	0.31	0.49	0.19	0.03	0.51	0.02	2.22	2	**4.44**
88	Ogle	0.14	0.51	0.38	0.25	0.20	0.03	0.38	0.02	1.92	1	**1.92**
89	Industry	0.14	0.51	0.36	0.26	0.17	0.11	0.45	0.02	2.02	0	-
90	Cummings Lodge	0.12	0.50	0.36	0.32	0.18	0.06	-	0.02	1.56	1	**1.56**
MEAN		0.15	0.50	0.41	0.46	0.13	0.25	0.66	0.03	2.58		
Standard Deviation (SD)		0.02	0.02	0.10	0.21	0.07	0.20	0.19	0.01	0.51		
80% of SD		0.02	0.01	0.08	0.16	0.05	0.16	0.15	0.01	0.41		
80% SD + MEAN		**0.17**	**0.52**	**0.50**	**0.62**	**0.18**	**0.41**	**0.81**	**0.03**			

TABLE 4: Villages by social vulnerability index (in quintiles)		
VILLAGE #	NAME OF VILLAGE	FINAL COMPOSITE VULN INDEX
31	Mosquito Hall	20.21
41	Dochfour	15.05
66	Buxton	14.41
36	Greenfield	13.93
48	Cove	13.85
19	Vereeniging	12.54
46	Victoria	11.55
43	Lowlands	11.19
49	John	11.14
50	Nabaclis	10.96
21	Belmont	9.28
33	Unity	9.13
5	Cane Grove	9.07
72	De Endragt	8.57
26	Voorzigtigheid	8.13
6	Virginia	8.04
65	Friendship	7.75
13	Strathavon	6.29
25	Hand En Veldt	5.87
32	Lancaster	5.68
62	Strathspey	5.58
52	Haslington	5.47
79	Le Resouvenir	5.46
57	Bachelor's Adventure	5.44
81	Montrose	5.39
69	Lusignan	5.36
63	Bladen Hall	5.35
40	Two Friends	5.24
74	Triumph	5.13
71	Good Hope	5.11
39	Anns Grove	5.01
51	Golden Grove	4.98
75	Beterverwagting	4.75
77	Chateau Margot	4.74
12	Bagatelle	4.69
85	Plaisance	4.52
86	Sparendaam	4.52
37	Bee Hive	4.49
87	Goedverwagting	4.44
80	Felicity	3.34
20	Supply	2.99
45	Belfield	2.98
22	Helena No.1	2.86
47	Craig Milne	2.80
68	Annandale	2.70
55	Foulis	2.68
67	La Reconnaissance	2.68
78	Success	2.67
23	Helena No.2	2.61
64	Vigilance	2.61
44	Nooten Zuil	2.60
38	Clonbrook	2.56
70	Nog Eens and Two friends	2.54
53	Enmore	2.50
73	Mon Repos	2.46
60	Non Pariel	2.45
84	Better Hope	2.38
83	Vryheids Lust	2.24
82	Brothers	2.09
61	Coldingen	2.06
76	La Bonne Intention	2.05
89	Industry	2.02
59	Enterprise	2.01
58	Elizabeth Hall	1.98
88	Ogle	1.92
56	Paradise	1.76
90	Cummings Lodge	1.56
24	Good Hope	1.49

MAP 1: Social Vulnerability Map (Floods) – East Coast Demerara, Guyana	
Name of villages (W – E)	**Cummings Lodge to Cane Grove** (Villages are in order listed in Table 3)

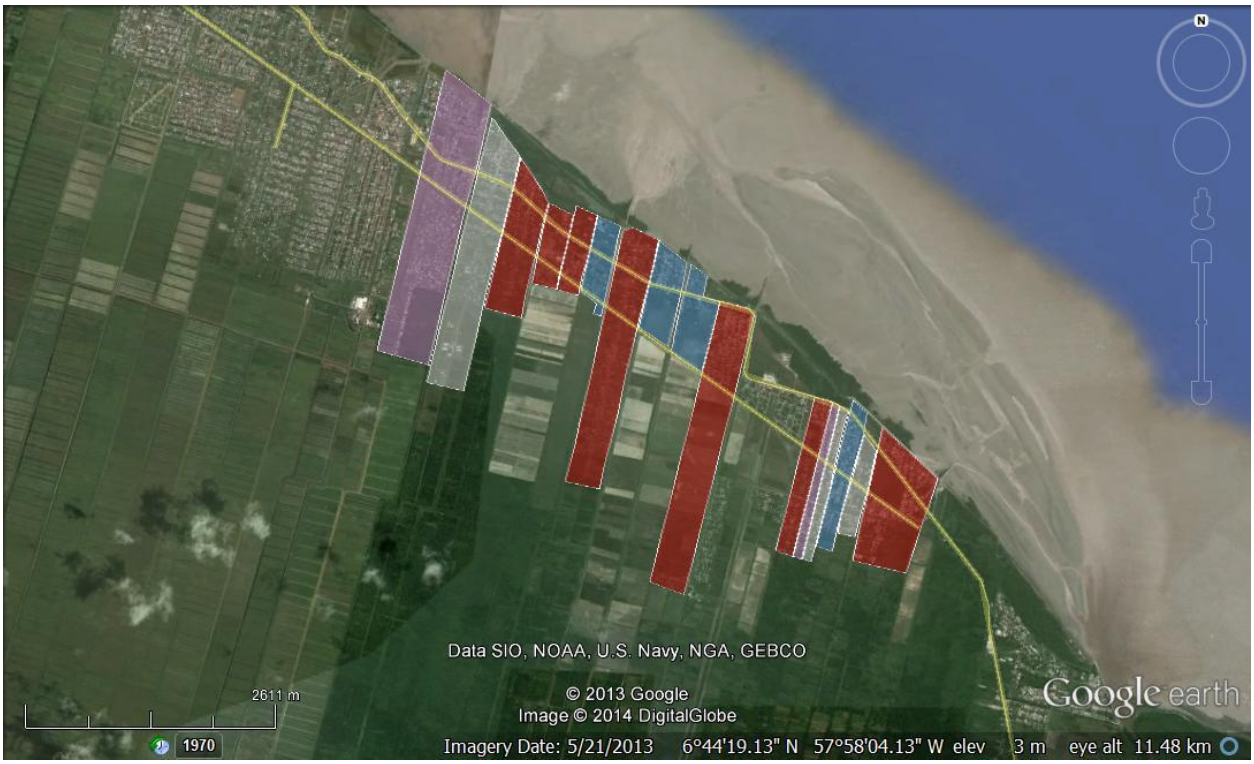


Composite Index of vulnerability	**High 20%**	**High-medium**	**Medium**	**Medium - low**	**Low 20%**

MAP 2: Social Vulnerability Map (Floods)	
Name of NDC	**La Reconnaissance- Mon Repos**
Name of villages (W - E)	Mon Repos, De Endragt, Good Hope, Nog Eens and Two friends, Lusignan, Annandale La Reconnaissance.

Composite Index of vulnerability	**High 20%**	**High-medium**	**Medium**	**Medium - low**	**Low 20%**

MAP 3: Social Vulnerability Map (Floods)	
Name of NDC	**Grove - Haslington**
Name of villages (W - E)	Haslington, Golden Grove, Nabaclis, John, Cove, Craig Milne, Victoria, Belfield, Nooten Zuil, Lowlands, Hope (not shown), Dochfour, Two Friends, Anns Grove, Clonbrook, Bee Hive, Greenfield, Orange Nassau (not shown), Grove (not shown).



Composite Index of vulnerability	**High 20%**	**High-medium**	**Medium**	**Medium - low**	**Low 20%**

DISCUSSION OF RESULTS

As the results in this study are based on the 2002 census data, several cautions need to be taken. For one, new housing schemes and population shifts would have changed the size of occupied areas, and the population size and composition within villages. A few socio-economic variables, however, would remain relatively stable over long periods of time, such as main economic activity and age composition. Nonetheless, the 2002 data, and conclusions drawn from them, should be interpreted only as indicative of the present-day situation.

As a base position, all villages along the coast of Guyana are significantly vulnerable to the impacts of floods. The results are therefore not to be interpreted as indicating absence or presence, or major or minor levels, of vulnerability across villages. Rather, the results allow decision-makers to gauge the coping capacity of communities to resist and recover from major flood events. They allow assessments to be made as to the extent and nature of this vulnerability. Interventions therefore could be targeted and informed. No doubt, villages with several high-impact vulnerability indicators will require special attention. But there is no such thing as a safe village.

The results show that even adjacent villages can have different levels of vulnerability. Mon Repos, for example, is classified in the low category of social vulnerability, while Triumph to its west is at a medium level, and De Endragt to its east is among the villages with the highest vulnerability (**Table 3** and **Map 2**). Such situations arise as a result of differences across short ranges in Guyana's population pattern, ethnicity, economic activity and occupation.

Villages in the upper East Coast of Demerara as a group are more vulnerable to flooding than those in the lower East Coast. Upper East Coast villages in general have higher proportions of their populations engaged in agriculture and with lower levels of education.

The influence of the number of rented households increases as a factor of social vulnerability the closer the villages are to Georgetown.

The data suggests that the cluster of villages between Buxton and Nabaclis has a small but noticeably higher proportion of females in their populations than other village clusters.

Use of yard pipes or standpipes by households is less a determinant of social vulnerability the closer the villages are to Georgetown (to the west).

Although this study did not separate coping capacity into capacity to resist and capacity to recover, we suggest that households and communities with high-risk vulnerability factors in agriculture/ fishing and renters would have a more difficult time to recover after a major flood.

Several factors possibly work to reduce social vulnerability on coastal Guyana, such as increased access to telecommunications and ownership of personal cell phones, increased ownership of televisions and radios, increased vehicle ownership, continued construction of new schools and other government buildings which could be used as shelters. On the other hand, factors tending to increase vulnerability may include continued lack of flood insurance, shortage of critical information on emergency response among villagers, and continued migration of men from the coast to the interior.

RECOMMENDATIONS

Assessment of social vulnerability at the village level should be an on-going exercise, well-planned and budgeted. To achieve greater impact and value, however, several requirements are advised:

(i) The official population and household surveys should be used to conduct social vulnerability assessments across all hazard-prone regions of Guyana. As the data cover all of Guyana, all areas could be assessed. The use of one and the same source of data will also allow consistency and reliability of measurements and comparisons across time and space.

(ii) The national census data should include village-level measurements of household size, height of dwelling above ground and more gender-specific information. Data on these indicators of social vulnerability can help to refine assessments of flood impacts.

(iii) The use of standard risk perception surveys should complement vulnerability assessments. Risk perception surveys measure people's knowledge, attitude, behaviour and feelings about flood hazards. According to Byrd (2009), questionnaires can provide valuable information to emergency management agencies for developing risk management procedures.

(iv) The results of vulnerability and other surveys should be disseminated in user-friendly formats to residents in villages. People in communities will be empowered to take action in their own interest.

(v) Systematic research should be conducted to test assumptions on correlation between social indicators and vulnerability of individuals, families and communities. While several assumptions may seem intuitively correct, or have been "proven" in other countries, such research in the Guyana context will increase reliability and accuracy of conclusions.

(vi) The weighted computation model used in this study should be further tested and adopted as the standard procedure. The use of a standard procedure would allow easier comparisons across time and space.

CONCLUSION

The ability of individuals and communities to resist and recover from disasters depends on their social and economic conditions, in particular their age, income level, access to health facilities, gender and education level. The UNEP's 2003 review of major vulnerability studies worldwide provides ample evidence of this functional relationship and the effort of governments and international agencies to understand and measure it.

Vulnerability assessments are policy oriented instruments aimed at mitigating or avoiding the negative impacts of disasters. They can be used to set priorities to ensure that mitigation measures protect the maximum number of people in a targeted and cost-effective manner.

The study shows that the national census datasets provide a highly useable and structured information base to assess social vulnerability to flooding of villages in Guyana. The periodic release of census data will facilitate periodic reviews of vulnerability and will therefore allow those involved in disaster management to refine and update their strategies.

We here emphasise that a weighting factor is necessary in calculations of vulnerability from the Guyana census data. Otherwise, the results would be hard to interpret and use.

The expected impacts of the study include:

- Improvement in flood disaster management at the national and community levels in terms of preparation, response and recovery.
- More data-based and research-based decision-making in terms of what, where and how resources should be deployed in disaster management planning.
- Empowerment of communities to self-organise in the face of flood risks.
- Advancement of the objectives of Guyana's Low Carbon Development Strategy.

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US POLICY IN GRENADA AND ITS IMPLICATIONS FOR CUBA

Leroy Binns

ABSTRACT

Prior to the demise of the Grenadian revolution in 1983 Washington vigilantly propagandized the Bishop regime as being undemocratic while promising substantial economic assistance to the country once a duly elected popular government took office.

The overthrow of an elected government in an otherwise tranquil region of the Caribbean as described herein sends a message of the limits to tolerance of political abuse disguised under the cloak of democracy with stark reaction as a tool to rectification. Contrast in policy that followed was people oriented nonetheless in mirroring elements of Moscow and openly befriending Cuba drew sharp criticism from neighboring states the likes of Jamaica, Barbados, Dominica and power house Washington.

Leading the charge the White House assumed the role of knight in shining armor by discrediting and later splintering the New Jewel Movement establishment thus creating a backdrop for a coup and subsequent invasion all supposedly attributing to the rebuilding of representational politics. Regrettably since the restoration of the Westminster model, the US has reneged on its pledge of support and the island has returned to a period of economic stagnation. Could similar treatment be in store for a more resourceful Cuba in the absence of communism?

Key Words: Grenada, Cuba, political ideology, US policy

INTRODUCTION

The United States of America has sought to destroy communism in Cuba on the grounds that such promotes Third World struggles against imperialism, enhances the rise of Marxism-Leninist regimes and increases Havana's political status. Therefore the collision course between Washington and Havana has been encouraged over the years by invasion, diplomatic isolation through an expulsion from the OAS, an economic embargo and numerous attempts to assassinate Castro. Based on the notion that Cuba's conduct was Soviet oriented and thus communist in ideology both countries continue to define internationalism and its relationship to solidarity in different ways. Unsurprisingly as Cuba resist military threats and political and diplomatic seclusion, the US defines normalization of relations via Western democracy and capitalism (Robbins, 1992; Patterson, 1994).

In spite of acknowledgement of Cuba's acceptance within a re-established world market (i.e., joint ventures with British, Canadian, Mexican and Spanish companies to name a few) the US has blocked the Fidelistas' efforts to adequately trade by hindering the exchange of goods. The US government prohibits the importation of commodities that contain Cuban contents and restricts US companies that engage in business deals with Havana. These establishments are not permitted to sell Cuban products that contain more than 20% US content. Moreover foreign enterprises attempting to export products to Cuba that contain beyond 20% US material must obtain a license from the US Treasury Department.

The US likewise prevents foreign banks from granting dollar-denominated accounts for Cuba or from pursuing an interest in dollar-denominated commercial transactions involving Cuba. Also US citizens who hold the office of director within establishments on foreign territory are forbidden to do business with Cuba and ships docking at Cuban ports are denied entry to US shores for a six month period. In addition countries are deterred by fiscal sanctions from establishing economic relations with the Castro regime (Zimbalist, 1993).

As the US grappled with the existence of ideological enemies it dismissed the notion of sovereignty and in its stead entertained old prescriptions: the administration of national elections, the removal of Fidel Castro and the introduction of a decentralized sector on the island. However more than 65% of the Cuban populace grants the nation's leadership an overwhelming consensus to govern as do states such as Canada, Germany, Mexico and Venezuela (through strong diplomatic and economic relations). In fact international organizations such as the United Nations and the Organization of American States have publicly denounced the US trade embargo. There are even sentiments towards the Cuban regime within the United States amidst the outcry from Cuban Americans who mainly reside in Miami and the US government that remains bitter regarding Havana's communist stance (Langley 1970; Cardoso 1992).

National elections are often policy-defined by Washington for political change in independent states in this case Cuba. In other words to redress East/West relations and by extension offset regional political influence, the nature and results of the elections in Cuba are predetermined to result in the ouster of Fidel Castro. Movement towards decentralized government as well would redefine Cuba through the lens of her Northern neighbor as the idea of a large private sector awaits local consensus.

An examination of Grenada in the 1980s and beyond though smaller and less resourceful is meaningful in projecting US/Cuban relations in a post-revolutionary Cuba. Both share pre and post-colonial historical similarities and as indicated within, isolation in response to alliances with the Soviet Union. In fact the essay suggests the island is still the subject of alienation as the US fails to fulfill its promises with regards to an economic revival.

Identical pronouncements of goodwill are in the offering to a pro-democratic Cuba but the outcome when weighed against consistency as demonstrated in Grenada remains a concern (Kaplowitz 1993).

GRENADA

Political evolution in the British West Indies began in Grenada, a small country with a population of 110,000 located in the Lesser Antilles in 1979. The island was ruled by trade unionist Sir Eric Gairy, its first local head of state but his corrupt behavior hindered its growth.

In 1973 Gairy's secret police suppressed strikes initiated by the opposition the New Jewel Movement (NJM) and severely attacked its leader Maurice Bishop. In addition during the following year a demonstration held on what became known as bloody Monday resulted in government retaliation that took the life of Bishop's father Rupert Bishop. There is also the assumption of a manipulated general election in 1976 (Searle 1983; O'Shaughnessy 1984).

In an ongoing effort to uproot the Grenadian leadership, the New Jewel Movement, a composition of the Movement of Assemblies of the People (MAP) and the Joint Endeavor for Welfare, Education and Liberation (JEWEL) finally succeeded on March 13th 1979 making history by being the first successful revolutionary organization in the English Caribbean. This protracted and arduous confrontation to dislodge Gairy had its roots in radicalism demonstrated by the likes of Guyanese historian Walter Rodney who was expelled from Jamaica but acknowledged by UWI distinguished professor Rupert Lewis as "committed to an overriding concern to avoid manipulation of the working people which characterized the politics of the mass parties in the Caribbean and the centralism of the left-wing organizations which facilitated middle-class hegemony." Nevertheless in spite of rejoicing surrounding the ouster, Washington aware of unfavorable political ramifications feared Bishop's left wing approach.

At this juncture with East/West rivalry on the rise particularly in the Americas, the American government deployed containment the normal course of action to rid neighboring turf of Soviet persuasion. Subsequent to the formal commencement of relations between St Georges and Havana, State Department spokesman Tom Reston said that the United States would be concerned about the establishment of any military or security arrangement between Grenada and Cuba and the US ambassador Frank

Ortiz is quoted by author and expert on international conflicts Jiri Valenta as saying "we would view with displeasure any tendency on the part of Grenada to develop closer ties with Cuba" (Valenta 1986; Collins 2013).

Consequences ensued as Bishop ignored the White House by accepting economic and military aid from Cuba. Despite an increase in private investment by 130% in the first year following the revolution President Reagan's Caribbean Basin Initiative Plan of 1982 excluded the government of Grenada along with Cuba and Nicaragua. These nations were exempted from $350 million in US emergency assistance in 1982 and a promise of $750 million over the next three years. They were also denied US investments and duty free passage of commodities to the United States. Besides, the American government later used her leverage to prevent Grenada from obtaining loans from the World Bank and the International Monetary Fund.

At the regional level, the Grenadian government encountered negative reactions in line with US propaganda by Caribbean leaders such as Jamaica's Edward Seaga who was quoted as saying to the Jamaican parliament "we will not tolerate subversion and revolution." Barbados' Tom Adams would also join the tag team by expressing "we have a view of our future that is democratic, peace loving, devoted to constitutional and not arbitrary government" while Dominica's Eugenia Charles provided a voice of urgency that was lacking throughout the rest of the Anglophone Caribbean. In addition discomfort arose from the strengthening of armed forces in El Salvador and Honduras to confront the expansion of socialism in the West Indies and Latin America. But amid these forces of destabilization Grenada promoted survival opportunities.

Employment: As a result of state projects unemployment dropped from 49% in 1979 to 14% in 1983.

Housing: The NJM introduced low cost housing through affordable grants and loans that benefited approximately 1,600 families.

Health: Free medical and dental services were finally made available to the public.

Education: Free primary and secondary education was introduced and scholarship for overseas studies improved significantly. In 1978 three Grenadians studied abroad while the numbers increased by three hundred twenty seven by 1982.

The regime maintained a mixed economy by centering its attention on agriculture, agro-industry (e.g., the exportation of cocoa, bananas, nutmeg and mace) banking and tourism. It established a marketing and national import board to promote the import-export industry, the National Commercial Bank to regulate financial institutions and the Grenada Resorts Corporation to oversee the island's hotel industry. Such transformations were noted for outstanding returns. The country's gross domestic expenditure increased by 8.8% from $324.3 million to $352.8 million in 1982 during which period domestic investment increased from $41.5 million to $73.8 million (Payne 1984; Williams 1983).

Albeit government policies (e.g., the investment code, the national budget of 1982 and the fiscal incentive act) were evidence of Georges' commitment to mutual cooperation with the private sector, overtures associated with productivity did not overshadow the government's affiliation with communist elements. Grenada's political organization was tainted by the Soviet government in that the implementation of a central committee had its origin in Russia as did the Grenada Peace Council. Moreover the New Jewel Movement and the Castro establishment concurred that their relationship should include regular meetings to exchange experiences between the various departments and secretaries of both parties. In essence there should be coordination of government organizations of both countries at local and overseas events.

There were also formal relations between the NJM and the communist party of the Soviet Union (CPSU) from which sprang a commitment by the Soviets to assist the revolutionary government. According to the 1980 agreement, inter-party cooperation was the most important basis for development within these countries. Therefore relations were to be handled primarily through party organizations. The accord also promoted political and economic cooperation at all levels.

Grenadian/Soviet kinship was solidified by the previously discussed arrangement between the USSR and Grenada for the delivery of special equipment assumed to be arms. A 1981 contract signed in Havana regarding a shipment of arms and a similar agreement concluded in Moscow in 1982 would enable the flow of arms from Russia to Grenada during the period 1982-1989. Added requests attached to the 1982 USSR/Grenadian military agreement included the need for training of Grenadian soldiers at Soviet military schools and an invitation for Soviet advisors to physically aid in the technical aspects of the island's military complex. Meanwhile the East Germans sent technical and military equipment, the Czechoslovaks provided explosives, ammunition and automatic rifles and North Korea agreed to provide armaments worth $12 million.

This radical approach later gained prominence through conferences of nonaligned movements. It is alleged that such activities soon prompted association with anti-imperialist, anti-Zionism, anti-racism and anti-reactionary bodies. The association likewise advanced the training of Grenadians in the area of foreign relations and re-enforced similar bonding with East Germany and Bulgaria (Valenta 1986; World Bank Report 1982).

The People's Revolutionary Government (PRG) nevertheless faced an internal struggle arising from constant US agitation regarding suspension of the constitution, censorship of the media and information pertinent to the construction of an enlarged runway at Port Salines International Airport that was assumed to be a Soviet military base. "The Coard faction" comprised of Bernard Coard, Deputy Prime Minister, Lt Colonel Liam James, Minister of the Interior, Leon Cornwall, Chief of the Armed Forces and General Hudson Austin, Minister of Defense and Construction among others insisted on compliance with Leninist principles. In contrast "the Bishop clan" most notably Unison Whiteman, Minister of External Affairs, George Louison, Minister of Agriculture and Fitzroy Bain leader of the Union of Agricultural Workers supported a gradual socialist transformation.

In an effort to demonstrate their allegiance, the orthodox wing voiced opposition within the central committee to what was defined as "a state of demoralization" and later suggested a compromise of joint leadership between Prime Minister Maurice Bishop, the charismatic figure and deputy

Prime Minister Bernard Coard, the technocrat. This alternative was introduced by Commander Laim James as a means to promote communism in the face of what was being identified as right wing opportunism.

With growing defiance to the notion of elections Bishop was later expelled from the central committee and confined to house arrest. Later he was freed by the mass and taken to Fort Rupert with the hope of gaining a political advantage but under the direction of Coard, Maurice Bishop and his cabinet supporters Unison Whiteman, Fitzroy Bain, Vincent Noel and Jacqueline Creft were executed (Politburo doc 1983; Central Committee doc 1983).

In disregard of the Organization of Eastern Caribbean States (OECS) (article 8), UN (articles 2, 42 & 51) and OAS charters (articles 15, 17, 18 & 21) on matters of peaceful coexistence and under the pretext of protecting Eastern Caribbean states and rescuing American hostages the US interceded and led the invasion Operation Urgent Fury in pursuance of the restoration of parliamentary democracy and tranquility to the island (Lewis 2013).

Such shift in focus suddenly curtailed Soviet access to proxy forces/local intermediaries such as the Cubans, control over internal policy and security forces and support for local communist parties. Moreover a loss of centralized political control over revolutionary insurrection in the region hindered unity among otherwise disparate groups in Nicaragua and El Salvador.

The metamorphosis drew attention as well to expectations which unfortunately never materialized due to a lack of substantial evidence. Albeit the Reagan administration unveiled assistance packages to the tune of $18.5 million in 1984 a large portion was allocated to repair damage caused by the invasion and to dismantle the program instituted by the PRG.

Herein lies revelations of scarce resources

Employment: With the fall of major enterprises within the public sector such as the spice isle agro-industry plant, the coffee processing plant and the Sandino prefabricated housing factory to name a few unemployment increased and production declined. In real terms, within fifteen months of the invasion, unemployment rose from 14% to 33%. Further, unofficial

estimates since then referred to an all high rate of 49% which the PRG claimed was existent under the Gairy government.

Housing: The revolutionary leadership had devoted $0.35 million to housing concerns and was therefore able to offer $350 in loans to low incomes families. Nevertheless the political upheaval led to the replacement of prefabricated material with rigid panel that produced a few houses and a major debt to the sum of $1 million. As a result by 1988 funds for government housing was reduced from $0.55 million to $185.000 (See **Table 1** on housing inadequacy).

Table 1: Housing
According to a government report carried out by an expert from the Commonwealth Fund for Technical Cooperation, Grenada's housing requires huge investment in order to raise standards from near slum conditions. The report contains the following statistics: Of a total of 21,016 registered homes, 32% are comprised of one or two rooms. 40% of the homes contain 5 to 13 people. 33% are considered totally unfit for human habitation. 61% are made of woods 34% depend on water from public standpipes while 17% depend on rain collection and wells 62% have pit latrines Noting that Grenada's housing requirement up to the end of the 1990s will be approximately 14,000 new units, the report recommended that the government strengthen the PRG-designed Housing Repair Program to provide more funds to households to carry out systemic repairs and to provide for toilet and bath. Government spending on the Housing Repair Program has in fact dropped since the publication of the report
Source: National Democratic Congress. Cry Deliverance! April 1988

Health: Deteriorating services were evident with poorly equipped and understaffed hospitals (in 1988 at General Hospital there was record of outdated x-ray machines and twenty nurses were performing duties usually assigned to a team of thirty) while private practice was frequently encouraged. Most importantly there were severe cuts in government expenditures that adversely affected medical services notably the termination in 1988 of a major health project valued at $250.000.

Education: The post-revolutionary regime eliminated many functional PRG programs and drastically reduced funding for education. Case in point is the replacement of the Center for Popular Education that played a crucial role in the advancement of literacy with the ineffective Continuing Education Program whereas at a secondary level limited attention was paid to the need for trained staff and modern syllabi.

In 1985 50% Grenadian pupils who sat the Caribbean Council Examination (CXC) failed and in 1986 and 1987 the failure rate rose by 11% and 4% respectively. There was likewise a decrease in the national scores assigned to students participating in the General Certification of Education, Advanced Level Examination (GCE A level). In 1988 and 1989 the success rate stood at 40% and 33.6% respectively. Identical experiences were prevalent as well within institutions of higher learning subsequent to the replacement of experienced college instructors with ill-equipped staff.

The above mentioned complications may best be attributed to the emergence of power-seeking political parties frequently resulting from splinter groups and coalitions to contest national elections (e.g., the 1984 collapse of the National Democratic Congress and the creation of the New National Party coalition thereafter). (See **Figure 1**)

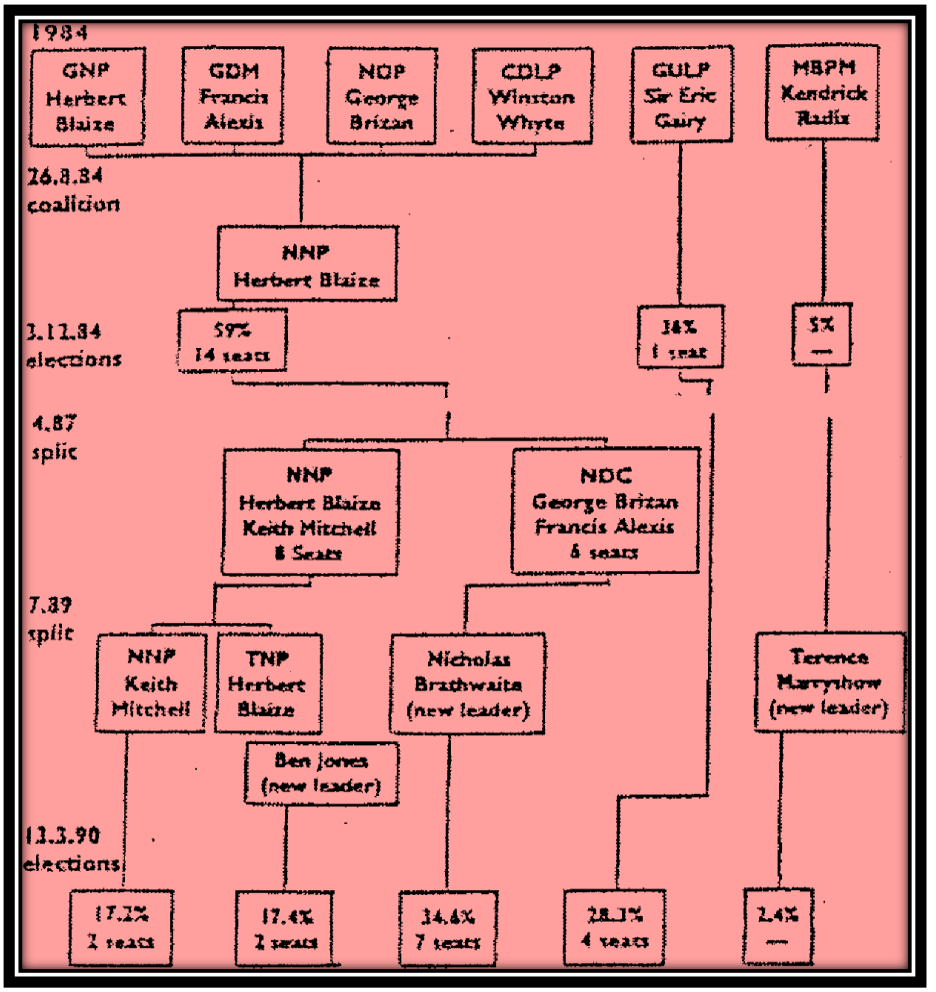

Figure 1: A Terrain of Grenadian Political Parties/Coalitions

Political chaos nonetheless gave way to unison on the following platform.

Reforms resulting from policy dialogue associated with assistance from Washington have included 1) liberalization of import licensing requirements, 2) development of a program to privatize major state-owned enterprises, commencement of divestiture of government-owned agricultural lands and transfer of management of the principal commodity association to the private sector, 3) rationalization of the public sector programs, 4) commencement of a fiscal (budget and tax) reform program, 5) revision of the investment code, 6) interest rate ceilings raised, 70%

removal of price controls on domestically produced items 8) elimination of the import monopoly on cement and 9) relaxation of foreign exchange controls.

Under US tutelage, the New National Party (NNP) coalition which was comprised of the Grenada National Party (GNP) was created in 1984 to prevent the return of Gairy and won overwhelmingly thanks to the fear factor. Yet it was incapable of providing a political agenda as well as securing promised American dollars for reconstruction.

To make matters worse, the implications of 20% value added tax (VAT) to improve revenue has produced a disappointing outcome. Following its implementation in 1986, the Grenadian leadership was forced to admit that added revenue of $11.42 million amounted to only 29% of the expected target and therefore failed to stem an escalating cash flow crisis.

On the international note attempts to bolster a strong private sector through US government agencies (e.g., USAID, OPIC and CBI) also created an atmosphere of discontent. Even though USAID provided $12 million and $11 million during 1984 and 1985 – 1986 respectively in many instance the aid did not address shortfalls in the Grenadian budget. Moreover due to a lack of commitment anticipated benefits led to only $7 million in grants in 1988 and the minimum in private investments from the likes of Smith Kline, Beckman Abbott laboratories, Shering/Plough and Johnson & Johnson (Ferguson 1990).

As Grenada resettled into the "old school" mode of politics as usual the domino effect uprooted containment policy by casting a shadow on Eastern Europe. Aside from Poland the weak economics of Hungary, East Germany, Bulgaria, Czechoslovakia and Romania crumbled on short notice under the weight of nationalist movements that led the dissent against communist ideology. This highly charged conviction would also fuel border disputes and/or ethnic strife in countries such as Yugoslavia, Tajikistan and Georgia all of which culminated in a revision of the Eastern European landscape inclusive of the USSR.

Closer to home Latin America experienced tremors limiting its ability to maneuver locally and abroad. Cuba lost her hefty subsidies of $3 billion annually while Nicaragua cognizant of the dismantling of the socialist empire and its domestic state of affairs was finally forced into submission to engage in a national election in 1991 endorsed by Washington. In fact the Chilean economist Fernando Fajnzylber constructed a double entry matrix for Latin America to record both growth and equity. He discovered between the years 1965 to 1985 Brazil, Columbia and Mexico obtained a growth rate of 2.4% annual whereas in relation to equity the lower 40% of Argentina and Uruguay's population received more than 0.4% of the earning available to the top 10%. Unfortunately the majority of nations failed miserably on both accounts.

All be told a region wrestling to achieve a glimmer of hope was coerced to surrender and accept added constraints regarding credits, investments and exports thus furthering the disparity between the wealthy and disadvantaged. A return to this global order expectedly rang hollow for Grenada (Goldman 1997; Craig 2007; Castaneda 1993).

Back on the tiny Caribbean island incompetence accompanied Nicholas Braithwaite's National Democratic Congress (NDC) in 1990. This apparatus which has been the product of an uneasy relationship (a coalition of former Grenada United Labor Party (GULP) and the NNP's affiliates the TNP) has focused its primary concerns on issues of political self-interests. In sum, with varying political persuasions it too and subsequent one term administrations fell short of an agenda and the support to prescribe the appropriate medicine for the dying patient (See **Table 2** for post invasion successions).

TABLE 2: CHANGING OF THE GUARDS

DURATION	**Leaders**	**Affiliation**
1983-4	Nicholas Brathwaite	National Democratic Congress
1984-90	Herbert Blaze/Ben Jones	Grenada National Party
1990-95	Nicholas Brathwaite	National Democratic Congress
1995-08	Keith Mitchell	New National Party
2008-2013	Tillman Thomas	National Democratic Congress
2013	Keith Mitchell	New National Party

The country received a shot of adrenaline in the mid-1990s with growth of 6% only to be confronted with contrasting realities of capitalism – a practice with a checkered history. In 2001 the unforgiving combination of a global economic descent and the wrath of Mother Nature in the form of Tropical Storm Lily the following year increased a deficit registered at 3.2% of GDP in 2000 to 19.2% of GDP in 2002.

As early as 2004 it became apparent selective engagement and its offshoot "trickle down" economics were overshadowed by the infusion of a soft loan of $4.4 million at an interest rate of 0.5% from the IMF – an international lending agency of last resort notorious for subjecting Third World countries to hostile fiscal measures to redress structural economic defects namely poverty and a stagnant private sector (See **Table 3** on IMF).

Table 3: IMF Conditions

Requirements	**Effects**
Wage control	Wage freeze and job loss within the public sector
Expenditure cuts	Loss in essential social services
Additional taxes	Added consumer cost
Devaluation of currency	Reduced purchasing power

Exacerbating the crisis was the overpowering presence of hurricane Ivan that wreaked havoc on the island with damages estimated at $1.1 billion or 200% of GDP inclusive of 14,000 impaired homes and the destruction of 30% of the housing stock. In addition appraisals make reference of damage or devastation of 90% of the country's buildings leaving 18,000 citizens homeless and according to the Network Information Service approximately 8% of the labor force lost the means to a livelihood thus increasing unemployment to 20%. Rippling effects are likewise accountable for a negative downturn of 3% in 2004 in contrast to a positive growth of 5.8% 12 months earlier and public debt at 110% of GDP over a 7 year period (See **Table 4** on public debt/GDP) (IEDP- Grenada, 2010).

Table 4: ***Public Debt by % of GDP***

Period	**Percentage of GDP**
1997-2000	20%
2001	30%
2002	100%
2004	130%

Source: 2010 IEDP - Grenada

A combination of past contractual obligations, dependence on a tourism industry in need of a revival, and exports and imports for domestic consumption subsequent to hurricanes Ivan and Emily heightened the nation's expenses beyond EC$12.5 million in the year 2005. In fact between capital expenditures, the wage bill and revenues the island was responsible for a fiscal deficit of EC$72 million which translates to 6% of its annual income. By 2006 this predicament required the generation of EC$150 million up EC$100 million from the previous year to shrink expanding fiscal cavities.

The year 2006 will also be remembered unfavorably for a debt service burden on the rise and reflective of the end of a grace period from the Paris Club during which interest rates stood at 1.0% but soared to 2.5% in 2009. Adding insult to injury, the same year GDP fell by 7.7% as a consequence of the contraction of economic activity largely due to a decline in tourist arrivals and a southern shift in FDI financed construction.

A depressing conclusion was anticipated unemployment at 30% by the last quarter of 2009 originating from terminations in the tourism industry. Unfortunately the dismissal of an estimated 10% of employees at Caribbean Agro Industries, a flour company in June and 40% of staff in September at the telecommunications company LIME escalated the grave situation. Moreover the prolonged recession influenced the incurring of additional loan arrangements with the IMF between the years 2006 and 2008 and in 2010 recorded at $18.2 million and $13.3 million respectively to offset food and fuel prices and bolster economic transformation (IMF transcript 2005; Go Jamaica press release 2006; IMF press release 2006, 10; IMF/World Bank doc 2010).

In short, besides uncontrollable natural calamity the deteriorating state of affairs is rooted in capitalistic disposition in the form of surging oil prices on the global market, competition from low cost producers the likes of China and India and an addiction to foreign aid (See **Table 5** on IMF assistance).

Table 5: IMF Loans to Grenada

Month/Year	**Amount**
February 2003	$4 million
November 2004	$4.4 million
April 2006 - July 2008	$18.2 million
June 2010	$13.3 million

Source: IMF Press Release. May 12, 2005, April 17, 2006, April 2, 2010.

By 2011 the Grenadian Ministry of Finance summarized the dismal showing as follows:

- Inflation is higher
- FDI flows have dried up
- Travel receipts have declined
- Private sector credit has declined
- Import-Export gap remains wide
- Fuel prices are high
- Debt to GDP ratio remains high
- Expenditure is growing faster than revenue
- Wage bill dominates government spending

On February 19, 2013 the severity of the damage caused the electorate to call into question the effectiveness of the Tilman administration with a crushing rejection at the polls that returned the New National Party to office and left the outgoing government without a seat in parliament.

If dreams were true past and present governing bodies would reap credit from a false notion of achievement on the island as defined by the United

Nations Development Program's (UNDP) Human Development Index (HDI). Yet such barometer distorts proper interpretation of the economic situation on the ground as its acknowledgement of investments in health (life expectancy) and education (literacy and gross enrollment) and associated contributions are at times at odds with the country's economic growth. During the period 1990 to 1999 both HDI at 0.776 and economic growth of 6.1% are elevated as opposed to the next decade which records both at 0.777 and 1.8% respectively (**Table 6** on discrepancy).

Table 6: Grenada's Economic Growth

Period	**Growth**
1990-99	**6.1%**
2000/10	**1.8%**

Source: Vanus James, in collaboration with Heather Ricketts and Rosalea Hamilton (2012), Development Paths in the Caribbean: A complex relationship between Competition and Integration. Report prepared for UN ECLAC

The contradiction widens with an examination of specifics on social status. While the mean HDI stood at 0.776 during 1991-1999, the value fluctuated downward to 0.754 at the start of the 21st century and soared to 0.777 in 2007/8. Such HDI disclosures are unreliable as they conflict with social performance in 1996, 1998 and 2007/8 (See **Table 7** on inconsistency).

Table 7: Grenada's Poverty and Unemployment Rate (1996, 1998 and 2007/8)

Period	**Poverty Incidence**	**Unemployment Rate**
1996		17.5
1998	32.1	
2007/8	37.7	24.9

Source*: Central Statistical Office, Grenada and cited by Kairi Consultants Ltd, 1999/2009.*

Apart from the standard statistical calculations a true picture of the crisis may more so be gleaned from a household survey conducted in 2007/8 in which 42% of the respondents felt the economic situation was much worse, 24.4% were of the opinion it was a little worse, 16% felt it was the same and 16.2% concluded it was getting a bit better since 1998 (Ricketts 2013).

At present turbulence fills the air as does prematurity to return a verdict regarding the performance of new management but the incoming party must confront its promises of employment and productivity amidst a national debt of $EC2.3 billion, a March 2013 default of $EC19 million due to US bondholders that laid the foundation for the reduction of the country's credit rating by Standard & Poors to SD, a public sector wage bill of approximately $EC30 million per month and the insistence of international creditors that debt restructuring involves collaboration with the IMF. Can the NNP resist embarking on a high interest borrowing binge to gain the confidence of its people or can she adopt a structural adjustment program void of massive layoffs, intrusive value added tax (VAT) and income tax that commences the reversal of a cycle of doom? (The New Today 7/3/13; 7/10/13).

Frankly Grenada's post-revolution aftershock was coupled with disadvantages primarily US priorities elsewhere. In fact the following citation though decades old is a testament to such reality.

> "To put it mildly, our presence particularly in the poorer western and northwestern sections of the island no longer occasions the universal adoration that is supposed to be our due as heroic champions of democracy… The reason for our cool reception is not entirely clear but it seems to have less to do with our invasion/imperialist rescue/adventure mission itself than with the follow up. That vast flood of American investment in Grenada, much anticipated in the years following the invasion has not materialized. Although the Agency for International Development has helped build some dandy roads, airport facilities and a mental hospital on a hill below Fort George (presumably to replace the one we accidentally bombed), US companies have overwhelmingly

> decided that wonderful opportunities lie elsewhere. And now Uncle Sam is starting to cut back on the economic aid (to a still hefty $10 million a year after pumping $110 million into the country over five years), people are getting the impression that Grenada having served its public relations function will now be cast aside like a jilted lover. And to be honest who can blame them? What started out as a marriage made in heaven has begun to look more like a one night stand."
>
> The New Republic, April 1989

Considering this account of subordination and political and economic confusion experienced by Grenada, a former socialist state, plus a current US economic meltdown, why should Cuba, the lone communist nation in the region adhere to America's dictates knowing her fate could be the same?

CONCLUSION

The predictable comportment illustrated by Washington, jolts memories of Thucydides' account of the Melian debate on the Peloponnesian wars in which the Athenians consciously sidestepped issues of sovereignty and morality in favor of dominance. Centuries later Dominique Moisi, an authority on international affairs in his book entitled "Geopolitics of Emotion" concedes continuity to the notion of control by magnifying hazard and its connectedness to fear. "Emotions," he conceives, "are essentially subjective if not purely irrational. To mix emotions and geopolitics can only be a futile perhaps dangerous exercise leading ultimately to the abyss of unreason epitomized by the pagan mass at Nuremburg during Germany's descent into barbarity under Hitler" (Thucydides 431 BC; Moisi 2009).

Regardless of variations in wealth and size, and by extension economic significance and potential, the tale of both islands are entwined and strikingly similar in its relationship to a common denominator – domestic

and external misdeed. Throughout the 1930s-1950s Cuba was party to distorted democracy and commercialization orchestrated by the likes of unscrupulous figures such as Ramon Grau, Fulgencio Batista and Carlos Prio among others whereas by the early 1970s Eric Gairy's corruption manifested itself through the extortion of money from national enterprises and the terrorization of his political adversaries.

Amidst poverty which stood at an alarming 66.6% in the countryside Batista sustained power through uninterrupted Washington/Havana relations and US commercial endorsements. By the 1950s American investments included two of three oil refineries, over 90% of telephone and electric utilities, 50% of public railroads, most of the tourist and mining industries and seven of the ten largest agricultural ventures. Meanwhile US commodities (approximately 60% of all imports) received preferential tariff treatment in Cuba whereas a similar percentage of Cuban exports to the US were purchased below fair market value (Cardoso 1992).

In the case of Grenada, Washington's political and financial endorsement was also menacing. Gairy's continuous electoral return to office was always acknowledged by US administrations and encouraged through official channels. The dubious champion of the Westminster model of government received monetary subsidies as well from his northern neighbor prior to the Carter administration's approval of the Caribbean Group for Cooperation in Economic Development which promoted five aid projects.

By the same token the White House's defiance towards socialism triggered a disturbing response to the abrupt termination of a dictatorship and its replacement with a new Cuban directorate which included the severing of diplomatic and economic connections with Havana. The White House later utilized the State Department particularly the CIA to instigate the Bay of Pigs, the Cuban Missile Crisis and numerous assassination attempts on the life of Fidel Castro.

An analysis of US deportment concerning revolutionary Grenada highlights said traits. Diplomatic affiliations were strained and fiscal support withheld as the State Department engaged in political warfare with the Bishop regime

which subsequently propelled the CIA's infiltration – the disguised demise of the four year administration.

Following a short lived conversion Grenada is reminiscent of the past. Despite financial promises by the West namely America and changing elected governments the country has failed to address its infrastructure and the economic plight of an ever expanding lower class. In fact limited foreign investment while benefiting a few, prompted the flight of capital to overseas interests.

Albeit slow in execution, in light of current global economic circumstances Cuban society is undergoing transformation in relation to the ownership of property, business practices and partnerships and access to goods and services which would suffer with the return to imperialism. The Obama administration's overtures on travel and access to US remittances are welcomed but shock therapy void of consensus would introduce a rebirth of the Gairy/Batista epoch as US public policy scenarios would articulate foreign dominance within the nation's private sector, disregard local development and regrettably cultivate graft. Once again local elected officials would demonstrate compliance with Washington's directives resulting in the emergence and subsistence of American ownership of lucrative industries at the expense of the working class.

With the Cold War a relic of the past, Washington should reconsider its stance on Cuba or else its accountability for a lost revolution could erase the existing national pride of resoluteness and in its place resurrect a ghost – servitude on the island (Pastor 2000).

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PUBLIC SERVICE MOTIVATION: A CASE STUDY OF NATIONAL INSURANCE SCHEME GUYANA

Hector Edwards

ABSTRACT

Public service motivation (PSM) has been found in some developed countries by researchers over years. However, no study was undertaken to determine its existence in a developing country. This paper uses a semi-autonomous public service entity in Guyana to examine the existence of PSM in a developing country. It employs principal components analysis on survey data and finds evidence of two dimensions of PSM – self-sacrifice and attraction to public policy making. PSM therefore exists in Guyana. However, there is a need for some modifications to the existing PSM scales to address the cultural interpretation of some concepts.

Key Words: Public Service, National Insurance, Motivation

INTRODUCTION

Public Servants play an important role in the realization of the governments' goals, and the execution of its various functions. Many researchers have investigated public service motivation (PSM) over the years (for example, Rainey *et al*., 1976; Perry and Porter, 1982; Balwin, 1987; Perry and Rainey, 1988; Maidoni, 1991; Gabris and Simo, 1995; Crewson, 1997), with a more recent contribution to this area being that of Buelens and Van Den Broeck (2007). While it is accepted by some that there is a difference in reward motivations (Rainey *et al*. 1976; Crewson, 1997; Houston, 2000),

Baldwin (1987) and Gabris and Simo (1995) are less satisfied that differences exist, as they either see little evidence, or the available evidence is not substantial enough. However, the importance of determining whether there are different motives cannot be over emphasized, since if there are differences, incentives would have to be dissimilar from those that are traditionally associated with work motivation in the private sector.

In spite of its importance, PSM has not been investigated previously in a developing country. Consequently, what is known about PSM may not be applicable to such countries, and this is an important limitation of the current literature. This paper addresses this gap by focusing on PSM in Guyana which is a developing country in South America. It employs exploratory factor analysis on survey data to evaluate the relevance of the known dimensions of PSM in this context.

PUBLIC SERVICE MOTIVATION (PSM)

Perry and Wise (1990) define Public Service Motivation (PSM) as "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions and organization" (p.368). Other researchers have built on Perry's definition (for example, Brewer and Selden, 1998; Rainey and Steinbauer; 1999; Vandenabeele et al., 2006). Public service motivation is not restricted to employees working in public institutions. Some individuals in other sectors also exhibit similar motives (Rainey and Steinbauer, 1999; Brewer *et al*, 2000). For example, Moynihan and Pandey (2007) posits that private sector employees also exhibit PSM to varying degrees. Furthermore, the theoretical grounding of work motivation is still applicable to public service employees, though their motives may vary to some degree from private sector employees.

In looking at the motives of public servants, three types are highlighted by Perry and Wise (1990). These are rational, norm-based and affective. However, this was not in keeping with rational choice theories that were associated with contemporary public administration thinking. Rational and

public choice theories used to explain the behavior of public servants are seen as limited (Hondenghem and Vandenabeele, 2005; Vandenabeele *et al*., 2006), since certain actions- compassion for other persons and self-sacrifice, by public employees are inconsistent with the general explanation offered by these theories. Fredrickson and Hart (1995) make reference to public servants displaying idealist as against careerist traits, with the resultant behavior being attributed to 'patriotism of benevolence'. The behavior of such employees is based on an individual's feelings or emotions, which is associated with the affective motive. Another set of behaviors that are not explained by rational choice theories are pro-social or altruism (Perry, 2000), which include making a difference in society and social equity. However, 'PSM does not replace other types of motivation' (Vandenabeele, 2008b: 1103), but assists public administrators in understanding the behaviour, and making predictions about public employees. A better understanding of the forces that influence public service employees can result in improvement in the human resource management.

Perry (1996) also identifies four dimensions in PSM: attraction to public policy making (APM) – a rational motive, commitment to public interest (CPI) and civic duty – a normative motive, compassion (COM) – an affective motive, and self-sacrifice (SS). These dimensions are widely used in the study of various aspects of PSM (Alonso and Lewis, 2001; Kim, 2005 and 2009; DeHart-Davis, Marlowe, and Pandey, 2006; Vandenabeele et al., 2006; Moynihan and Pandey, 2007; Coursey and Pandey, 2007; Bright, 2007, 2008 and 2009; Taylor 2007).

Perry's dimensions are based on earlier research. Though it is felt that some aspects of behavior are learnt from various institutions (Perry, 2000; Moynihan and Pandey, 2007), others have been associated with individual utility maximization (Perry, 1996), and as such rational choice. The third of the motives is related to individuals' emotional response to help others (Perry, 1996). A careful look at these motives highlights what is expected of public servants by the various stakeholders, including politicians. Though three of the dimensions are related to specific motives, Perry feels that the fourth dimension - self-sacrifice is essential to PSM, since reference is frequently made to it in public administration literature (Perry, 1996). He

persisted with self-sacrifice even after finding that it has a high correlation with commitment to the public interest. The four-dimensional model also has a better goodness-of-fit index (GFI) than the three-dimensional model based on differential chi square test (Perry, 1996; Coursey and Pandey, 2007).

Although the concept of PSM originated in the USA, it has been adopted by other researchers to describe the attitude of public servants in other countries (for example, Taylor, 2007: Australia; Kim, 2005, 2009: South Korea; Castaing, 2006: France; Vandenabeele, 2007, 2008a, 2008b: Belgium; Camilleri, 2006, 2007: Malta). While PSM has been investigated in more developed countries, the central purpose of this study is to determine the extent of public service motivation in a less developed country- Guyana.

THE GUYANA CONTEXT

Until early 2008 Guyana was considered a 'Highly Indebted Poor Country' (HIPC). Guyana is a tropical country located on the northern coast of South America, bordered on the east by Suriname, on the west by Venezuela, and the south by Brazil. Guyana with a land mass of approximately 213,000 km is divided into three counties - Berbice, Demerara and Essequibo, which is also subdivided into ten (10) administrative regions (not based on the counties). Its land surface can be divided into three (3) distinct natural regions: the coastal plains, where a large proportion of the population is settled, the savannahs, and the mountainous region. Guyana is a member of the Caribbean Community (CARICOM), which initially consisted of former British colonies in the Caribbean region and South America. Caricom has since been extended to include other Caribbean countries, which were former Dutch, French and Spanish colonies. Like most Caribbean countries Guyana evolved out of a plantation economy. Guyana which was earlier called British Guiana gained its Independence from Britain on May 26, 1966, and on February 23, 1970 it was declared a

Republic (Co-operative Republic of Guyana). In 1969 Guyana established a Social Security Service (National Insurance Scheme) to cater for the Social needs of the citizens of Guyana.

NATIONAL INSURANCE SCHEME

The National Insurance Scheme, which came into being with the passage of the National Insurance and Social Security Act Chapter 36:01 became operational on the 29th September 1969, which is referred to as the "appointed day" (Laws of Guyana, 1975:5). The institution was established to provide "pecuniary payments by way of old age benefit, invalidity benefit, survivor's benefit, maternity benefit and funeral benefit" (Laws of Guyana, 1975:5). It was also intended "to substitute for compensation under the Workmen's Compensation Ordinance a system of insurance against injury or death caused by accident during the course of employment or resulting from disease due to the nature of employment" (Laws of Guyana, 1975:5).

The National Insurance Scheme is a semi-autonomous public sector organization with a Board of Directors that oversees the operations of the institution. The entity initially was under the supervision of the Ministry of Labour and Social Security. However, in 1981 the supervision and control of the National Insurance Board was transferred to the Co-operative Finance Administration (COFA), for which the Minister of Finance had Ministerial responsibilities. Though COFA became defunct in 1993, the Minister of Finance still has Ministerial responsibilities for the organization. While the National Insurance Scheme is not a Civil Service organization, its mandate is similar to such organizations, which is to provide social services to the Guyanese society.

The National Insurance Scheme (NIS) has twelve (12) Local Offices across the length and breadth of Guyana (Corriverton, Port Mourant, Fort Wellington, New Amsterdam, Mahaicony, Melanie, Klien, Leonora, Linden, Mabaruma, Bartica, and Essequibo), in addition to the Head

Office and other units in Georgetown, which is the capital of Guyana. The staff population as at December 31, 2011 was five hundred and twenty six (526) permanent employees, of which four hundred and thirty one (431) were Secretarial, Clerical, Technical, and Administrative staff.

The present study seeks to determine an appropriate measurement scale for public service motivation (PSM) in Guyana, and also the level of PSM at National Insurance Scheme. A review of previous studies on Public service employees' motives and Public Service Motivation was done to provide a better understanding of the concept (Edwards, in press), to facilitate this study in a less developed or developing economy.

DATA AND METHODS

Given the size of the population at NIS (526) a decision was made to administer the survey instrument to the entire population. However, nine (9) of the twelve (12) local offices were used for the study, since it was not economically feasible to visit the other three (3) offices, due to their distance from Georgetown. The three offices that were excluded (Essequibo: 15 employees, Bartica: 4 employees and Mabaruma 8 employees) have only a small number of employees. In addition to this, three units based in Georgetown were not allowed to participate due to unforeseen circumstances. The Officers responsible for the three units were reluctant to have their subordinates participate in the study and in one instance, the manager wanted to see the responses of subordinates before the questionnaires were returned to the researcher. The decision was taken to exclude these units to avoid biases in the responses.

The questionnaires were administered by the Managers of the various offices over the period January 24, 2012 and March 19, 2012. The questionnaires issued at the various Local Offices were completed and collected on the same day, which resulted in a return rate of (86.23%). The Questionnaires issued at the Head Office and other offices in Georgetown were left with the respondents and were collected the following day. The

return rate for these offices was lower (51.44%). The overall average return rate for the entire sample was (67.75%). This equates to a total of two hundred and seven (207) returned questionnaires.

The majority of the respondents identified themselves as female (81 percent or a total of 158). Approximately 60.5 percent (total of 118) of the respondents identified themselves as Black/African; 35.4 percent (total of 69) reported having a University Diploma; 29.7 percent (total of 58) indicated their tenure with the organization was more than twenty (20) years, while 35.4 percent (69) of the respondents reported their tenure in the public sector was greater than twenty (20) years. As it relates to contact with the public in carrying out their duties, 45.1 percent (88) respondents reported themselves as almost never having contact with the public while executing their duties.

Methods

The measurement scale used in this study consisted of items from three of the dimensions of Perry's original study – CPI, COM and SS, and Kim's (2009) revised items in the APM dimension. Kim (2009) changed the wording of the items in the APM dimension, which he felt represented politics rather than public policy. By so doing the items better represented the rational base of PSM, thereby providing valid measures and a more appropriate assessment of APM (Kim, 2009). Each item in the measurement scale was scored on a five-point fully labeled rating scale with categories ranging from 1: 'strongly disagree' to 5: 'strongly agree'.

The data were examined to identify the missing data and outliers on the questionnaires. Of the 207 responses, 77 had one or more missing values. The missing data for 6 of these cases were particularly high, and were removed from the analysis. Further elimination of 6 cases was made from the dataset, due to lack of data integrity. In particular, these individuals provided clearly incorrect information for items referring to education and tenure, and it was felt that they may not have responded to the questionnaire truthfully.

Three (3) variables with significant missing data were also eliminated to improve the dataset. This was done to facilitate the testing of the hypothesis that the data are missing at random. The variables were 'Grade', PSM16 and PSM10. The Little's Missing Completely at Random (MCAR) test - SPSS20, using expectation maximization (EM) method had a significance level of 0.326, indicating a non-significant difference between the observed missing data pattern and a random pattern. Due to the data being missing completely at random a wider range of remedies could have been used to replace the missing values (Hair et. *al*, 2006). However, the EM imputation method was used to replace the missing data. Six (6) subscales were used for data imputation to increase accuracy by placing similar items in the same subscale, which also reduced the data size for imputation, after which the subscales were merged to reflect the original dataset.

The Kaiser-Meyer-Olkin (KMO) test was done to determine the adequacy of the sample. Principal Components Analysis, varimax rotation (SPSS20) was carried out on the indicators in an attempt to reduce the scale to components/factors, in keeping with Perry's (1996) four-dimensional scale (See table 2). With this method, the factors are orthogonal to each other (Hair et *al.*, 2006). The use of varimax rotation provides a basis for comparison with the study by Taylor (2007). It is also the most popular orthogonal factor rotation method focusing on simplifying the columns in a factor matrix and it is generally considered to be superior to other orthogonal factor rotation methods in achieving a simplified factor structure (Hair et *al.*, 2006).

The test resulted in a significance of 0.758, which is much higher than the acceptable 0.400 (See **table 1**). The test was done to determine whether to perform a principal component analysis (PCA) on the dataset. Using Perry's (1996) model to determine the level of PSM, a data reduction technique to reduce the variables to four components (dimensions) was required. Further analysis of the data was done after determining that the sample size of 195 remaining cases was adequate. The independent variables were also analyzed to determine the characteristics of the respondents, while the dependent variables in the dataset were analyzed to determine how they loaded on the various components (dimensions) as proposed by Perry (1996), and the level of PSM at National Insurance Scheme.

Table 1- Kaiser-Meyer-Olkin test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.758
Bartlett's Test of Sphericity	Approx. Chi-Square	993.090
	Df	231
	Sig.	.000

RESULTS

The results indicate that Factor 1 represents Self-sacrifice, Factor 2 represents Attraction to public-policy making, Factor 3 represents Compassion, while factor 4 represents Commitment to public interest. For a factor loading value of 0.40 to be considered significant a sample size of 200 or greater is needed, while for sample size of 150 or greater a factor loading value of 0.45 is considered significant (Hair at *el*., 2006). Five (5) items loaded on factor 1 with values above 0.45, four (4) items loaded above 0.45 on factor 2, four (4) items on factor 3, and three (3) items on factor 4 (See **table 2**).

Table 2 Principal Components Analysis Varimax Rotation

Rotated Component Matrix[a]

	Component			
	1	2	3	4
PSM18SS	**.770**	-.065	.152	-.039
PSM17SS	**.761**	.019	.115	.046
PSM19SS	**.682**	.213	.043	.130
PSM14CPI	**.601**	.117	-.180	-.135
PSM23SS	**.507**	-.038	.423	.017
PSM22SS	.400	.248	.375	.113
PSM20SS	.374	.282	.350	.155
PSM2APN	.099	**.765**	.032	-.106
PSM3APN	-.061	**.729**	.080	.115
PSM1APN	-.090	**.605**	.352	.102
PSM13CPI	.347	**.522**	.136	.153
PSM15CPI	.318	.429	.379	.140
PSM8COM	.191	.360	.072	-.174
PSM12CPI	.254	.342	.124	.271
PSM6COM	.060	-.012	**.597**	-.107
PSM4COM	-.226	.226	**.547**	.145
PSM5COM	.098	.241	**.517**	-.106
PSM21SS	.289	.086	**.495**	.166
PSM9COM	-.108	-.003	-.054	**.767**
PSM11CPI	-.005	.241	-.255	**.716**
PSM24SS	.118	-.027	.250	**.536**
PSM7COM	.158	-.294	.183	.329

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Some of the items loaded better on other factors/dimensions than their own factor/dimension, while some items overlapped with other factors/dimensions. The items PSM17SS, PSM18SS, PSM19SS loaded well on factor 1 (Self-sacrifice), while PSM20SS, PSM22SS and PSM23SS though loading better on factor 1 overlapped with factor 3 (Compassion). On the other hand PSM24SS loaded better on factor 4 (Commitment to public interest), while PSM21SS loaded better on Factor 3 (Compassion). The items PSM1APN, PSM2APN, and PSM3APN loaded well only on

Factor 2 (Attraction to public-policy making). These were the only items used in the study to measure Attraction to public-policy making. The items PSM4COM, PSM5COM and PSM6COM which were used to measure compassion loaded well on factor 3 (Compassion), while PSM7COM, and PSM9COM loaded better on Factor 4 (commitment to public interest), and PSM8COM on factor 2 (Attraction to public-policy making). The loading of the items to measure commitment to public interest was not as good on the fourth Factor (Commitment to public interest) as some of the other items on the other factors. Only PSM11CPI loaded well on this Factor (4). The items PSM12CPI, PSM13CPI and PSM15CPI loaded better on Factor 2 (Attraction to public-policy making), while PSM14CPI had a negative value, but loaded better on factor 1 (Self-sacrifice).

The PSM subscales were then tested to determine their reliability using Cronbach's coefficient alpha. Self-sacrifice subscale of PSM was the only dimension where the Cronbach's coefficient alpha value was more than the recommended coefficient of 0.70 (Taylor, 2007). The Cronbach's alphas for the four subscales were self-sacrifice 0.757, Attraction to public-policy making 0.697, Commitment to public interest 0.443, and Compassion 0.201. However, Satter (2001) postulates that test with reliability below 0.60 are unreliable, while those above 0.60 are marginally reliable, and those above 0.70 are relatively reliable. Sprinthall (2009) further postulates that the number of items in a scale can significantly influence Cronbach's alpha values, and for scales (those with less than ten items, it is common to find quite low Cronbach's alpha values as low as 0.5). Three items were used in this study to measure attraction to public-policy making, and as such the value slightly below 0.70 would be acceptable (See table 3). Further support for acceptance of attraction to public-policy making is provided by Hair et *al*. (2006) where it is posited that values of 0.60 to 0.70 are "deemed the lower limit of acceptability" (p.102).

Table 3 Cronbach's Alpha Reliability Test of Attraction to Public Policy Making

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.697	.709	3

Further examination of the items within the various dimensions was done to determine whether action could be taken to improve the alpha values. Within the subscale commitment to public interest item PSM14CPI had a negative loading on commitment to the public interest (-0.180), but a high loading on self-sacrifice (0.601), and as such was dropped. The dropping of PSM14CPI resulted in the alpha value for the subscale increasing from 0.443 to 0.478. The alpha value for the subscale could be further improved to 0.530 by dropping PSM11CPI. However, it was recognized that PSM11CPI had the highest loading on the scale (0.716) after varimax rotation. Another reason for the increase in the alpha value after dropping PSM11CPI can be the negative wording of the item. However, this variable was not dropped due to the reasons stated. As it relates to compassion component/dimension, PSM7COM and PSM9COM loaded better on commitment to public interest, while PSM8COM loaded better on attraction to public-policy making. By dropping these three items the alpha value for Compassion subscale increased from 0.201 to 0.400. Though the alpha value for self-sacrifice was above the recommended coefficient of 0.70 a closer examination of the varimax rotation highlighted that PSM24SS loaded high on commitment to public interest (0.536), but low on self sacrifice (0.118). Also, though PSM24SS has a positive relationship with the other items in the subscale, it has a low correlation with those items (see **table 4**). By removing PSM24SS due to its low 'corrected item-total correlation' the alpha value increased to 0.769 (see t**able 5**).

Table 4 Inter-Item Correlation Matrix for Self Sacrifice

Inter-Item Correlation Matrix

	PSM17SS	PSM18SS	PSM19SS	PSM20SS	PSM21SS	PSM22SS	PSM23SS	PSM24SS
PSM17SS	1.000	.577	.458	.284	.171	.321	.362	.205
PSM18SS	.577	1.000	.441	.295	.247	.282	.347	.125
PSM19SS	.458	.441	1.000	.351	.195	.261	.282	.110
PSM20SS	.284	.295	.351	1.000	.337	.321	.256	.145
PSM21SS	.171	.247	.195	.337	1.000	.347	.279	.160
PSM22SS	.321	.282	.261	.321	.347	1.000	.344	.186
PSM23SS	.362	.347	.282	.256	.279	.344	1.000	.124
PSM24SS	.205	.125	.110	.145	.160	.186	.124	1.000

Table 5 Item-Total Correlation for Self Sacrifice

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PSM17SS	25.69	18.904	.570	.427	.709
PSM18SS	25.49	18.766	.552	.401	.712
PSM19SS	25.18	20.381	.495	.301	.725
PSM20SS	24.61	20.902	.458	.237	.732
PSM21SS	24.69	20.957	.391	.210	.743
PSM22SS	24.76	20.654	.477	.250	.728
PSM23SS	25.21	20.274	.464	.232	.730
PSM24SS	24.61	22.496	.232	.069	.769

Only two subscales self-sacrifice with an alpha value of 0.769, and attraction to public policy making with an alpha value of 0.697 appear to be appropriate measurement scales for determining the level of PSM at National Insurance Scheme. Due to the unreliability of subscales commitment to public interest (alpha value of 0.478 after dropping PSM14COM), and compassion (alpha value of 0.400 after dropping

PSM7COM, PSM8COM and PSM9COM) these subscales will not be used to measure PSM at the National Insurance Scheme.

The responses in each dimension of PSM were combined and averaged to obtain an overall score as in Taylor (2007), with high scores indicating high levels on a particular PSM dimension. The mean of the three items measuring attraction to public-policy making was 4.05 indicating a very high level of PSM in this dimension. The mean of the seven items measuring self-sacrifice was 3.52, which represents a high level of PSM as it relates to this dimension. The overall level of PSM using the two dimensions attraction to public-policy making and self-sacrifice is 3.68.

DISCUSSION

This study finds Public Service Motivation do exist at NIS in Guyana in two (2) of the four (4) dimensions – self-sacrifice and attraction to policy making. The other dimensions were not measured, due to the lack of reliability of variables used to measure the dimensions, as well as the low loading on the factors using varimax rotation. Though the study was unable to determine the extent of commitment to the public interest, and compassion, other studies (Perry, 1996; Taylor, 2007) found a high degree of correlation between self-sacrifice and commitment to public interest. The other dimension compassion that was not used to measure PSM at the National Insurance Scheme had the lowest alpha value (0.400). This result was similar to Kim's (2009) study using an abridged version where compassion had the lowest loading of 0.545 within the measurement scale. The items used in Kim (2009) were similar in wording to those used in this study, while some items were dissimilar to those used by Taylor (2007) where a high loading was obtained, and will be discussed later in this section. Further comparison indicates that the alpha value for self-sacrifice in this study - which was greater than 0.70 was the highest alpha value for the various dimensions. This was similar to Taylor (2007) findings where

the alpha value for self-sacrifice was also the highest (0.82), using similar variables/items.

Taylor (2007) found higher than 0.70 alpha values for commitment to public interest (0.78), and compassion (0.76), which differs from the findings of this study 0.478 and 0.400 respectively. Taylor changed the wording of some of the statements to provide greater clarity, and as such validity to the items in the measurement scale for the study. One of the statements used to measure compassion 'To me, patriotism includes seeing the welfare of others' used by Perry (1996), Kim (2009) and this study was replaced in Taylor's (2007) study with 'To me, being Australian includes seeing to the welfare of others'. The statement used in this study with the concept 'patriotism' may have resulted in the high level of none response to the statement, due to the lack of clarity as a result of the difference in meaning of the word culturally. The high level of none response to the statement, influenced the decision of the researcher to eliminate the variable in this study as was earlier stated. This statement was also deleted by Kim (2009) due to its cross loading to other factors. The use of Taylor's (2007) statement with adjustment for nationality could have contributed to a higher response rate in this study, and should be considered in future studies in Guyana. Another item used to measure compassion that is different from the statement in Taylor's (2007) study is 'I feel sympathetic to the plight of the underprivileged' as compared to Taylor's (2007) 'I am not particularly moved by the plight of the underprivileged' which was a reverse statement. The word 'sympathetic' in this study as compared to 'particularly moved' in Taylor's (2007) would have been perceived differently. In an underdeveloped country more persons can empathize – feeling with a person who is underprivileged due to their own experiences, as against sympathize – feeling for a person who is underprivileged due to a lack of understanding of what those persons are feeling. Taylor's (2007) 'particularly moved' would encompass both feelings and as such provided a wider range of feelings.

Another dimension where the wording used resulted in a significantly different outcome is attraction to public-policy making. The different wording used in this study to measure 'attraction to public-policy making' may have been responsible for the higher alpha value in this subscale than

the alpha value (0.64) of Taylor's (2007) study, where Perry's (1996) original statements were used. The use of the statements to measure attraction to public-policy making in this study were similar to Kim (2009) where the reliability coefficient was 0.75.

Some of the overlap of variables in the Commitment to public interest subscale with self-sacrifice in this study was similar to that of Taylor (2007). Item I5 'I consider public service a civic duty' in Taylor's study loaded 0.42 on Self-sacrifice factor, and 0.59 on commitment to public interest factor (Taylor, 2007). Item I5 is the same as PSM15CPI in this study, which loaded 0.318 on Self-sacrifice factor and 0.429 on Commitment to the public interest factor. Also item I2 in Taylor's study loaded 0.41 on self-sacrifice, and 0.39 on commitment to public interest. Item I2 'I would prefer seeing public officials do what is best for the community, even if it harmed my interest' is the same as PSM14CPI in this study, which loaded 0.601 on self-sacrifice, and - 0.135 on commitment to public interest. Taylor attributed these overlaps to the interpretation by the respondents due to the focus on community interests over personal interests as measuring self-sacrifice. However, the construct validity of the instrument was accepted by Taylor (2007) due to the small amount of overlapping, and numerous researchers finding it valid. The high degree of overlap, as well as the reliability results in this study requires further studies with larger populations to better analyze the dimension commitment to public interest.

CONCLUSION

In this study Perry's (1996) public service motivation (PSM) scale with adjustments to 'attraction to public policy making' as recommended by Kim (2009) was tested using principal components analysis. The findings indicate that PSM in two of the four dimensions – 'self-sacrifice' and 'attraction to public policy making', do exist at National Insurance Scheme in Guyana. There is also a high level of PSM using the two dimensions. The other two dimensions 'commitment to public policy' and 'compassion'

loaded low on their respective factors, and also had some cross loading with other factors. The cross loading of some of the items such as those intended to measure commitment to public interest, but loaded better on self-sacrifice should be excluded from the scale when used in Guyana, due to validity concerns as was stated earlier in the study. Some of the other items should be adjusted to address cultural differences in words, as was done in Taylor (2007). This will not only address the issue of validity, but the reliability of the subscales as well. A shortened version of Public Service Motivation measurement scale as recommended by Kim (2009) and Coursey and Pandey (2007) can also be considered taking into account the findings of this study.

The findings suggest that the concept public service motivation has universal relevance (Vandenabeele, 2008a), due to the testing of the measurement scale in various countries regardless of their economic development. A larger population should also be used to test the PSM measurement scale so as to increase reliability. Such a study should be done in the Civil Service to determine whether there is a difference between the semi-autonomous public sector organizations and the traditional public servants. Future studies can also try to determine whether there are relationships between demographic variables and PSM, as well as PSM and Socio-historical variables, such as contact with members of society in the execution of their duties. The existence of a relationship between the level of employees' contact with members of society and PSM, or any of its dimensions, will help administrators and researchers understand the likely effects of citizen's issues on public service employees.

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APPENDIX

Table 6: Measurement subscales and items in the PSM construct

	ATTRACTION TO PUBLIC POLICY MAKING
PSM1APN	• I am interested in making public programs that are beneficial for my country c community I belong to.
PSM2APN	• Sharing my views on public policies with others is attractive to me.
PSM3APN	• Seeing people get benefits from the public program I have been deeply involved in b me a great deal of satisfaction.
	COMPASSION
PSM4COM	• I feel sympathetic to the plight of the underprivileged.
PSM5COM	• I am often reminded by daily events how dependent we are on one another.
PSM6COM	• It is difficult for me to contain my feelings when I see people in distress.
PSM7COM	• I have little compassion for people in need who are unwilling to take the first step to themselves. (Rev.)
PSM8COM	• Most social programmes are too vital to do without.
PSM9COM	• I seldom think about the welfare of people whom I don't know personally. (Rev.)
	COMMITMENT TO THE PUBLIC INTEREST
PSM11CPI	• It is hard to get me genuinely interested in what is going on in my community. (Rev
PSM12CPI	• I unselfishly contribute to my community.
PSM13CPI	• Meaningful public service is very important to me.
PSM14CPI	• I would prefer seeing public officials do what is best for the whole community even harmed my interests.
PSM15CPI	• I consider public service my civic duty.
	SELF-SACRIFICE
	• I believe in putting the needs of my community before self.
PSM17SS	• Making a difference in society means more to me than personal achievements.
PSM18SS	• I am prepared to make enormous sacrifice for the good of society.
PSM19SS	• Serving other citizens would give me a good feeling even if no one paid me for it.
PSM20SS	• Much of what I do is for a cause bigger than myself.
PSM21SS	• I feel people should give back to society more than they get from it.
PSM22SS	• I am one of those people who would risk personal loss to help someone else.
PSM23SS	• Doing well financially is definitely more important to me than doing good deeds. (R
PSM24SS	

Table 7: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	37	19.0	19.0	19.0
	Female	158	81.0	81.0	100.0
	Total	195	100.0	100.0	

Table 9: Highest level of Education completed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school	48	24.6	24.6	24.6
	Technical/Vocational	42	21.5	21.5	46.2
	University Diploma	69	35.4	35.4	81.5
	Bachelor's Degree	36	18.5	18.5	100.0
	Total	195	100.0	100.0	

Table 10:Tenure within the organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 1 year	7	3.6	3.6	3.6
	1 to 5 years	54	27.7	27.7	31.3
	6 to 10 years	43	22.1	22.1	53.3
	11 to 20 years	33	16.9	16.9	70.3
	more than 20 years	58	29.7	29.7	100.0
	Total	195	100.0	100.0	

Table 11: Tenure within the Public Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	3	1.5	1.5	1.5
	1 to 5 years	41	21.0	21.0	22.6
	6 to 10 years	35	17.9	17.9	40.5
	11 to 20 years	47	24.1	24.1	64.6
	more than 20 years	69	35.4	35.4	100.0
	Total	195	100.0	100.0	

Table 12 Extent of contact with the public

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Always	1	.5	.5	.5
	Often	11	5.6	5.6	6.2
	Sometimes	21	10.8	10.8	16.9
	Seldom	74	37.9	37.9	54.9
	Almost never	88	45.1	45.1	100.0
	Total	195	100.0	100.0	

Table 13 Age group of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before 1951	1	.5	.5	.5
	1951 to 1960	21	10.8	10.8	11.3
	1961 to 1970	45	23.1	23.1	34.4
	1971 to 1980	59	30.3	30.3	64.6
	1981 to 1990	61	31.3	31.3	95.9
	1991 and after	8	4.1	4.1	100.0
	Total	195	100.0	100.0	

ABOUT THE AUTHORS

Dr. Letroy Cummings	is an Associate Professor and Chair of the Department of Sociology at the University of the Southern Caribbean, Trinidad and Tobago.
Hector Edwards	is a Lecturer in the Department of Business and Management Studies, Faculty of Social Sciences, University of Guyana.
Sherwood Lowe	is a Lecturer in the Department of Mining and Geological Engineering, Faculty of Technology, University of Guyana.
Dr. Leroy Binns	Leroy A. Binns Ph.D. is an International Relations specialist whose areas of expertise are East/West Relations and Caribbean and Latin American Affairs. He serves as a consultant and academic advisor within the Graduate School of Interdisciplinary Studies at The Union Institute.

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