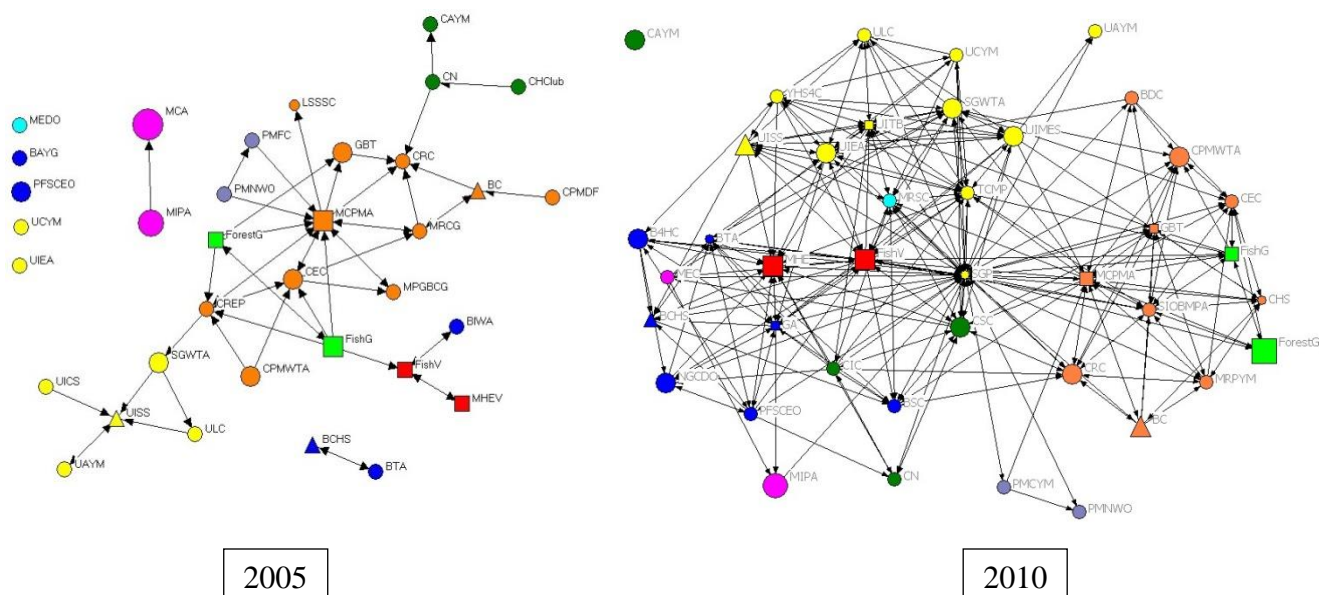# Comparison of social networking among organisations in the Grenadine Islands between 2005 and 2010

K. BLACKMAN AND R. MAHON

2005

2010

ABSTRACT

Comparison of the social network structure of stakeholder organisations in the Grenadine Islands between 2005 and 2010

The high socio-economic importance of tourism and fisheries in the transboundary region of the Grenadines has led to the unsustainable use of marine resources and unplanned developmental activities that have been detrimental to the environment. Unfortunately, NGOs have lacked the ability to fully participate in decision-making in relation to the environment and this further perpetuates these environmental problems.

The Sustainable Grenadines Project (SGP) sought to address these problems through building the capacity of NGOs so that they could play an important role in sustainable development. In efforts to understand the stakeholder environment, relationships among stakeholder organisations were examined using social network analysis. This paper compares the relationship between selected organisations within the Grenadines, St. Vincent and Grenada from the establishment of SGP in 2005 to the culmination of the project in 2010.

This comparative study showed the progression of the Grenadines stakeholder network from a vulnerable fragmented network with a scarcity of linkages in 2005 (density = 4%) to a denser and highly interactive network (density = 21%). The SGP, which transitioned to NGO called SusGren Inc in 2007, has taken the role of the key player of the network that was previously led by Ministry of Carriacou and Petit Martinique Affairs. Bridges have been created that connect isolated and peripheral organisations which now have a chance share their experiences and learn from the network. Recommendations have been made to continue efforts to increase collaboration developing a communication framework to create a more resilient network.

Keywords: Social networking, partnership, stakeholders, capacity, social capital, Grenadines

TABLE OF CONTENTS

1   INTRODUCTION

The Grenada Bank lies across the boundary between the countries of St. Vincent and the Grenadines and Grenada. The Grenadine Islands area (Figure 1.1) includes nine inhabited islands on an extensive shallow bank with extensive coastal and marine habitats: fringing, patch and barrier reefs, seagrass beds, salt ponds and mangrove forests. These are of prime importance, as marine-based activities are the mainstay of the Grenadines' economy. Tourism and fishing are the two major sources of employment. Development in the first of these two areas is proceeding rapidly and for the most part unplanned (Mahon et al. 2004). Fishery resources have long been recognised as fully to overexploited and there is also evidence of degradation of coastal and marine habitats. In an effort to reverse the trend of overexploitation, there is the need to reorient resource users towards sustainable use of resources, both aquatic and terrestrial. The sustainability of resources cannot be successful without good governance that recognises the interests of all stakeholders - government, civil society, private sector, commercial firms and businesses and includes them in both planning and implementation.
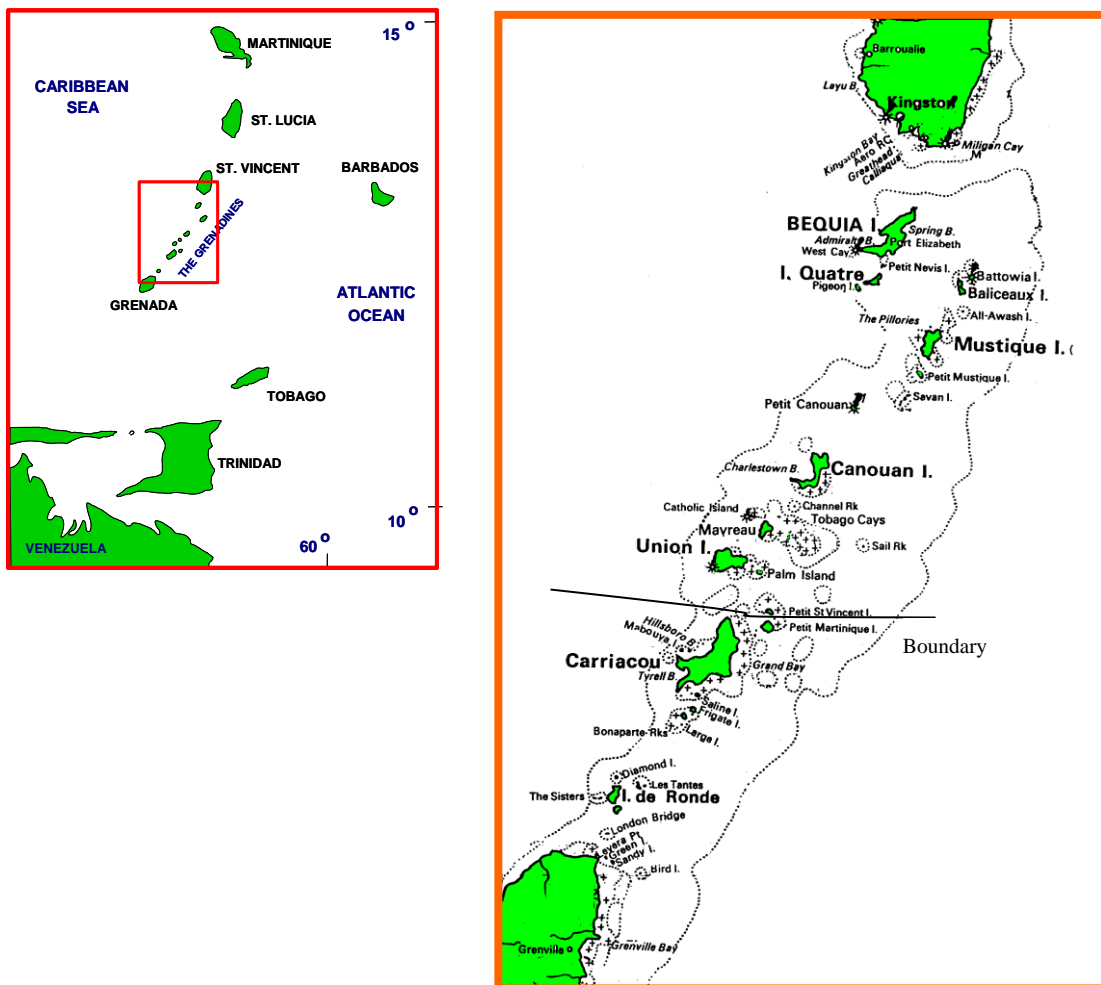

Figure 1.1: The location and islands of the Grenadines

In the Grenadine Islands an initial assessment indicated that civil society does not have the capacity to be fully involved in governance as necessary partners with government and the private sector (Mahon et al. 2002). Therefore, improved participation of coastal and marine stakeholders requires strengthening their capacity. In this context, capacity is viewed as multifaceted ranging from the outlook that guides civil society's role in sustainable development to skills required for project development and NGO management capacity (Krishnaryan et al. 2003). These are the issues the project NGO,SGP), sought to address (Mahon et al. 2004 and SusGren 2007).

One of the focal areas/objectives of the SusGren Project was to facilitate networking and the formation of partnerships among key stakeholder groups within the Grenadines. The promotion of interactions is emerging as a key component of approaches aimed at enhancing resilience[1] and adaptive capacity[2] of social-ecological systems[3] (SESs), especially in situations of low capacity and high complexity. This line of thinking emerges in several perspectives on civil society engagement in sustainable development (Pretty 2003; Thompson and Adger 2004; IMM 2008 and Mahon et al. 2008). Theoretical approaches such as the Interactive Governance Approach and others have placed a great deal of emphasis on interactions (Kooiman et al., 2005 and Bavinck et al. 2005) and building social capital among stakeholder groups (Pretty 2003). This is the approach upon which much of the SusGren Project has been based (Mahon et al. 2004; Cooke et al. 2007 and Lizama and Mahon, 2007).

One approach to assessing the interactions among stakeholders (i.e. government and civil society) is to view them and their interactions as a network and to analyse them using Social Network Analysis (SNA). Mahon et al. (2010) conducted an SNA study which sought to follow this approach and developed a sociogram which displayed the social relationships between selected Grenadines stakeholders. The study provided a baseline against which progress could be measured.

The overall objective of this study is to compare the nature and extent of communication interaction among key Grenadines stakeholder organisations (i.e. those involved in natural resource management, environmental and related matters) with particular emphasis on NGOs, using SNA, between 2005 and 2010. The specific objectives are to determine any changes in the reasons/types of communication, their importance; their frequency, the degree of inter-island communication; to identify the entities that assume influential roles in the network, and to identify further opportunities for interventions that will improve and facilitate network connectivity leading to greater engagement of NGOs in coastal and marine governance and greater adaptive capacity.

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[1] Resilience is the capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity (Walker et al., 2006)

[2] Adaptive capacity is the ability of a system (social and/or ecological) to adapt to change and respond to disturbances (Armitage 2005)

[3] Social-ecological systems is the subset of social systems in which some of the interdependent relationships among humans are mediated through interactions with biophysical and non-human biological units (Anderies *et al*., 2004)

2 METHODS

SNA methodology was used to determine the extent and nature of the ties among network nodes. In this case the ties are relationships and interactions, and the nodes are government and civil society stakeholder organisations within St. Vincent, Grenada and the seven inhabited Grenadine Islands. The degree of inter-island and transboundary interaction and communication are of particular interest. In order to assess this, a SNA survey was designed similarly to the Mahon et al. (2010) study conducted in 2005 which surveyed a pool of 35 stakeholder organisations.

The 2010 survey was designed to target 52 organisations (Table 3.1). This pool of stakeholders included all secondary schools and NGOs from the 2005 study, along with any other agencies identified by Mahon et al. (2002) that focused on environment and related matters. The government departments selected were all those with key responsibility for natural resource management and environment in the Grenadines (Finlay et al. 2003). However the 2010 survey was only administered to 41 organisations because eleven NGOs were either inactive or representatives could not be located or were unwilling to participate. The 41 stakeholder organisations included 8 government departments, 3 public schools and 30 NGOs (Table 3.1). These 41 nodes comprised the whole network for the purpose of this study.

The survey was conducted between June and October 2010. Individual respondents were prominent members/employees of the selected organisations/departments, and these were considered to be capable of answering on behalf of these entities. Each respondent was provided with the list of the whole network of organisations and asked to indicate: (1) those with which they communicated; (2) the reasons for/types of communication; (3) the perceived importance of communication with regards to their organisation's efforts; and (4) the frequency of communication with regards to these named organisations. Each respondent was also asked to identify external entities, including businesses, with which they interacted. The survey elicited information from which a matrix of inter-organisational relations was constructed. Data were analysed using UCINET 6.3software (Borgatti et al. 2002). Data were then analysed using Chi-square test (using 0.05 significance level) in Excel to determine if there were any significant differences in data between the 2005 and 2010. The Chi-square test was only used for data that satisfied the assumptions of this test.

The analysis used two network measures which relate to the nature of and limitations to interaction in the network. Density is the proportion of potential ties that actually occur among the nodes in the network, and measures the richness of connections among the nodes (Mohrman et al. 2004); that is, the more actors that have ties to one another, the denser is the network (Scott 1991). Centrality (which has several sub-types: degree, closeness, and betweenness) measures the extent to which a given node occupies a critical location between other nodes in the network and hence may potentially control, in this study, the flow of information. In the context used here, network centrality varies between highly centralized, where ties are concentrated on a few nodes, to highly decentralized, where ties are more evenly distributed among nodes (Mohrman et al. 2004). This measure assists with identifying the key players (most central nodes) within the network.

The network diagrams or sociograms that are used to visualise (graphically represent) the network were created with NetDraw, a component of UCINET 6.3. In this network analysis, the attributes used to describe the nodes were: type of organisation, size of the organisation and island on which it is located.

In SNA one can focus first on the relationships between a focal organisation and a known group of organisations of which the focal one is a member. This is referred to as the 'ego group'. Organisations in the ego group may be connected to other agencies not in the group which nonetheless impact on the network. This was examined by asking the members of the ego group to list other organisations with which they interacted on a regular basis. Thus the whole network structure emerges from examining a series of interconnected ego networks.

A limitation of the study is that the results are based on the respondent's recollection of organisational communication. Although respondents were usually in formal managerial positions, they may not have been involved in the informal networks which can have different communication systems. This may be less of a problem for small organisations with fewer than five persons since the leaders of these organisations are usually the main communicators.

3 RESULTS/DISCUSSION

3.1 Overview of surveyed organisations

Of the 41 organisations participating in the SNA survey in 2010, 27% are located in Union Island, 22% in Carriacou, 17% in Bequia, 10% in Canouan, 7% in Grenada and 5% in each of St. Vincent, Mustique and Petite Martinique. Only one organisation in Mayreau was included in the analysis. These organisations and the codes used to identify them in the diagrams are listed in Table 3.1. The respondents included heads of organisations, past presidents, deputy heads, secretaries, officers, representatives, teachers, a permanent secretary and a project officer. Of the foregoing, 61% were males. Of the 41 organisations surveyed, seven (20.6%) were relatively new organisations that were in existence since 2005 and would not have been included in to 2005 SNA study (Figure 3.1). Of 41 organisations, the majority (49%) consisted of 5-25 members while only 5% consisted of more than 45 persons, these being mainly government departments (Figure 3.2).

Island	Category	Organisation	Code
Table 3.1: Organisations selected for inclusion in the social network analysis			
St. Vincent	Govt	Fisheries Division	FishV
		Ministry of Health and Environment	MHE
Mustique	NGO	Mustique Christian Assembly*	MCA
		Mustique Environmental Committee	MEC
		Mustique Indigenous Peoples Association	MIPA
Bequia	Edu	Bequia Community High School	BCHS
	Gov't	Grenadines Affairs	GA
		Bequia Tourism Association	BTA
		Bequia Sailing Club	BSA
		Bequia 4H Club	B4HC
		Bequia Anglican Youth Group**	BAYG
		Bequia Indigenous Whalers Association *	BIWA
		Northern Grenadines Community Development Organisation	NGCDO
		Apostolic Faith Mission Youth Group*	AFMYG
		Paget Farm Sports, Cultural and Environmental Organisation	PFSCEO
Canouan	NGO	Anglican Youth Movement	CAYM
		Canouan Sailing Club	CSC
		Canouan Island Council	CIC
		Club Nuevo	CN
Mayreau	NGO	Mayreau Environmental Development Organisation**	MEDO
		Mayreau Regatta and Sporting Committee	MRSC
Union Island	Edu	Union Island Secondary School	UISS
	Gov't	Union Island Tourism Board	UITB
	NGO	Anglican Youth Movement	UAYM
		Catholic Youth Movement	UCYM
		Union Island Community Services*	UICS
		Lions Club	ULC
		Southern Grenadines Water Taxi Association	SGWTA
		Tobago Cays Marine Park	TCMP
		Union Island Museum and Ecological Society	UIMES
		Union Island Environmental Attackers	UIEA
		Sustainable Grenadines Project	SGP
		Youth Help Strider 4H Club	YHS4C
Carriacou	Edu	Bishop's College	BC
	Govt	Grenada Board of Tourism (Carriacou)	GBT
		Ministry of Carriacou and Petite Martinique Affairs	MCPMA
	NGO	Carriacou and Petite Martinique Marketing Committee**	CPMMC
		Carriacou and Petite Martinique Water Taxi Association	CPMWTA
		Carriacou Environmental Committee	CEC
		Carriacou Regatta Committee	CRC
		Carriacou Historical Society	CHS
		Bayaleau Development Committee	BDC
		L'Esterre South Striders Social Club*	LSSSC

		Mt. Royal Progressive Youth Movement	MRPYM
		Mt. Pleasant & Grand Bay Community Development Organisation**	MPGBCDO
		SIOB MPA Committee	SIOBMPA
		Windward Sailing Club**	WSC
Petite Martinique	NGO	Petite Martinique Fisherman's Cooperative**	PMFC
		Petite Martinique Catholic Youth Movement	PMCYM
		Petite Martinique New Woman's Organisation	PMNWO
Grenada	Govt	Fisheries Division	FishG
		Forestry Division	ForestG

*Key Informants were unavailable or refused to conduct survey

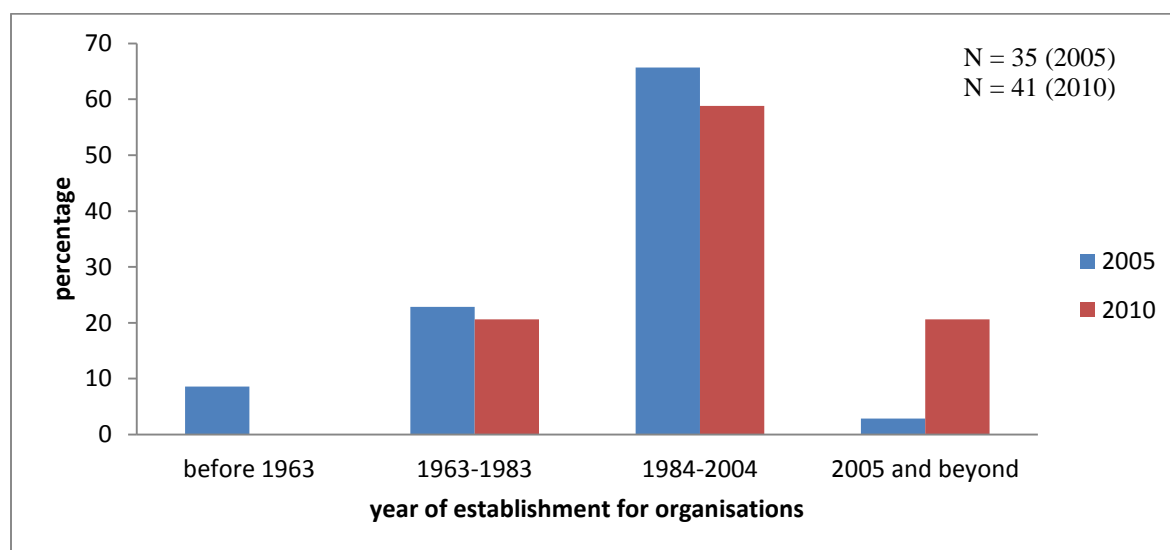** Organisations were no longer in existence/functional

Figure 3.1: The year of the establishment of organisations surveyed as indicated by respondents
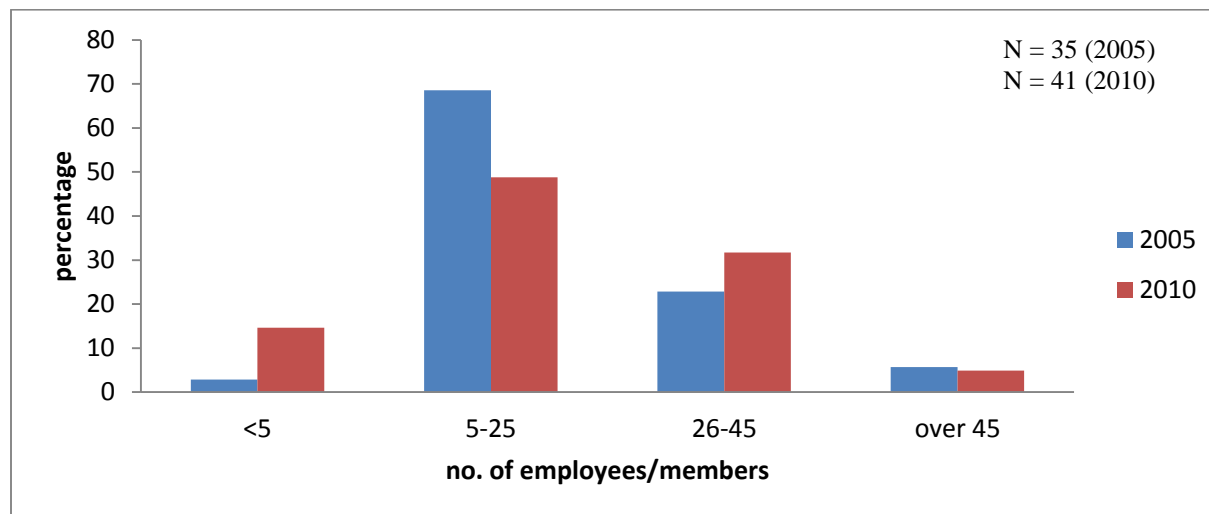

Figure 3.2: The distribution of size of the organisations surveyed indicated by number of persons

3.2 Stakeholder network structure

The network sociogram in Figure 3.3 shows the relationships between the various organisations interviewed in 2005 and 2010. The attributes of the nodes in the diagram are indicated by colour for location, shape for type of organisations and size for number of members/employees of organisation. The sociogram for 2010 consists of 41nodes with 342 ties. This was a significant increase of over 290 communication links compared to only 50 ties in 2005 with 35 nodes.

2005, N=35   2010, N=41
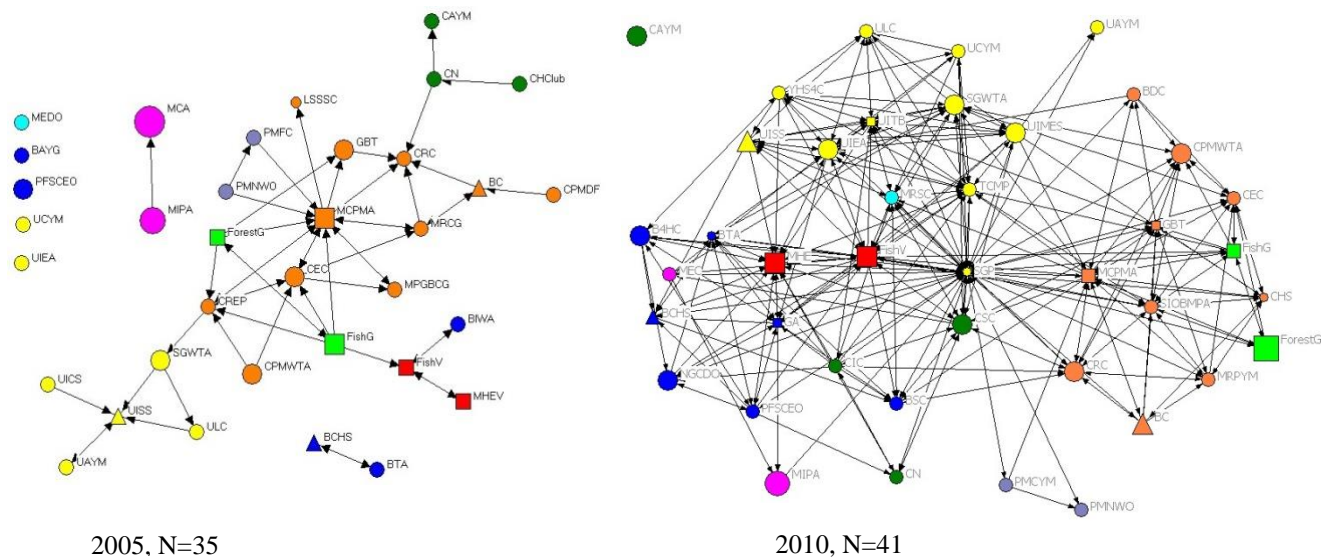
Figure 3.3: Network diagrams showing linkages between the selected stakeholder organisations in the Grenadines in 2005 and 2010 (See Table 3.1 for organisation codes)

[The key for the diagrams are as follows: Red: St. Vincent. Blue: Bequia, Pink: Mustique, Green: Canouan, Light blue: Mayreau, Yellow: Union Island, Purple: Petit Martinique, Orange: Carriacou and Light green: Grenada] [Circle: NGOs, Square: Governmental agencies, Triangle: Schools]

The sociogram depicting communication linkages for 2010 is made up of only two components: the main network and one isolate[4] (Canouan Anglican Youth Movement). By 2010, organisations such as Union Island Catholic Youth Movement, Paget Farm Social Cultural and Environmental Organisation, Union Island Environmental Attackers and Bequia Anglican Youth Group) that were isolates in 2005 and between two to ten connections. Mayreau Environmental Development Organisation which was an isolate organisation 2005 was no longer active. The Sustainable Grenadines Project (SGP) (project NGO) appeared to be central or the hub of the network with connections to every organisation in the network except for CAYM. This was a change from 2005 whereby MCPMA was at the centre of the network.

Inspection of 2010 sociogram indicates an increase in connections between stakeholder organisations. In 2005 some organisations with very similar origin and interest are unconnected or connected through long chains involving several ties and nodes. However this has changed in 2010 as direct links among groups of common interests have been made. The water taxi associations, SGWTA and CPMWTA, communicate directly with each other. Sailing organisations throughout the Grenadines (Bequia Sailing Club, Canouan Sailing Club, Mayreau Regatta Sporting Committee, Mayreau Regatta Sporting Committee and Carriacou Regatta Committee) are also well connected with each other. The 4H Clubs of Union Island and Bequia

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[4] Isolates are nodes that are not connected to other nodes in the network.

also communicate but the club in Canouan is no longer in existence. Tourism agencies in Union and Carriacou are connected to each other but not to Bequia Tourism Association, perhaps due to its geographic location. There has been no change for the Anglican youth groups such as CAYM and UAYM whichare still not connected while Bequia Anglican Youth Group is no longer in existence.

3.2.1 The extent of interaction among organisations

Results show that overall density (asymmetric) for the entire network increased from only 4% (0.04) in 2005 to 21% (0.21) in 2010. Therefore a denser network exists with 21% of all possible ties being in effect. Density also varies among the islands (Table 3.2). Small island communities may lack the capacity to communicate effectively due to their geographic location in relation to main islands. However, in 2010 we have noticed an increase in communication linkages within the islands

Table3.2: Variation in asymmetric and symmetric densities of the network for 2005 and 2010				
Island	Asymmetric density		Symmetric density	
	2005	2010	2005	2010
Bequia	0.10	0.62	0.1	0.76
Canouan	0.33	0.5	0.67	0.5
Carriacou	0.21	0.61	0.31	0.73
Petit Martinique	0.50	0.5	1.00	1.00
Union Island	0.14	0.68	0.24	0.8
Mustique	0.50	0.5	1.00	1.00
St. Vincent	1.00	1.00	1.00	1.00
Grenada	1.00	1.00	1.00	1.00
Mayreau	0.00	0.00	0.00	0.00

and amongst the islands. As expected the average intra-island density was greater than inter-island density. Average intra-island density in the Grenada Grenadines has increased from 0.66 to 0.87 while in the St. Vincent Grenadines it has increased from 0.40 to 0.61. Inter-island density for Grenada has increased from 0.26 to 0.48 while for St. Vincent it has increased from 0.06 to 0.40.

3.2.2 Country level networks

The networks were examined at the national level to pursue an understanding of the differences between the countries and to pinpoint ways to improve the network connections between them. Figures 3.4 and 3.5 illustrated the sub-network structure that existed within each country separately. From the perspective of communication within-country, St. Vincent and the Grenadines is no longer as fragmented as it was in 2005 having increased its linkages primarily due to the work undertaken by SGP, whose mandate is to promote interaction among government agencies, private sector and civil society. In the case of Grenada, although linkages among NGOs have increased, MCPMA continues to play a key role in bringing together the stakeholders of the Grenada Grenadines.

Figure 3.4: Stakeholder networks for St. Vincent in 2005 (left) and 2010 (right)

Figure 3.5: Stakeholder networks for Grenada in 2005 (left) and 2010 (right)

3.2.3   Organisations that play key roles

Degree centrality is the number of ties that a node has to other nodes. Organisations with a high degree centrality have a greater number of ties than other actors i.e. organisations. In 2010 the SGP has the highest degree of centrality in the Grenadines network with 39 linkages. Other significant players include those with over 17 linkages such as FishV (22 links), MCPMA (20 links) and TCMP (18 links) (Table 3.3). The mandates/portfolio of

Table 3.3: Frequency of linkages for organisations

Number of linkages	Number of organisations	
	2010	2005
none	1	5
less than 5	4	25
5 to 10	17	4
11 to 16	15	1
17- 21	2	0
over 21	2	0

these organisations, particular government agencies require collaboration with a diversity of stakeholder organisations.

It can be assumed that SGP has an influential role as it also has the highest degree of in-degree centrality and out-degree centrality indicating it receives and sends out more of the information shared in the network than any other organisation.

Examination of the network of connections among NGOs alone indicates that linkages among them have increased between 2005 and 2010. In 2010 only one organisation remains isolated from the network compared to 11 in 2005. In the network, SGP assumes the role as the broker as it had created local and transboundary bridges between organisations that were not previously connected (Figure 3.6). Even if SGP is taken out of the picture the density of interactions among remaining organisations has increased considerably.
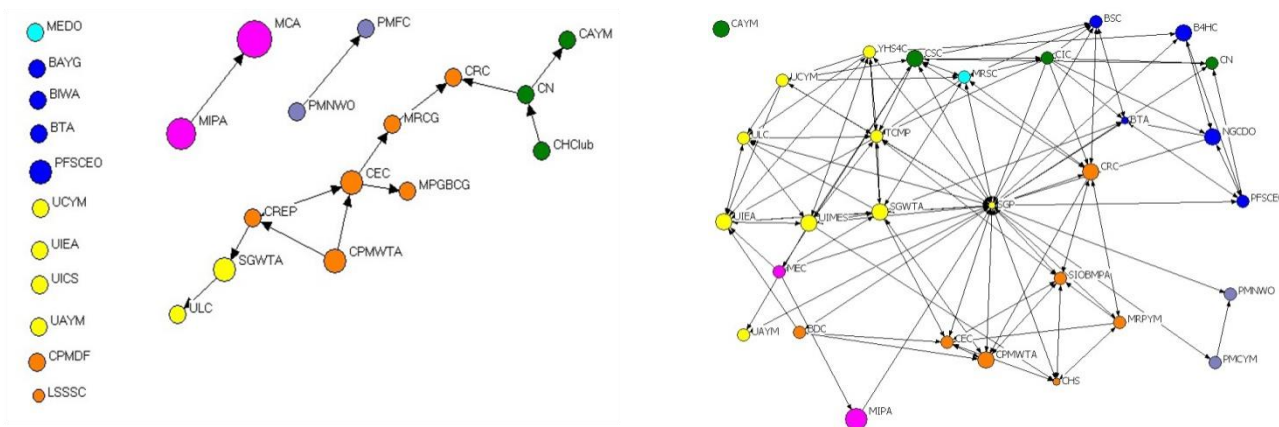
Figure 3.6: Linkages among NGOs only

3.3   Characteristics of linkages

3.3.1   Methods of Communication

Of the 20 specific means of communication identified 6 of them are classified as written methods, 8 as verbal and 6 as visual (Table 3.4). All three categories are utilised by organisations. As in 2005, phone calls, letters and emails continue to be the most important means of communication media. In contrast, methods such as social networks, TV programmes and radio programmes and loudspeakers received low ratings. Methods such as websites and

posters which received low ratings in 2005 are seen as being used more often in 2010 (Table 3.4).

Table 3.4: Assessment of importance of communication methods in 2005 (in parentheses) and 2010– percentages.

Method of communication	Not used	Unimportant	Important	Very Important
Verbal communication				
Formal person to person meetings	15 (66)	2(0)	37(6)	46(29)
Formal group meetings	24(46)	0(0)	27(11)	49(43)
Informal person to person meetings	15(63	5(0)	44(3)	37(34
Informal group meetings	17(80)	5(3)	44(3)	34(14)
Radio advertisements	46(94)	5(0)	24(0)	24(6)
Radio programmes	95(0)	0(00	0(0)	5(0)
Phone calls	12 (11)	2(0)	5(9)	80(80)
Loudspeakers	78(97)	0(0)	12(0)	10(3)
Written communication				
Letters	17(230	0(0)	24(14)	59(63)
Newsletters	51(77)	2(0)	34(3)	12(20)
Email	10(37)	0(0)	34(11)	56(51)
Faxes	34(83)	0(0)	27(6)	39(11)
Brochures/flyers*	51(90)	0(0)	22(0)	27(10)
Newspaper ads	59(97)	2(0)	15(0)	24(3)
Visual communication				
Booklets	76(97)	2(0)	7(0)	15(3)
TV ads	71(97)	2(0)	5(0)	22(3)
Posters	24(97)	2(0)	32(0)	41(3)
Websites	54(97)	0(0)	17(0)	29(3)
Social network	90(0)	0(0)	5(0)	5(0)
TV Programme	98(0)	0(0)	0(0)	2(0)

*Note that percentages for 2005 are in brackets.
*These values are averages since in 2005 brochures and flyers were treated as separate communications methods.
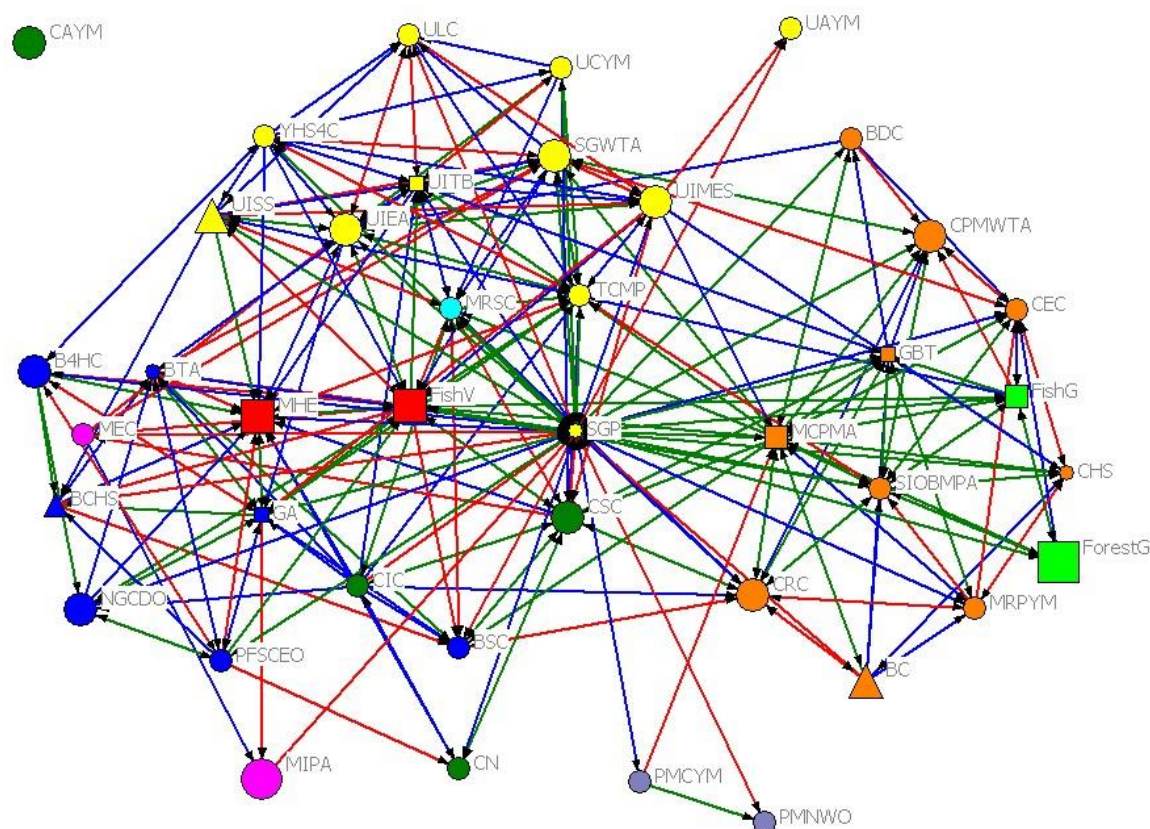
3.3.2 Reasons for communication

The reasons for communication/types of communication can influence the level of collaboration between organisations. Statistical analysis revealed that there was no relationship between the years and type of communication between stakeholders ($\chi^2 = 5.04$, p = 0.08). Despite this there was an overall reduction in strength of contact mainly from medium to low (Table 3.5). Nonetheless in 2010 the majority of communication ties (42%) were mainly for project collaboration or formal arrangements. The sociogram of the types of communication is illustrated below (Figure 3.7). The strength of

Table 3.5: Percentage of links for types of communication

Types of communication	2005	2010
Low - Only on special occasions e.g. at workshops, social events;	14	25
Medium - To talk about issues and pass on information;	48	34
High - To develop common approaches work together on projects	38	42

the communication links between organisations corresponds with the colour of the lines. For organisations like MCPMA and SGP, most of their communication is related to formal arrangements.
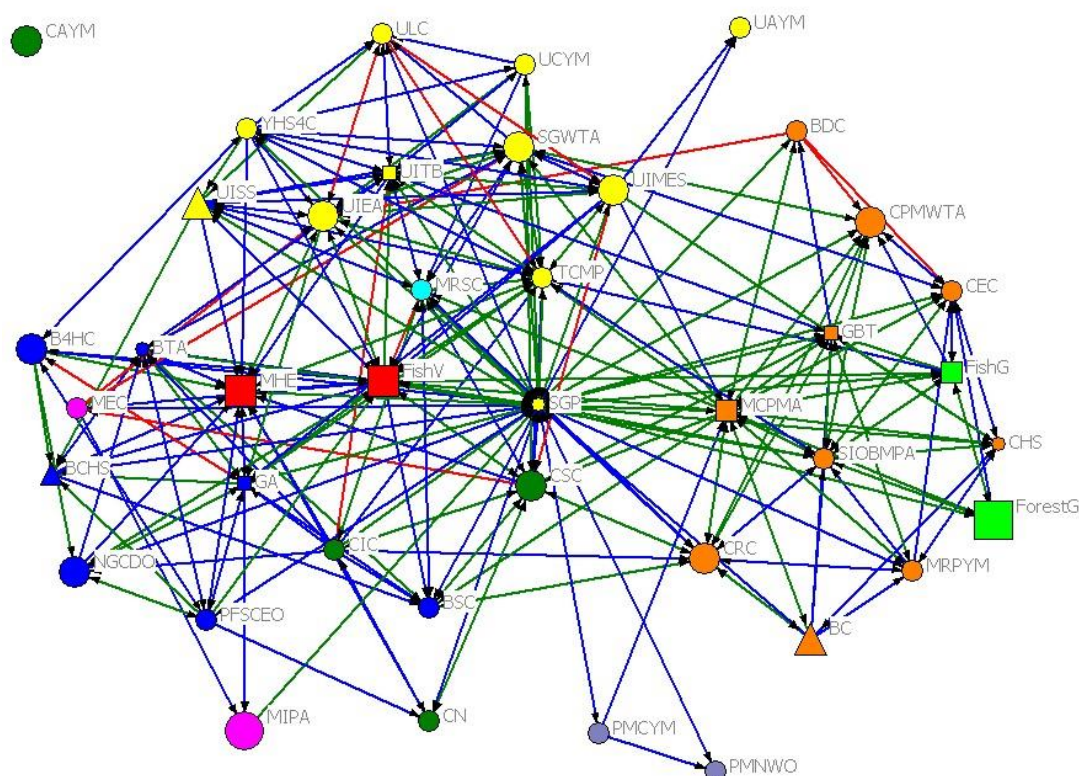

Figure 3.7: Reasons for communication among the 41 organisations[Red lines: Low, Blue lines: Medium, Green lines: High]

3.3.3 Perceived importance of communication

Statistical analysis revealed that there was also no significant difference in the perceived importance of communication between 2005 and 2010 (χ^2=1.24, p=0.54). Overall a very small percentage of stakeholders still perceived their communication linkages as not important. There was also an increase in communication links that were perceived to be important, from 37% (2005) to 45% (2010) (Table 3.6). In addition,

Table 3.6: Percentage of links for perceived importance of communication

Perceived importance of communication	2005	2010
Not important	8	6
Important	37	45
Very Important	56	49

most of the linkages between SGP and other organisations were perceived to be very important to SGP and the organisations. The sociogram below illustrates the strength of the ties in the network regarding the perceived importance of communication by the organisation (Figure 3.8).

Figure 3.8: Perceived importance of communication among the 41 organisations

[The key for the diagrams are as follows: Red lines: Not important, Blue lines: Important, Green lines: Very Important]

13

3.3.4 Frequency of Communication

Statistical analysis revealed that there was no relationship between year and rating for frequency of communication ($\chi^2=5.04$, $p<0.05$). Table 3.7 highlighted an overall increase in network ties occurring on weekly basis from 27% (2005) to 34% (2010). While there has been a decrease in network ties for monthly and yearly communication, more ties exhibiting quarterly communication have evolved. The sociogram below illustrates the frequency of communication between stakeholders (Figure 3.9). Most of the contacts for SGP occurred on a weekly basis.

Table 3.7: Percentage of links for frequency of communication

Frequency of communication	2005	2010
Weekly	27	34
Monthly	60	27
Yearly	14	17
Quarterly	0	22
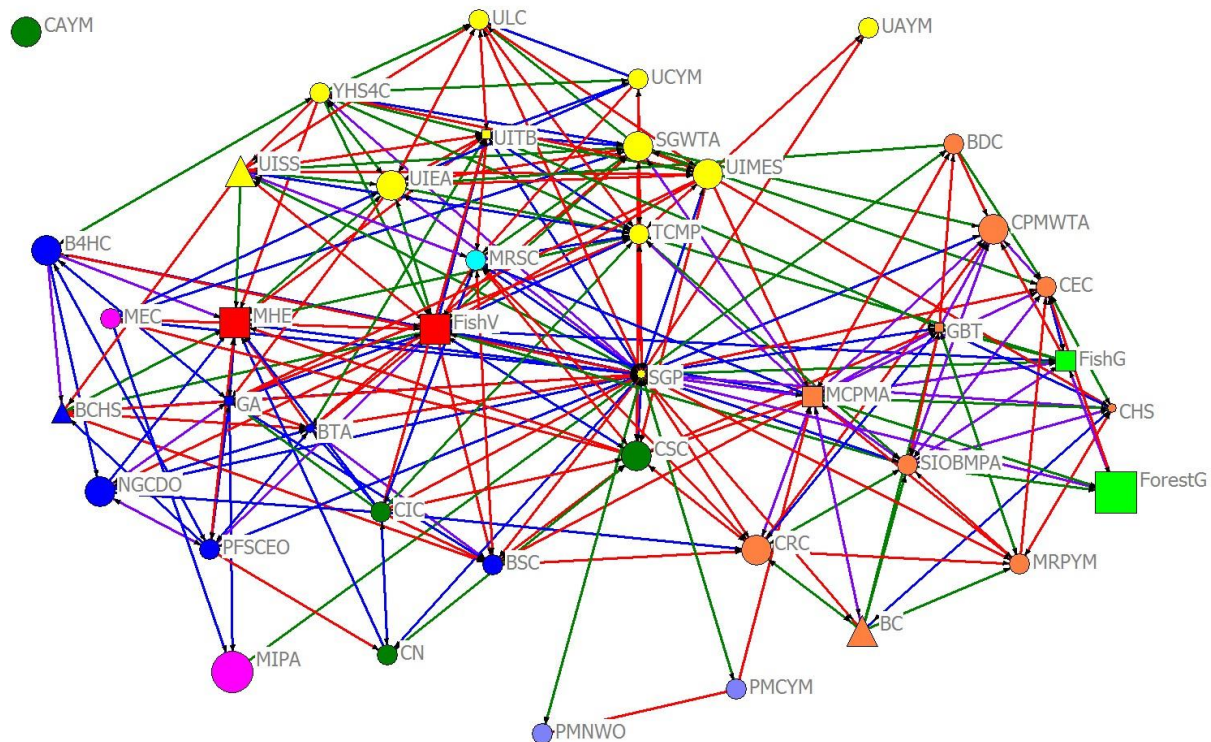
Figure 3.9: Frequency of communication among the 41 organisations

[Red = weekly, Blue = monthly, Green= quarterly, Purple = yearly]

3.3.5 Barriers to Communication

Figure 3.1 illustrated that the majority of the barriers identified in 2005 were still prevalent in 2010. There was a 12% decrease in persons that highlighted inefficient system of communicating as an issue, from 24% (2005) to 12% (2010). Different goals/commitments regarding organizational mandates still remained a major barrier, according to 12% (2005) and 16% (2010). Results also indicated that while there was a decline in the barriers to communication, two new barriers were identified in 2010.

14
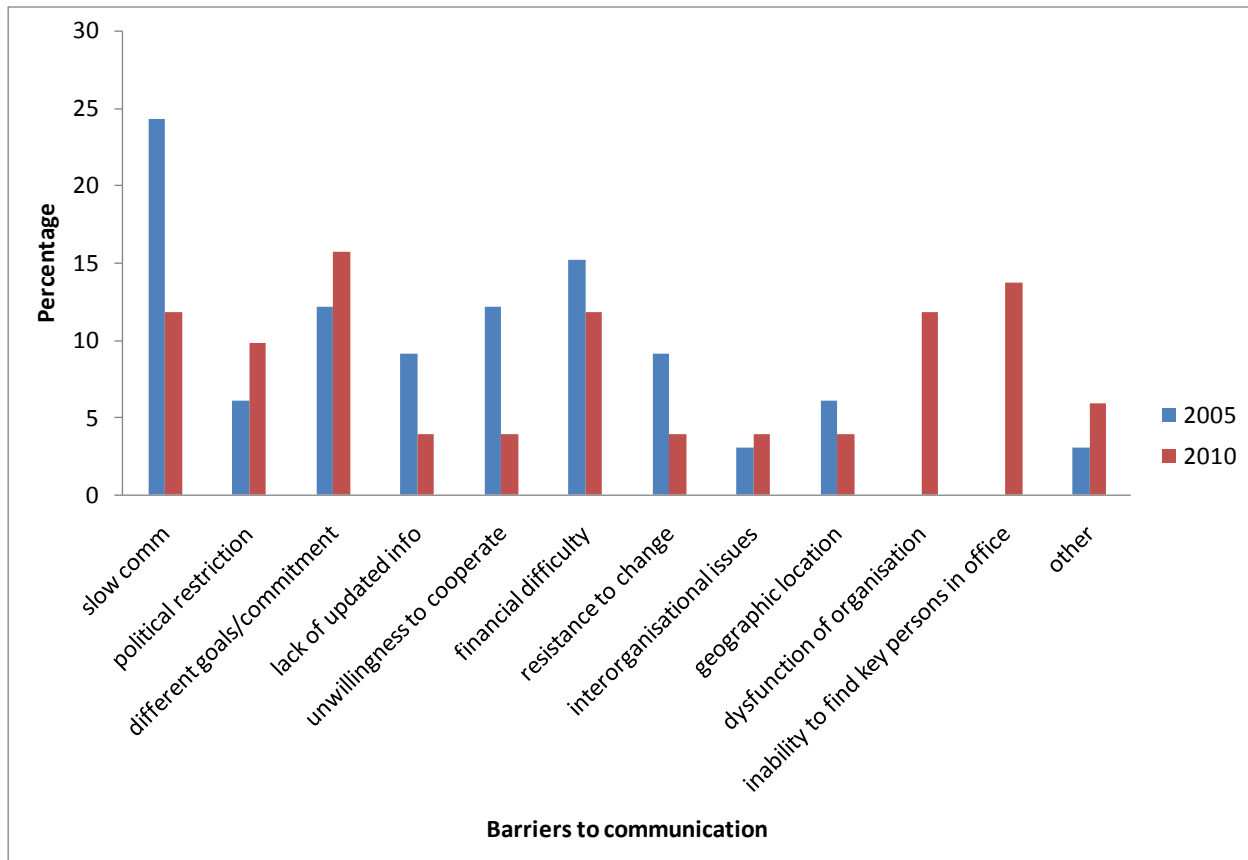
Figure 3.10: Barriers to communication in 2005 and2010

3.3.6 Possible communication strategies

Statistical analysis revealed that there was no significant change from 2005 to 2010 regarding possible solutions to encourage communication among stakeholders (χ^2 = 11.62, p=0.17). Figure 3.11 illustrated the solutions for encouraging communication among stakeholders in 2005 and 2010. As in 2005, increase collaboration mainly via developing communication strategies (50%) was suggested as the major strategy to encourage communication among stakeholder organisations. Some of the suggested mechanisms to increase collaboration were awareness campaigns, meetings and informal gatherings with stakeholders, developing an umbrella group, hosting social activities, NGOs should acquaint themselves with respective Ministries and communication workshops.

The second most important communication strategy identified in 2010 was better communication ethics (including use of telecommunication services) (17%). There was a decrease in the persons who suggested better organisational structure and operation was required from 32% in 2005 to 8% in 2010. This may be attributed to SGP's effort in conducting of institutional capacity building activities for local NGOSs, including institutional self-assessments for 11 NGOs (CERMES 2010). Other strategies included motivate persons (8%), ease of access of information (6%), provision of financing (6%) and development of common goals (6%).

15
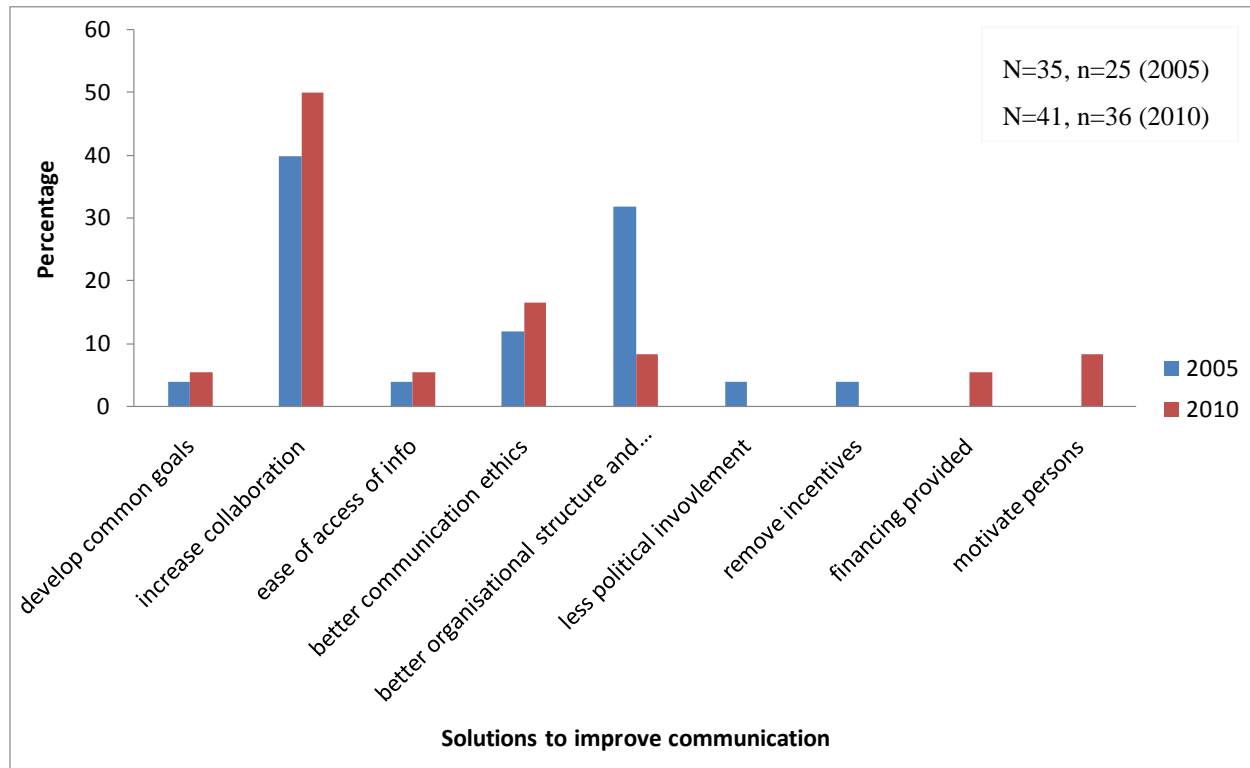
Figure 3.11: Possible solutions to encourage communication in 2005 and 2010

3.4 The core stakeholder group and extended stakeholder group (alter-ego network)

Results highlighted that the core stakeholder group of the study or "ego" was connected to other stakeholders known as "alters" (Table 3.8). The alter-ego network developed in 2010 is illustrated in Figure 3.12. Statistical analysis revealed that there was no significant difference between the number of agencies to which the core stakeholder group is connected, during the period of 2005 and 2010 (χ^2 = 5.99, p= 0.20). Thirty-three of the surveyed organisations are connected to organisations external from the pool of stakeholders compared to 28 in 2005. In 2010 seventeen organisations were connected to fewer than four alter organisations (Figure 3.13) while five governmental agencies (i.e. ForestG, GA, MCPMA, MHE, UITB) were connected to over 12 alters (Table 3.9). Figure 3.14 also indicates that most of the alter organisations are within the same island.

Table 3.8: Summary of agencies that communicate with the surveyed organisations in 2005 and 2010

Island	NGOs	Government	Schools	Businesses	Total
St. Vincent	5(10)	25(14)	0(0)	1(2)	31(26)
Bequia	2(6)	0(3)	6(1)	0(0)	8(10)
Mustique	0(2)	0(0)	0(0)	0(0)	0(2)
Canouan	0(5)	0(0)	1(0)	0(0)	1(5)
Mayreau	0(0)	0(0)	1(0)	0(0)	1(0)
Tobago Cays	0(2)	0(0)	0(0)	0(0)	0(2)
Union Island	8(3)	2(3)	2(2)	1(2)	13(11)
Carriacou	4(17)	0(2)	1(4)	0(6)	5(29)
Petit Martinique	3(1)	0(0)	0(1)	0(0)	3(2)
Grenada	13(7)	22(9)	1(1)	0(0)	36(17)
Total	35(53)	49(31)	12(9)	2(10)	98(103)

NB. Frequencies for 2005 are in brackets.
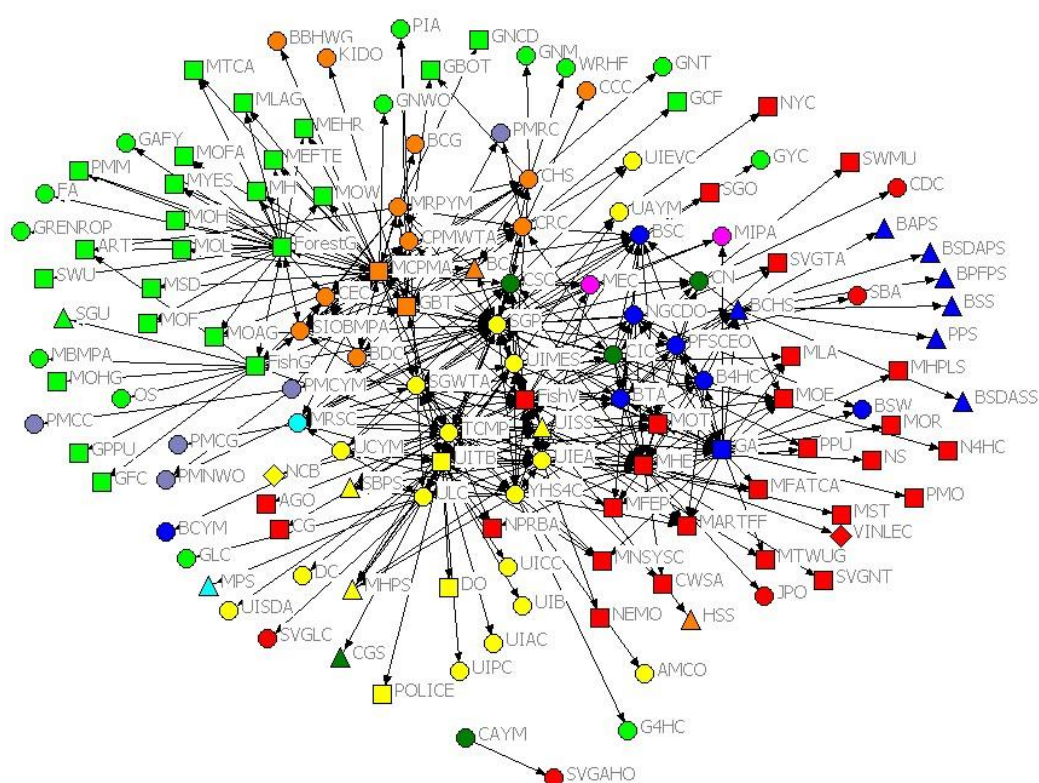
Figure 3.12: The alter-ego network showing organisations with which those surveyed interact. (see Appendix 2 for codes and Figure 3.3 for key).
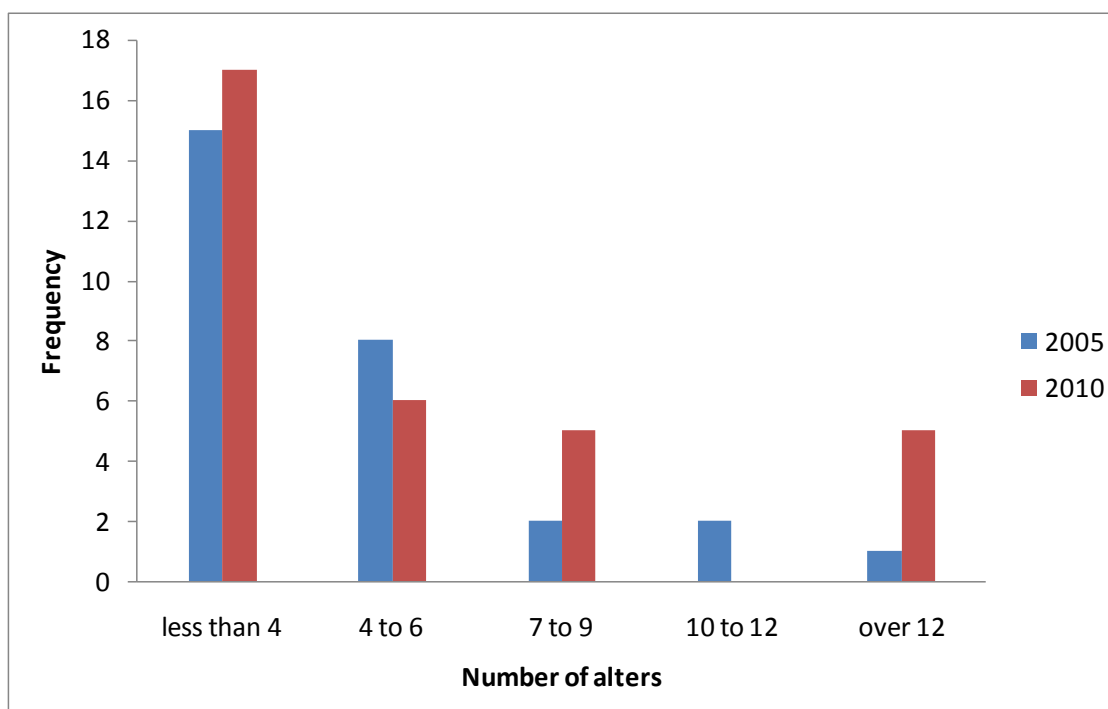
Figure 3.13: Frequency of the number of alters connected to core stakeholder group during the period of 2005 and 2010

Table 3.9: Number of alters connected to the core stakeholder group (ego)

Number of alters connected to egos	Egos
<4	B4HC, BSC, BTA, CAYM, CIC, CN, CPMWTA, CSC, GBT, MRPYM, MRSC, NGCDO, PCYM, SGWTA, SIOBMPA, UAYM, UCYM
4-6	CHS, CRC, UIMES, UISS, ULC, YHS4C
7-9	BCHS, BDC, FishG, TCMP, UIEA
10-12	-
>12	ForestG, GA, MCPMA, MHE, UITB

4   CONCLUSION/RECOMMENDATIONS

Sharing experiences and learning from each other is one of the best ways for NGOs to build their capacity in marine resource governance (Tompkins and Adger 2004, Bavnick et al 2005). This comparative study shows the progression of the Grenadines stakeholder network from a vulnerable network with a scarcity of linkages to a denser and highly interactive network allowing for stakeholders to benefit from opportunities for exchange of information, experience and collaboration (Bodin et al. 2006). The key players of the network have been identified, along with the strength of the ties as a whole.

The current Grenadines network illustrates a denser network compared to that of 2005 as the previous gaps between agencies of similar mandates have been bridged. Isolated organisations

are now well integrated into the network and the geographic location of the islands is no longer a major issue as the country-specific networks are much stronger, particularly for the St. Vincent Grenadines. Further analysis shows that the reasons for communication between organisations is usually for project collaboration and formal arrangements and most of the organisations communicate frequently on a weekly basis sharing information of high importance.

Centrality can be used to identify network leaders (or powerful actors) (Hagen et al. 1997). "Agencies with particularly high centralities may serve as leaders in identifying critical issue areas or sources of information" (Jorgensen 2004, p. 13). The network postulates that SGP and MCPMA are the network leaders in the Grenadines. This is indeed true for MCPMA which is the leading government agency in the Grenada Grenadines as it facilitates stakeholder connections and builds partnerships with a wide scope of stakeholder organisations. SGP, a NGO, facilitates workshops to improve capacity related stakeholders, as well as facilitating access to funding, ranging from small grants to international funding, by other Grenadines NGOs.

While there is a need to further improve the Grenadine's network, according to Bodin *et al.* (2006), a network that is too dense may cause homogenization of experience and knowledge where by all connected organisations adopt the same perceptions. This can either have a positive or negative effect at the management level. Despite this, we must ensure that communication between the organisations is maintained, particularly with newly formed linkages.

The slow and inefficient system of communicating is no longer a major issue for effective communication between the islands. However different communication strategies, including better communication ethics, should be encouraged to further foster linkages and enhance participation.

The social network analysis present here provides a way of assessing the changes in the network of organisations in the Grenadines that have occurred over the duration of the Sustainable Grenadines Project. While there is no way to identify exactly how much of this change has resulted from the activities of the Project, it is likely that its focus on communication, NGO strengthening and network building were significantly instrumental in bringing about the observed changes. This indicates a degree of success by the project and also that such efforts should be sustained.

While the ideal network structure is not known, it is important to pursue the development of a network that is efficient and resilient. A communication strategy framework should be developed for all organisations from their establishment so that they can collaborate productively. Stakeholder organisations should place emphasis on:

- Registering organisations so they can be easily contacted by governmental agencies.
- Designating a liaison or public relation officer who can be easily contacted to relay information to other organisations and share information with its members.
- Seeking financial support to assist with communication strategies/tools to help shape the formation of network linkages.
- Establishing and frequently updating an NGO database that is accessible to all.
- Using diverse communication pathways to relay information to others (e.g. awareness programmes, NGO exhibits, newsletters).
- Using sector-planning workshops to build partnerships between agencies with similar mandates.

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6   APPENDIX

6.1   Appendix 1: Organisational Networking Analysis Questionnaire

Location: Questionnaire #:

Date: Interviewer:

Basic Information about the organization/department and the interviewee:

1. Name of organization/department:

2. Year of establishment of organization/department:

3. Mission/mandate of organization/department:

4. Number of employees: □ <5   □ 5-25   □ 25-45   □ over 45

5. Interviewee's job title:

6. Number of years the interviewee has worked with the organization/department:

7. Gender: □ male   □ female

Inter-organizational collaboration/communication:

8. a) Using the table on page 3, indicate the organizations with which you communicate, rate the type of communication used, the importance of communication and the frequency of communication with the named organizations.

b) Name any other organizations (e.g. NGO's, Government Ministries, Educational Institutions) with which you communicate.

9. Please assess the importance of the following methods in the exchange of information between your organization and those with which you communicate.

Methods of communication	Level of importance			
	Not used (1)	Unimportant (2)	Important (3)	Very important (4)
Verbal Communication				
Formal person to person meetings				
Formal group meetings				
Informal person to person meetings				
Informal group meetings				

Methods of communication	Level of importance			
	Not used (1)	Unimportant (2)	Important (3)	Very important (4)
Radio Ads				
Phone calls				
Loudspeakers				
Written communication				
Letters				
Email				
Faxes				
Brochures				
Newsletters				
Newspaper ads				
Visual communication				
Booklets				
Tv ads				
Posters				
Websites				

10. What are some of the barriers to successful communication between your organization and others?

_____

_____

_____

11. What are some of the factors that can be implemented to encourage communication between your organization and others?

_____

_____

_____

Island	Classification	Organisation	Communication (y/n)	* Type of communication	**Level of importance of communication	***Frequency of communication
St. Vincent	Gov't	Ministry of Health and Environment				
	Gov't	Fisheries Division(V)				
Mustique	NGO	Mustique Indigenous Peoples Association				
	NGO	Mustique Christian Assembly				
	NGO	Mustique Environmental Committee				
Bequia	Edu	Bequia Community High School				
	NGO	Bequia Tourism Association				
	NGO	Bequia Sailing Club				
	NGO	4HClub				
	NGO	Anglican Youth Group				
	NGO	Indigenous Whalers Association				
	NGO	Northern Grenadines Community Development and Environmental Organisation				
	Gov't	Grenadines Affairs				
	NGO	Apostolic Faith Mission Youth Group				
	NGO	Paget Farm Sports, Cultural and Environmental Organisation				
Canouan	NGO	Club Nuevo				
	NGO	Anglican Youth Movement				
	NGO	Canouan Sailing Club				
	NGO	Canouan Island Council				
Mayreau	NGO	Mayreau Environmental Development Organisation				

Island	Classification	Organisation	Communication (y/n)	* Type of communication	**Level of importance of communication	***Frequency of communication
	NGO	Mayreau Regatta and Sporting Committee				
Union Island	NGO	Lions Club				
	NGO	Anglican Youth Movement				
	NGO	Catholic Youth Movement				
	NGO	Union Island Environmental Attackers				
	NGO	Southern Grenadines Water Taxi Association				
	Edu	Union Island Secondary School				
	NGO	Union Island Community Services				
Union Island	NGO	Union Island Museum and Ecological Society				
	NGO	Youth Help Striders 4H Club				
	Gov't	Union Island Tourism Board				
	Gov't	Tobago Cays Marine Park				
	NGO	Sustainable Grenadines Project				
Carriacou	NGO	L'Esterre South Striders Social Club				
	NGO	Windward Sailing Club				
	NGO	Carriacou Environmental Committee				
	NGO	Mt. Pleasant & Grand Bay Community Development Organisation				
	Edu	Bishop's College				
	NGO	Carriacou& Petite Martinique Water Taxi Association				

Island	Classification	Organisation	Communication (y/n)	* Type of communication	**Level of importance of communication	***Frequency of communication
	NGO	Carriacou Regatta Committee				
	NGO	Mt. Royal Progressive Youth Movement				
	Gov't	Grenada Board of Tourism				
	Gov't	Ministry of Carriacou and Petite Martinique Affairs				
	NGO	Bayaleau Development Committee				
	NGO	Carriacou Historical Society				
	NGO	Carriacou& Petite Martinique Marketing Committee				
	NGO	SIOB MPA Committee				
Petite Martinique	NGO	Petite Martinique Fisherman's Cooperative				
	NGO	Petite Martinique New Woman's Organisation				
	NGO	Petite Martinique Catholic Youth Movement				
Grenada	Govt'	Fisheries Division (G)				
	Gov't	Forestry Division				

Key:

* Type of communication

Low - Only on special occasions e.g. at workshops, social events = 1,

Medium - To talk about issues and pass on information = 2,

High - Formal arrangements, developing common approaches- To develop common approaches work together on projects = 3

**Level of importance of communication

Not important = 1, Important = 2, Very important = 3

26

***Frequency of communication

Yearly = 1, Monthly = 2, Weekly = 3

Thank you for participating in this interview!

6.2 Appendix 2: Other organisations with which selected organisations communicated

Island	Organisation	Code	Category
St. Vincent	Ministry of Tourism	MOT	Government
	Ministry of Finance & Economic Planning	MFEP	Government
	Ministry of Education	MOE	Government
	Ministry of Agriculture, Rural Transformation, Forestry & Fisheries	MARTFF	Government
	National 4H Council	N4HC	Government
	Prime Minister's Office	PMO	Government
	Ministry of Transport, Works Urban Development & local government	MTWUG	Government
	National Parks Rivers and Beaches Authority	NPRBA	Government
	Ministry of National Mobilisation, Social Development, The Family, Persons with Disabilities, Youth, Sports and Culture	MNSYSC	Government
	Ministry of Foreign Affairs, Foreign Trade & Consumer Affairs	MFATCA	Government
	National Emergency Management Organization	NEMO	Government
	Central Water Sewage Authority	CWSA	Government
	Coast Guard	CG	Government
	Attorney General Office	AGO	Government
	Southern Grenadines Office	SGO	Government
	Ministry of Legal Affairs	MLA	Government
	St. Vincent and the Grenadines Tourism Authority	SVGTA	Government
	St. Vincent Lion's Club	SVGLC	Government
	National Youth Council	NYC	Government
	Physical Planning Unit	PPU	Government
	Ministry of Science and Technology	MST	Government
	JEMS Progressive Organisation	JPO	Government
	The National Trust	SVGNT	Government
	St. Vincent Electricity Services	VINLEC	Business
	Small Business Association	SBA	NGO
	Carnival Development Cooperation	CDC	NGO
	Solid waste management unit	SWMU	Government
	St. Vincent Anglicah Head office	AVGAHO	NGO
Bequia	Bequia Anglican Primary School	BAPS	School
	Bequia Seventh Day Adventist Secondary School	BSDASS	School
	Bequia Seventh Day Adventist Primary School	BSDASP	School
	Sunshine School	BSS	School
	Paget Farm Primary School	BPFPS	School
	BequiaSandwatch	BSW	NGO
	Bequia Catholic Youth Movement	BCYM	NGO
	Paradise Primary School	PPS	School
Carriacou	Bogles Community Group	BCG	NGO
	Belmont Belle Harvey Vale Women's Group	BBHWG	NGO
	Carriacou Carnival Committee	CCC	NGO
	KIDO	KIDO	NGO
	Hillsborough Secondary School	HSS	School
Canouan	EasterVale committee	EVC	NGO
	CanouanGoverntment school	CGS	School
Petit Martinique	PM Regatta Committee	PMRC	NGO

	PM Carnival Group	PMCG	NGO
	Church Council	PMCC	NGO
Grenada	Grenada National Women's Organisations	GNWO	NGO
	Grenada Culture Foundation	GCF	Government
	Agengy for Rural transformation	ART	Government
	Grenada National Council for Disable	GNCD	Government
	People in Action	PIA	NGO
	Grenada Board of Tourism	GBOT	Government
	Willie Redhead Foundation	WRHF	NGO
	Grenada National Trust	GNT	NGO
	Grenada National Museum	GM	NGO
	Grenada 4H Club	G4HC	NGO
	Grenada Lion's Club	GLC	NGO
	Ministry of Health	MOHG	Government
	Physical Planning Unit	PPU	Government
	Grenada Fund for Conservation	GFC	Government
	Molimere-Beusejour MPA stakeholders committee	MBMPA	NGO
	St. Georges University	SGU	School
	Ocean Spirits	OS	NGO
	Solid waste	SW	Government
	Grenada Network of Rural Women Producers	GRENROP	NGO
	Farmes Association	FA	NGO
	Grenada Agricultural Forum for Youth	GAFY	NGO
	Grenada Yacht Club	GYC	NGO
Mayreau	Mayreau Primary School	MPS	School
Union Island	Stephanie Browne Primary	SBPS	School
	Mary Hutchinson Primary	MHPS	School
	District Council	DC	NGO
	District Office	DO	Government
	Police	POLICE	Government
	Union Island Pentecostal Church	UIPC	NGO
	Union Island SDA	UISDA	NGO
	Union Island Baptist	UIB	NGO
	Union Island EasterVale Committee	UIEVC	NGO
	National Commercial Bank	NCB	Business
	Ashton Multipurpose Cooperative	AMCO	NGO