



# Exploring social network analysis in marine resource governance: The case of the Grenadine Islands



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## Governance and networks

Interactions among stakeholders are a critical component of governance (Kooiman et al 2005). The nature and quality of interactions is key in determining whether governance is adaptive and/or confers resilience (Olsen and Eoyang 2003).

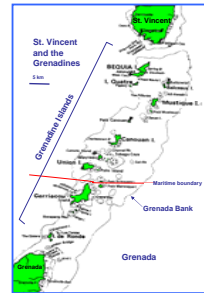
In the Grenadine Islands of the eastern Caribbean, the capacity of civil society to participate in governance was weak relative to State and private sector stakeholders. The interests of small entrepreneurs and the public were not being adequately addressed.

The Sustainable Grenadines Project set out to strengthen the capacity of civil society to participate in governance.

Consequently, the capacity to interact and the nature of interactions of community-based and non-governmental organisations (CBOs and NGOs) were examined to see how to improve them and their role in governance.

## The Grenadine Islands

Located on the Grenada Bank between the two countries, St. Vincent and the Grenadines and Grenada. There are 9 inhabited islands with a total population of about 16,000 people.



## The environment

The Grenadine Islands occupy about 1,500 km<sup>2</sup> of the bank most of which is shallower than 50 m and supports the most extensive coral reefs and related habitats in the south-eastern Caribbean. The islands have mixture of fringing, patch and barrier reefs, and there are numerous offshore reef shoals on the bank. There are seagrass, lagoon and mangrove habitats.



## Dependence on the sea

Marine-based activities are the economic mainstay. Tourism is a major employer and area of development. Private sector activity includes: resorts, hotels, guest houses, restaurants, land and sea tours, craft and shops. Fishing is the other major source of employment in the area. Most goods and people move by sea, making local transportation an important employer also.



## Threats to sustainability

Unplanned development and unregulated use of terrestrial and marine habitats and resources have already led to significant degradation through:

- Overfishing,
- Habitat destruction/degradation,
- Terrestrial vegetation removal,
- Sedimentation on reefs,
- Solid and liquid waste disposal from land and boat sources,
- Recreational abuse of reefs.



## Examining interactions using Social Network Analysis (SNA)

The study aimed to determine the extent and nature of interaction of key Grenadines' stakeholder organizations.

The whole network comprised 26 Grenadines NGOs and CBOs, 6 government departments and 3 schools. Each ego was given a pick list and asked to indicate who in the network they communicated with - their alters - and the frequency and nature of communication.

SNA was used (UCINET 6.0 with NetDraw software) to assess density (the ratio of actual to possible linkages) and centrality (the degree to which nodes play a critical role in linking other nodes). Network diagrams were visually inspected to facilitate interpretation.

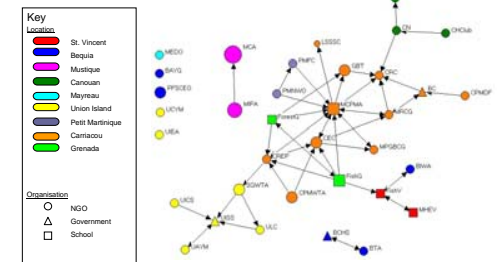


## The network diagram

The network diagram below shows the interrelations among organizations by island and type of group.

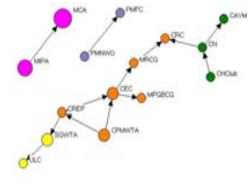
There are eight entities, five disconnected organizations, two pairs and the main network. Overall density is low; about 12% of possible linkages.

Organizations with similar purposes on different islands have little contact, for example the water taxi associations (SGWTA and CPMWTA) and the Anglican youth groups (BAYG, UAYM, CAYM). Government agencies have the highest centrality in the network.



Social network map of interaction among the 35 organisations

Government agencies have highest centrality in the network. When they are removed, the network has much lower connectivity as shown at right, with 11 isolated organizations and a more linear structure that limits transmission of information.



Social network map for NGOs/CBOs only

Looking closer at linkage density in the table below, despite the proximity of the islands, it is highest at the intra-island level and lowest at the inter-country level.



## Linkage density decreases with geographical scale

Scale	Density
Average intra-island - Grenada islands	0.66
Average intra-island - St. Vincent and the Grenadines Islands	0.13
Inter-island - Grenada islands	0.26
Inter-island - St. Vincent and the Grenadines Islands	0.06
Inter-country	0.01

## Nature of interaction

The nature of the interactions among organizations was also explored. Discussion and sharing of information was the most common interaction.

Most organizations that interacted viewed the interactions as highly important. Yet, interactions were by and large infrequent, being mainly monthly.



## Nature of interaction (percentage of linkages)

Level	
Low - Special occasions - workshops, social events	14%
Medium - Talk about issues and share information	48%
High - Develop common approaches/work on projects	38%
Importance	
Not important	8%
Important	37%
Very important	56%
Frequency	
Weekly	27%
Monthly	60%
Yearly	13%

## Conclusions

- SNA was useful in assessing interactions among stakeholder organizations
- Linkage density low overall with several groups marginalized or isolated
- Need to build linkages - especially inter-island and transboundary which were weakest
- Little control (centrality) in network
- Key connector in Grenada is a government agency
- SVG groups are most disconnected
- Promote umbrella CBOs/NGOs to build linkages and empower civil society.
- Assess current blocks to interaction
- Explore appropriate and effective communication tools to ensure effective interaction in network.