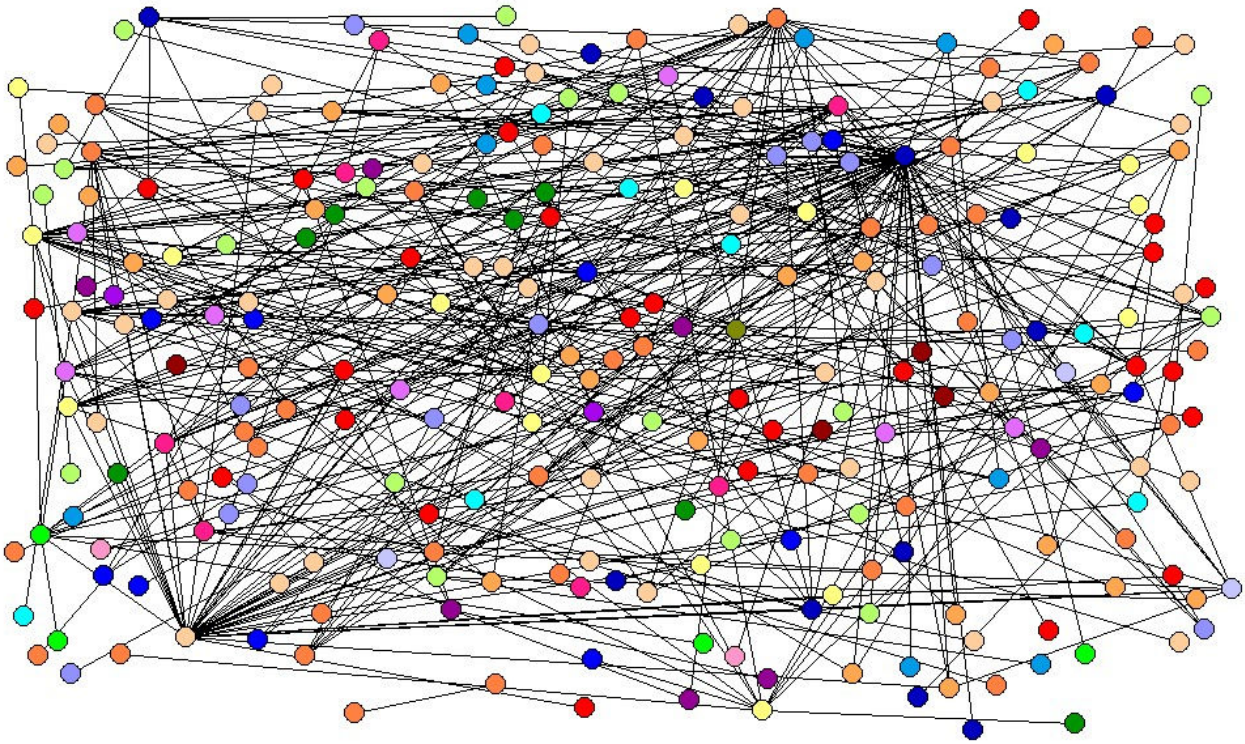
SOCIAL NETWORK ANALYSIS REPORT

Part 1: Vanuatu Networking Patterns for Climate Change Adaptation, Disaster Risk Reduction and Management in Vanuatu



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Acronyms and Abbreviations

ADRA	Adventist Development and Relief Agency International
BOM	Australian Bureau of Meteorology
CBO	Community Based Organizations
CCA	Climate Change Adaptation
CDC	Community Disaster Committee
CROP	Council of Regional Organisations in the Pacific
CROP/UN	Council of Regional Organisations in the Pacific and United Nations agencies
DARD	Department of Agriculture and Rural Development
DEPC	Department of Environmental Protection and Conservation
DFAT	Australian Department of Foreign Affairs and Trade (replaced AusAid)
DGMW	Department of Geology, Mines and Water
DLA	Department of Local Authorities
DLQS	Department of Livestock and Quarantine Services
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EEAS	European External Action Service
FAO	Food and Agriculture Organization
GIZ	German International Cooperation
IWDA	International Women's Development Agency
JICA	Japan International Cooperation Agency
M&E	Monitoring and Evaluation
NAB	National Advisory Board on Climate Change and Disaster Risk Reduction
NARI	Papua New Guinea National Agriculture Research Institute
NDMO	National Disaster Management Office
NGO	Non-Governmental Organization
NZHC	New Zealand High Commission
OHCHR	Office of the High Commissioner for Human Rights
PMO	Prime Minister's Office
PMU	Project Management Unit
SCRRE	New Caledonia Extern Cooperation Service
SD	Sustainable Development
SDA	Seventh Day Adventist Church
SNA	Social Network Analysis
SPC	Secretariat of Pacific Communities
SPREP	Secretariat of the Pacific Regional Environment Programme
TAN	Tafea Action Network
TERI	Tertiary Education and Research Institutes
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USP	University of South Pacific
VANGO	Vanuatu Association of Non-Governmental Organization
VARTC	Vanuatu Agriculture Research and Institute Centre

VBTC	Vanuatu Broadcasting and Television Corporation
VCAN	Vanuatu Climate Action Network
VCC	Vanuatu Christian Council
VEAN	Vanuatu Education Action Network
VHT	Vanuatu Humanitarian Team
VITE	Vanuatu Institute of Teacher and Education
VKS	Vanuatu Cultural Centre
VMGD	Vanuatu Meteorology and Geo-Hazards Department
VNCW	Vanuatu National Council of Women
VRDTCA	Vanuatu Rural Development and Training Centres Association
WFP	World Food Programme

Glossary

For the purpose of this report, certain words and phrases will cover specific concepts that could differ in other situations or reports. Following are the exact definitions of words and phrases as used in this report:

Climate Change Adaptation: Climate Change Adaptation gathers all actions that aim to support communities in adjusting to current and expected climatic variations that affect their lives and ecosystems.

Disaster Risk Management: Disaster Risk Management includes all activities of prevention, mitigation, preparedness and awareness, which contribute to avoid at maximum harmful effects of hazards on communities.

Disaster Risk Reduction: Disaster Risk Reduction aims to reduce exposure to natural hazards through the analysis of causes of disasters, as well as development of plans and policies to build communities resilience.

Formal network: A formal network is a structured group of interconnected persons with organised group meetings and platforms to share ideas and resources around common topics.

Social network: A social network is a connection linking two stakeholders without being framed by an institution, formal structure or organisation.

Foreword

Astrid Vachette is a Ph.D. candidate at the Centre for Disaster Studies at James Cook University. Her research focuses on Network governance for Disaster Risk, Climate Change and Sustainable Development in the Pacific. She studies two specific case studies: Vanuatu and French Polynesia, using two methodology: the Earth System Governance and social network analysis. Astrid will end her 3-years Ph.D. late 2016; she will closely follow the political evolution in Vanuatu until then and will update SPC/GIZ as well as the other key actors in Vanuatu with her findings. The NAB endorsed the project (see appendix 2) and highly supported this project by inviting the surveyor to the NAB meetings and the CCDRR working group while she was in the country. Most of the members of the NAB participated to the study and advised on the way to conduct the data collection.

Part 1. Introduction

1.1. Climate Change and Disaster Risk in Vanuatu,

In 2012, Vanuatu was reported as the most at-risk country by the World Risk Report[2] that published a list of countries based on their exposure and vulnerability to hazards.
Out of the 15 most at-risk countries, eight were islands and five were in the South Pacific. Nearly two-thirds of the Ni-Vanuatu people are exposed to climate hazards and sea level rise; one-third are exposed to critical earthquakes and tsunamis along with active volcanic hazards[3] [4]. Ni-Vanuatu communities' vulnerability to these hazards is increased by geographic scattering, underdevelopment of natural resources management, small national GDP and difficult communication between islands (languages, culture, available tools and information sharing paths).
However, the country is following very closely and often leading in regional efforts for the integration of Climate Change Adaptation, Disaster Risk Reduction and Sustainable Development. Vanuatu benefits from well-structured networks that aim to facilitate the inclusiveness of non-state actors in discussions and decision-making concerning these sectors.
First the National Advisory Board on Climate Change and Disaster Risk Reduction, NAB, aims to develop policies and guidelines and ensure coordination and integrated policy. The Vanuatu Climate Action Network, VCAN, is a non-governmental network that aims to gather international, national and local actors having an interest in climate change adaptation in Vanuatu. The Vanuatu Humanitarian Team, VHT, is a non-governmental network that is the acting link between governmental agencies, non-governmental organisations and United Nations agencies involved in disaster risk management.
VANGO is a civil-society structure that aims to bring together all national and local Non-Governmental Organisations (NGOs) in Vanuatu.
NAB is a governmental body; however, VHT and VCAN are members and attend to meetings and discussions.
VHT and VCAN are civil society networks; however, the NAB and several governmental actors are partners, members or advisors.
These networks are all actively supporting the development of national plans and policies that will support the integration of Climate Change Adaptation, Disaster Risk Reduction, and Sustainable Development.

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[2] Birkman, J. 2012. WorldRiskReport 2012. *Alliance Development Works.[Online] http://www. ehs. unu. edu/file/get/10487. pdf (16 janvier 2013)*.
[3] Birkman, J. 2012. See above.
[4] Galipaud, J. C. 2002. Under the volcano: Ni-Vanuatu and their environment. *Natural disasters and cultural change*, 162-171.

This study aimed to capture the strengths and weaknesses of information flow and collaboration patterns in Vanuatu, in order to improve and support the current efforts of networking, on ground implementation and the integration of Climate Change, Disaster Risk and Sustainable Development.

1.2. Social network analysis

Social Network Analysis is a scientific tool to map communications and collaborations between and among members of a network. This tool is increasingly used for Climate Change matters (such as the MEDIATION Project[5] or a NCCARF research on Queensland floods[6]). Concerning the Pacific region specifically, a current project lead by Pacific RISA[7] is mapping communication and information flow for Climate Change among different sectors and Pacific countries and territories: Hawaii, American Samoa, the Commonwealth of the Northern Mariana Islands, the Federates States of Micronesia, Guam, the Republic of the Marshall Islands and Palau.

This study is the first social network analysis conducted in Vanuatu. It aimed to bring together, in the same study, Climate Change and Disaster Risk stakeholders as the country is focused on their full integration.
Some relations between organizations might exist but are not shown in this analysis. Some organisational and individual capacities might exist but were not captured during this analysis. It is essential to keep in mind that this report is only a representation of the entire network based on data collected from 90 stakeholders at the time of research.
This project was a pilot study to test a network analysis methodology and obtain a general knowledge baseline on existing patterns of collaboration and networking in Vanuatu. This report should be used only as an initial analysis and database to target and improve certain areas of networking and efficiently decide what the next steps are.

1.3 Data collection and analysis

Data was collected during three months (April-June 2014) from Port Vila. The survey was developed in order to map and understand connections between stakeholders acting in Vanuatu based on their attributes (gender, position, organization, type of organization, location and domain of expertise). Surveys also included questions concerning national formal networks and tools of communication used to network.. Both paper and online versions of the survey, with the same questions, were proposed to respondents residing in Vanuatu. However, a large majority filled in the paper version. People residing outside of Vanuatu were requested to fill in the online version with was hosted by Survey Monkey.
Participation to the survey faced difficulties, such as the Internet access limitations that are common in the Pacific making.. More than 300 people were approached in person and by emails to fill in the survey, however only 90 participated.
Once data collection was closed, main results were presented to stakeholders in order to raise discussion and questions of interest for national matters that the study could cover as well as the general goals of the projects (offering specific organisational perspective of the results).

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[5] Bharwani, S., Downing, T.E., Varela-Ortega, C., Blanco, I., Esteve, P., Carmona, G., Taylor, R., Devisscher, T., Coll Besa, M. Tainio, A., Ballard, D. and Watkiss, P. 2013. Social Network Analsysis: Decision Support Methods for Adaptation, MEDIATION Project, Briefing Note 8. Funded by the EC'S 7FWP.

[6] Kinnear, S., Patison, K., Mann, J., Malone, E. and Ross, V. 2013. Network governance and climate change adaptation: Collaborative responses to the Queensland floods. National Climate Change Adaptation Research Facility, Gold Coast, 100pp.

[7] www.pacificrisa.org/projects/social-network-analysis/

The software Ucinet 6[8] developed by Borgatti, Everett and Freeman, coupled with NetDraw[9] allowed the creation of visual maps showing connections between stakeholders and visual analyses based on their attributes (gender, locations, organizations and types of organizations). Ucinet software also measured centrality of stakeholders within the network. Several different types of centrality measures were studied for this project.
First, the study examined the in-degree centrality, which sums up all the times one is named as main collaborator by other network members.
Second, the betweeness centrality measures the power one has on information by being on the shortest path of information flow between other network members.
Third, the eigenvector centrality measures the influence one has in a network by the level of centrality of the persons one is connected to.

1.4. Attributes of stakeholders

From April to late June 2014, stakeholders from various organizations, locations and domains, who work in/on Vanuatu, were asked to fill in a survey on social network for Climate Change, Disaster Risk and resilience building.
Each respondent was asked to name people with whom he/she works for Climate Change and Disaster Risk matters. While only 90 people filled in the survey, these 90 respondents were linked to a total of 260 stakeholders in the whole Vanuatu network.
These results are only a sample of all the stakeholders working in Vanuatu; thus the results presented here must not be taken as representative of the entire Vanuatu stakeholder network, but a first attempt to initially understand the main patterns of relationships that exist in Vanuatu.

1.4.1. Respondents' characteristics

Out of the 90 respondents, 37 work in governmental agencies, 38 in Non-Governmental Organizations (NGO), 6 Council of Regional Organisations in the Pacific and United Nations agencies (CROP/UN), 6 in Tertiary Education and/or Research Institutes (TERI) and 3 are donors.
In total, 44 organizations were approached.
The respondents hailed from nine different locations, a wide majority were based in Port Vila, Vanuatu's Capital city (82%), the rest of the respondents were based in other Vanuatu provinces (7% - Malampa and Sanma), other South Pacific countries (7% - Fiji, Samoa, Papua New Guinea), and other regional countries (4% - Australia, Thailand).
These participants are from 19 different domains of expertise that are generally concerned with Climate Change and/or Disaster Risk:

- ✓ Policy and Public Administration;
- ✓ Disaster Risk Reduction and Management;
- ✓ Climate Change Adaptation;
- ✓ Integration of climate change and disaster risk
- ✓ Meteorology and Climate Sciences;
- ✓ Agriculture, Livestock and Food Security;
- ✓ Health; Education;
- ✓ Water Management;
- ✓ Energy;
- ✓ Monitoring and Evaluation;
- ✓ Community Development;

[8] Borgatti, S.P., Everett, M.G. and Freeman, L.C. 2002. Ucinet 6 for Windows: Software for Social Network Analysis. Harvard, MA: Analytic Technologies.
[9] Borgatti, S.P., 2002. NetDraw Software for Network Visualization. Analytic Technologies: Lexington, KY.

- ✓ Fisheries and Marine Resources;
- ✓ Gender;
- ✓ Environment, Biodiversity and Forestry;
- ✓ Traditional Knowledge and Culture;
- ✓ Logistics;
- ✓ Planning;
- ✓ Communication, Information and Knowledge Management;
- ✓ Program Management.

The author tried to ensure a gender and professional position balance among survey respondents; however, this goal was not fully achieved. Concerning gender, 40% of the respondents are female. Concerning position, 9% are directors or country directors, 13 % are project or program managers, 14% are coordinators, 53% are technical officers, 6% are advisors and 5 % are volunteers and researchers. As position balance was not fully achieved, results will mostly illustrate the vision of stakeholders who work directly in technical field implementation. Such a bias in respondent diversity is still valuable for understanding general networking in Vanuatu as it is in the field that collaborative informal links are both created and required.

2.1.2. Whole network stakeholders' characteristics

Each of the 90 respondents was asked to name people with whom they are working. No names were proposed in advance giving respondents the opportunity to spontaneously name the main people they interact with without being influenced. In this way, 170 other stakeholder names were added to the whole network.
Out of the 260 stakeholders that compose the studied social networks, 90 are from governmental agencies, 94 from NGOs, 32 from CROP/UN, 13 from TERI; 6 are community members, 16 donors and 10 private consultants. In total, more than 80 different organizations were considered in the study (see appendix 3).
60% of the stakeholders considered are based in Port Vila, 11,5% are based in other provinces (Torba, Tafea, Malampa, Penama and Sanma), 15% in other South Pacific Countries and Territories (Fiji, Samoa, Papua New Guinea and New Caledonia), 10% in other regional countries (Australia, New Zealand, Thailand, Japan) and 3,5% in other countries (France, USA and Netherlands).
A full 28% of the stakeholders named were from outside of Vanuatu, which shows that the country is well connected outside of its borders, and has many links within its region.
The surveyors were not able to get in direct touch with Disaster Risk and Climate Change stakeholders whose main domain of expertise was Traditional Culture and Knowledge; however, respondents named as main collaborators a couple of tradition knowledge managers. This brings a total of 20 domains of expertise studied in this report.
The survey revealed that many stakeholders had capacities in various sectors in addition to their main domain of expertise. The most common cross-domains were gender, traditional culture, community development and program management. The capacities repartition based on official and unofficial domains are gathered in another report[10].

Part 2. Stakeholders' connections

2.1. Link between State and Non-State organisations

[10] Vachette, A. 2014. Social Network Analysis Report. Part 2: Capitalisation of Capacities of Climate Change and Disaster Risk Organizations acting in Vanuatu. Secretariat of the Pacific Community (SPC) & Deutsche Gesellschaft für Internationale Zusammenarbait GmbH (GIZ).

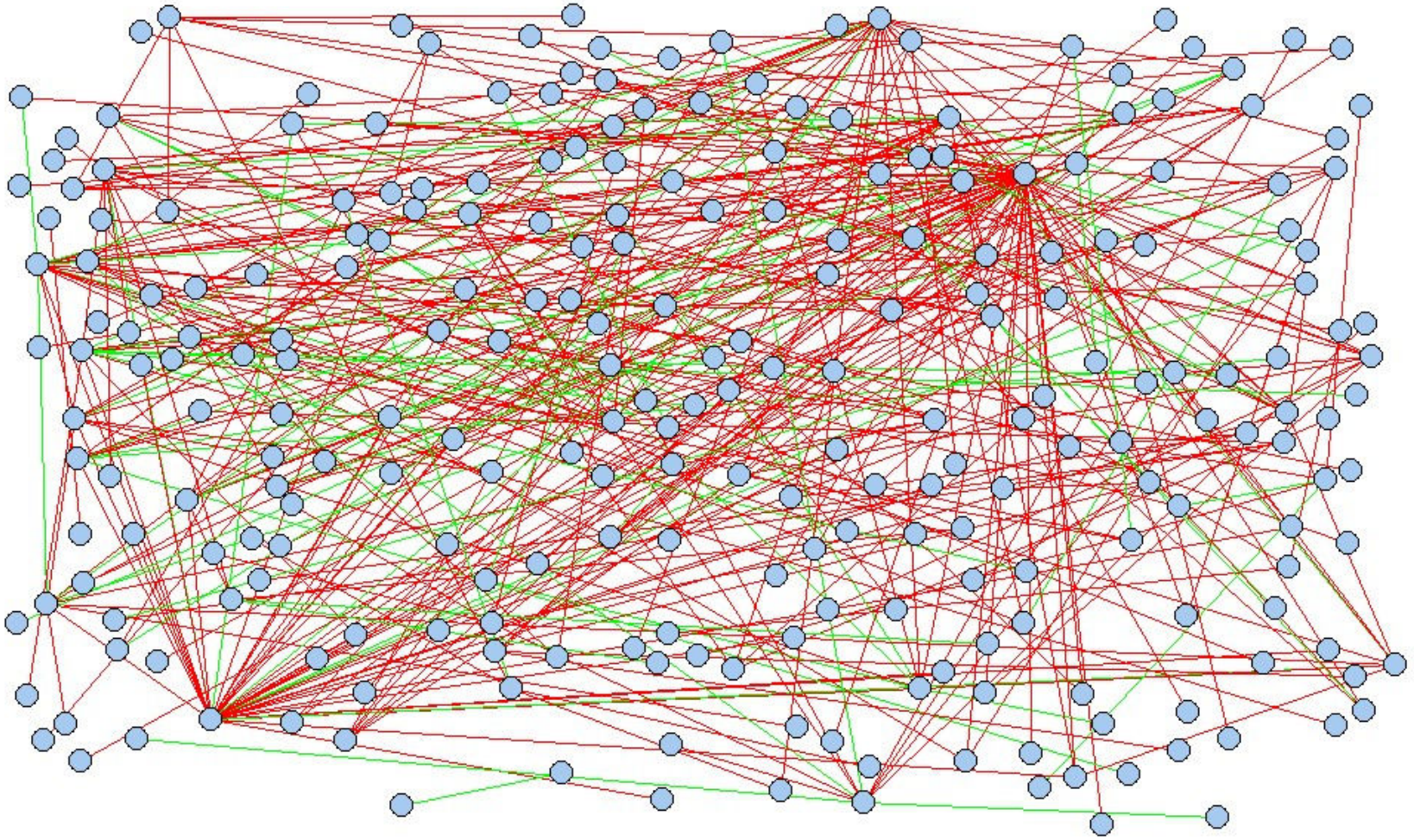
During the survey, respondents were asked to name stakeholders with whom they interacted for Climate Change or Disaster Risk matters without distinction of the type of organizations. The collaborators could be from any organization, any domain of expertise and based in or outside of Vanuatu. On the main survey form, respondents were able to fill in information for up to five collaborators. Extra survey sheets were available if they wanted to add unlimited numbers of additional stakeholders. 10% of the respondents named more than 5 collaborators, 57% named between 3 and 5 collaborators, 31% filled in only 1 or 2 collaborators and 2% did not name any collaborator.

This section aims to reflect the patterns of relationships that emerged from the social network analysis.

Throughout the study, six parameters will be taken into account to analyse patterns of relationships:

- organizations where stakeholders work (85 different organisations)
- types of organizations (Governmental agencies, NGO, CROP/UN, TERI, donors and private consultants)
- locations of stakeholders (Shefa province, other provinces, other South Pacific countries and other countries)
- domain(s) of expertise of the stakeholders (20 different domains)
- sex (female and male)
- positions (directors, managers, officers, coordinators, advisors, volunteers and researchers)

Bonding and bridging social network will be analysed.
Bonding social network is when people who have similar parameters work together.
Bridging social network is when people who have different parameters work together.



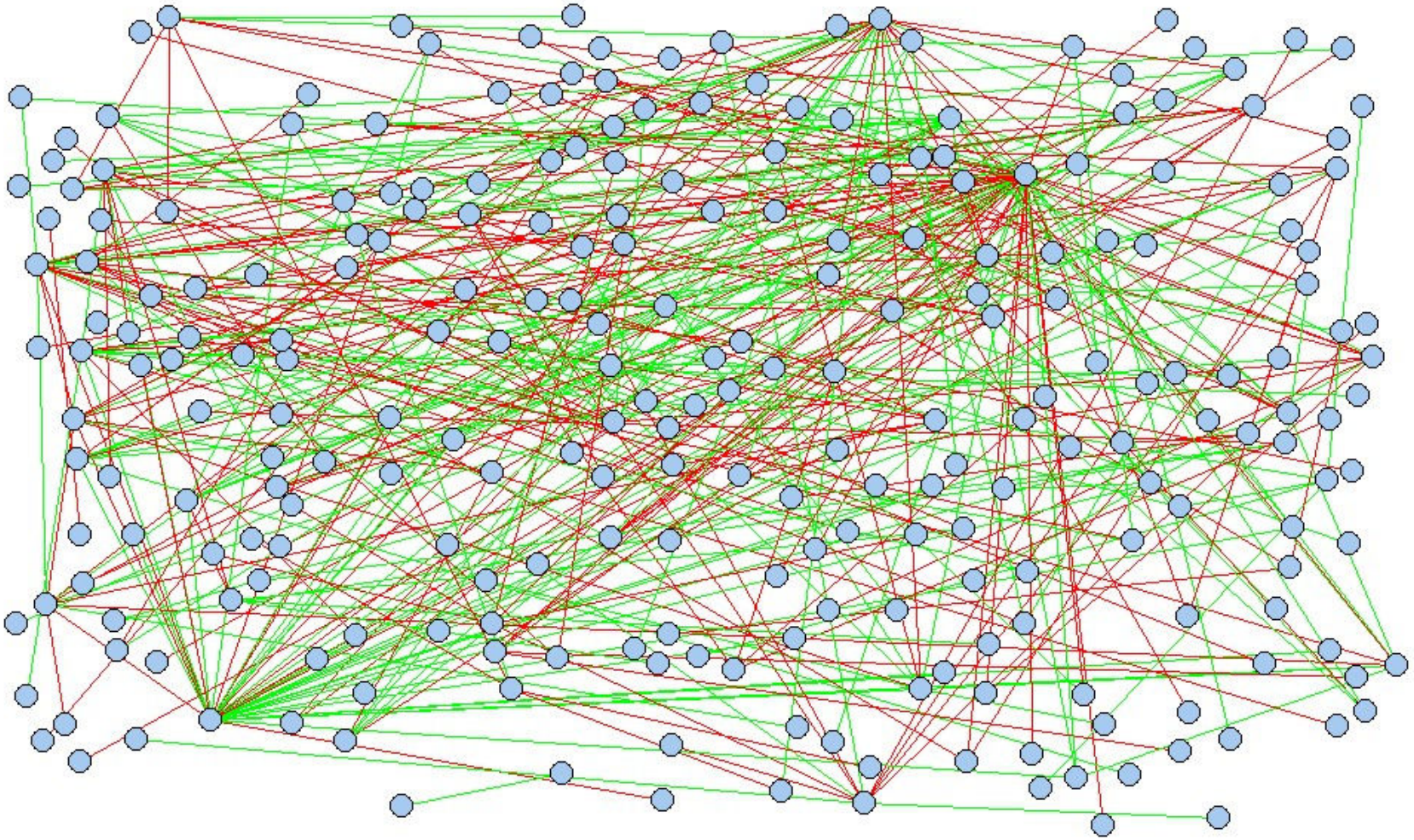
Stakeholders have links with stakeholders from another organization

Stakeholders have links with stakeholders within their own organization

Map 1. Random layout of stakeholders tied by organizations

Map 1 features the whole network in a random layout. Each node (map dot) is a stakeholder and each tie (map line) is showing a relationship between two stakeholders. The green ties mean that a stakeholder named a co-worker from his/her own organization as main collaborator. The red ties mean that a stakeholder has developed a link with someone from another organization or agency.

As it can be seen, stakeholders have very strong bridging social capital, which means that collaboration among different organizations and agencies is very high.
Very few nodes have only bonding social capital, which shows that, concerning Climate Change and Disaster Risk matters, organizations have built a strong inter-organizational network where bridging ties are more or as important as bonding. This trend may be explained by the issue of lack of resources (funding, time, materials and staff) in local organizations, which motivates stakeholders to develop partnerships with other organizations with the relevant resources and mandates.



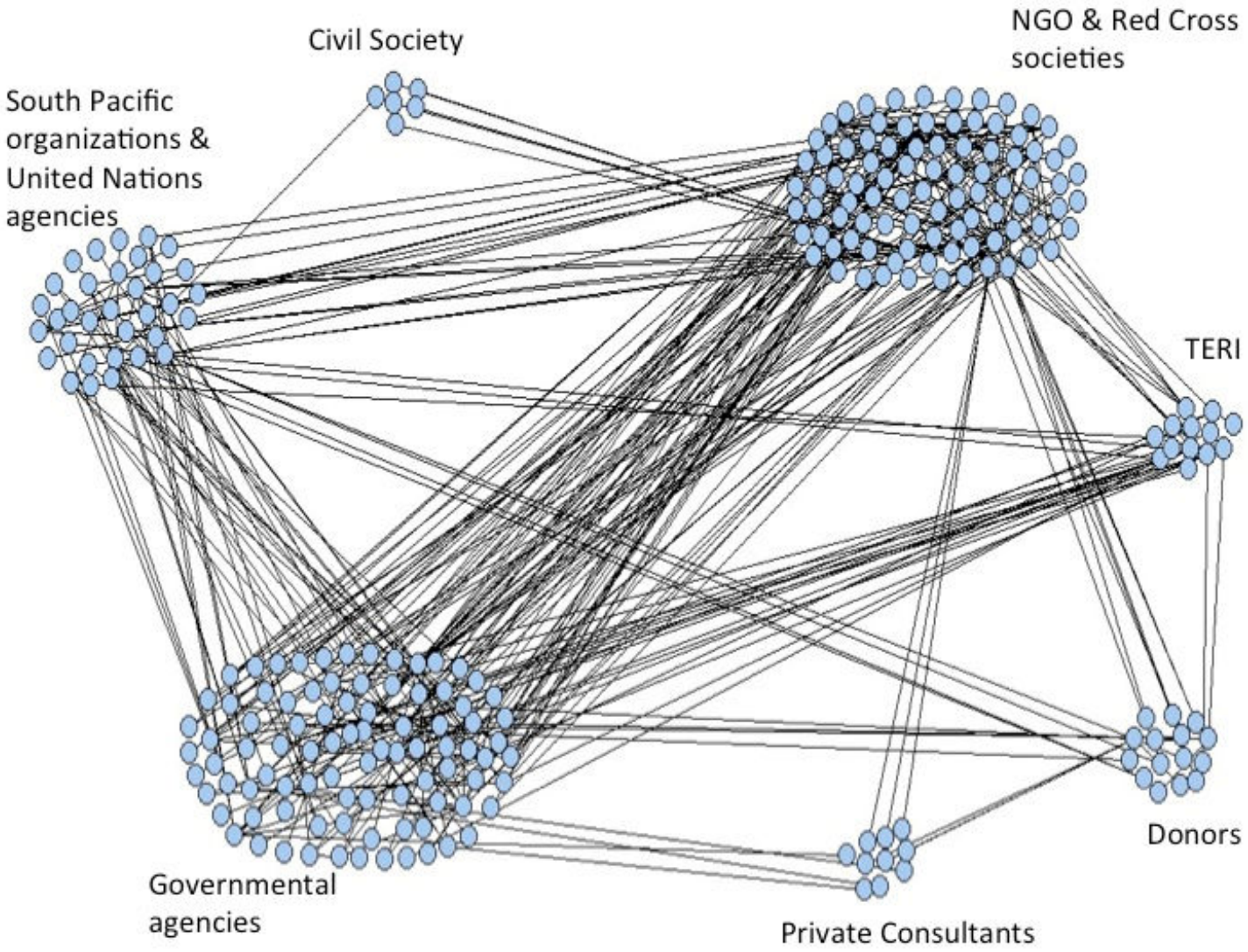
Stakeholders are linking with stakeholders from another type of organization

Stakeholders are linking with stakeholders within their own type of organization

Map 2. Random layout of stakeholders tied by type of organizations

Map 2 features the whole network in a random layout. Each node (map dot) is a stakeholder and each tie (map line) is showing a relationship between two stakeholders. The green ties mean that a stakeholder named a co-worker from an organization/agency that is the same type as his/hers (Governmental, non-governmental, Pacific, United Nations', private, from the civil society, donors). The red ties mean that a stakeholder has developed a link with someone from an organisation that is another type as his/hers.

The repartition between bonding and bridging ties is more balanced than for map 1, which means that people tend to develop slightly more partnerships with stakeholders from the same type of organizations. This may be explained by agendas and mandate requirements. However, bridging ties are still very numerous, as the following map 3 demonstrates.

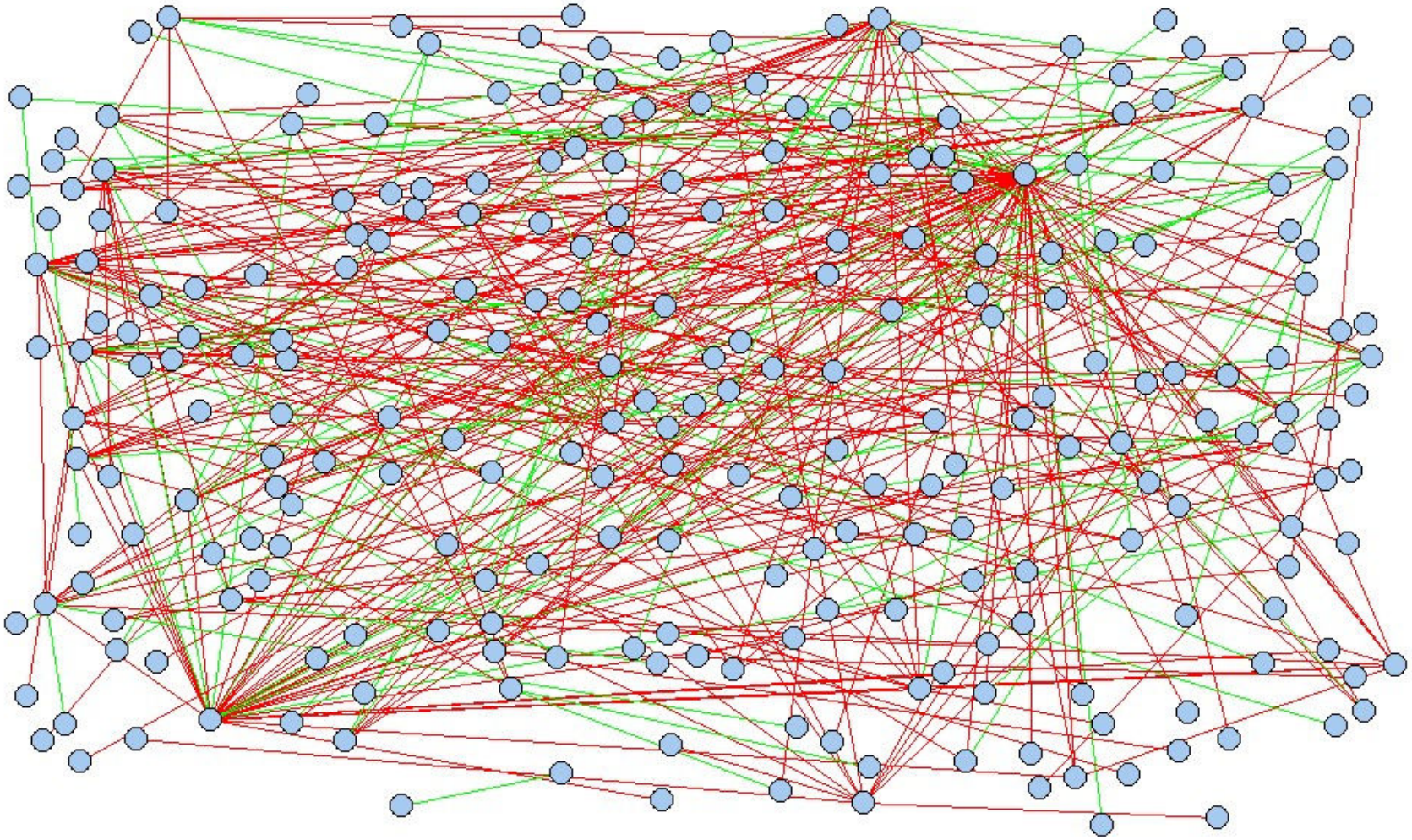


Map 3. Types of organisation layout of stakeholders

Map 3 shows the links that exist among the different types of organisation. Each node (map dot) is a stakeholder and each tie (map line) is showing a relationship between two stakeholders. The most noticeable fact is that no type is totally disconnected to the others. This means that discussions and decision-making for Climate Change Adaptation and Disaster Risk Reduction and Management are supported by a strong bilateral influence of state and non-state actors' collaboration.
In the last few years, Vanuatu has shown great efforts towards building partnerships between state and non-state actors on the institutional and policy levels (such as the presence of VCAN and VHT actors during NAB meetings). Map 3 shows that these connections are also very strong in terms of on-ground, project level, collaboration.

Connections among governmental agencies and NGO with CROP/UN, donors and TERI are also well defined. This means that discussions and decision-making are well supported by international and regional input (with the CROP/UN), research advancements (with the TERI) and funding opportunities (with the donors).
However, when looking with more attention at the map, community members are more disconnected than the other clusters and is only linked tenuously to NGOs and CROP/UN. The private sector does not have ties with CROP/UN and TERI, and very little connection with donors.
It is crucial then to boost more participation from community members (chiefs, leaders, pastors, and general members of the community) and private businesses and consultants with all other stakeholders.

2.2. Connections among stakeholders from different domain of expertise



Stakeholders are linking with stakeholders from another domain of expertise

Stakeholders are linking with stakeholders within their own domain of expertise

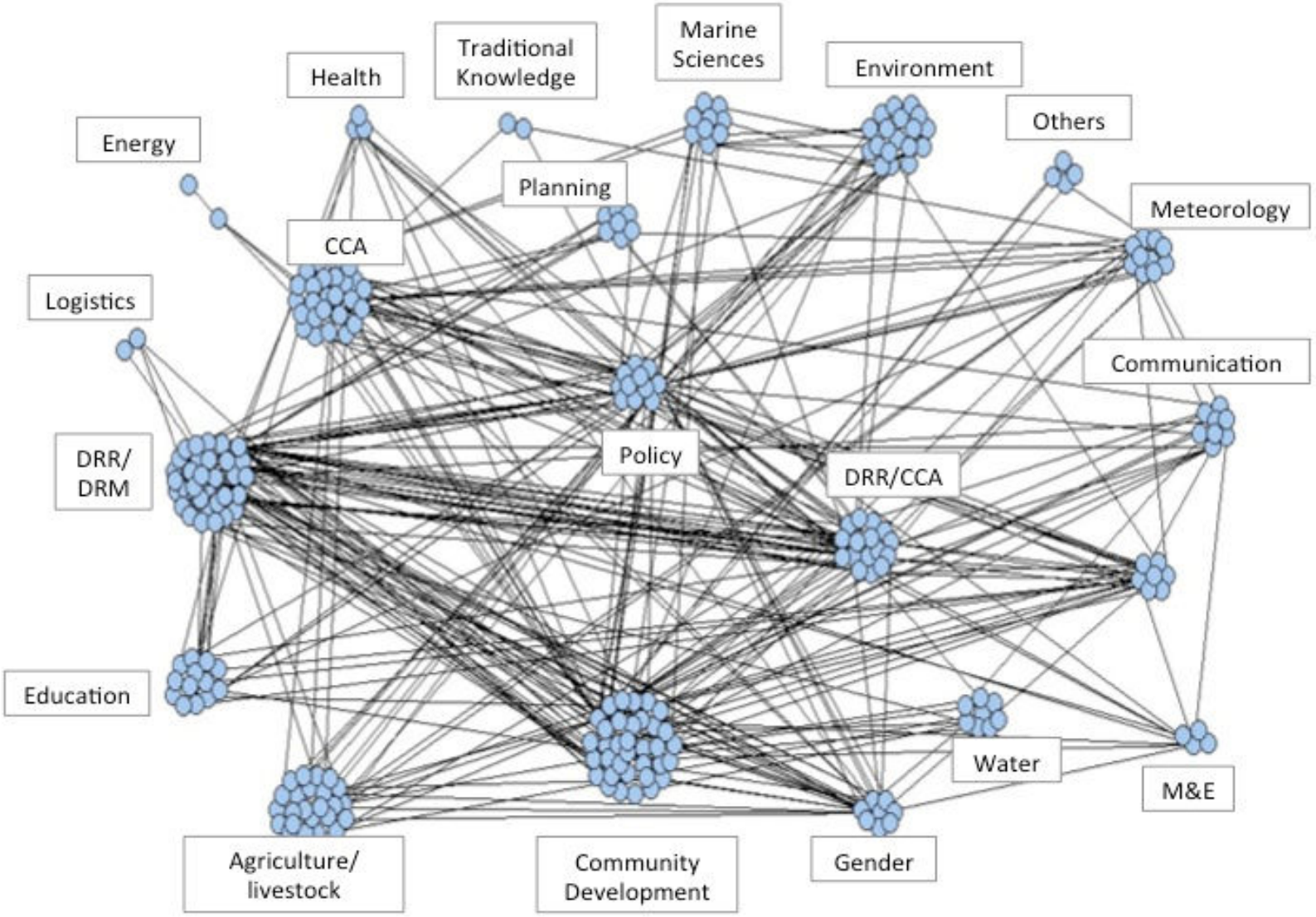
Map 4. Random layout of stakeholders tied by domains of expertise

Map 4 features the links that exist among the different domains of expertise. Each node (map dot) is a stakeholder and each tie (map line) is showing a relationship between two stakeholders. The green ties mean that a stakeholder named a collaborator from the same domain of expertise as his/hers among the following 20 sectors:

- ✓ Climate Change Adaptation
- ✓ Disaster Risk Reduction and Management
- ✓ Integration of Climate Change and Disaster Risk Reduction
- ✓ Meteorology
- ✓ Marine Resources
- ✓ Water Management
- ✓ Agriculture
- ✓ Environment
- ✓ Planning
- ✓ Energy
- ✓ Traditional Knowledge
- ✓ Gender
- ✓ Policy and Public Administration
- ✓ Program Management
- ✓ Education
- ✓ Logistics
- ✓ Community Development
- ✓ Health
- ✓ Communication
- ✓ Monitoring & Evaluation

The red ties mean that a stakeholder has developed a link with someone from another domain of expertise as his/hers among the same 20 sectors.

Map 4 shows that stakeholders tend to develop more bridging relationships with people from other domains of expertise. These results are very optimistic and give great credence to Vanuatu's integration and mainstreaming efforts to date. Climate change and disaster risks require a crosscutting approach. In countries such as Vanuatu, initiatives on Climate Change Adaptation and Disaster Risk Reduction will automatically have impacts on general resilience of the communities, and all sectors of development, such as agriculture, marine resources management or gender. Map 4 shows that the need to have a holistic approach of the projects is highly supported in Vanuatu by strong consultation and collaboration with stakeholders from multiple sectors. However, it is essential to collaborate within same domains of expertise in order to avoid duplication and ensure updating of information. Vanuatu benefits from the existence of various sectorial networks as will be shown in part 4. These satellite sectorial networks are real assets to allow people from the same domain of expertise to share information and open opportunities for collaboration.



Map 5. Domains of expertise layout of stakeholders

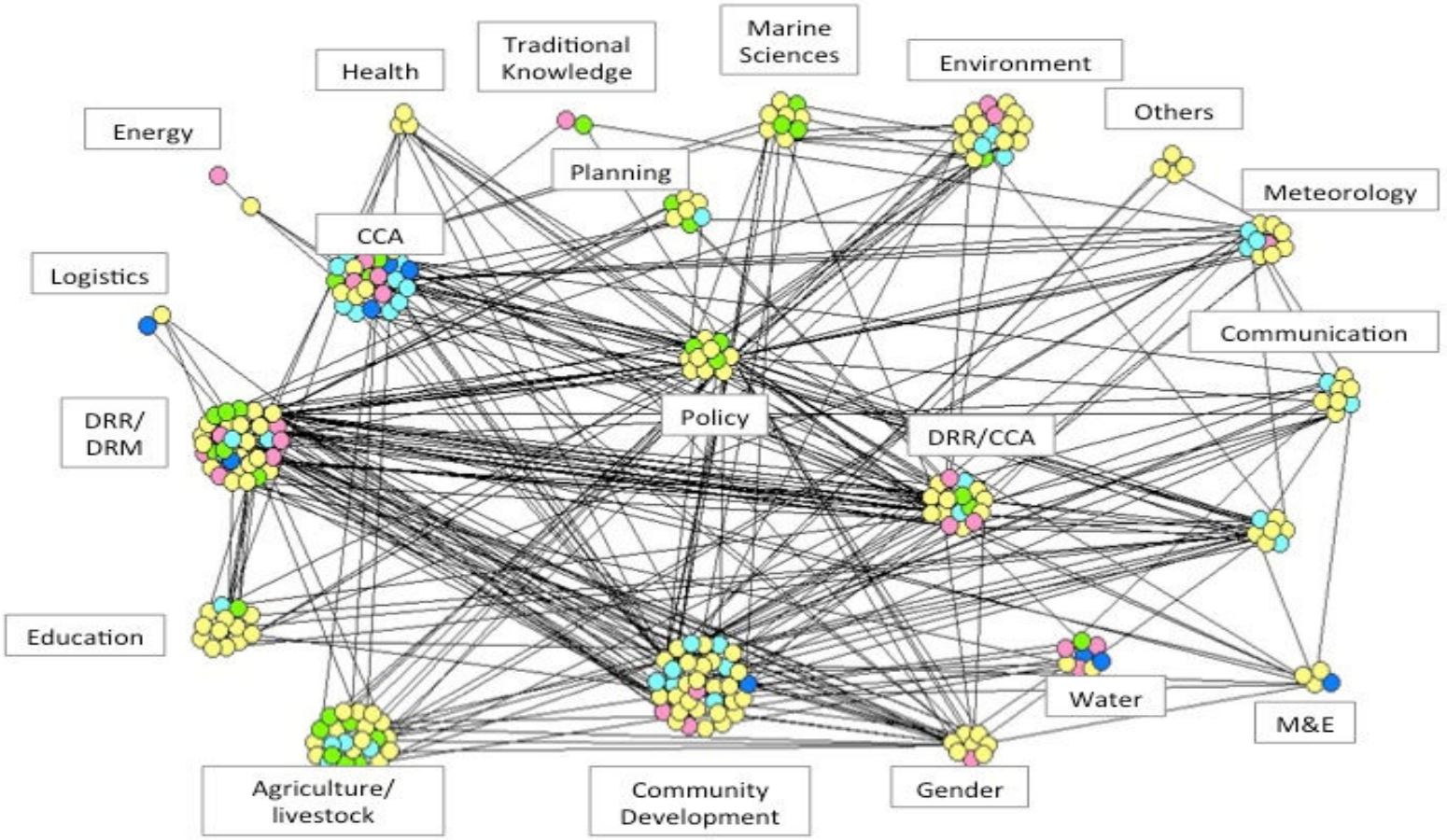
The first and most important observation to make while looking at map 5 is the very strong connections that 'Community Development', 'Climate Change Adaptation', 'Disaster Risk Reduction and Management' and 'Policy and Public Administration' have with each other and with the rest of the network.

As 'Community Development', 'Climate Change Adaptation' and 'Disaster Risk Reduction' are the most represented domains in the network, it can be argued that the number of nodes explains the number of ties. However, experts in 'Policy and Public Administration' are not very numerous but present many bridging ties with the rest of the domains within the whole network. This is a very positive result as it means that policy stakeholders are leading an all-inclusive approach to work on Climate Change Adaptation and Disaster Risk Reduction.

Two domains are slightly disconnected from the rest of the network, and yet are essential for Climate Change Adaptation and Disaster Risk Reduction in Vanuatu: Traditional Culture and Knowledge, and Energy.

First, Traditional Culture and Knowledge is an area where Vanuatu organizations and agencies are working actively to capitalise on and document efficient and culturally grounded practices that exist within communities. However, on map 5, we can see that very few traditional knowledge stakeholders are connected with those from other domains. Also, traditional knowledge management was stated only as secondary domain of expertise and for less than 2.5% of all stakeholders considered. There is then a need for improvement in developing hidden traditional knowledge capacities and better including primary Traditional Knowledge officers in the Climate Change and Disaster Risk networks and initiatives.

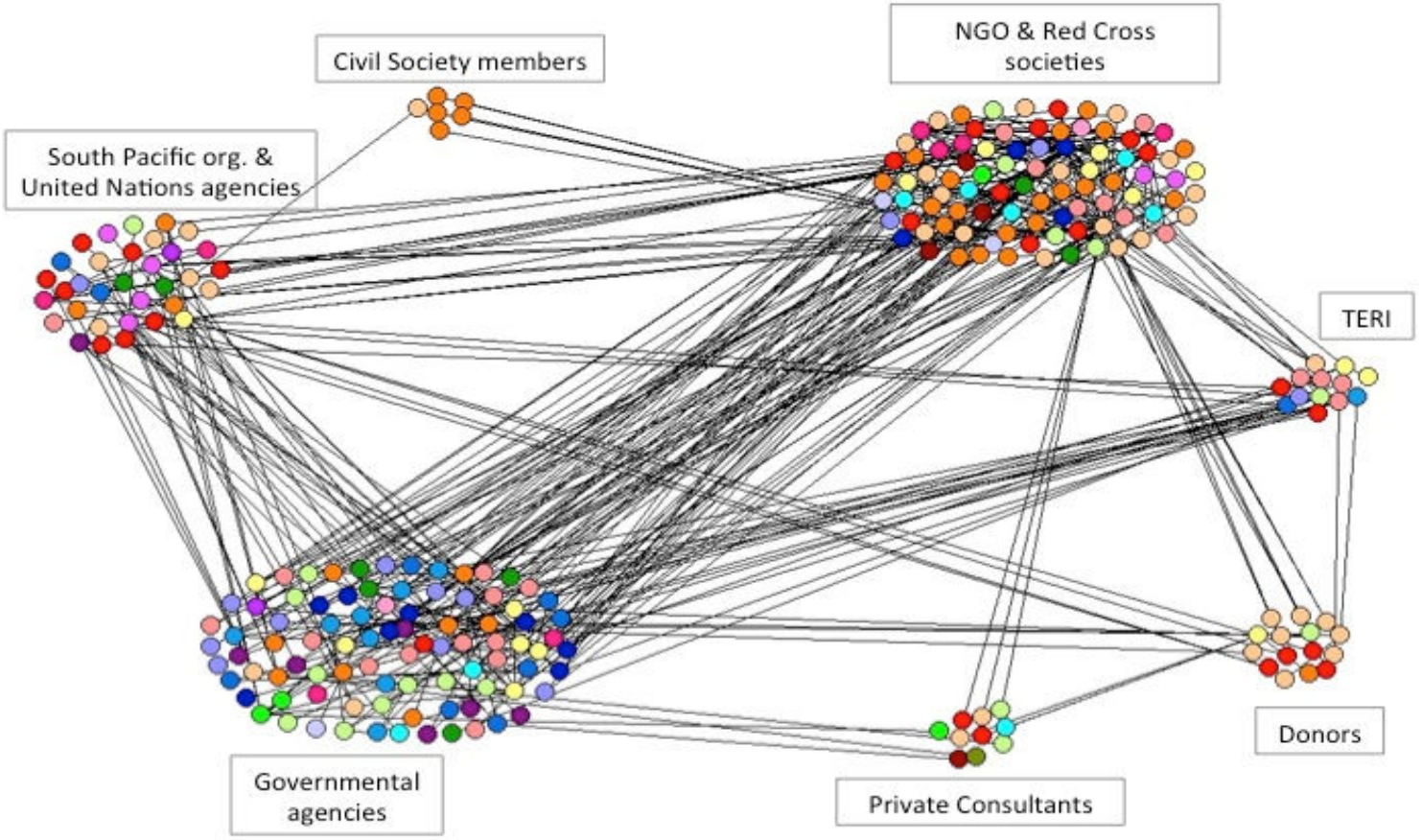
Second, stakeholders in the Energy domain are highly isolated. Only two stakeholders specialised in that field were introduced in this network study. One was disconnected from all other sectors, while the other one was linked to only one other domain: Climate Change Adaptation. Yet the Energy domain would generally benefit (giving and receiving benefit) if it were better integrated in the whole network. The department of Energy is very small and suffers from a lack of resources. As the Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management is being reinforced, it is crucial to mobilise resources to support a better integration of the energy sector in the whole network. Renewable energies are one of the current priorities of Climate Change mitigation in international and regional debates; it is crucial that Vanuatu reinforced its strengths in this sector.



Shefa province
Other provinces
Other South Pacific countries
Other regional countries
Other countries

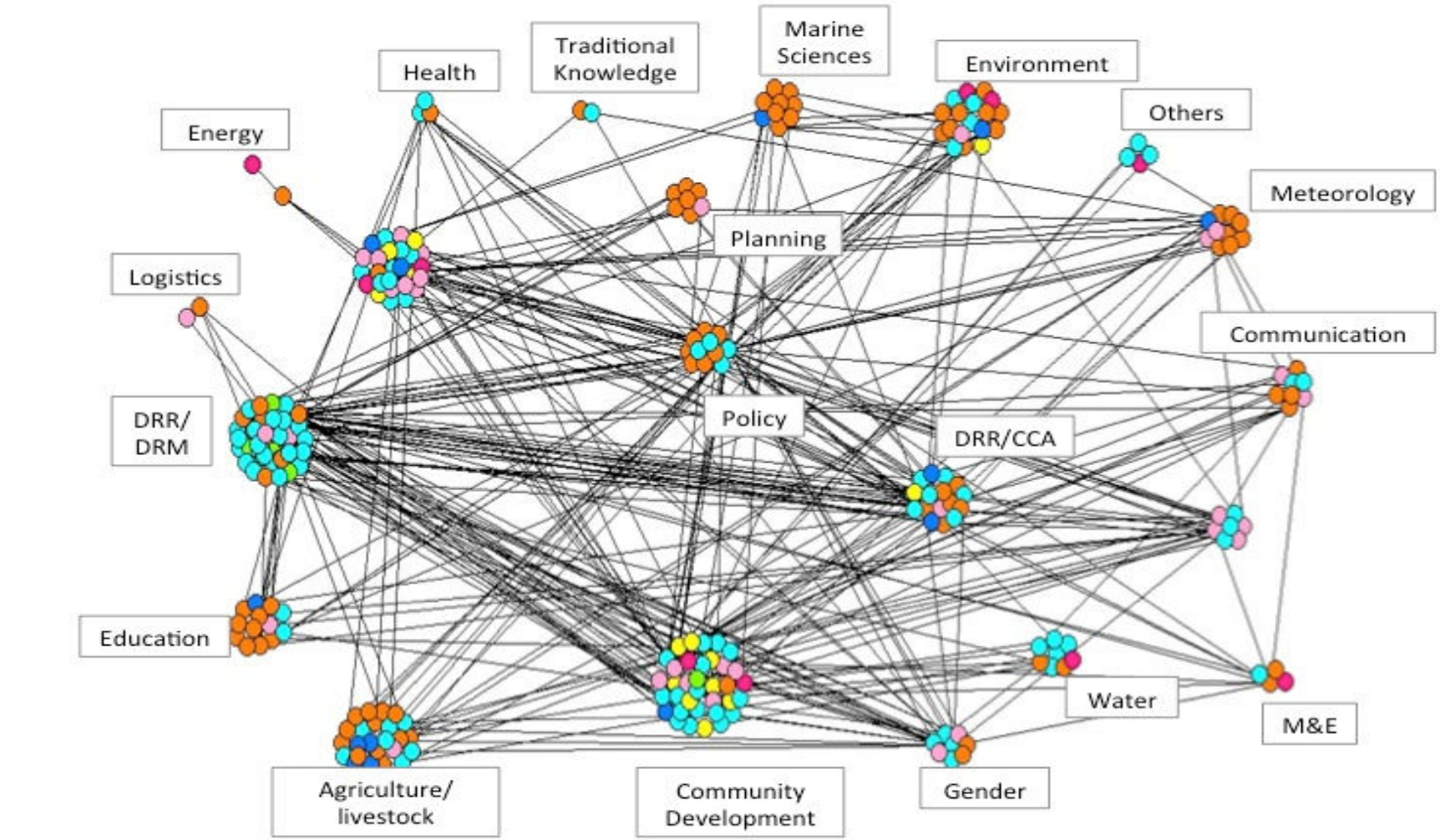
Map 6. Domains of expertise layout of stakeholders showing locations repartition

When looking at map 6, we can observe that the two traditional knowledge managers are based outside of Port Vila, one in a province (Tafea), which is very positive, as it is closer to the communities, and the other one is based in another regional country (Australia). It is essential to develop traditional knowledge management in all provinces and in Port Vila, in order to ensure the link between policy and on-ground activity.
The sector of Community Development is one of the most important in the network. Yet, no expert from any province other than SHEFA was included in the study. This might highlight a critical gap and potential disconnect in regards to community/provincial priorities and needs being considered in national development discussions.
The sector of Climate Change Adaptation pulls and is supported by experts from other south Pacific countries (Fiji and Samoa) and regional countries (mainly Australia). While it is important for Vanuatu to continue to have national and local experts in this field, being highly connected with the rest of the region is very positive to ensure the connection of national directives with the regional ones.



DRR/DRM/CCA
Community development
Agriculture, livestock and food security
DRR/DRM
Gender
CCA
Traditional knowledge and culture
Health
Water management
Marine resources and Fisheries
Meteorology and climate sciences
Policy and public administration
Education
Environment, biodiversity and forestry
Monitoring and evaluation
Energy
Communication, information and knowledge
Program management
Logistics
Planning

Map 7. Types of organisation layout of stakeholders showing domains of expertise repartition



Map 8. Domains of expertise layout of stakeholders showing type of organizations repartition

Maps 7 and 8 both display two parameters: type of organizations and domains of expertise. From these maps, we can see the repartition of domains of expertise among types of organizations from a different perspective.
Governmental agencies have dominance in Education, Planning, Marine Sciences and Fisheries, as well as Meteorology and Climate Sciences.
NGOs have dominance in Disaster Risk Reduction and Disaster Management, as well as Water Management; they also represent the majority of Gender Management experts.
Governmental agencies and non-state actors are well sharing capacities for Policy and Public Administration; Environment, Biodiversity and Forestry as well as Agriculture, Livestock and Food security.

Results from this study show that community members are mostly connected into the larger network through the sector of disaster risk reduction and management. Community members that have been named during the study are all from Community Disaster Committees, which explains the sector monopoly. The links between the community members are also limited as, from this limited data collection, being only connected with NGOs and the national office of UNDP. It is then essential for all types of organization to link with community members in all domains of expertise.
As the integration of Climate Change Adaptation in Disaster Risk Reduction objectives and development goals is the current priority on the institutional and policy level, it is essential to develop the networking process with the community members in this domain.

2.3. Gender

As it was stated above, gender balance of respondents was not achieved, as 40% of the respondents were female. Looking at the whole network (respondents and stakeholders named by respondents), the ratio between men and women is almost the same with 38% of the network being women.

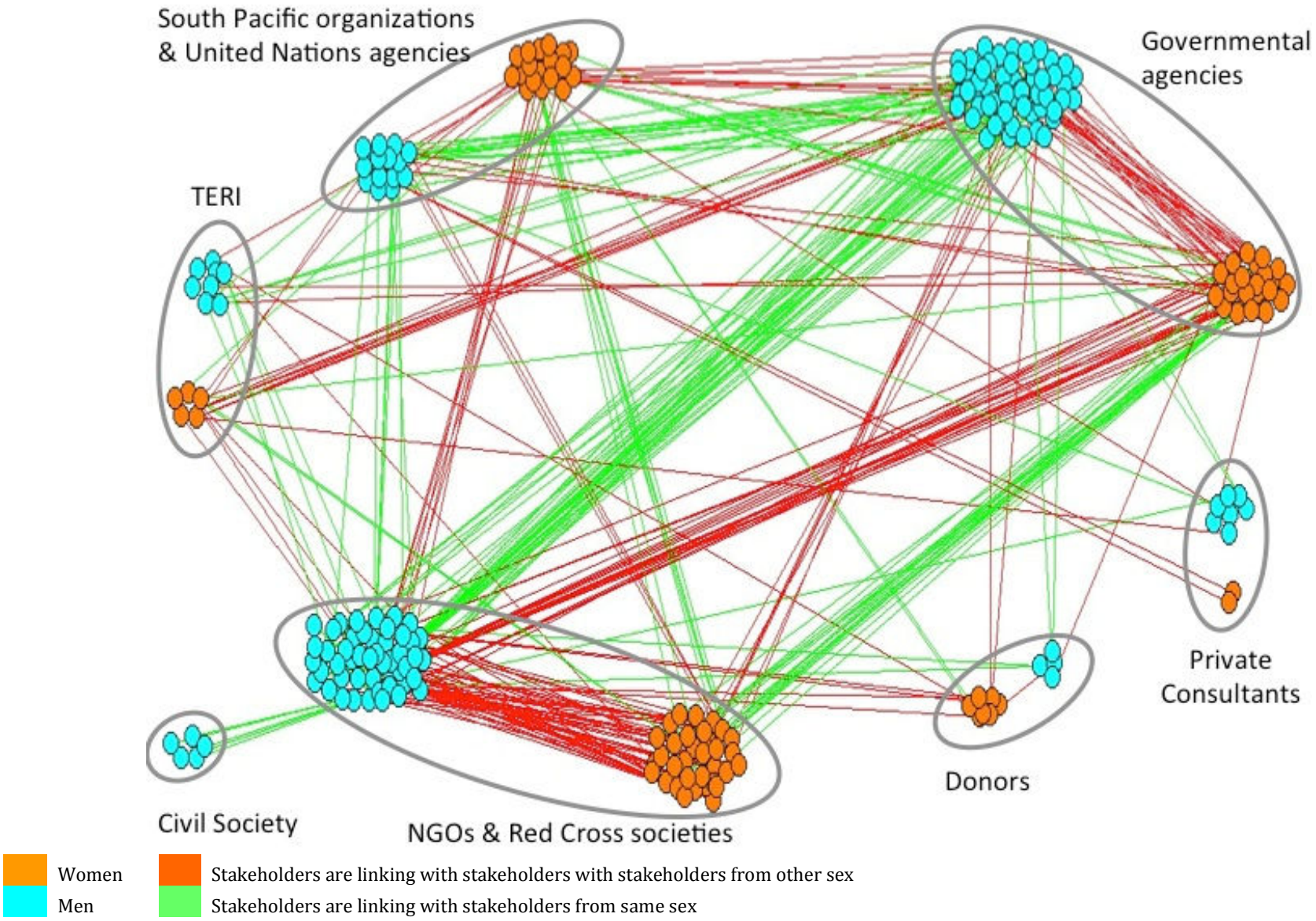
Domains	Female	Male
Marine Resources (t)	0%	100%
Water Management (t)	0%	100%
Meteorology (t)	20%	80%
Agriculture, livestock and food security (t)	21%	79%
Planning (f)	22%	78%
Policy and Public Administration (f)	27%	73%
Program Management (f)	27%	73%
Environment, biodiversity and forestry (t)	32%	68%
Disaster Risk Reduction/Management (t)	33%	67%
Energy (t)	33%	67%
Traditional Knowledge (t)	37%	63%
All domains	*38%*	*62%*
Climate Change Adaptation (t)	39%	61%
Integration of Climate Change and Disaster Risk (f)	45%	55%
Education (f)	47%	53%
Logistics (f)	50%	50%
Community Development (f)	54%	46%
Health (t)	60%	40%
Communication (f)	83%	17%
Gender (t)	87%	13%

Monitoring & Evaluation (f)	87%	13%

Table 1. Technical (t) and functional (f) capacities repartition by gender

Table 1 indicates the repartition of capacities by sex of the stakeholders.
Technical areas of capacities couple practical and scientific skills (such as Meteorology or Agriculture)
Function areas of capacities gather operational skills that enable technical capacities to be coherently and efficiently utilised (such as Policy or project management)

The first observation to be made is that women are more represented through functional capacities, especially communication and monitoring and monitoring and evaluation. Men predominantly hold a majority of the technical capacities, except for Gender where women are major contributors. Marine Resources and Water Management, which are two domains well represented in term of numbers of capacity holders in the whole network, show a complete male monopoly. This could have two explanations, the first one being that education in these domains is not easily accessible to women, the second one could be that trans-gender collaboration is less common in these two technical sectors.
Despite the initial lack of balance in men and women represented in the survey, three crucial sectors still showed a positive balance toward women stakeholders: the Integration of Climate Change Adaptation and Disaster Risk Reduction (which is the main target of this study), Education and Community Development. Having a gender balance in these sectors is very positive as education and community development are functional pillars for a sustainable plan for Climate Change Adaptation and Disaster Risk Reduction.



Map 9. Types of organizations layout of stakeholders showing ties within and between sex groups

Map 9 indicates bridging relations based on gender and type of organisations. One can see on this map that the ratio between men and women considered is quite balanced except for the groupings of community members, governmental agencies and the private sector.
An interesting observation to be made on map 9 is that men from governmental agencies tend to have fewer professional connections with women than do men from NGOs. However, men from governmental agencies mainly connect with women tertiary educators/researchers (TERI).

Part 3. Stakeholders' position within the whole network

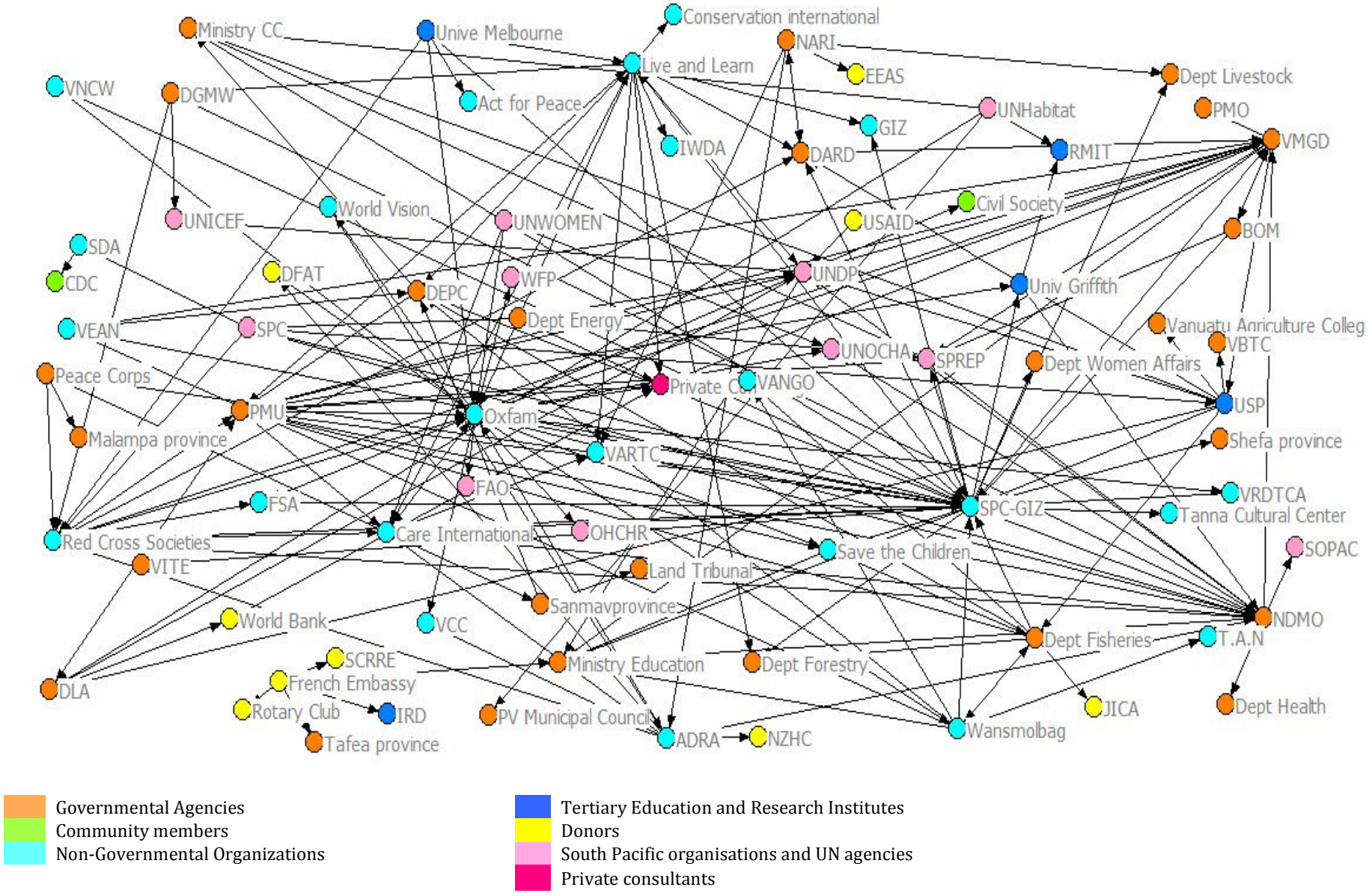
As described earlier, different measures of centrality were compared for each stakeholder in order to define the critical organisations and stakeholders in the network. Each stakeholder was evaluated based on:

1. the number, direction and nature of connections he/she had with the rest of the network (degree centrality measure)
2. the perception of all respondents of a stakeholder's role as a decision maker
3. the access and power on information flow that each stakeholder has (betweeness measure)
4. the influence of each stakeholder based on his/her strategic choices (whether conscious or not) of collaborators (eigenvector measure)

This report will discuss the results in general, interpreting individual results on an organisational perspective.
More specific statistical information on the four measures and each stakeholder's position in the whole network may be found in another report that gathers all data per domain of expertise[11].

[11] Vachette, A. 2014. Social Network Analysis Report. Part 2: Capitalisation of Capacities of Climate Change and Disaster Risk Organizations acting in Vanuatu. Secretariat of the Pacific Community (SPC) & Deutsche Gesellschaft für Internationale Zusammenarbait GmbH (GIZ).

3.1. Organisations' connections and positions



Map 10. Organizations, agencies and institutes networking in Vanuatu showing types of organization

Map 10 indicates the connections among all organisations. This map is different from the previous maps as each node now represents an organisation instead of an individual stakeholder.

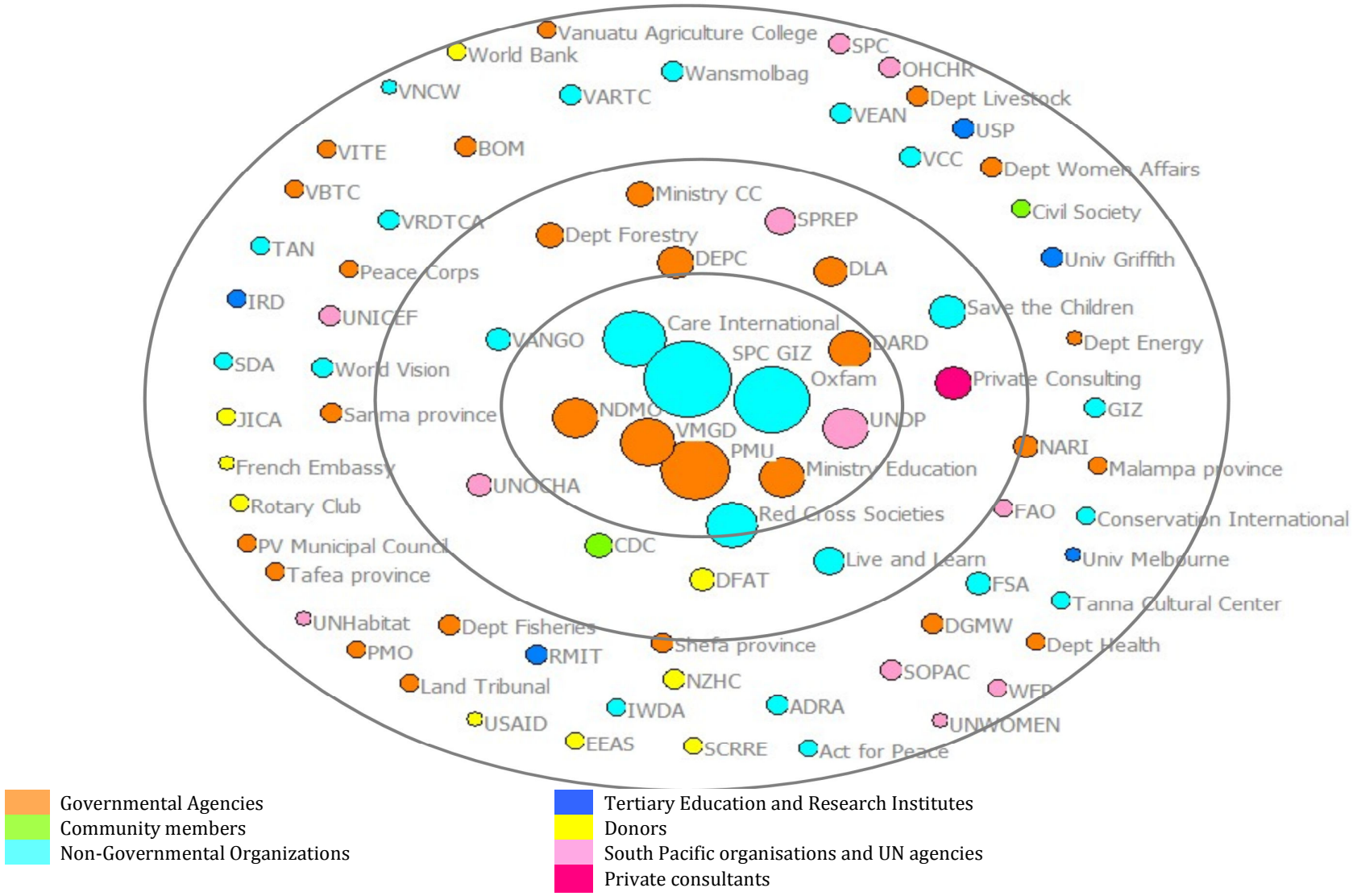
The layout of the map is random, which means that organisations placed in the centre are not automatically the most central organisations. In order to know which organisations were revealed the most connected in the study, the numbers of the arrows are to be taken into account. VMGD, NDMO, SPC/GIZ, Oxfam, Live and Learn, Red Cross Societies and USP are the most connected organisations on this map.

Connections between organisations may exist but are not shown on this map. This map indicates only the perception of collaboration of the 90 respondents who participated to the study.

This map is showing the direction of networking.

A $\longrightarrow$ B: the arrow direction shows that a stakeholder from organisation A named a stakeholder from organisation B as a main collaborator.

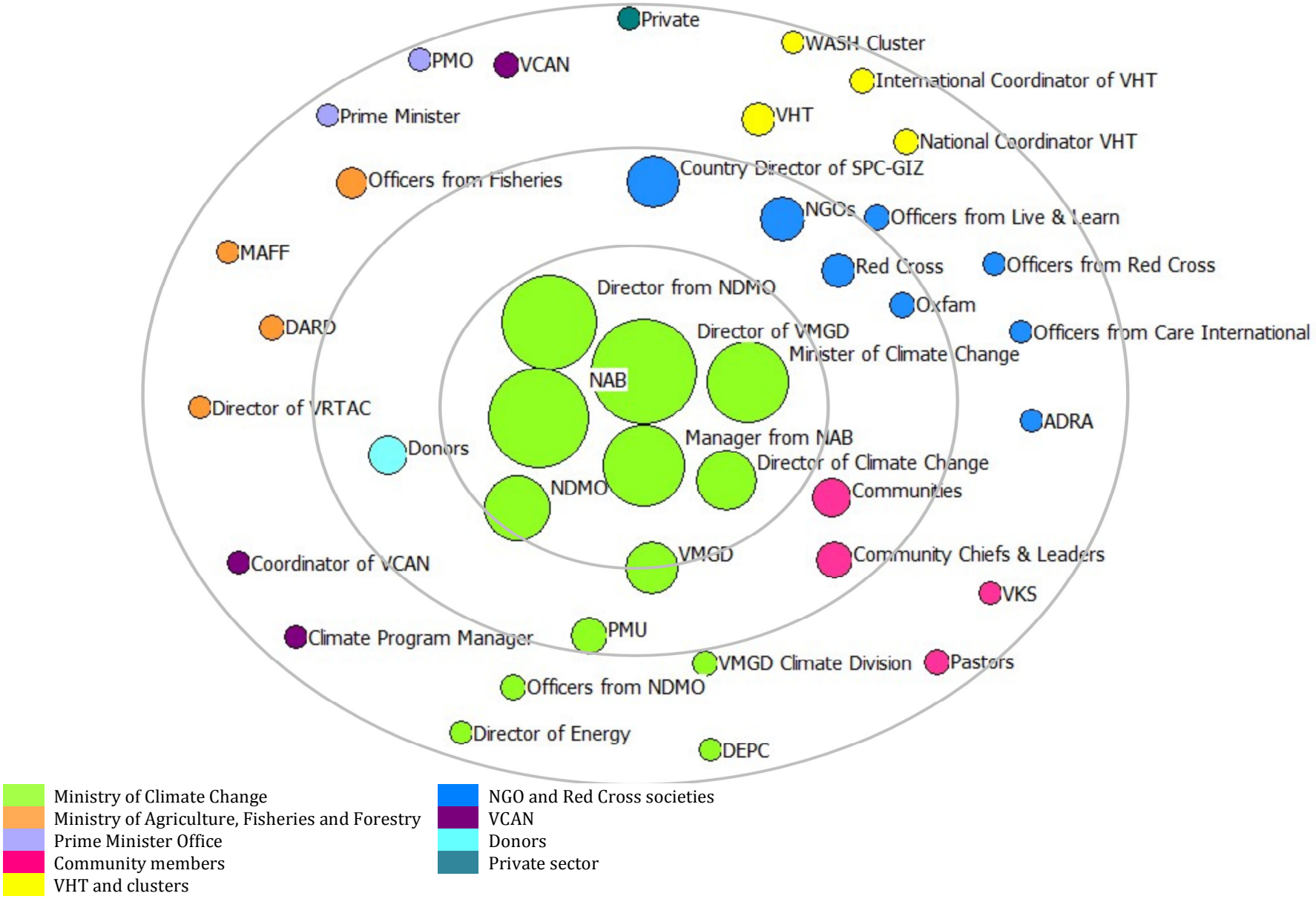
This map is an important tool for an organisation to know which of their links with other organisations were captured and most visible during the study. This should help organisations to develop strategic decisions not only to reinforce their current collaboration paths but also to develop new links with other organisations.



Map 11. Centralization of organizations, agencies and institutes based on how much connected they are to other organizations

Map 11 shows all the organisations studied in this report based on their centrality in the whole network. Position in the diagram and size of each organisation is showing centrality: the dots which are most centrally located and largest are those organizations which are most connected in the whole network. The difference between map 11 and map 10 is that map 11 is taking into account only connections when an organisation was named by others, while map 10 shows both incoming and outgoing connections of each organisation. Map 11 is taking into account only incoming links for a matter of equity as not all stakeholders participated to the study; respondents would tend to be more central because they'd both have incoming and outgoing links to weight in the centrality measures.

3.2. Decision-makers



Map 12. Centralization of organizations, agencies and institutes based on how often respondents stated them as decision-makers for Climate Change Adaptation and Disaster Risk Reduction and Management

Position in the study	Decision Makers	Group
1	Director of VMGD	MCC
2	NAB	MCC
3	Director of NDMO	MCC
4	Minister of Climate Change	MCC
	Manager of PMU	MCC
5	NDMO	MCC
6	Director of Climate Change	MCC
7	VMGD	MCC
	Country Director of SPC/GIZ	NGO
8	NGO	NGO
9	Communities	Community members
	Donors	Donors
10	PMU	MCC
	Community leaders and chiefs	Community members
11	Red Cross	Red Cross/NGO
	VHT	VHT
12	Officers of Fisheries	MAFF
13	Country Director Live and Learn	NGO
	Officers of Care International	NGO
	Oxfam	NGO
	Climate Division of VMGD	MCC
	Officer of NDMO	MCC
	Pastors	Community members
	DARD	MAFF
	International coordinator of VHT	VHT
	Country coordinator of VHT	VHT
	VCAN	VCAN
14	Director of Energy	MCC
	DEPC	MCC
	ADRA	NGO
	Officer of Red Cross	Red Cross/NGO
	VKS	Civil Society
	Director of VRTAC	MAFF
	MAFF	MAFF
	WASH cluster	VHT
	PMO	PMO
	Prime Minister	PMO
	Coordinator VCAN	VCAN
	Climate Program Manager - VCAN	VCAN
	Private sector	Private

Table 2. Decision-makers position

Map 12 and table 2 indicate the perception of respondents concerning decision making in Vanuatu. The respondents were asked to name the three main decision makers for Disaster Risk and Climate Change matters in Vanuatu. The question was understood in various ways: "who has the mandate to make decisions?", "who is the most influential in decisions taken?" and "who decides if negotiations and projects are endorsed and succeed effectively?"

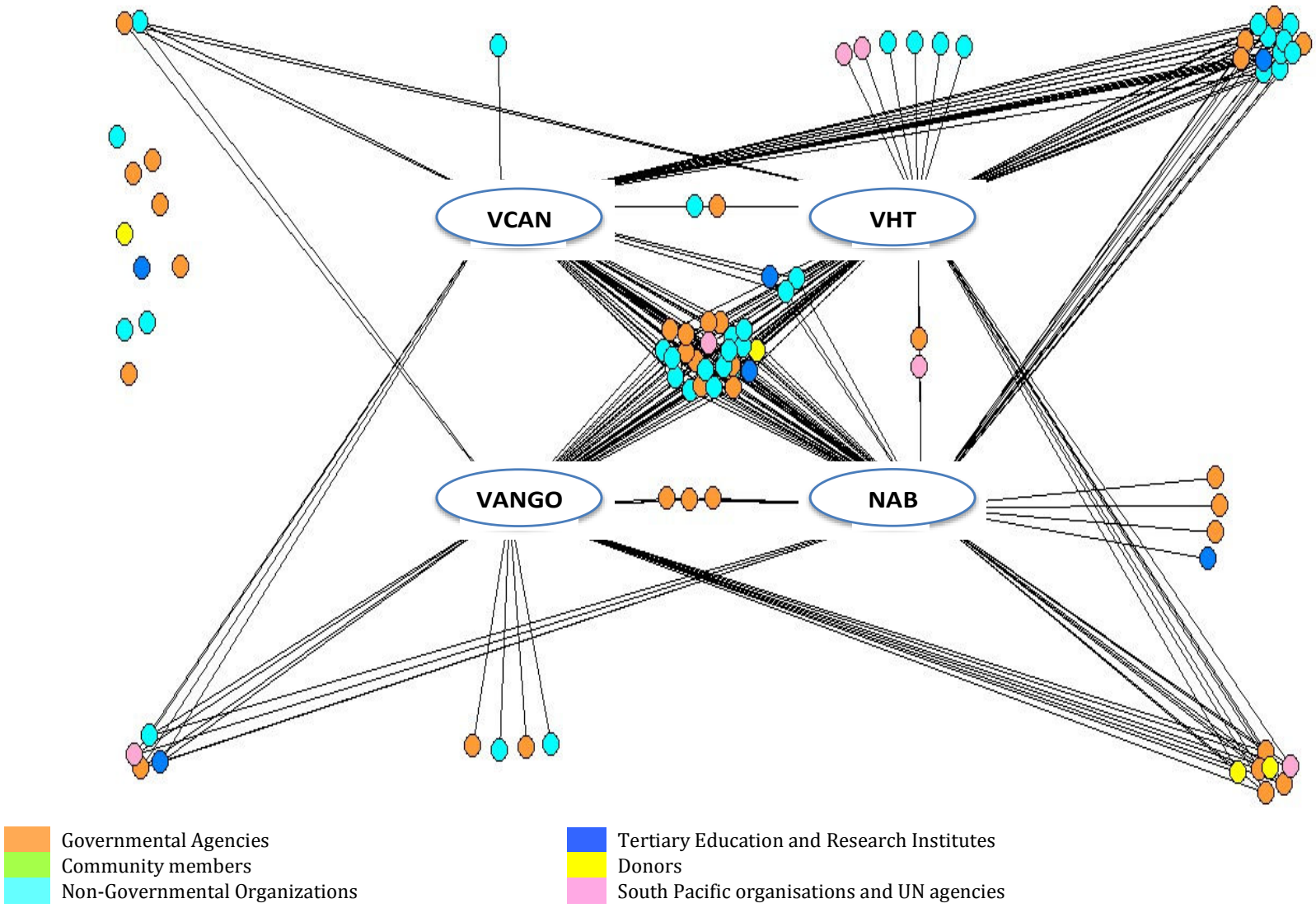
Because of the difference in understanding of the question, the results are more varied than expected. The Ministry of Climate Change and its related departments and bodies are recognised as the main decision-makers; however, results support the idea that non-state actors do have a critical role to play in disaster and climate governance in Vanuatu.

Out of the 43 decision-makers named by the respondents, 22 are general organisations or agencies and 21 are specific people. Out of the 21 persons, 16 are male and 5 are female. The five female decision-makers are all from NGO, and two are Ni-Vanuatu. Out of the 16 male decision makers, 13 are Ni-Vanuatu and 12 from governmental agencies.

These results compared to the centrality measures of stakeholders studied in this report reveal a lack of balance between the organisations' connectivity and their positions as decision makers in the whole network. The Prime Minister Office is the most obvious example as it is named by several respondents as a main decision maker but does not appear well connected in terms of projects participation on map 11. As the reforms currently being implemented within the NAB secretariat include a much closer collaboration with the Prime Minister's Office, a subsequent analysis may show that the Prime Minister's Office is better integrated at all levels of collaboration with the rest of the network.

Part 4. Networks in Vanuatu

4.1. Position and role of the NAB, VCAN, VHT and VANGO

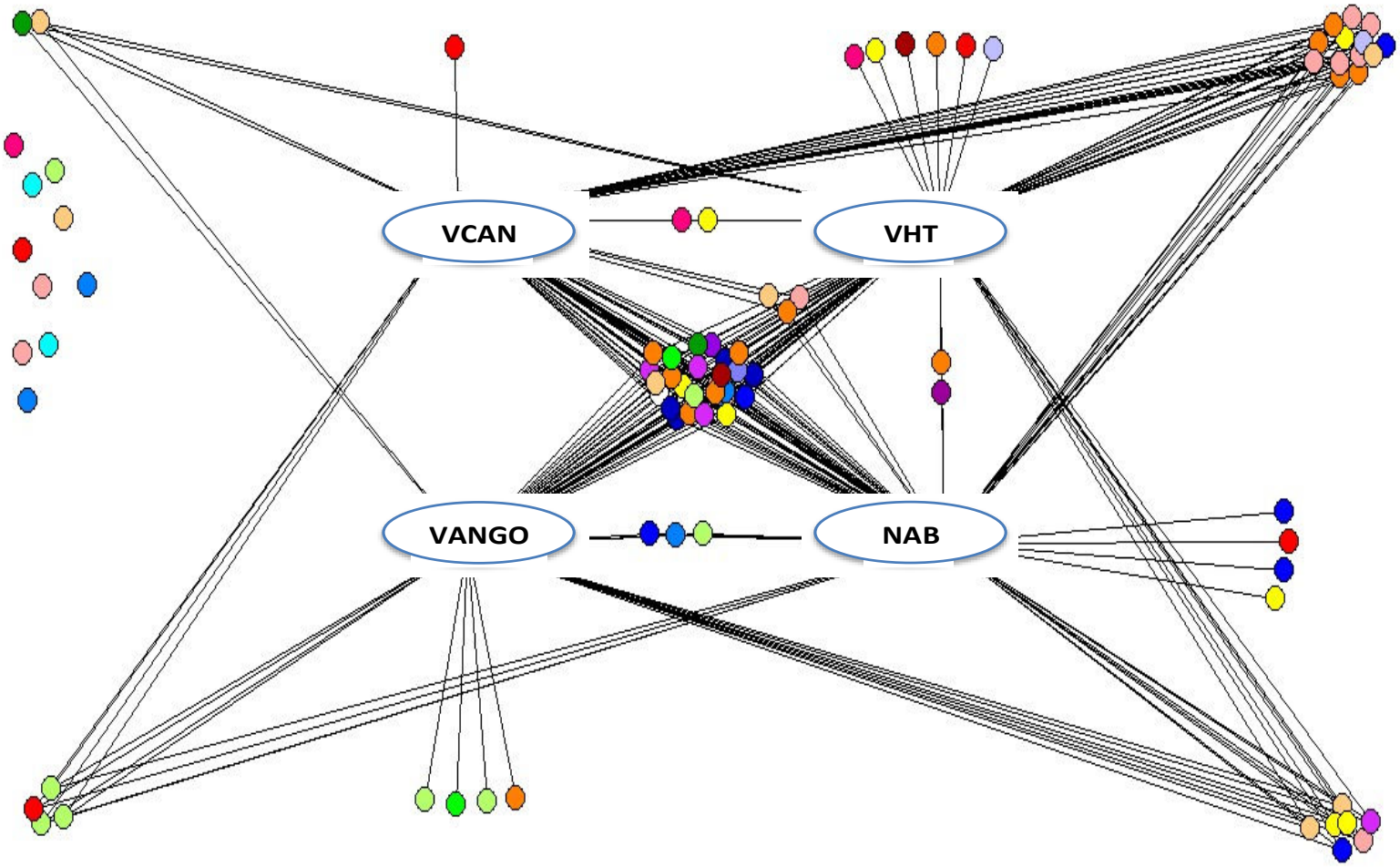


Map 13. VANGO/VCAN/VHT/NAB participation based on respondents' type of organization

Map 13 indicates the connection of respondents with the four main formal networks considered by this study: the NAB, VCAN, VHT and VANGO.

Map 13 confirms that each network brings together stakeholders from various types of organisations. A large portion of the survey respondents were found to have some professional contact with the four networks, which guarantees paths for information flow among all networks.

VHT seems to gather more connected stakeholders, which can be explained by the fact that the VHT was established before the more recently formed NAB and VCAN, and has greater connectivity with regional stakeholders through the PHT (Pacific Humanitarian Team).

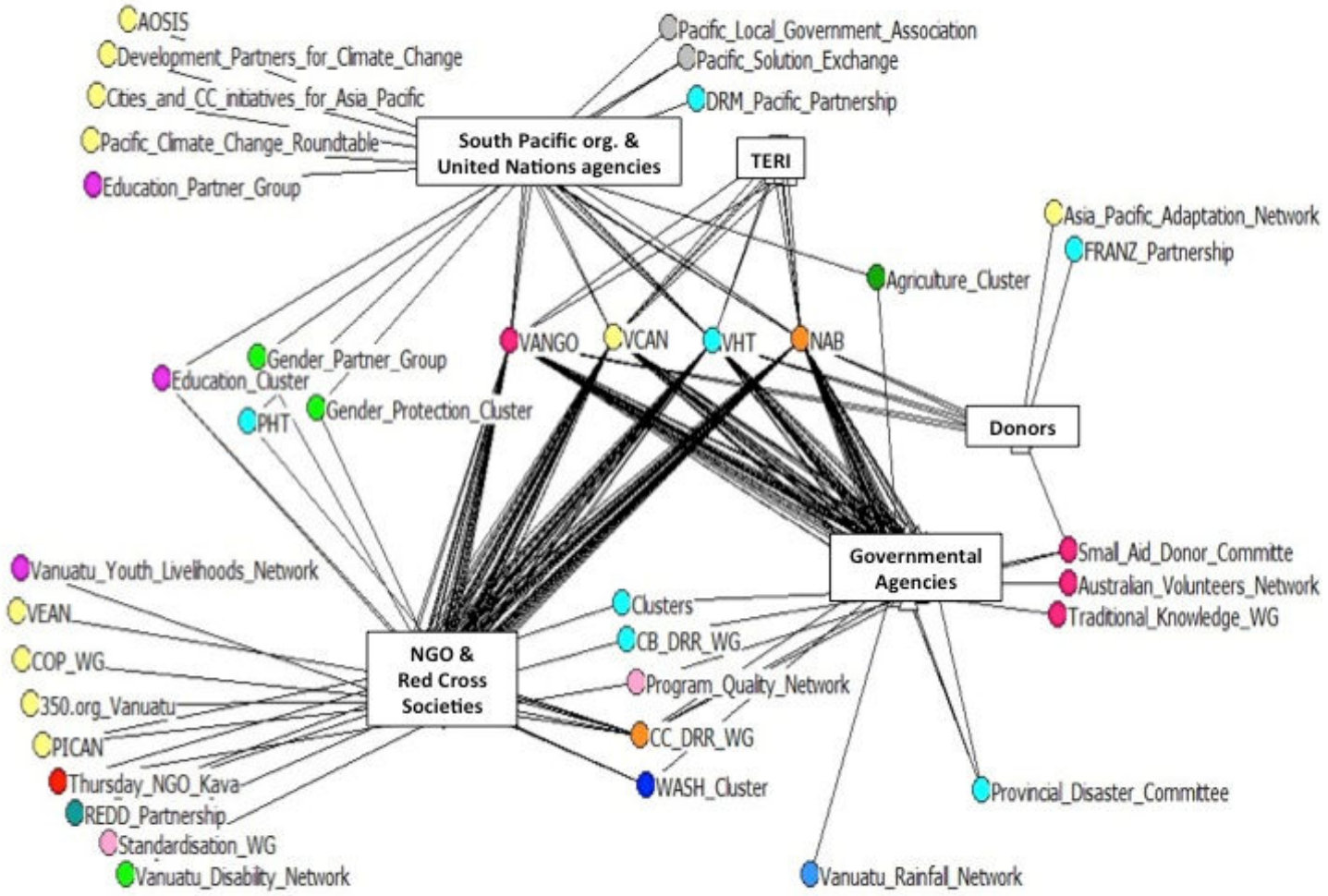


Map 14. VANGO/VCAN/VHT/NAB participation based on respondents' domain of expertise

- DRR/DRM/CCA
- Community development
- Agriculture, livestock and food security
- DRR/DRM
- Gender
- CCA
- Traditional knowledge and culture
- Health
- Water management
- Marine resources and Fisheries
- Meteorology and climate sciences
- Policy and public administration
- Education
- Environment, biodiversity and forestry
- Monitoring and evaluation
- Energy
- Communication, information and knowledge
- Program management
- Logistics
- Planning

Map 14 shows that in spite of their specific sectorial objectives, each of the networks is bringing together stakeholders from very different domains of expertise. However, some domains of expertise are connected to the rest of the whole network through specific network paths: For example, environment stakeholders are mainly connected through VANGO, education stakeholders and agriculture stakeholders through VHT, meteorology stakeholders through the NAB and communication through VCAN.

4.2. Interaction among NAB, VHT, VCAN, VANGO and satellites networks



CCA and DRR integration
DRM and DRR
CCA
Program and project functional management
Education and youth
Water management
Meteorology
Agriculture
Forest protection
Gender and disabilities protection
Informal gathering
Community development/cooperation
Pacific region

Map 15. Formal networks inter-linkages showing domains of interest

Map 15 indicates formal national and local networks to which respondents are connected. Two networks concern disabilities, while only one respondent out of the 260 that were considered in this study had stated capacities in disabled peoples' protection. This means that although there are already structures to take into account disabled peoples' needs in Climate Change and Disaster Risk projects, really few stakeholders connected in this study think of themselves as having capacities in this sector. Climate Change and Disaster Risk initiatives both benefit from several networks that are well implemented on the regional level, such as the Pacific Islands Climate Action Network (PICAN) or the FRANZ agreement (collaboration between France, Australia and New Zealand for disaster risk management in the Pacific islands. Based on the results of the study, more Climate Change networks are needed at the provincial and local levels in order to bring communities needs and priorities to the national level. This will also support the flow of information to be extended to all type of stakeholders (private, civil society, governmental agencies etc.), who are only connected to the four main networks.

This map is essential for stakeholders and organisations to have a better awareness of existing networks that could be beneficial for them in terms of strategy and information sharing.

Part 5. Networking tools

5.1. The NAB portal

A large majority of the survey respondents stated that it was essential for the country to have a national platform for state and non-state actors to share information and opportunities on Climate Change and Disaster Risk.
The Government of Vanuatu launched the NAB Portal in 2012 as a mechanism to improve the coordination and information sharing among all stakeholders working in the Climate Change and Disaster Risk sectors. It contains a project database, events calendar, document repository and local expert contact information. The portal can be accessed online at www.nab.vu

Type of organization	Respondents who utilize the NAB portal	Average of frequency respondents go on the portal	Average of value of information on the portal	Average of value of the portal for networking
All	69%	Every 3-months	Very valuable	Very valuable
Governmental agencies	59.5%	Every 3-months	Very valuable	Very valuable
NGO/Red Cross societies	76.3%	Every 3-months	Very valuable	Valuable
TERI	83%	Every 3-months	Very valuable	Valuable
CROP/UN	67%	Monthly	Very valuable	Very valuable
Donors	67%	Annually	Valuable	Valuable

Table 3. Respondents' use of the NAB Portal

Table 3 shows the percentage of respondents who use the NAB portal. These results indicate that a large majority of respondents use the NAB portal to inform their work in the Climate Change and Disaster Risk sectors. A minority of participants, however, do not or not often use the NAB Portal because of difficulties in easily finding information and Internet access issues (slow internet or the government IT security protocols blocking the website). The table also indicates the average frequency respondents or various types access NAB portal, the average value they give to information contained within the portal and the opportunity it provides to network with other users.
Table 3 shows that a majority of the respondents stated that the portal was very valuable both for the information that could be found on it and for the networking potential that offer such a platform. Respondents from other Pacific countries also stated the potential value of the NAB Portal to know what is being done in Vanuatu. Thus, the NAB Portal is a much valued and highly useful tool, which must be expanded, refined and more widely promoted. By using and refining this existing tool more frequently by all types of stakeholders, networking and collaboration would be greatly enhanced and facilitated.

5.2. Main tools used by respondents

Tools	Respondents using the tools	Frequency	Value of info	Value for networking
Websites	95,7%	Weekly	Very valuable	Valuable
Newsletters	80,4%	Monthly	Very valuable	Very valuable
Face to face	67,4%	Weekly	Essential	Essential
Social Media	47,8%	Weekly	Valuable	Very valuable
Radio	34,8%	Weekly	Very valuable	Valuable
Email/email lists	26,1%	Weekly	Very valuable	Very valuable
SMS	26,1%	During emergencies	Essential	Valuable
Written material	10 (21,7%)	3-monthly	Very valuable	Very valuable
Newspapers	7 (15,2%)	Weekly	Very valuable	Valuable

Table 4. General information of general tools used by respondents to seek or spread information on Disaster Risk and Climate Change

Table 4 shows what tools respondents mainly use to get or spread information on Climate Change and Disaster Risk matters. Websites and newsletters are the most used tools by respondents. Face to face meetings were less mentioned by respondents than websites and newsletters, however they are stated as essential both for the value of information and the potential of networking by all users. Social media are often used and considered very valuable for networking, however, respondents trust less the accuracy of information that can be found. SMS, specifically the 166 SMS for alerts, are highly appreciated by users and considered essential for getting information.

Some stakeholders mentioned the type of tools in general (for example websites), however, many respondents named particular tools. The following table 5 displays the specific names of tools mentioned by the respondents. The most used specific tools are the VCAN and VHT newsletters (26.1% and 21.8% of the respondents), 166 SMS (26.1%), Facebook Vanuatu Climate Change (15.2%) and the Vanuatu Daily Post (13%). This shows that respondents mainly use national tools. Also, these tools can be easily adapted to the different communities outside except for the Facebook Vanuatu Climate Change, which might be

General tools	Specific tools (percentage of users)
Websites	○ Websites – none specific (19, 6%) ○ Pacific Climate Change Portal (8,7%) ○ Pacific Disaster Net (8,7%) ○ VMGD (8,7%) ○ IDS (4, 3%) ○ PHT (2,2%) ○ VHT (2,2%) ○ Relief web (2,2%) ○ BOM (2,2%) ○ SEA change COP (2,2%) ○ SPRAP (2,2%) ○ WMO (2,2%) ○ ODI (2,2%) ○ ACCRA (2,2%) ○ APAN (2,2%) ○ YTS network (2,2%) ○ Adapt Asia Pacific (2,2%) ○ c4network.ning (2,2%) ○ Climate centre (2,2%) ○ GDACS (2,2%) ○ Gender Climate Change (2,2%) ○ Google news (2,2%) ○ IWDA (2,2%) ○ Learning adaptation platform (2,2%) ○ Live and learn (2,2%) ○ NIWA (2,2%)
Newsletters	○ VCAN Digest (26, 1%) ○ Newsletters – none specific (21,8%) ○ VHT Newsletter (13%) ○ PMU Updates (2,2%) ○ Vanuatu Climate Updates (2,2%) ○ Agriculture Newsletter (2,2%) ○ Tafea Newsletter (2,2%) ○ Newslists (2,2%) ○ NGO trips to Islands Newsletter (2,2%) ○ ODI (2,2%) ○ ACCRA (2,2%) ○ IDS (2,2%)
Face to face	○ Face to face meetings – none specific (39,1%) ○ Informal chat (8,7%) ○ Thursday NGO kava (4,3%) ○ Conferences, summits, panel discussions (4,3%) ○ Program quality network meeting (2,2%) ○ VCAN meeting (2,2%) ○ VHT meeting (2,2%) ○ NAB meeting (2,2%) ○ Workshops (2,2%)
Social Media	○ Facebook Vanuatu Climate Change (15,2%) ○ Facebook – none specific (13%) ○ Facebook Yumi toktok stret (6,5%) ○ Social media – none specific (6,5%) ○ Facebook VMGD (4,3%) ○ Facebook Pacific UN Women (2,2%) ○ Voice blo province (2,2%)

Radio	○ Radio – non specific (26, 1%) ○ Talk back show (8, 7%)
Email lists	○ Email lists – none specific (17, 4%) ○ VHT email list (4,3%) ○ CCDRR email list (2,2%) ○ Gender Climate Change email list (2,2%)
SMS	○ SMS 166 (26.1%)
Written material	○ Professional reports (10, 9%) ○ Risk assessments (4,3%) ○ Project templates (2,2%) ○ Survey results (2,2%) ○ Farmers' assessments (2,2%)
Newspapers	○ Vanuatu daily post (13%) ○ Australian Newspaper (2, 2%)

Table 5. List of specific tools used by respondents

Part 6. Recommendations and next step

6.1. Recommendations

Recommendation 1: Hiring a strategic director and an information manager for the NAB secretariat

Why? When talking about governance of climate change and disaster risk in Vanuatu, respondents stated that they lacked a transparent focal point for strategic direction. Also, overload of useless information, lack of useful information sharing and gaps in communication paths were the main obstacles expressed for networking

How? The NAB secretariat is currently being established and several positions will be advertised. The priority recruitment should be for a strategic director and information manager, who will be able to better frame the evolution of the NAB secretariat by developing short- and mid-term strategies and facilitate information flows to have an accurate perspective of the national situation.

Recommendation 2: Improving the NAB Portal to achieve its full potential.

Why? A majority of the respondents acknowledged the high value of the NAB portal but expressed some difficulties to use it as shown in table 3

How? The NAB portal should be expanded, refined and promoted in different steps:

1. A detailed NAB portal user survey should be conducted to understand user needs, preferences, current portal benefits and challenges
2. The portal must be restructured by an IT specialist with a focus on user-friendliness
3. All ministries' internet security protocols should authorize the NAB portal to allow a greater participation from governmental actors
4. The information manager should filter information posted by all stakeholders and circulate every week a summary of the most important events and information

Recommendation 3: Better integrating the Energy sector within the whole Climate Change and Disaster Risk network.

Why? The Energy sector was found to be isolated in this study as shown on map 8, although this domain is a main priority for climate change adaptation andmitigation.

How? The NAB meetings and CCDRR Working group managers should ensure the participation of Energy department to a maximum of events. A better engagement of private stakeholders in the energy sector in these events would also be highly valuable.

Recommendation 4: Better harnessing capacities in traditional knowledge for climate change and disaster risk.

Why? Traditional knowledge and culture managers did not appear numerous and not very well connected during this study as shown on map 8.

How? Traditional knowledge managers are likely to be found in each province at the community level. With outreach, they could be better empowered and integrated into project development processes. Communication and information sharing concerning traditional knowledge needs to be both from Shefa to the other provinces and from the other provinces to Shefa.

Recommendation 5: Developing tools of communication specifically for provinces (where a website will not be used).

Why? Very few tools of communication that are currently adapted to and easily accessible in remote islands were mentioned during this study as shown in table 5

How? Weekly or monthly newsletters could be a good way to spread information on paper as long as it is in the right language and level of communication for the targeted communities.

The information manager of the NAB secretariat should develop a monthly newsletter that combines the main information that could be found on the Portal and adapt them to the understanding level of the targeted communities

Recommendation 6: Organizing more lesson-learnt workshops to ensure that all crucial information is captured.

Why? When talking about ways to improve networking, respondents wished to learn more about real experienced successes and failures in project development and implementation by other stakeholders.

How? Every 6-months or more frequently, the NAB should invite all organizations and agencies involved in climate change and disaster risk to share successes and failures in the implementation of their projects. This approach will not only help stakeholders to be better aware of who does what, but it will also enable potential collaborations by facilitating discussion around failures and their potential solutions.

Recommendation 7: Conducting an awareness campaigns to explain the benefits of networking and collaborating with other organizations in regards to Climate Change and Disaster Risk initiatives.

Why? Respondents often stated that time and resources are obstacles to networking, without realizing that networking will often mean a gain of resources and time

How? The stakeholders' liaison officer of the NAB should develop a small training program to explain the benefits of networking (gain of resources or time etc.) as well as the tools available for collaboration (formal networks, information tools etc.) and propose the training to all organizations and agencies involved in climate change and disaster risk to explain and promote

Also, organizations such as Oxfam that have specific projects for coordination and networking (through the VCAN and VHT) could organize discussion panels around the topic of networking so all stakeholders can talk about their own experience and learn from others.

Recommendation 8: Conducting a more comprehensive SNA in each province to map individual and organizational capacities on the provincial and community levels.

Why? Data collection for this study mainly focused on Shefa province, hence only 11.5% of stakeholders within the whole network are from other provinces. To have a more comprehensive perspective of the Vanuatu network for climate change and disaster risk, all provinces should be equally studied.

How? The Vanuatu SPC/GIZ CCCPIR expressed its interest and is open to collaboration with other organizations and agencies that would like to support as well (Oxfam Vanuatu and UNDP have also expressed their interest). The potential details of such a project are described in the next section 6.2.

Recommendation 9:Mapping all current provincial and community networks, which offer platforms to exchange information and discussion.

Why? As shown on map 15, very few provincial and community networks were revealed during this study. The participants of this study were mostly based in Shefa province and might not be attached or aware of networks in other provinces or communities.

How? This work should be done during the provincial SNA described in the previous recommendation. The SNA survey should integrate a question concerning the networks in which respondents are involved. This will give crucial information on small and not-so-visible networks on the provincial and community levels.

<u>Recommendation 10:</u> Building stronger provincial and community networks in missing domains.

<u>Why?</u> During this survey, several respondents mentioned the lack of climate change adaptation networks in remote islands.

<u>How</u>? Once results from the recommendation above are released, the social network analyst conducting the provincial SNA should map the areas and sectors where no networks exist. The analyst should then write recommendations to the NAB secretariat and organizations/agencies involved in climate change and disaster risk.

6.2. Next steps for the SNA

Results from this study are far from being exhaustive (both from report 1 and report 2). The goal of this pilot study was to draw the general patterns of connections that exist in Vanuatu, and to be a basis of knowledge on social and formal networks structure in Vanuatu.
This study covers most of the organizations involved in Climate Change and Disaster Risk in Vanuatu. However, it is now essential that the Government of Vanuatu lead a multi-year and more comprehensive social network data collection in order to have accurate and complete maps of CC & DRR stakeholders in Vanuatu.
This study was targeting any stakeholder from any location and any domain of expertise as long as they were working on Climate Change and Disaster Risk matters. The next step is to collect data in stages, one province and one domain of expertise at a time.
Results of this study will serve as an example of the types of outcomes a social network analysis may provide. This pilot analysis will ensure that future respondents understand what is at stake by filling in the survey. This pilot project has also created a database of organizations and agencies involved in climate change and disaster risk matters. This database will facilitate the collection of data on specific stakeholders covering the organizations and capacities revealed in this study.

The author recommends dividing future SNA data collection by domain of expertise.
The author recommends beginning with domains of expertise with specific governmental agencies and organisations, such as agriculture, meteorology or education. Crosscutting domains such as Climate Change Adaptation, Disaster Risk Reduction or Community Development should be the last domain of expertise to work on.
In a matter of cost optimisation, it is possible to have a domain-location strategy, by collecting data first in SHEFA province for each domain of expertise, and then repeat the strategy in each province.

A detailed data collection strategy will depend on how many surveyors are hired or volunteers are committed. If several surveyors are to be hired in order to collect data more quickly, several options are possible. The first option is to hire domain specialists, who will travel in each province. The second option is to hire one surveyor per province, who will survey multiple domains, which could be more cost-effective.

Vanuatu is currently reforming the governance institutions for Climate Change Adaptation and Disaster Risk Reduction through the establishment of the Ministry of Climate Change, the NAB, the VHT and the VCAN. Social Network Analysis should be considered as a useful tool to track reform processes and outcomes, specifically by providing baseline information on the evolving climate and disaster risk networks.

Appendix 1: NAB endorsement

E-MAILED

E-MAILED

REPUBLIC OF VANUATU

NATIONAL ADVISORY BOARD ON CLIMATE CHANGE AND DISASTER RISK REDUCTION

C/- VANUATU METEOROLOGY AND GEO-HAZARDS DEPARTMENT

Private Mail Bag 9054, Port Vila; Telephone: (678) 22331; Fax: (678) 22310
Email: commp@meteo.gov.vu; Web: www.nab.vu
(Address Correspondence to Manager)

Our Ref: PV/VMGD/PMU/BP

Date: 14/06/13

Astrid Vachette
PhD Student
School of Earth & Environmental Sciences
James Cook University
0061 7 4781 4877

Dear Ms. Astrid,

RE: OFFICIAL NAB ENDORSEMENT NOTICE TO THE PROPOSED RESEARCH IN VANUATU.

This letter serves to inform you that the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB) in Vanuatu has formally endorsed the proposed Research Project in its NAB Subcommittee meeting dated Wednesday 12th June 2013. This gives the right for the project to carry out its activities according to the Research Brief Overview received by NAB for endorsement.

The NAB subcommittee made the endorsement decision based on the basis that research outcomes should be uploaded onto the NAB portal and the need to also work with institutions such as the Vanuatu Cultural Centre and the Department of Environment. Please refer to the meeting minutes for discussion points, actions and decisions made during the meeting.

I hope this notice will help you towards your efforts in carrying out your research in Vanuatu.

I thank you for your understanding and looking forward to working closely with you in the future.

Yours Sincerely

ENDORSED BY
NATIONAL ADVISORY BOARD
on Climate Change & Disaster Risk Reduction
GOVERNMENT OF VANUATU

Brian Philips
Manager – Program Management Unit (NAB – PMU)

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Appendix 2: List of organizations and the number of their staff involved in this social network analysis

Organisation/agency	*Number of stakeholders in this study*
Act for peace	1
ADRA	13
BOM	3
Care international	13
CDC	5
Community leaders	1
Conservation international	1
DARD	9
Department of Energy	1
DEPC	8
Department of Fisheries	9
Department of Forestry	3
Department of Health	1
Department of Livestock	3
DLA	5
Department of Women's Affairs	2
DGMW	2
DFAT	3
EEAS	1
FAO	1
French Embassy	1
FSA	2
GIZ	5
Griffith University	1
IRD	1
IWDA	1
JICA	1
Land Tribunal	1
Live and Learn	10
Malampa Province Council	1
Ministry of Education	8
NARI	3
NDMO	6
NZHC	1
OHCHR	2
Oxfam	9
Peace Corps	2
PMU	6
Port Vila Municipal Council	1
Prime Minister Office	1
Private Consulting	4
Parsons Brinckerhoff	1
Triangle Business Solutions	1
EOS-D2C1	1
OC Consulting	1
Carbon Partnership	1
IPV Printers	1

Red Cross Societies	16
RMIT University	2
Rotary Club	1
Sanma Province Council	3
Save the Children	8
SCRRE	1
SDA	1
Shefa Province Council	2
SPC	6
SPREP	6
Tafea Action Network	1
Tafea Province Council	1
Tanna Cultural Centre	1
UN Habitat	2
UNDP	9
UNICEF	3
University of Melbourne	1
UNOCHA	1
UNWOMEN	2
USAID	1
USP	4
VANGO	2
VITE	1
Vanuatu Agriculture College	1
Vanuatu Christian Council	1
VARTC	1
VBTC	1
VEAN	1
VMGD	8
VNCW	1
VRDTCA	3
Wan smolbag	4
WFP	1
World Bank	2
World Vision	3