



GNDR
Global Network of Civil Society
Organisations for Disaster Reduction



**Views from
the Frontline
2019**

VIEWS FROM THE FRONTLINE REPORT

A case study of Haast, Westland, West Coast



THE UNIVERSITY OF
AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND



RESILIENCE
TO NATURE'S
CHALLENGES

Kia manawaroa
– Ngā Ākina o
Te Ao Tūroa

National
SCIENCE
Challenges

VIEWS FROM THE FRONTLINE REPORT

New Zealand

A case study of Onerahi, Whangarei, Northland

June 2020

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I. Views from the Frontline - Project Background and Approach

Project background

The Views from the Frontline (VFL) programme was initiated by the Global Network of Civil Society Organisations for Disaster Reduction (GNDR)¹ in 2009 to highlight the views from the most vulnerable and marginalised populations. This programme empowered local actors to monitor progress against targets under the Hyogo Framework for Action (HFA) through quantitative and qualitative surveys. This community consultation process is conducted at regular intervals of two years. Since 2014, GNDR shifted their approach, from closed questions measuring the progress of the HFA targets to more open-ended questions regarding their priority threats, consequences of those threats, the actions needed, and the barriers in reducing risks from the perspectives of local actors. This new approach highlighted everyday disasters, which are small scale, recurrent, and result not only from natural hazards but also from social, economic and political threats.

The aim of VFL 2019 was to strengthen the inclusion and collaboration between at-risk people, civil society and governments in the design and implementation of policies and practices to reduce disaster risks and strengthen resilience. Through surveys and consultations with local communities, local civil society organisations and the local government authorities, it collects the diverse perspectives around three keythemes: risk profile, inclusiveness, and enabling environment (Fig. 1).



Figure 1. Themes of investigation (GNDR 2018)

While local voices from the less wealthy countries were raised in the previous VFL programmes, this is not the case for more affluent countries. Thus, the VFL team, through the University of Auckland, wanted to pilot the VFL programme in New Zealand. This will place a foundation for expanding this

¹ Global Network of Civil Society Organisations for Disaster Reduction (GNDR) is the largest International Network of organisations committed to working together to improve the lives of people affected by disasters

VFL programme to more affluent countries, and accordingly, increase the chance for the local voices to be heard. As a pilot project, the GNDR approach was adjusted and conducted on a smaller scale in New Zealand.

Process of implementation

The project was implemented in four locations: Onerahi (Whangarei, Northland), Maraenui (Napier, Hawkes Bay), Petone (Lower Hutt, Wellington), and Haast (Westland, West Coast). The project team collaborated with the focal points of the four partners, Civil Defence and Emergency Management (CDEM) groups to carry out the field data collection activities using the VLF standard questionnaires for households, government staff, civil society organisation staff, and community² consultation. These questionnaires were adapted to fit with the local contexts and the participants’ background. The CDEM groups’ support included contacting and inviting participants for interviews and the organisation of group consultation meetings.

In Haast (Fig. 2), the project team carried out household interviews in persons and online surveys. The online household survey link was then posted on the Facebook group page of Haast community with the support of the partner CDEM Group. The total number of responses received is 29 (Table 1). One community consultation meeting (i.e. focus group discussion – FGD) was held with 5 local resident participants at the community hall on 12th May 2019. Furthermore, face-to-face and phone interviews were conducted with 5 representatives from the regional and district councils and CDEM offices at the regional and district levels. Unfortunately, none of the non-government organisations at the regional and district levels, who were contacted and invited for participation, could participate in this project.

Activity	Number of participants	Time
Household survey	29 (9 males, 16 females and 4 others)	March – June 2019
Community consultation	5 (3 males and 2 females)	12 th May 2019
Interviews with stakeholders	4 (1 male and 3 females)	March – June 2019

Table 1. Numbers of participants and time of the project activities in Haast

Given the small number of the participants in this project location, this study has some limitations in capturing the diverse perspectives of the study community. The data from all of the interviews, surveys and consultation were entered to the online database of the Global Network of Civil Society Organisations for Disaster Reduction (GNDR) for analysis. To explore the VFL data of New Zealand, please go to this website: <https://vfl.world/explore-vfl-data/>.

² ‘Community’ in this report is defined as a group of people living in the same place or having a particular characteristic in common (GNDR, 2018)

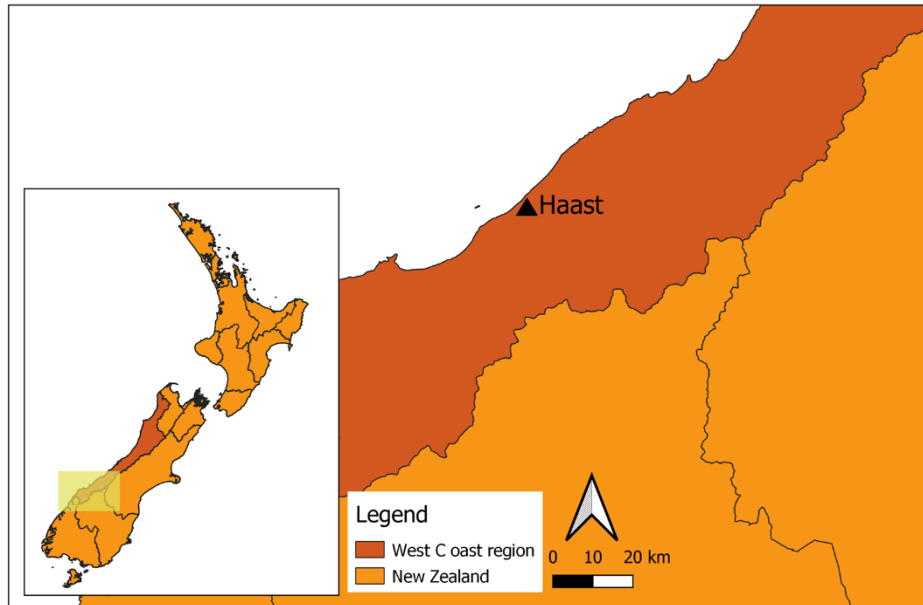


Figure 2. The location map of the study area

II. Results

1. Threats, consequences, actions and barriers

The assessment explored people's perception on four aspects, namely: the threats that confront them; the consequences of these threats; the actions to address these threats and consequences; and the barriers that hinder the implementation of actions. The threats explored in this study are not limited to environmental ones but include economic, social and political ones. According to the respondents from the participating government organisations (GOs), the hazards the people in Westland are concerned are floods, earthquakes, isolation, landslides, storms and tsunamis (Fig. 3). Isolation in this sense refers to limited physical access and communication. In Haast, in addition to this list of hazards, the FGD participants added storm surge and epidemics. In line with the GO participants' perspective, the FGD participants believed that earthquakes, landslides and floods are the most significant hazards in terms of frequency and impact in Haast. Isolation from their perspective is a significant threat that often follows earthquakes, flooding, and landslides.

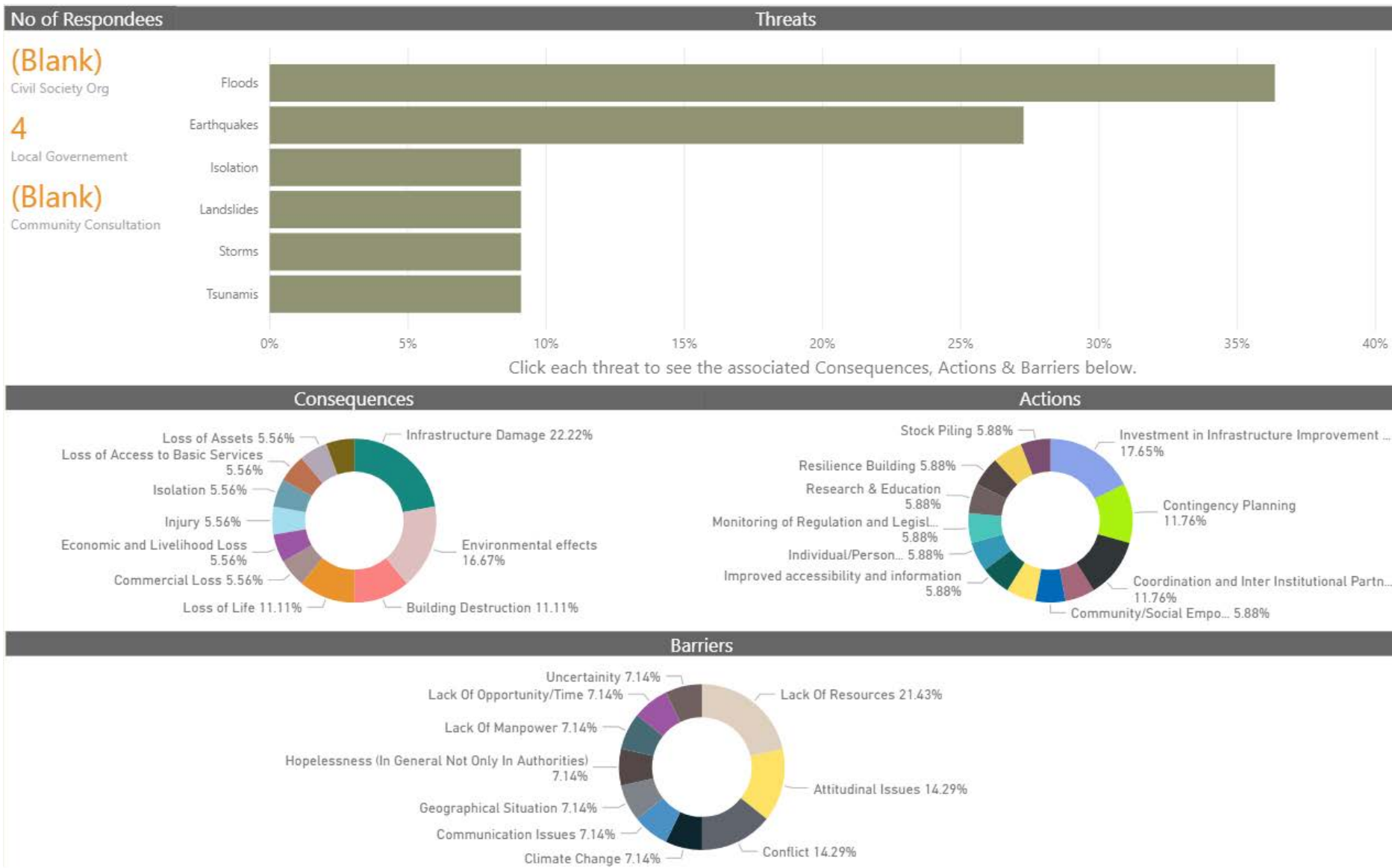


Figure 3. Threats, consequences, actions and barriers in Westland

Floods

Floods are one of the most frequent hazards in Westland District. The most significant impacts reported by the participants are infrastructure damage (e.g. road network and bridges) and environmental effects (e.g. water contamination and loss of habitats) (Fig. 4). Other impacts reported are loss of access to basic services, loss of assets (mainly agricultural produces and livestock), and loss of life. According to the FGD participants, floods, despite happening quite frequently in Haast (e.g. at least once a year), do not last long and often require lots of work for clean-up.

Given the impacts of floods, the majority of the participants suggested improving the mitigation infrastructure (e.g. strengthening and maintaining stop-banks) as an important action for reducing the flood risk (Fig. 4). Another important action recommended by the participants is improving early warning systems (EWS) (e.g. improving cell phone coverage and VHS radio network - the main communication channel in times of disasters in remote areas like Haast). In addition, many participants believed the following actions can contribute to reducing the flood risk: promoting community empowerment and engagement in resilience building processes, supporting communities to have their own response plans, encouraging individuals to take more responsibility for their preparedness, and conducting risk assessment at the local level. Given the high flood risk in many areas in the region, a GO participant raised a need for more research on floods and other natural hazards in the region. She noted that the local government does not have sufficient information regarding flood risk (e.g. flood risk map.) Research is thus needed to have more understanding of the local risks and answer the disaster-related questions from communities. She also believed that it is necessary to promote collaboration with other stakeholders and mobilise their financial support in carrying out disaster-related research and generate risk knowledge. In Haast, from a practical perspective, the FGD participants added that river bars should be opened at river mouths, which can reduce flood risk for the population living near the rivers. Furthermore, physical barriers should be shut to prevent people, especially tourists, from going into flooded roads and areas.

The participants revealed a range of barriers that hinder the implementation of actions to reduce flood risk (Fig. 4). The two main barriers are lack of resources and people's attitude. A GO participant noted that the government faced limitations on resources and challenges in allocating their budget fairly among the communities across the region. As the FGD participants claimed, the local government had low priorities for investments in development and DRR (e.g. building a stop-bank) in small populations. Another GO participant commented that people may be aware of the risks in their area. However, they do not want to move out of the area due to their emotional bond to the land. Also, they do not want their land to be devalued by the risk. Thus, they tend to propose mitigation measures to protect their land. Having structural measures such as building a stop-bank to protect these settlements is often beyond the financial capacity of both the government and the populations at risk. Furthermore, the GO participants noted that the whole region of the West Coast is prone to many natural hazards (e.g. earthquakes, tsunamis, slips, storms, floods). This may put people in a hopeless situation as there may be no safe place to live.

Another barrier is a lack of human resources to conduct risk education and research across the region. A GO participant explained that the government does not have enough scientists for education and risk governance. Some participants also raised their concerns about climate change. For example, sea-level rise may increase the risk of flooding and storm surge. Last but not least, the FGD participants raised their concerns about the current DRR system or approach, which is not designed to go out and prevent but reactive or respond to the risk. This had its roots in bureaucratic processes run by the government.

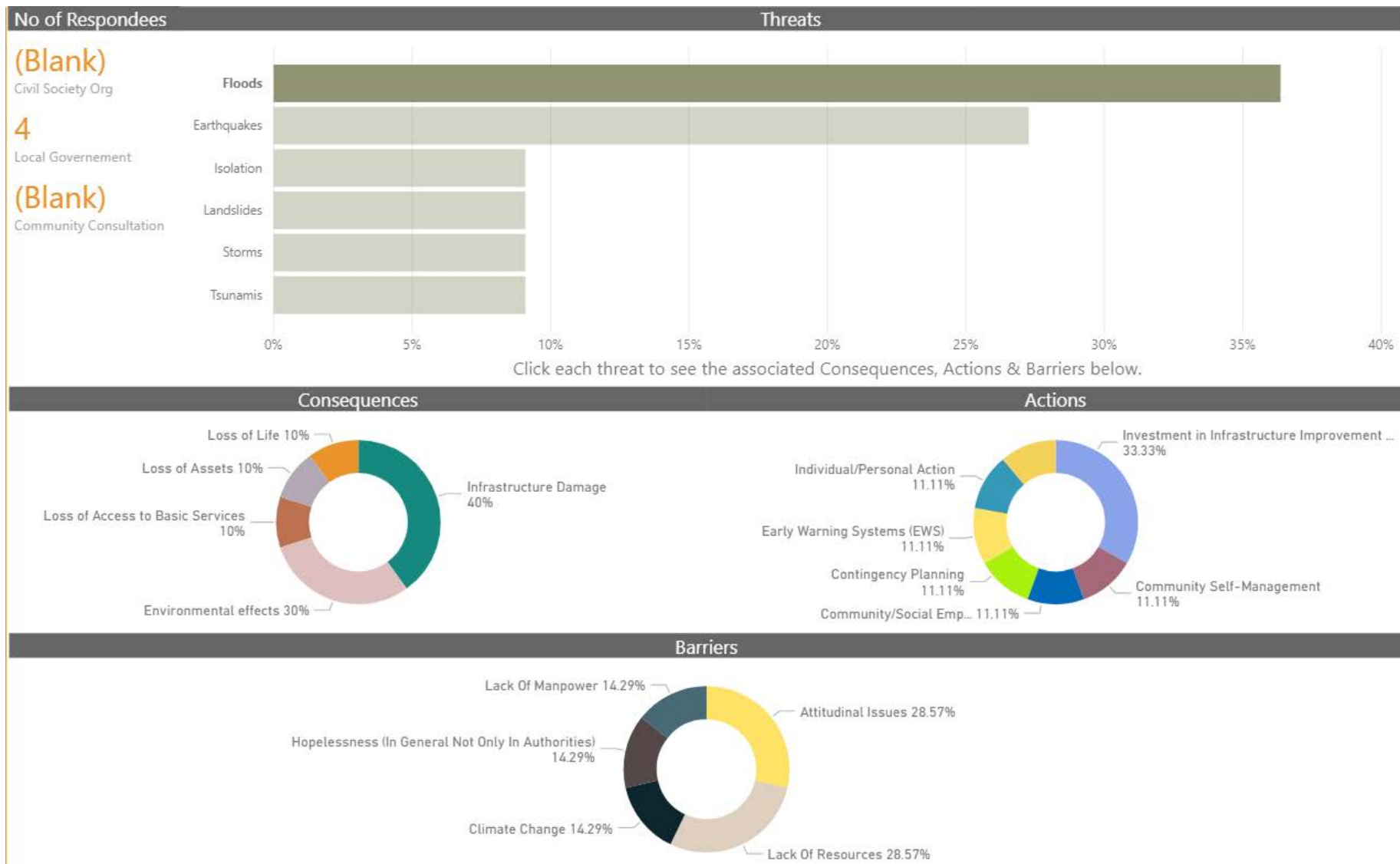


Figure 4. Threats, consequences, actions and barriers for floods in Westland

Earthquakes

Due to many active fault lines, including the major Alpine Fault, in the West Coast Region, the whole region is prone to earthquakes. The most significant impacts raised by the GO participants are building deconstruction, loss of life, injuries, commercial loss, environmental effects, and infrastructure damage (Fig. 5). As a GO participant noted, hazards such as tsunamis, landslides, and flooding are very likely to occur after an earthquake. In Haast, the FGD participants believed that earthquakes may have little impact on Haast residents as most of the houses are one-storey. The most significant impact recognised in Haast is the damage of lifeline infrastructure (e.g. road, bridges, power, sewerage, water, airport). This would put the whole community in isolation for a long time, accordingly, causing a huge economic loss for Haast residents. In case of road and bridge damage, ships and boats are viewed as the main means of transport that help people travel from one place to another.

For reducing the impacts of earthquakes, most of the participants agreed that having a response plan at community and household levels is very important and necessary. This can be done through promoting community engagement in resilience building processes. As a result, they know what to do, who to communicate with and how to get help. Enhancing the coordination among stakeholders was also raised as an important DRR action for dealing with earthquakes and mobilising resources. Similarly, in regard to flooding, a GO participant emphasized the need for research and awareness-raising (i.e. sharing risk information with local people). Another action suggested is resilience building that focuses not only on response and recovery but also on reduction and readiness. For an effective response to earthquakes, a GO participant recommended stockpiling for both the local government and people. In Haast, as it is very likely for the Haast community to become isolated for a long time in case of a major earthquake, the FGD participants emphasized stockpiling food and other essential items (e.g. generators, fuel,...) as an important preparedness action. They noted that most of Haast residents have enough food and water to survive (e.g. water from rivers, food from the farms and forests) for 3 weeks even in case of no power.

The participants listed lack of resources as the main barrier for implementing the actions for reducing the earthquake risk. On the one hand, the lack of resources often prevented people from stockpiling. On the other hand, this barrier prevented the government from conducting readiness and response measures for dealing with the earthquake risks. A GO participant also commented that the government may face challenges in prioritising economic growth versus actions towards risk reduction for a low incidence hazard event.

Another barrier is the complex geography of the region which makes it difficult for the government to reach the affected communities. That is, given the limited transport network in the region and the long distance to the district centre, some remote communities like Haast may not receive support in mitigation or timely support in emergency. As the FGD participants recognised, Haast may not also be a priority for emergency support such as fixing the roads if a major earthquake was to occur. A GO participant commented that the government tended to give more support towards urban areas over remote or rural areas.

In Haast, the FGD participants raised two main barriers: lack of maintenance of Jackson Bay Wharf and lack of communication. They explained that, in recovery phase, fuels and machineries are needed and the only way to bring them in is through the Wharf. In terms of communication, the FGD participants noted that the only way to communicate with each other in times of disasters is through the radio. The coverage of mobile signal is only limited within the Haast township (only 14.3% of the Haast population have access to mobile phone according to the 2018 national census).

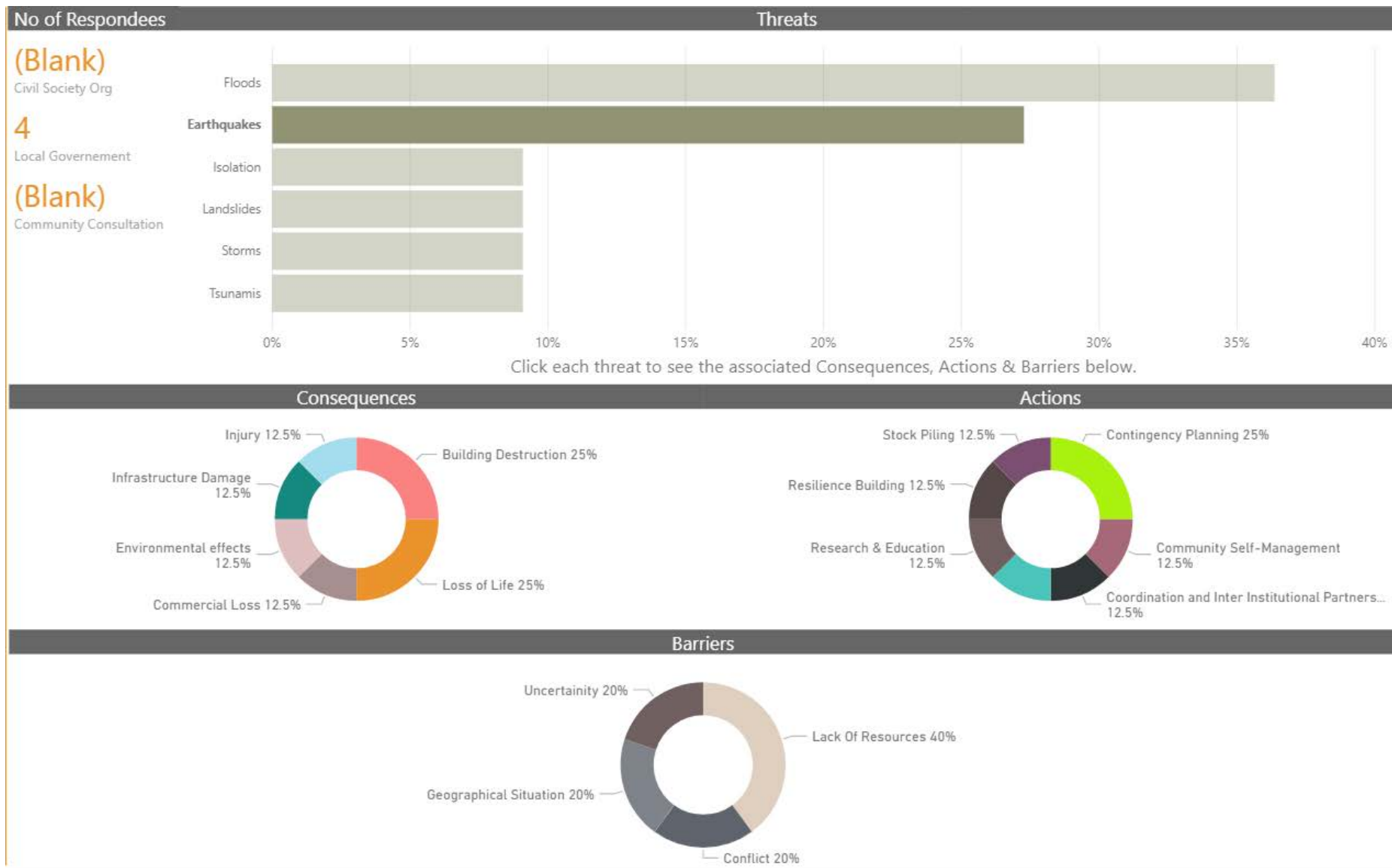


Figure 5. Threats, consequences, actions and barriers for earthquakes in Westland

Landslides

The participants agreed that the most significant impacts associated with landslides are economic and livelihood loss, infrastructure damage, isolation (Fig. 6). The FGD participants did not consider this hazard as life-threatening in Haast. However, they were concerned that the road cut-off that would put the whole community in long isolation and thereby influence the economy and livelihoods of many local households, especially those whose livelihoods rely on the hospitality industry. Isolation can also become dangerous in times of medical emergencies.

To reduce the impacts from landslides, from the government perspective, the GO participants mainly suggested improving coordination among the stakeholders and with the affected communities in responding to landslides. The participants also raised a need to improve the access to information (e.g. cellphone coverage and VHS radio network). Another action suggested is response planning, that is, communities should have a response plan for landslides and other geohazards (e.g. liquefaction, rockfall) in place. Similar to floods and earthquakes, a GO participant emphasized the importance of researching to generate risk knowledge and share the risk knowledge with local people for their preparedness and response.

Several barriers that prevent the implementation of DRR actions were revealed by the participants. The first and foremost barrier is time and resources. A GO participant noted that it is normally very time-consuming to fix roading if landslides damage the roads. The FGD participants noted that new slips happen in small areas in Haast every year. This is a big financial challenge for the government and the responsible construction companies to fix and maintain the roads proactively. They, however, believed that, in case of landslides, the clearing can be done by the community as they have sufficient gears and machinery in place to do the clearing, rather than waiting for the companies to come and help them to do the work. The main barrier they anticipated for doing the clearing is the lack of fuel and human resources that may have to be brought in from outside.

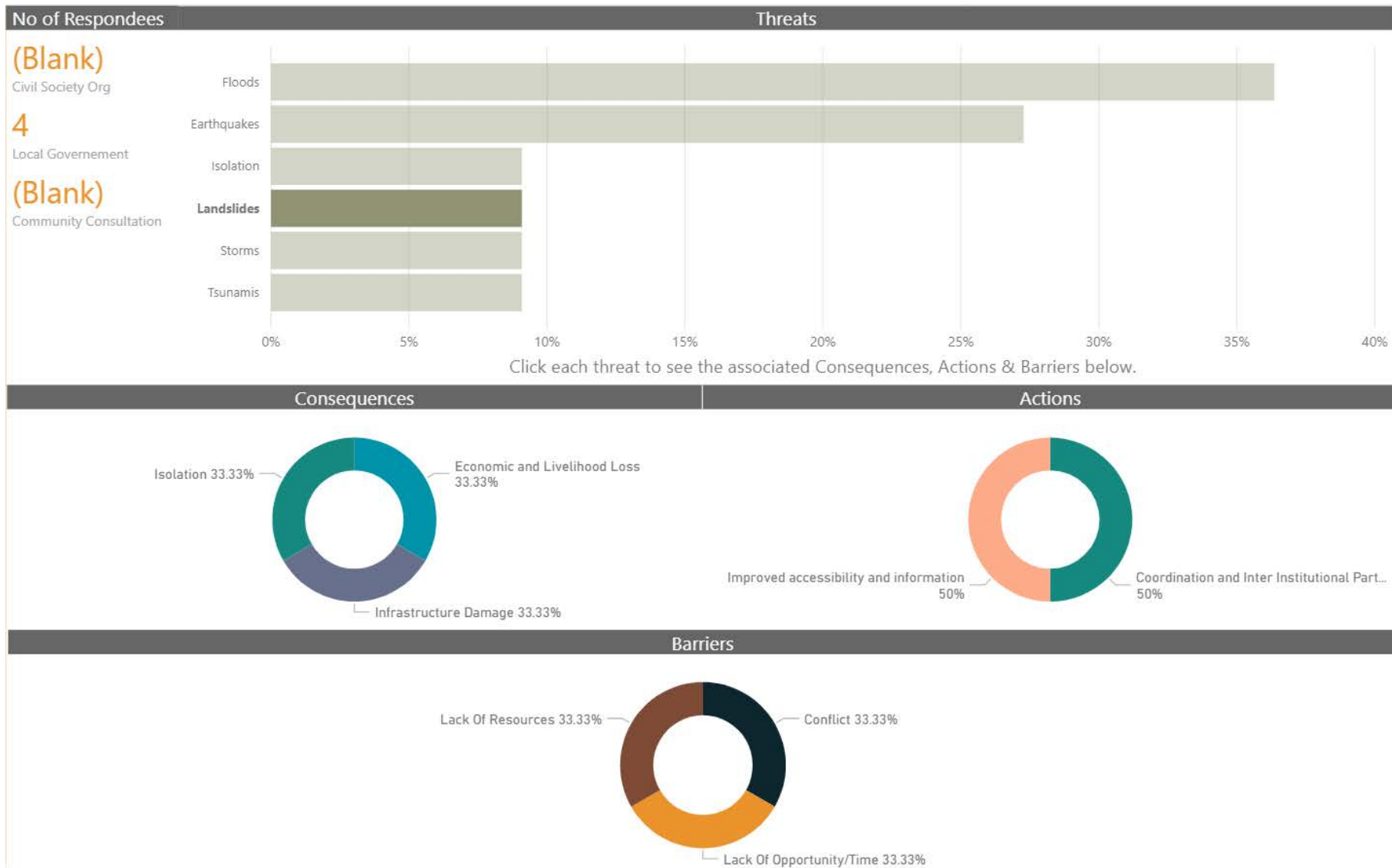


Figure 6. Threats, consequences, actions and barriers for landslides in Westland

2. Change in disaster loss and future risk

The perceptions of both the community and government staff on changes in disaster losses (e.g. lives, livelihood, and assets) over the last 5 to 10 years and on future risk were also explored. The participants were asked to rate this change using the following scale: 1- Decreased significantly; 2 - Decreased a little; 3 - Remained the same; 4 - Increased a little; 5 – Increased significantly. While most of the participants believed that disaster loss remains the same over the last 5-10 years, a high number of the participants from the household surveys believed that the loss increased significantly (Fig. 7). The GO participants who claimed the disaster loss remained the same argued that over the last 5-10 years, there have not been any big disasters, except from the 2019 flooding. They also believed that local people are more aware of local hazards and always prepared for them.

In terms of future risk, the participants believed that the main hazards or threats that younger generations will face in the next 10-15 years are the same as what they are facing now, including floods, earthquakes and tsunamis (Fig. 7). A number of participants consider climate change as a threat as of now and in the future. They believe that climate change may lead to sea-level rise and intensify hydrometeorological hazards such as storms and flooding. Many participants commented that younger generations may be more aware of the disaster impacts such as earthquakes and floods because of the recent earthquakes and the disaster-related knowledge taught in schools. Few FGD participants noted that the younger people in Haast may be aware of the earthquake risk from the internet or social media, especially after the 2011 Christchurch and 2016 Kaikoura earthquakes, despite having not experienced any before. Also, as floods are part of their life here, the younger people may get used to it. However, a GO participant raised a concern of the younger people reliance on technology such as smartphones, TV and the internet which may not work in times of disasters. Also, technology is becoming their main source of entertainment (e.g. music, movie) and communication, and lack of this may have some effects on their mental health after a disaster. She, therefore, argued that the younger generations may be more aware of disasters but this does not mean that they are more prepared or more resilient in times of disasters.

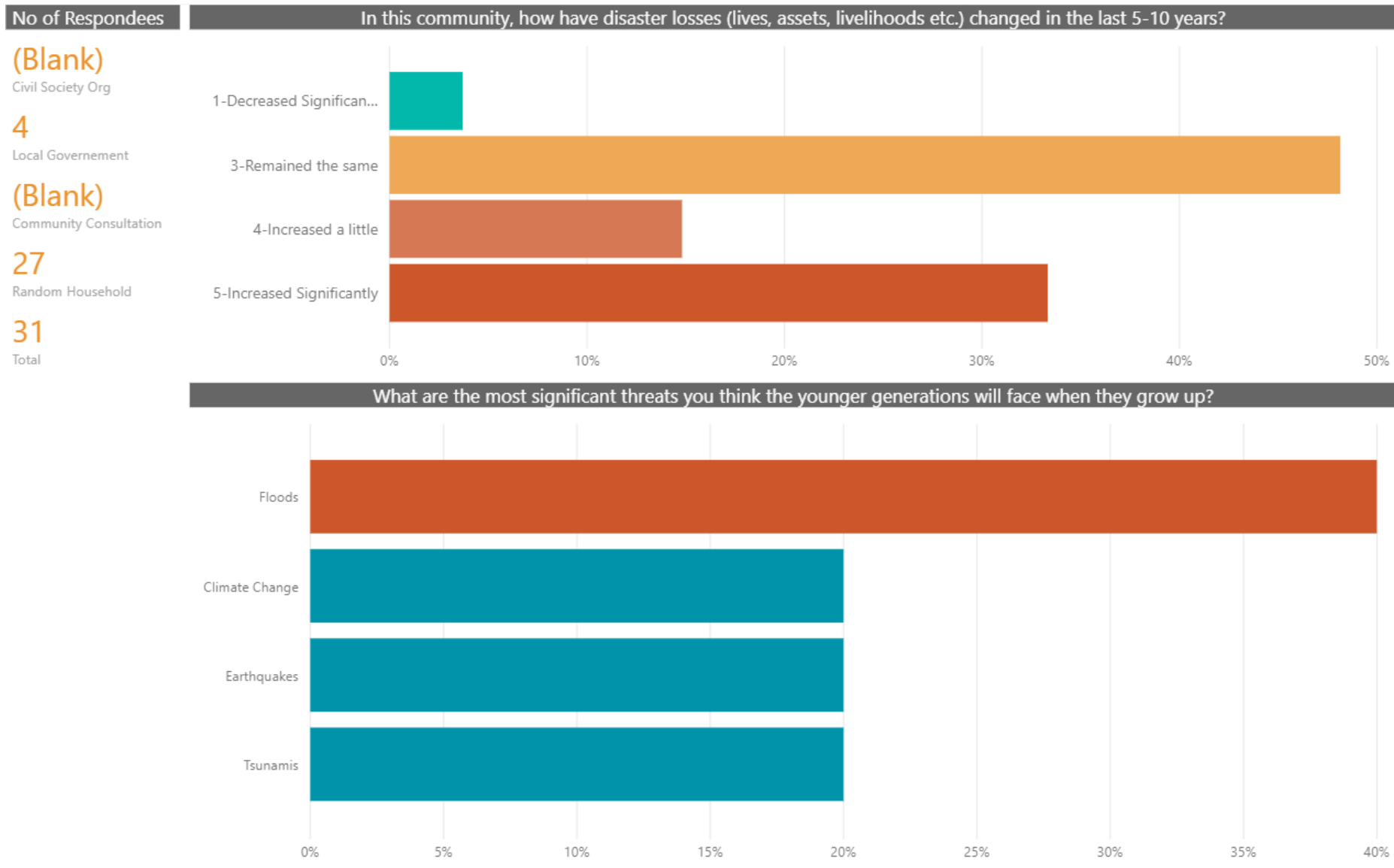


Figure 7. Change in disaster losses and future risk in Westland

3. Risk governance:

This section explores the extent of community inclusion initiated by GOs and CSOs in disaster risk governance processes. Inclusive disaster risk governance is defined as mechanisms put in place to foster full and meaningful participation of relevant stakeholders at all levels of the disaster management and preparedness cycle (GNDR, 2018). In examining the inclusivity of existing mechanisms in disaster risk governance, the research took into consideration the elements and processes below (Fig. 8).



Figure 8. Elements of inclusive risk governance

The below graphs (Fig. 9 – 12) show the status of community inclusion in risk governance from the perspectives of GOs and local people.

Community engagement

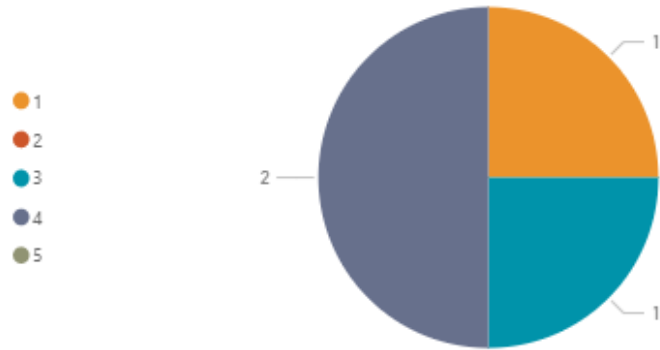
Most of the GO participants generally claimed that the government engaged local communities well in disaster risk assessment, DRR planning, implementation of actions to reduce the risk, and monitoring the resilience progress (Fig. 9). A GO participant commented that the risk assessment is mostly conducted by government staff (e.g. community development officer, recovery manager, civil defence officer, district assets engineer, and planning manager). He added that the local government relies on community groups and local civil defence controllers, who are assigned by the civil defence coordination team to take a lead during a natural event, to inform them of the local status and needs.

Another GO participant noted that the CDEM group contracted with external consultants to do the risk assessment (which mostly focuses on lifelines) at the regional level. She also claimed that the local government is promoting the establishment of community groups which comprise community members and councillors. These groups consider all hazards and climate change and focus not only on readiness and response but also go through land-use planning. They are empowered to get to know about their local hazards, and as a community, how they drive to get funding for their actions or improve their understanding of local disaster risks.

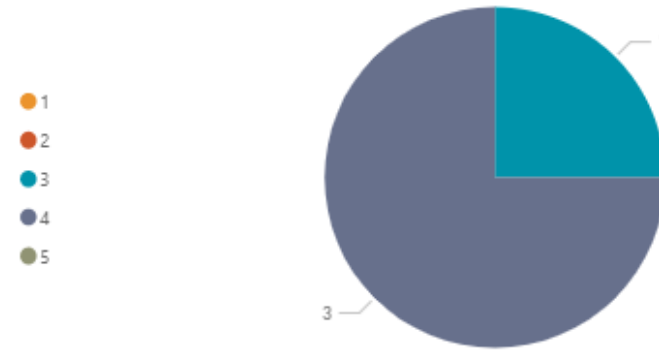
Key

1 - Not at all 2 - To a very limited extent 3 - Occasionally 4 - Yes, with some limitations 5 - Yes, very effectively

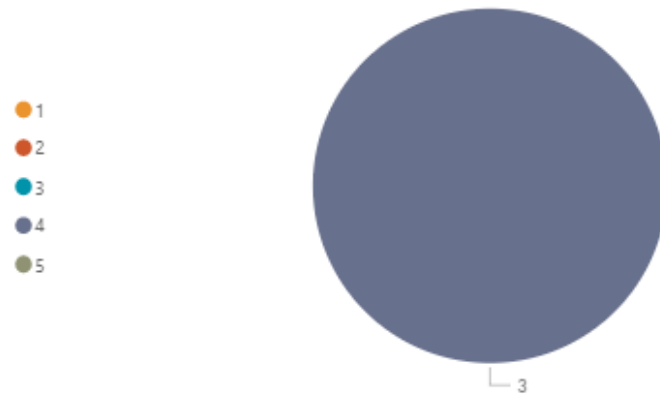
Assessment: Does local government regularly talk to the community, including the most vulnerable, to assess the most significant threats?



Planning: Does local government talk to communities, including the most vulnerable, when preparing policies, plans and actions to reduce risks/threats?



Implementation: Does local government involve communities, including the most vulnerable, in the implementation of actions to reduce risks/threats?



Monitoring: Does local government include community representatives in teams responsible for monitoring progress towards resilience?

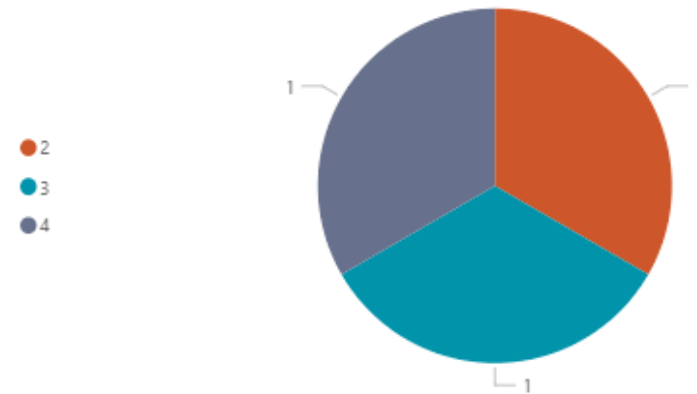


Figure 9. Community engagement by government organisations

In terms of DRR planning, community engagement is done primarily through online submissions and workshops. Although the regional CDEM group plan was sent out for public consultation, a GO participant acknowledged that it was hard to reach remote communities to seek their input. This explains for only 47% of the respondents in Haast are aware of the regional CDRM plan. For development planning in general, a GO participant explained that the local government has a community development officer who works closely with local communities. This officer often organises community meetings to understand what local communities' requirements and needs are. The meetings are generally open to all community members. The GO participant added that if there is a project that may affect a community, the government officers will come down and consult with that community. Another GO participant commented that community engagement in response planning is better than the district and regional development planning as the CDEM group is promoting community response planning. In this process, a local community response group is established and trained to develop a disaster response plan for their own community. This plan will be shared with community members when it is done.

For implementing the DRR activities, a GO participant commented that the local government did involve local communities where there is a project (e.g. mobilising local volunteers to do fund-raising or involving local communities in reviewing the response plans).

For monitoring the progress toward resilience, a GO participant noted that in some projects, community members have opportunities to meet and discuss how their projects are going and how to improve it. Another GO participant commented that the local government conducted a gap analysis of what they did well and what they did not do well with the participation of local community members in some resilience projects.

From the local community perspective, the majority of household survey respondents believed that their community members were not engaged or engaged to a very limited extent in all community resilience processes, including disaster risk assessment, DRR planning, implementation of actions to reduce the risk, and monitoring the implementation progress (Fig. 10).

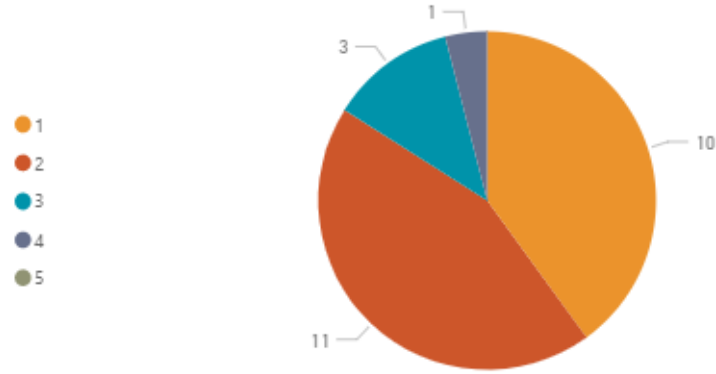
At the time of data collection in Haast, the community response plan was being revised following the new format provided by the CDEM group. The old one was considered lengthy and outdated. This revision process was not open to the whole community but only the community response team established by the CDEM group. Thus, many people were not aware of the community response plan at the time of this study (only 52% of the respondents are aware of the community response plan).

Many interviewed local participants claimed that most of their community members are self-reliant and well prepared (e.g. reserving food, water, gas,...) as they have been isolated many times for weeks or even months after disasters. The interviews with local community members also indicate that they are able to organise themselves to cope with disasters. For instance, a local community member reported that in times of disasters, local community members come together, share resources (e.g. electricity generators, fuels, food), and coordinate the response activities by themselves. He, though, noted that in some cases, using their local resources to cope with disaster impacts is constrained by government regulations. For instance, the Haast community has machinery and people who are capable of operating it. However, due to the government health and safety regulations, they are not allowed to use their machinery and people to clear the road in times of landslips. He thus raised a need for flexibility and more empowerment to local communities in dealing with local disasters.

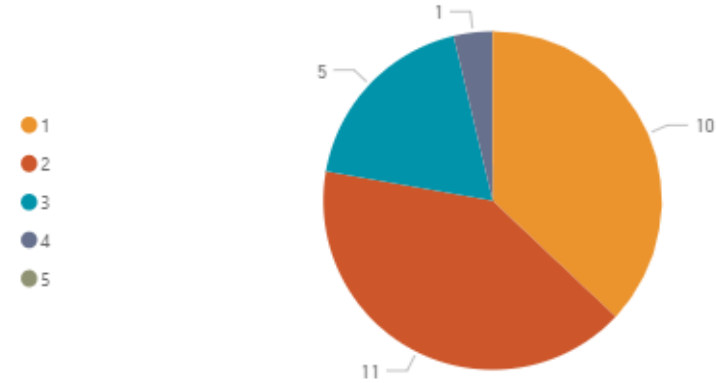
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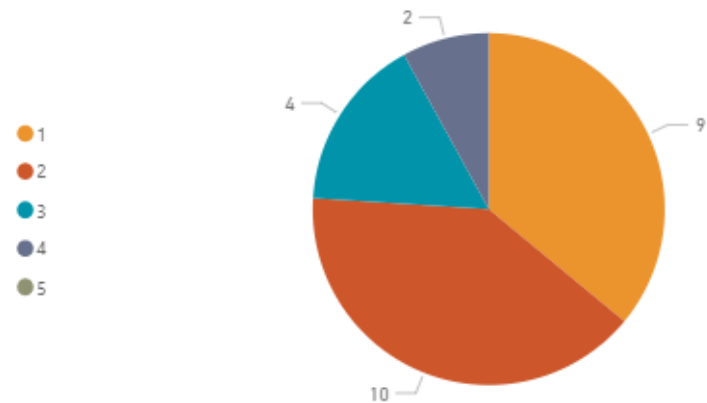
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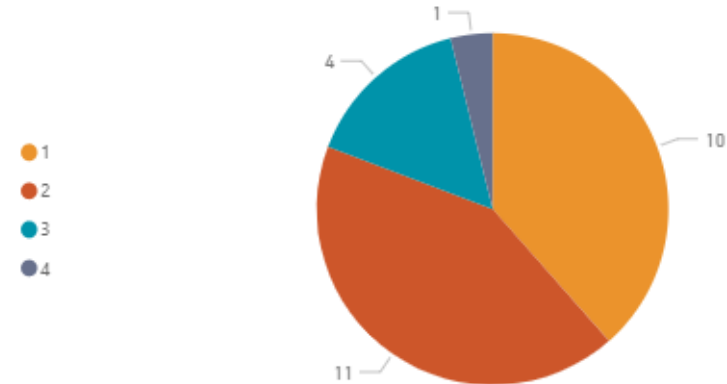


Figure 10. Community engagement from the local community perspective

Enabling environment for inclusion:

Enabling environment refers to factors such as leadership, resources, legal mechanisms and policy that enable and encourage proactive engagement of communities and relevant stakeholders (GNDR 2019).

In general, the interviews with the GO participants indicate that the CDEM Group is capable of influencing disaster risk reduction at the regional and local level. A GO participant claimed that the CDEM group has a great influence on decision-making on infrastructure construction (e.g. road, water supply and sewage systems) to prevent the risks and build resilience. Most of the GO participants also believed that the CDEM plans from regional to local level are generally effective in addressing the risks in the region (Fig. 11). However, a GO participant reported a lack of coordination between the CDEM group and other stakeholders in implementing the plan.

In terms of mechanisms for community engagement in resilience building, most of the GO participants believed that the existing mechanisms (e.g. online submission, phone, and physical consultation meetings) are effective. A GO participant thus raised a need to diversify the formats or channels to promote community engagement in resilience building processes, e.g. Survey Monkey, empower local people to create a workshop among themselves and then let them make a summary and submit it to the local government.

In terms of resources for DRR, the GO participants generally believed that the government has a budget for addressing disaster risks in their region. However, this budget is often not sufficient. A participant noted that the lack of funding prevented the CDEM group from researching to generate risk knowledge as well as enhance the engagement of local communities, particularly remote ones, in resilience building.

Regarding the access to information, most of the GO participants agreed that the government generally have well communicated the risk information to local people through a variety of channels such as community meetings, the internet, and social media. A GO participant commented that all the information local people want can be accessed from their council. As it is public information, they can access it at any time and they can arrange for appointments to meet and talk with the duty persons about relevant issues. However, a GO participant believed that there is still room for improvement in terms of accessibility of the information as not all people can have access through the above-mentioned channels.

From the community perspective, most of the household survey respondents found it challenging to access the information from the government about the actions to reduce disaster risks (Fig. 12). This may be because of the limited access to the internet (e.g. only 68% of the population in Haast have access to the internet according to the 2018 national census) as well as a long distance to the Westland District Council. Many local residents also asserted that as they have lived in their area for a long time, they know what to do in times of disasters, and therefore, do not need the information regarding the actions to reduce risks/threats from the government.

In terms of the access to resources for communities, there is a general agreement among the local community participants that they have no access to or are not aware of financial resources (e.g. money, material, equipment) from local government to address their risks/threats (Fig. 12).

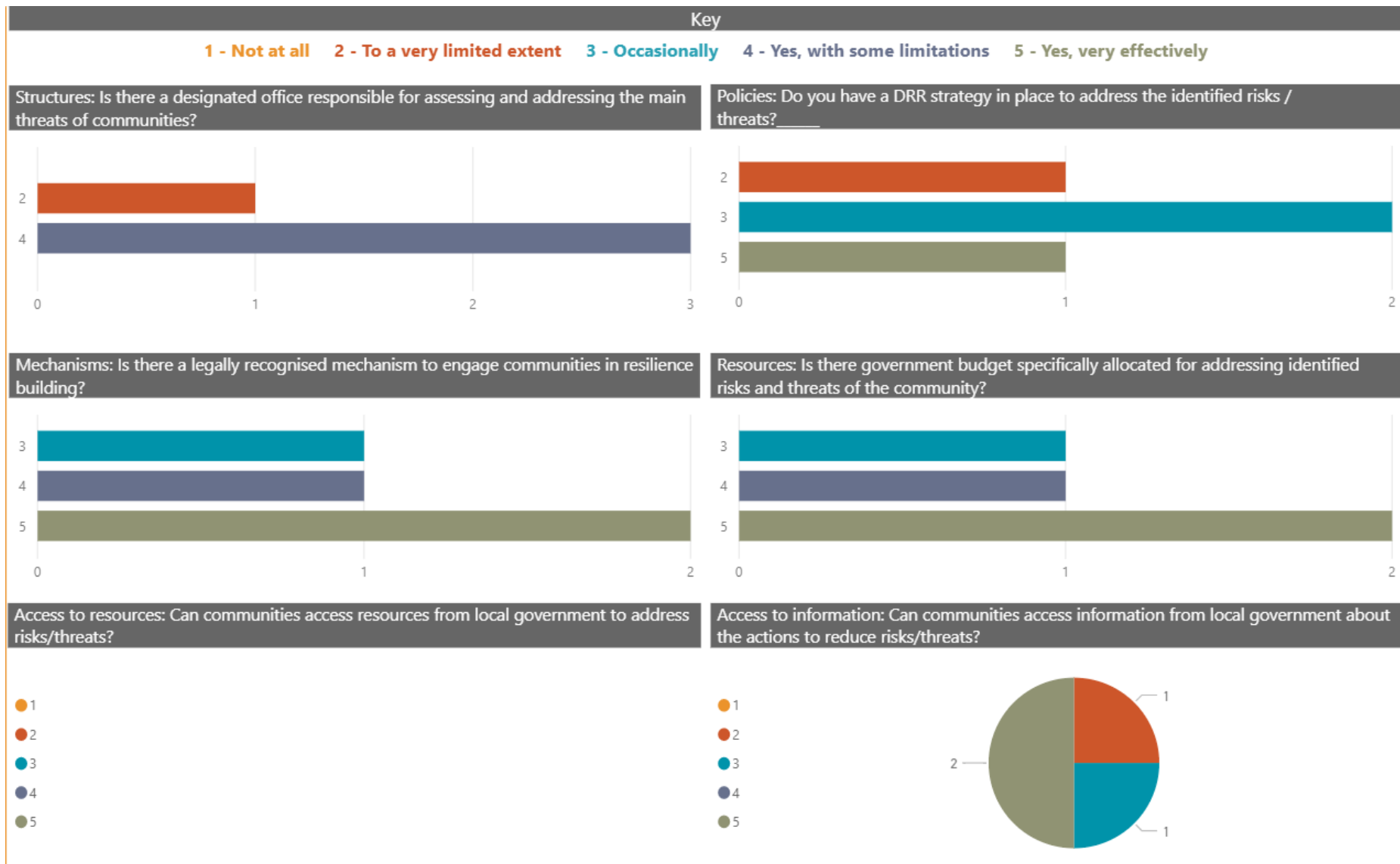
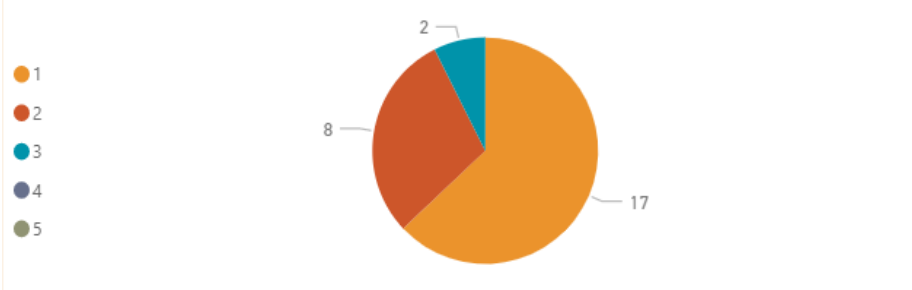


Figure 11. Enabling environment for inclusion from the government perspective

Access to resources: Can communities access resources from local government to address risks/threats?



Access to information: Can communities access information from local government about the actions to reduce risks/threats?

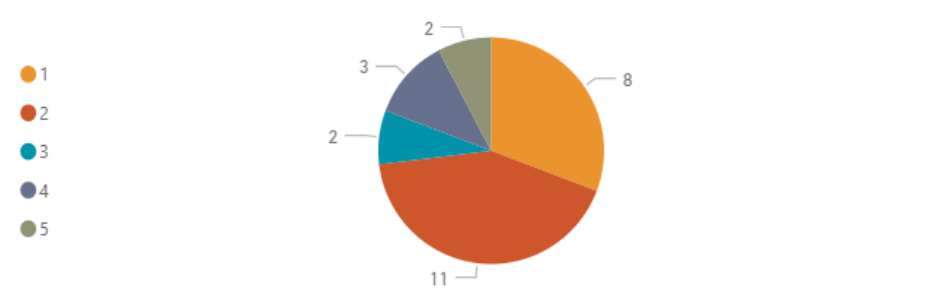


Figure 12. Access to resources and information from the community perspective

Factors that prevent and facilitate the inclusion of communities in the decision-making processes about risks/threats

The research explored a variety of factors that prevent and facilitate the inclusion of communities in the decision-making processes about risks/threats. These factors are reflected by the GO and community perspectives and summarized below.

Barriers:

- Lack of time may come from both sides, the government and local people. Due to short deadlines, the government staff do not have time to collect feedback from the local people. People are busy with their work or the timing is not appropriate.
- Lack of resources prevented the government from holding consultation meetings with remote communities like Haast frequently. On the other hand, some local people are short of resources to travel to the town centre or the district centre to participate in decision-making processes.
- Some participants doubted the willingness of the Regional Council and local government to reach out to their people and believed that the current decision-making processes remain top-down.
- The common form of consultation is community meetings or workshop. However, this form often restricts people from providing feedback if they miss the meetings.
- Long distance from the council base and the meeting venue.
- Lack of communication and inadequate information can prevent local people from participating in the decision-making processes.
- Fragmentation of a community: some local participants did not see Haast as a whole community. They felt that the decision-making about DRR or development was prioritised for the groups of people living in the township and near the highway. This discouraged them to participate in community meetings as they did not see the value for their participation.

Facilitators:

- The current structure of CDEM helps to facilitate coordination meetings. Having local coordinators in communities, especially remote ones, helps the government not only in coordinating the community efforts in dealing with disasters but also understanding the local needs and considering the needs in their decision-making in DRR.
- Local communities and governments are aware of disaster risks and eager to make change to the DRR approach.
- Many rate payers groups have been established. This helped local people have their voice in DRR-related decision-making processes by the government.

4. Coherence

Coherence in this study refers to the efforts of different actors and organisations (government and non-government) to effectively respond to a crisis by identifying ways of working together based on their respective expertise, values and mandates (GNDR 2018). Coherence is the logical connection or consistency between household and community-focused resilience-building activities, on the one hand, and development activities, on the other. When required, activities under these two types of interventions should converge together to deliver the common outcome of development that can tackle future risks, decrease vulnerability and build resilience (GNDR 2018). This study looks at the coherence between strategies to reduce risks and adapt to climate change and reduce poverty.

From the interviews with GO and CSO participants, it shows that disaster risk and climate issues are considered to a very limited extent in local development plans (Fig. 13). A GO participant noted that many councillors do not believe in or support climate change. It is also noted that the Westland District development plan is very outdated and needs a significant upgrade. It was, however, observed that there is no consensus among the GO participants when it comes to the consideration of risks and approaches to reducing the risks in local investment projects and to the government efforts to ensure the coherence between strategies to reduce risks, adapt to climate change and reduce poverty (Fig. 13).

From the local community perspective, the majority of the household survey respondents believed that disaster risks and climate issues are not considered or considered to a very limited extent in local development plans. Similarly, most of the respondents believed that risks and approaches to reduce the risks are not carefully considered in local investment projects (Fig. 14).

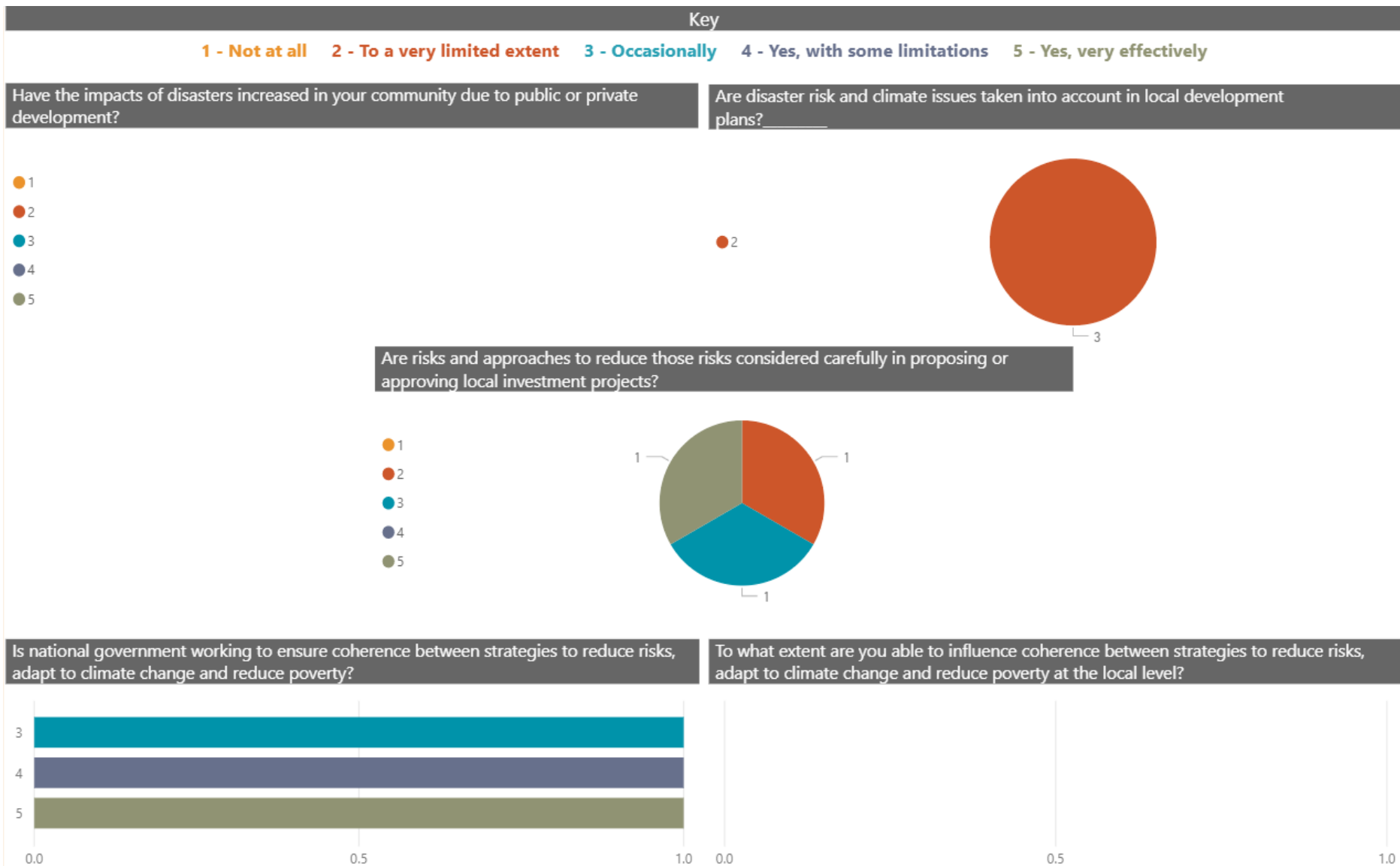


Figure 13. Coherence from the government perspective

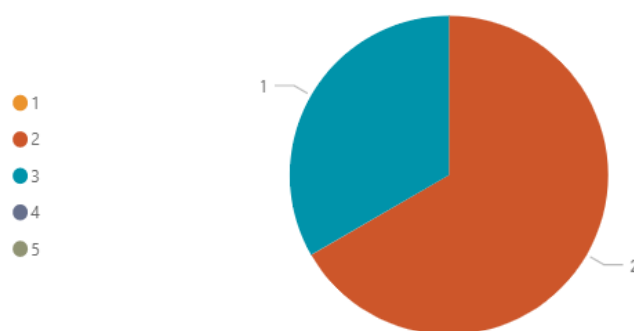


Figure 14. Coherence from the community perspective

5. Ecosystem-based disaster risk reduction

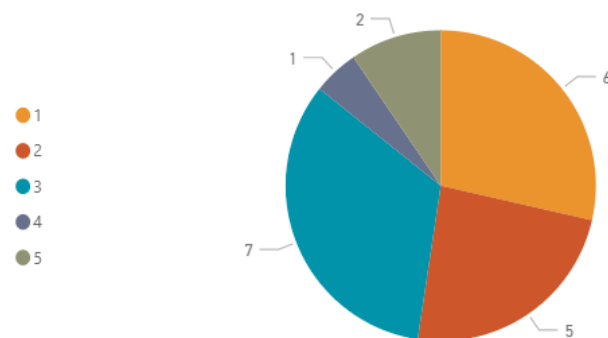
Ecosystem-based disaster risk reduction refers to the sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and by increasing livelihood resilience (GNDR 2019). The GO participants claimed in general that ecosystem-based approaches are used in building community resilience to a very limited extent (Fig. 15). In line with the government perspective, the majority of the household survey respondents believed that the local government does not consider or consider to a very limited extent environment and ecosystem management issues while implementing development plans.

Are ecosystem-based approaches used in in community resilience building?



(a) government perspective

Are ecosystem-based approaches used in in community resilience building?



(b) Community perspective

Figure 15. Ecosystem-based DRR approach from (a) government and (b) community perspectives

III. Conclusions

This study contributed to raising the voice of local people in resilience building processes in the study area. The local community had a chance to share their concerns and needs with regards to the disaster risk reduction processes (e.g. their concerned threats/hazards, their priority actions, barriers for taking the actions and participation in disaster resilience processes, and access to information and resources).

A variety of threats being concerned in the study community were explored. For most of the threats identified, having a community resilience plan, investment in mitigation infrastructure (particularly for floods, earthquakes and storms) and improving the coordination among the government sectors as well as between government and non-government organisations are the most important actions in building community resilience to disasters. The assessment also revealed a variety of barriers that prevent both the government and people from taking actions to reduce disaster risk, and the most significant one is the lack of resources. To some extent, however, these resource limitations can be overcome by strengthening the collaboration with stakeholders and particularly local communities. For instance, partnership with universities and infrastructure companies in order to mobilise their resources for doing research and generating risk knowledge. Similarly, promoting the establishment of ratepayer groups to mobilise the local contribution to building resilient mitigation measures.

In addition, this study provided a chance for both government and non-government stakeholders to reflect how inclusive their risk governance is and for communities to evaluate their inclusion in this risk governance. From the local community perspective, in general, the community engagement in the disaster risk assessment, DRR planning, implementation of actions to reduce the risk, and monitoring the resilience progress remained limited in the study location.

A variety of factors that prevent and facilitate community inclusion in decision-making processes (e.g. local development planning or community response planning) regarding disaster resilience were also revealed. These factors did not operate in silos but were often interrelated in causing effects (preventing or facilitating) on the community inclusion. In addition to the most reported barriers such as lack of resources and time, the participants raised their concern of the weak leadership in reaching out to local communities, especially remote ones, and the top-down decision-making. External factors such as communication and accessibility are also necessarily improved to create more opportunities for people to participate in the decision-making processes.

Furthermore, in the study area, disaster risk and climate change issues were not well considered the local development plans. Similarly, while ecosystems are believed to provide services that reduce disaster risk by the reducing the exposure of communities to hazards and by increasing livelihood opportunities, ecosystem-based approaches were considered in a very limited way in building community resilience at the study area.

It was also evident that the Haast community can organise themselves to cope with disasters. However, the community connection, communication regarding the local community resilience processes, and inclusion of vulnerable people need to be strengthened. When it comes to the collaboration of multi-stakeholders in disaster resilience building, although elsewhere the important role of CSOs is recognised in building local resilience, their contribution to or influence on the local disaster resilience remained limited in the study location. This may be because of the limited number of CSOs working in the region and the study site particularly.

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