

# Getting Started with Community Resilience Planning

*A Kit to Implement Dialogue on Planning  
Community Resilience to Environmental and  
Climate Changes*



*Coastal Communities Challenges  
Community-University Research Alliance*  
[www.coastalcommunitieschallenges.org](http://www.coastalcommunitieschallenges.org)



Coalition pour la viabilité du  
sud du Golf du Saint-Laurent  
Southern Gulf of St-Lawrence  
Coalition on Sustainability



Social Sciences and Humanities  
Research Council of Canada

Conseil de recherches en  
sciences humaines du Canada

Canada



*Atlantic Climate Adaptation Solutions Association  
Solutions d'adaptation aux changements climatiques pour l'Atlantique*



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada

# GETTING STARTED WITH COMMUNITY RESILIENCE PLANNING

*A Kit to Implement Dialogue on Planning Community Resilience to  
Environmental and Climate Changes*

**By: Dr. Liette Vasseur  
Brock University**

**October 2012**

**Document:** Vasseur, L. 2012. Getting Started with Community Resilience Planning. A Kit to Implement Dialogue on Planning Community Resilience to Environmental and Climate Changes. Training manual prepared for the Southern Gulf of St. Lawrence Coalition on Sustainability and the Coastal Communities Challenges - Community University Research Alliance. 20 pages.

## Acknowledgements

The author would like to acknowledge the efforts of the Coastal Communities Challenges - Community University Research Alliance partners, especially Julie Guillemot and Steve Plante, and the Southern Gulf of St. Lawrence Coalition on Sustainability members and staff, Thérèse Chenard, Chantal Gagnon and James Risdon, whose knowledge and experience contributed to the development of this kit. We would also like to thank the representatives of the Town of Shippagan and the District of Sainte-Marie-Saint-Raphael in New Brunswick who attended the original trial workshop. Your participation helped provide local knowledge which refined the process to be of particular use to local decision-makers.

The author would also like to thank the New Brunswick chapter of the Natural Resources Canada Regional Adaptation Cooperative, the New Brunswick Environment Department and the New Brunswick Environmental Network for their encouragement to develop this kit and offer to more communities a tool to sustain climate change adaptation efforts across the region.

Finally, the author would like to acknowledge the financial contributions of the Coastal Communities Challenges Community University Research Alliance and the Social Sciences and Humanities Research Council of Canada and the New Brunswick Regional Adaptation Collaborative.

*How to cite this manual:* Vasseur, L. 2012. Getting Started with Community Resilience Planning. A Kit to Implement Dialogue on Planning Community Resilience to Environmental and Climate Changes. Training manual prepared for the Southern Gulf of St. Lawrence Coalition on Sustainability and the Coastal Communities Challenges - Community University Research Alliance. 20 pages.

# Table of Contents

Acknowledgements .....	1
Table of contents.....	3
Terms used in this book .....	4
Introduction.....	5
The method .....	6
Introduction to the tool.....	6
Defining vulnerabilities to climate or environmental changes .....	6
The conceptual framework .....	7
The steps .....	9
Vulnerability assessment.....	9
First meeting.....	9
Understanding risks.....	10
Identifying the physical consequences .....	11
Identifying the socio-economic consequences .....	12
Identifying the governance and policy consequences .....	13
Integration and defining options: Bringing all together .....	14
A path to resilience.....	14
Adaptive capacity .....	15
Examining pros and cons of adaptive strategies or solutions.....	15
Towards resilience.....	16
Recommendations and actions .....	18
Conclusion .....	18
Appendix A – Recap of the different steps .....	19
Appendix B – Links and references of use in planning this activity .....	20

## Some terms used in this kit

**Adaptation:** Adjustment in our activities in order to respond positively and sustainably to a change. This change can include climate, economy, etc. Our responses to change can be social, economic, behavioural, psychosocial, etc. (Smit et al. 1999).

**Climate change:** Long-term fluctuations in temperature, precipitation, wind, and all other aspects of the Earth's climate. It is usually defined over a period of 30 years.

**Dialogue:** An exchange of ideas, opinions, and knowledge between two or more persons, groups or organizations in order to find solutions through consensus.

**Ecosystem:** A system of living organisms including humans interacting with each other and their physical environment. The extent of an ecosystem may range from very small spatial scales to the entire Earth (Baede 2007).

**Emergency plan:** A document describing the organizational structures, roles and responsibilities, means and principles for intervention during an emergency. Emergency plans are prepared at several different levels: national, provincial, and local. They may include all activities planned to be carried out by all relevant organizations and authorities, or may be primarily concerned with the actions to be carried out by a particular organization. They should include such elements as emergency functions of government agencies, mobilization of resources, and public information.

**Governance:** The process of regulating behaviour or coordination action between the actors in accordance with shared objectives, missions or interests. It recognizes the contributions of various levels of government (global, international, regional, local) and the roles of the private sector, non-governmental actors and civil society to a situation.

**Resilience:** "The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change" (IPCC 2007).

**Risk assessment:** Process used to identify, and if possible predict, the risks that a proposed project could have on the environment (physical, biological, socio-economic or cultural) before it is carried out. The risks can be spatial, temporal or cumulative. The goal is to also determine how to mitigate i.e. reduce or avoid these risks.

**Vulnerability:** Probability or degree to which a system is susceptible to, and unable to cope with, adverse effects of a change. It can be climate change, including climate variability and extremes, economic downturn, recession, labour dispute, etc. (Baede 2007).

## Introduction

Adapting to environmental and climate changes is an essential component of any community planning effort in order to be more resilient. Whether your community is highly aware of these changes or not, knowing how to plan adaptation strategies is a vital component of any emergency preparedness plan, development plan or long-term sustainability plan. Indeed, changes in the environment happen to all communities, be they coastal changes because of storm surges, flooding along a major river or heat waves in a downtown.

Planning for these changes requires inclusion of all population segments of one's community in a shared dialogue. That dialogue must be guided and facilitated if it is to be useful in developing local plans. This is the purpose of the present document: to present a kit, which is simple and usable by community leaders or non-governmental organizations interested in moving ahead with adaptation.

The objective of this kit is to encourage and help communities implement a community dialogue to develop a consensus on which community elements are vulnerable to environmental and climate changes and from there develop plans that focus on strengthening the resilience of the community. These terms are explained in this kit.

This kit provides you with a step-by-step explanation of the method from assessing vulnerability to move toward resilience as a training tool for community leaders and non-governmental organisations (NGOs). This method entails holding two days of training in your community. The first meeting involves a workshop to train your local leaders and NGOs on the method and how to use it in a community dialogue. The second day should be a facilitation workshop, which explains some of the tools these leaders can use in order to facilitate these dialogue sessions.

The discussions and issues brought to light through community dialogue on vulnerability and resilience can be very challenging for community leaders and residents. Sometimes it is easier to ignore the changes that are happening than face the hard work required to adapt to them. At other times, the issues may seem too big for a community to be able to initiate local action. This kit along its method of implementation and workshops will help make this process easier. It will help your community see that small actions can lead to big changes and that taking it one piece of the puzzle at a time will provide for a holistic plan.

The kit is divided into three sections: explanation of the method, vulnerability assessment and a path towards resilience. These sections will provide instructions as to how you can start a dialogue with your community to identify priorities and develop plans. The intent of this kit is to encourage communities to work with their residents and local NGOs instead of labouring in isolation. A collaborative approach that includes members from a wide cross-section of your community will increase the acceptability and the likelihood that strategies or policies proposed by community leaders can be effective. This type of work is time consuming and implementing several elements of a plan can take many years. However, the method outlined in this kit is itself adapted and flexible so that it can grow as your community grows in the

process of developing your plans. This kit therefore provides you with the initial tools to help build a strong foundation for dialogue and inclusion within your community to develop long-term plans for adaptation and resilience to environmental and climate changes.

## **The Method**

### **Introduction to the tool**

The main challenge for most people is to understand the concepts of vulnerability and resilience and determine how they can apply to them, their families, businesses, or their community. In many cases, the way these tools are defined gives the impression that everything must be done or examined at the same time and it becomes overwhelming. The tool described in this manual aims to simplify the process, as it is a process, not a goal with an end and a deadline, and to ensure issues can be addressed without the need for many consultants. It is a very inclusive tool meaning that citizens of a community should all be able to participate. Regardless of challenges posed by varying levels of literacy and/or education, this tool approaches the concepts of vulnerability and resilience in a simple, easy-to-understand manner. First, the terms are defined to ensure every aspect is explained. Then for each step, we will first explain what we mean and then discuss the exercises that need to be completed to move forward. It is important to remember that this is first and foremost a tool to stimulate dialogue, not a set of pre-made solutions. In fact, there are no perfect solutions to issues regarding climate or environmental changes. In most cases, there is a need to examine the issue, discuss it and find possible options and determine which one may be the best knowing that others may also be implemented or adopted later.

### **Defining vulnerabilities to climate or environmental changes**

Climate and our environment are both changing naturally or due to human activities. We cannot any longer deny of the impacts of humans on the environment locally and globally leading to changes in climate. For example, coastal communities frequently face issues such as erosion and storm surges. In some communities, intensive agricultural practices have led to more water pollution, soil erosion, etc. Even when we think we are helping the environment, there might be often negative consequences. For example, a wastewater treatment plant helps remove contaminants from the water that is discharged into streams and rivers but at the same time, in the treatment plants residues (sludge) remain. They can be either toxic or useful depending on their content in pollutants and nutrients. As they accumulate, there is a need for a solution: will it be landfilling, composting, burning, etc.? We always need to make a decision. Which option is the best one? Most citizens will leave this decision up to the decision makers of the municipality. However, in some cases, though, the public does not accept the decision and conflicts ensue. When we talk about climate change, it is often even more complicated as we don't necessarily see the concrete problems. Some are obvious such as the erosion of a coast but others may have been experienced once and may be experienced in the future but we don't know when. Many changes are coming in the future. Should we just look and wait

and respond once the problem is there or should we be proactive and plan now to avoid damage later? This is a huge issue for most communities and even families at home.

The first step is to understand what your current level of vulnerability is. This manual does not pretend to be a full compilation and an exhaustive resource on climate change and adaptation. There are several books and guides that discuss these issues (see Appendix A for references). Vulnerability can be defined as the potential or level of susceptibility of a person, family, community or even a region to be unable to cope or react to a negative or adverse change (Baede, 2007). Here in this manual, we focus mostly on climate change but in life, we know that we may be vulnerable to disease because of immune system is low and we are unhealthy, or to recession because the main industry is closing its doors, etc. Being vulnerable means that our capacity to adjust and adapt to a new situation is limited. The aim of improving resilience is to reduce our vulnerability to something. If you're very healthy, your immune system is strong and you are not vulnerable to diseases (or at least not as much!).

Vulnerability to climate change means that your household or your community is exposed to a risk or several risks. For example, if your house is located on a steep slope and more heavy rainfalls are predicted for the next 10 years, your level of exposure to the risk of having your house swept away by a mud slide is increased and therefore your vulnerability is higher. If in addition, the landowner higher up the mountain has clearcut the forest leaving bare soil instead, you know that your level of vulnerability will be significantly increased since there is no longer a buffer to absorb run-off during storms, leaving that water free to flow rapidly the slope. For you, it is a question to first know where the risks in regard to an issue are. Because climate change affects everyone, this tool targets communities and aims to determine the various factors that make a community vulnerable to a specific issue through dialogue. When such a dialogue is initiated, it is important to remain focused on one issue at the time and completely understand the various factors before moving on. The mistake many people make is to try to resolve everything at once and deal with too many issues simultaneously. This is not the approach used in this manual. It is also important to know that not all problems can be resolved in one meeting. The tool should be used step by step. Do not attempt to complete the full cycle within a day. This will not leave time for discussion, reflection, capacity building, and data gathering for options, etc.

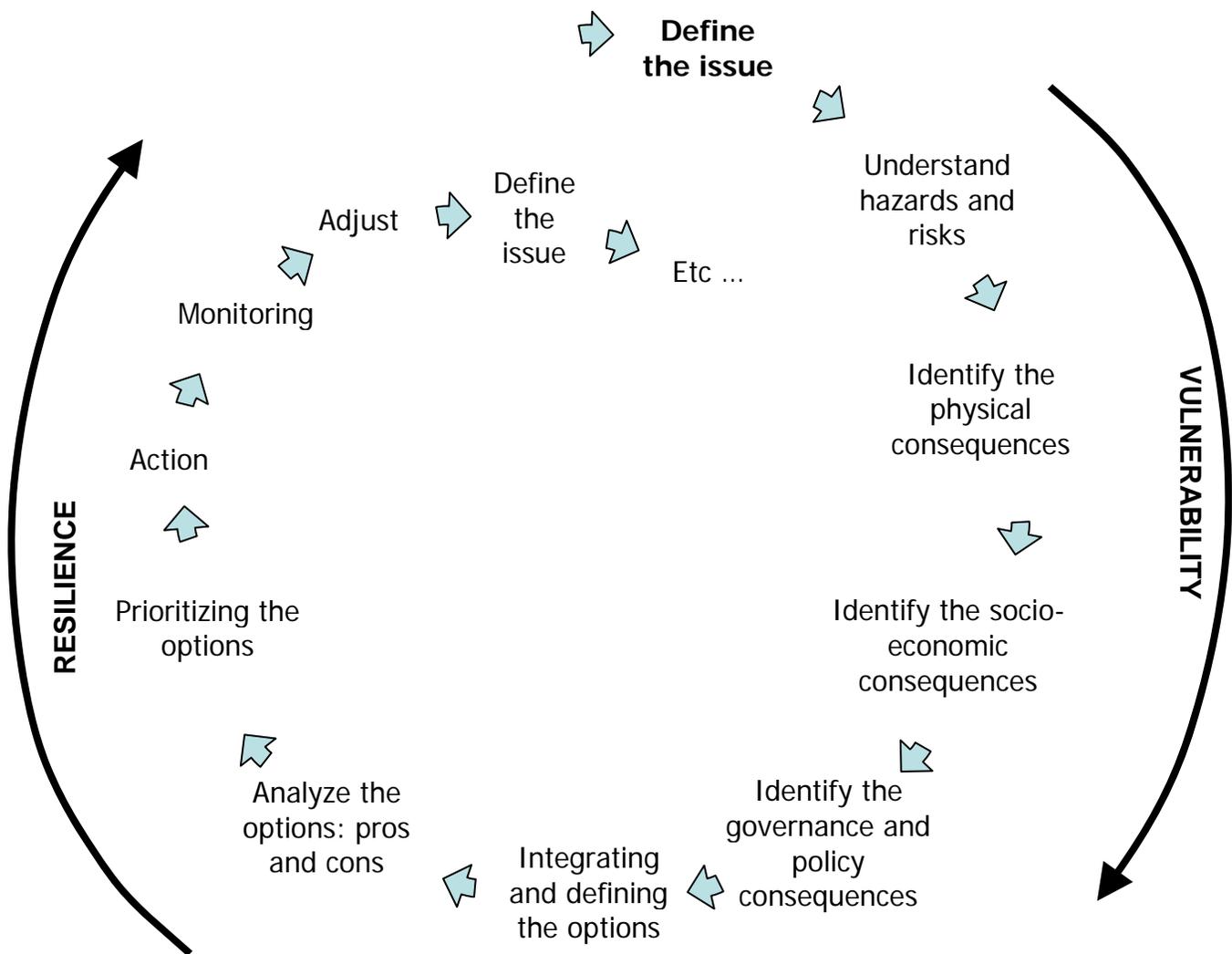
### **The conceptual framework**

This vulnerability assessment towards resilience kit was inspired by the work of Pasteur (2011), my own experience in community-based management and decision making process and other sources (see links in Appendix A). The framework is based on the fact that it is difficult to tackle many issues at once and without a good understanding of the situation, decisions are hard to make and may lead to conflicts. The framework used here includes as basic steps: definition of an issue, understanding of the risks, the physical and socio-economic consequences, governance and policy and finally finding the possible options and understanding the consequences of using them.

This is a step-by-step approach which should not be rushed. It should be as inclusive as possible and support all stakeholders in the community. The model is based on the following principles:

- Inclusiveness
- Capacity building
- Social acceptance
- Alternative and simple solutions
- Dialogue
- Openness and transparency
- Complete understanding of the issues and the solutions.

The model is summarized as follows:



The next sections explain the various steps that will need to be completed to increase the capacity of resilience of a community by taking into account all aspects, from environmental to socio-economic.

## The steps

This section explains the different components of vulnerability that should be understood before trying to find solutions define strategies or develop policies. The first step will be to define the issue of what is at risk. It may be precise such as a street with a few houses being too close to the coast where erosion occurs, to more complex and global for a community like decreased quality of drinking water due to seawater infiltration in the water table. This step of defining what is at risk can be done by a group of citizens, by a municipal council or an NGO. The main point here is to have someone wanting to work on the issue. If it is a group of citizens or an NGO, it might be very important to work with the municipal council to ensure their participation. From my experience, committees endorsed by a municipal or local government can be quite effective, especially if they are highly inclusive.

Once you have your issue and you have an endorsement from the community, the next step is to make sure that you communicate with all possible stakeholders. The more inclusive you are, the greater is your potential for success and finding acceptable solutions or strategies. If possible, have more than one meeting for each component so you don't leave people who would like to participate behind. Meetings at different times of the day and different days of the week may help allow more people to participate.

### Box 1.

Adaptation is any adjustment or decision made to maintain the capacity to deal with current or predicted changes.

Adaptation can be observed at different scales (temporal and spatial).

## Vulnerability assessment

### First meeting

The first meeting should aim at introducing the issue to the participants. Is it the possibility of flooding? Is it water quality? Why is this issue important to deal with? You will need to make sure that you have enough information to explain it. However, you should also make sure that you don't jump to the solutions immediately. In fact, this should not even be on your mind. In this manual, we will take as an example a couple of streets in a community where there has been flooding, due to three storm surges, that have occurred in the past two years. In this example, the municipal council has decided to deal with this issue and has formed a committee with, as organizers and first line participants, the councillor of this ward, the planner and one of the engineers of public works. The residents of the streets within the zone and in the

surrounding are all invited to the meetings. Because some complained that a meeting on Monday night at 7 pm is not possible, you also add a second meeting on Saturday at 3 pm.

The first meeting aims to explain to everyone what vulnerability is and to describe the steps that will be used before defining solutions. It is important for the organizers to bring up the importance of dialogue to find solutions. A better understanding of the various aspects will help develop more sustainable and equitable solutions, strategies or policies. A PowerPoint presentation is attached to this guide for your convenience.

## **Understanding risks**

The first step once the issue is agreed upon is to assess the risks. At this point, the facilitator may decide that each step is a meeting or a meeting contains two steps. This is a decision to make at each meeting considering the complexity of the issue and the need for more discussion. Some subjects may be simple and a few steps could be accomplished in a meeting, while others may be difficult due to various interests and each step will require a meeting or even more.

The first step aims to answer: What are the main risks to consider when the adaptations strategies are developed to reduce vulnerability and improve resilience? A few terms may need to be explained. Hazards are any possible events that can have a negative impact on people, infrastructure, ecosystems, communities, etc. They differ from risks which are degrees of exposure to hazards where there is a potential for loss. The impacts or consequences of a hazard lead to consequences. The following questions should be used to help participants understand their own risks and hazards regarding the issue at stake. Ask:

- What is the history of disasters in your community that lead to have this issue? (or example, flooding due only to storm surge or flooding due to storm surge and regular bursting of municipal water main).
- What is the typical frequency and duration of the hazards and consequences? Is it seasonal? Has it changed over time? Are there any warning signs?
- Are there other events, circumstances with or trends that you feel unable to cope or adapt to? (For example when flooded, the streets are all cut off from the rest of the community and no one can come and help unless by boat.)

Three additional questions can start being addressed although they will resurface in other meetings. They are there to remind participants that it is not just about them and to start thinking about others who might have been affected but not present at the meetings (for various reasons).

- What households or groups suffer most during these periods of stress? (For example, is could be the two elderly couples at the end of the street, a single mother, etc.)
- Are these most affected people present at these meetings? Were they invited? Why?
- Which community assets, markets, property, or services are affected and how?

These questions, similarly for each step, are there to help move the discussions forward. In some cases, participants have already some ideas and may not need so many questions. It is

important for the facilitator to gauge the participants and their involvement. A map or some photos, if available, can help the discussion too. At the end of this step, make sure that all the points have been captured. You may want to write them down as a first thing to recap at the next meeting or before moving to the next step. Make sure that there is consensus and that no point is missing. It is easy (but dangerous) to discard a point because it only affects one or two persons.

**Box 2.**

Be careful about confusing risk with change.

Standard adaptation can lead to a state in which the social ecological system deals effectively with perceived risks.

Adaptation in a resilience framework promotes managing the capacity of the system to cope with future change.

### **Identifying the physical consequences**

The first component that people always talk about when a disaster hits is the physical consequences, i.e. what are the infrastructures, the assets, etc. that have been damaged because of the hazard? In this step, participants should go back to what they have learned in the first step and examine the physical consequences, especially thinking about how they will also be impacted in the future. Is it something coming back every spring? Every fall? In the past, it was only occurring once in 20 years, now it is almost every year, etc.

The questions that can help lead the discussion are:

- Which community assets, markets, property, or services are affected and how?
- Who is most affected by this hazard and its consequences? How?
- What are the key constraints or opportunities that each people affected by this hazard and its consequences face? Is this likely to be the same each time there is a similar hazard or can it either increase or decrease in intensity? What is the level of certainty regarding these events and their intensity?

In this component, people should limit most of their observations to the physical human or built environment. However, in some cases, this will overlap with the natural environment, especially when we examine managed ecosystems such as gardens, parks, etc.

Again, like in the previous step, make sure that you capture all the responses. It is also possible to use maps and add a legend with the elements that have been more impacted than others. It is possible to record each impact with a different coloured pencil to denote relative certainty of it ever happening again, or to use those same pencils to perhaps indicate the relative frequency of each event. In the presentation notes, you will see some advice that can help when you conduct the round tables and discussions. Be prepared, there might be challenges depending on the groups you have. Some participants may be more outspoken than others.

## Identifying the socio-economic consequences

It is important to know your community, the hazards and how they play a role in your community's capacity to deal with uncertainties and the physical consequences. These were the previous steps. It is also important to think about socio-economic impacts and how it can influence your capacity to deal with the hazards, the physical consequences and the future uncertainties of these impacts and hazards.

In this step, using what you've learned in the previous two activities, participants will have to identify socio-economic and governance aspects that could have been influenced by the discussed hazards and consequences. When we talk about socio-economic aspects, participants should be able to look at impacts on their families' finances, the costs of having infrastructure rebuilt, of closing a store for a week because of water damage, the financial burden of cleaning up in a house, etc. At the social level, there is a question of social equity. Are poor families being ignored by emergency services? Are the damaged roads in a wealthier neighborhood repaired before the others?

Like in the previous steps, at the beginning of the meeting, make sure that you recap from the start. You never know if additional participants have joined the group. You have to feel that they understand the issue, the hazards and the consequences as well as the others, so they will be comfortable contributing to the discussions. In this step, once you have summarized all the information from the previous steps, remind the participants of where they are in the process and explain what the terms mean. What are socio-economic aspects? Not everyone understands well these terms. Take your time to explain and give examples if needed. The previous paragraph should help. Then participants can work on the following questions:

- What known economic, social, environmental, policy, market or technological aspects could have been influenced as a result of this hazard? Who lost or gained (socially, economically, etc.) from these impacts?
- What are the resources, skills, or other social elements, both strong and weak, that helped reduce your vulnerability or impacts to the discussed risks and hazards?
- What would need to be stronger? (e.g. the warning didn't come fast enough, leading to more stress, the city came to verify if there were damage to the rich people on the street only leaving the others alone and creating tension, etc.)
- Which are the households or groups that suffer the most during these periods of stress? (e.g. two elderly couples at the end of the street, one single mother, etc.).

Some questions can come back from the previous meetings as they also help clarify some aspects:

- Are there any underlying causes of the hazards or stresses?
- Does the community understand them or how to address them?
- Which groups within the community are the most affected and how?
- Which community assets, markets, property, or services are affected and how?

## Identifying the governance and policy consequences

Governance also touches different aspects (economic, social, environmental, policy, market, technology, etc.) in how the impacts and consequences were handled. Who were the people driving the decisions? Were the decisions made rapidly? Was there a plan to help people put into place rapidly? Governance means how things were handled and by whom. What are issues of governance? Are the current policies in place in your community helping to reduce vulnerability to the discuss hazard or are they barriers? For example, if there is no policy for building an industry close to the waterfront but such an industry exists and is closed due to flooding creating a loss of employment for two months, how would the community react? Should there be a bylaw to reduce exposure of sensitive infrastructure? Since not everyone will be familiar with the terminology, go slowly. You may first want to discuss a few elements with the entire group before bringing them up again in a roundtable discussion. Among the questions that can be brought up:

- What were the weak and strong points in the decision making system or the actions that have helped you reduce the impacts?
- What would need to be stronger? (e.g. emergency measures system was too slow, the warning didn't come fast enough, the emergency workers fail to come or city never came to verify if there was damage, etc.)
- What connections or relations exist between different actors in the community that could influence the severity of the consequences of the hazard and how have you been able to handle the impacts? Did you feel supported by your decision makers, your government services, and, if so, which one, the local service district, the municipality, or the provincial or federal government?

Note that some questions asked here will be similar to those posed previously since there is some overlap between the socio-economic and governance components. This is fine. But, just make sure you note the areas of overlap. One aspect, which can come up after examining the socio-economic impacts and the governance aspects, is the concept of equity. In general, participants rapidly realize that social justice is one aspect often forgotten during discussions on climate or environmental change and vulnerability assessment. But discovering that two elderly families were struggling and their socio-economic impacts were significantly different than the rest of the people in a neighborhood often makes quite an impact on participants and may influence their decisions and actions in the future.

### Box 3.

Governance and equity. Fundamental trade-off exists between vulnerability and resilience. Equity in outcome = distribution of vulnerabilities across stakeholders while equity in process refers to fairness of the institutions in terms of decision making.

## **Integration and defining options: bringing all together**

At this point, you should have most if not all the elements to have a global picture of the vulnerability of the participants (or community) in regards to the issue being discussed. There are a few ways to visualize this. As previously mentioned, maps with photos and drawings can help illustrate the consequences, the weak and strong areas. Additional notes for governance and socio-economic aspects can also highlight the challenges that the community may face in regards to equity, decision making, etc. If you want to be sophisticated, you can visit <http://www.ebmtoolsdatabase.org/resource/climate-change-vulnerability-assessment-and-adaptation-tools> and examine the various tools available. Some can be complicated and out of reach for communities. Others can be quite expensive. The decision should be made in function of the capacity of the community and its resources.

Drawings and tables remain among the easiest ways to help people better grasp the ideas and results. Make sure, when you recap all the aspects, that you don't forget any. If there were some consequences missing, add them. It is important that participants understand the interactions also between the various components. For example, during a flood, the lack of a road may endanger the lives of people being isolated. If this is a poor, elderly couple, who is going to help?

## **A path to resilience**

The word resilience often intimidates people as it is a concept, somewhat like vulnerability, that can be quite abstract. This is why it is important during the meeting to carefully explain the concept and bring examples to help people understand it. Resilience is your ability to cope and recover sustainably from a hazard (i.e. the risks of an issue) and its consequences. Improving resilience means increasing your capacity to better respond to risks in an adaptive way and therefore to reduce your vulnerability. It is clear that there are several possible solutions depending on the aspects that are being treated. For example, an elderly couple might benefit from having a volunteer to come quickly and check on them in the event of a storm. Similarly, a business located in the flood plain might benefit from a municipal early warning system and a storage space with sand bags.

One of the first concepts to discuss with the participants is the definition of adaptation and how they represent the solutions or strategies needed to improve resilience. The next section first explains what adaptive capacity is and how it related to vulnerability and resilience. Then the process on how to move from knowing our levels and which components are vulnerable to finding solutions is explained. We finally look at how to examine the various solutions and start working towards implementation of strategies or actions.

## **Adaptive capacity**

Once the participants acknowledge their levels of vulnerability, it is important to encourage them to find solutions or strategies to better adapt to the risks and issue at stake. These solutions are called adaptations when they help a person or a community better respond to an issue and its risks. We talk about adaptations because not all reactions or actions will help reduce vulnerability and some actions may in fact be detrimental to a part of the ecosystem, the economy or the community. What we aim here is to increase adaptive capacity of people and the community. At the same time, we also expect that there will be some types of transformations in people's behaviours, actions or activities. What becomes obvious is that with greater understanding and awareness, people are more capable to reflect on the options which lead to their transformation and the possibility for actions in the community.

We define adaptive capacity as a combination of skills, assets, networks and institutions, and policies that enable a community to continually assess and improve with changing conditions. Figuring out whether or not you have the capacity to adapt will help you determine your vulnerability level too. It also helps determine if the possible solutions are feasible. Integrating adaptive capacity into each possible solution or strategy will help acknowledge where the vulnerability is and understand the challenges to come.

### **Examining the pros and cons of adaptive strategies or solutions**

Finding the adaptation options may be complex. Note that at this point, there might be a need to have experts to help define these possible solutions. Just be careful that the person you bring into this process is not only there to sell his or her own technology! The other possibility is to connect with universities, colleges or institutes, some NGOs or having participants examining the literature. The approach used will greatly depend on the level of education in your community and the capacity of people to find information. In a way, this demonstrates an aspect of vulnerability. One point to stress to all participants is that solutions/adaptations can be of different types.

Some of the elements that should be explained to the participants include the following:

- For the risks and possible exposure: the participants need to understand that adaptations can include an improved preparedness plan, an early warning system, etc. It can even be simpler such as a community-based system in which as soon as one person is warned, she or he calls two others who call others, etc. (creating a snowball effect). This category would also include: building capacity to analyze risks, improved hazards protection and prevention, improved early warning and awareness, establishment of contingency and emergency planning, building for storage of sand bags, etc.
- For the physical components: it may include actions such as rebuilding infrastructure with more stringent construction code after a disaster, moving infrastructure that is too close to frequent flooding, building walls, restoration of the natural buffering ecosystem, etc.
- In the case of socio-economic consequences: adaptations can include some help or support system for vulnerable people, changes in the type of economic activities in a certain region,

increased diversification of the economic activities, education material given in schools by teachers to teach children what to do in the case of flash floods, etc.

- Finally for the ecosystem: restoration can be a solution, policy or by-laws can be drafted to add new green spaces in areas where the ecosystem is vulnerable.

As can be seen from this short list, some adaptations can be short-term and easy to implement while others may be longer-term and expensive. The other aspect to acknowledge is the consequence that one adaptation may have on other activities or components. For example, a seawall may seem a simple solution but it will most likely destroy the neighboring natural ecosystems. Being more vulnerable, this infrastructure may in fact accelerate erosion in these neighboring ecosystems where it was not the case before (meaning that the problem was just moved to another place). In addition, the wall may reduce the migration of some fish species which cannot be fished any longer. This is why it is important for each solution to examine the pros and the cons and their consequences on the various components of the socio-ecosystem (i.e. the community and its environment).

For this meeting, two approaches can be taken: provide people with as many adaptations options as possible and examine all aspects at the same time or direct the meeting by focusing on one of the aspects at a time for all the possible adaptations. This will depend in large part on the type of audience you have and how ready people are to look at possible options.

### **Towards resilience**

In practice, the previous step is the central part of increasing the resilience of a community. If the adaptations are real and truly help a community to better face a risk, resilience will lead to the:

- ability to manage risks: understand and reduce risks, build strategies based on available skills and resources to face the risk, manage and recover in the short term,
- ability to adapt over the long term: pro-activity to maintain sustainable and healthy communities,
- ability to secure basic needs and maintain sustainable activities.

There are several aspects that should be discussed at the community level when making decisions and recommendations, when considering your resilience and the abilities and capacities that influence it:

### **Community Involvement**

- To what level is the community contributing to its own preparedness and response capability, and especially its own recovery efforts? If denied this opportunity, it may establish its own structures and processes to achieve that end. Successful management of the hazards, risks, and consequences is not possible without community commitment and involvement.

### **Information**

- Includes information about risks and appropriate protective actions, about support measures and how to access them, about bio-psychosocial reactions that can be expected and how

people can deal with these reactions in themselves, members of their families and their community, or even about how to make sense of the hazard in terms of its causes and how it fits into the community's 'view' of the world.

### **Resources**

- This includes considering what resources, advices, expertise, personnel, goods and funds are available to support mitigation and safety measures; what financial assistance for eligible parties to help restore losses. This may include grants, loans and insurance, when appropriate, or even what physical goods, such as temporary accommodation, essential household items, temporary public transport, tools and other items, may be available or needed.

### **Knowledge**

- Knowing what knowledge is available to you and your community helps you make decisions and improve your understanding about the hazards, risks, consequences and history, or appropriate behaviour in the face of such hazards.

### **Management Capacity**

- This could include considering the time and opportunity to undertake recovery activities, the physical capacity (i.e. support of other people, machinery or support where there is a particular need); access to services (i.e. through establishing transport systems, locating service centres close to affected areas or access to translators, interpreters for other language and media services), or even access to expertise (i.e. specialist services, such as tradesmen, financial counsellors and other professional services).

### **Support**

- Often this includes looking at personal support (i.e. outreach services, personal advisers and counsellors, specialist support services, advocates), and community support (i.e. community development officers).

### **Participation**

- Includes consideration of the role individuals play in community consultations in developing and implementing assistance and recovery programs, in making a contribution to policy and program development, or even in monitoring and auditing the progress of recovery.

Towards that end, it might be good to discuss with the participants some of the following questions in order to make sure that every aspect is well covered:

- Has the community included in its disaster preparedness plan a scenario for those elderly persons who have no family around?
- Does the elderly couple have access to information about coastal hazards and how to prepare for these?
- Does the community have a simple procedure to explain what type of financial assistance is available for repairing damage caused by hazards?
- Is the ecosystem adaptation proposed (e.g. a by-law limiting access of ATVs to the beach) favorable for all people (issue of social acceptability)?

- Does the community have in its disaster preparedness plan a list of volunteers specifically assigned to helping elderly people cope with a hazard?
- Are there grief counselors available in the region to provide psychological support to elderly residents impacted by a hazard?
- Has the elderly population of the town been included in consultations that informed the disaster preparedness plan?
- Will the proposed technology to reduce flooding (e.g. large drainage pump) have an impact of the natural ecosystem thus reducing the area of lobster habitat?
- Etc. (it is possible for you to write a list of questions that will be adequate for the issue and conditions of the community where the work is being completed).

### **Recommendations and actions**

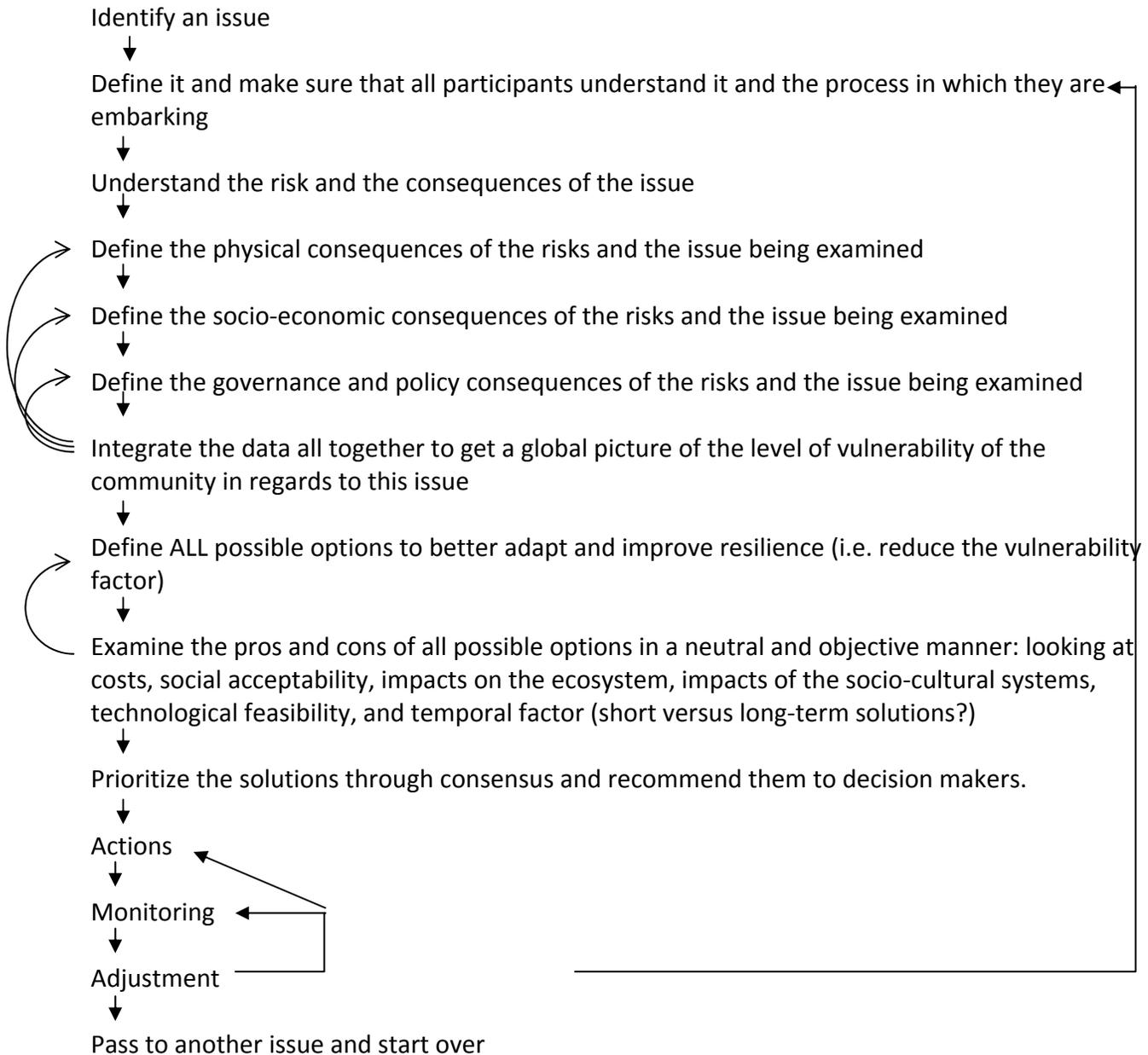
Most committees should have the endorsement of the municipal council, local government or a regulatory group where the recommendations and actions should be submitted. This step is crucial. On one hand, expectations are created and on the other hand, needs must be filled. Ideally this step should be transparent and equitable to all. It goes back to the beginning of this process. The local government must be aware and understand what is at stake in this process.

## **Conclusion**

Resilience is a dynamic process. It is not an end in itself and with changes in the environment, the economic, the community, new issues will surface and will require revisiting the adaptations and adding new ones. The main concerns in communities are the lack of understanding of what to do, how to do it and when and where to start. This tool is relatively simple and requires first and foremost dialogue among people to really understand the issue and see beyond the emotional aspect of things. This is not to say that it will be easy. It is important to acknowledge that the process can be long and may not be pleasant for everyone. What is important is that adaptation solutions and strategies should be based on inclusiveness and consider social values and equity, economic choices, timeliness, and the environmental importance and sensitivity of the area. This tool can be easily modified to suit particular issues and communities. The way meetings are conducted can take also different formats. Ideally people interested in the process should have had prior to this activity some formation or training in facilitation and group animation. This will help when discussions are heating up. This is to be expected when the topic is climate change and the threat it poses of our way of life. In general people don't like change. They first need to understand why...

## Appendix A – Recap of the different steps

This is a short version of the steps that are explained in this manual. As seen, it is a very interactive process and it is always possible to go back to previous steps if additional information is provided or something new occurs.



## Appendix B – Links and references that can be useful while planning for this activity

Baede, A.P.M. 2007. *Glossary of Terms used in the IPCC Fourth Assessment Report*. Retrieved from <http://www.ipcc.ch/pdf/glossary/ar4-wg1.pdf>

Buckle, Marsh & Smale. 2001. *Assessing Resilience & Vulnerability: Principles, Strategies & Actions*.

Canadian Environmental Assessment Agency. 2010. *Basics of Environmental Assessment*. Retrieved from <http://www.ceaa.gc.ca/default.asp?lang=En&n=B053F859-1#1>

Environment Canada. 2008. *National Climate Data and Information Archive: Canadian Climate Normals 1971-2000*. Retrieved from [http://climate.weatheroffice.gc.ca/climate\\_normals/index\\_e.html](http://climate.weatheroffice.gc.ca/climate_normals/index_e.html)

Food and Agriculture Organization of the United Nations. 1990. *The community's toolbox: The idea, methods and tools for participatory assessment, monitoring and evaluation in community forestry*. Retrieved from <http://www.fao.org/docrep/x5307e/x5307e04.htm#1.%20what%20is%20participatory%20assessment>

IPCC. 2007. *IPCC Fourth Assessment Report*. Retrieved from <http://www.ipcc.ch/pdf>

Natural Resources Canada. 2007. *Climate Change and Impacts Adaption: A Canadian Perspective*. Retrieved from [http://adaptation.nrcan.gc.ca/perspective/coastal\\_1\\_e.php](http://adaptation.nrcan.gc.ca/perspective/coastal_1_e.php)

Natural Resources Canada. 2010. *National Air Photo Library*. Retrieved from [http://airphotos.nrcan.gc.ca/index\\_e.php](http://airphotos.nrcan.gc.ca/index_e.php)

Nelson, D.R., W.N. Adger and K. Brown. 2007. Adaptation to environmental change: contributions of a resilience framework. *Annu. Rev. Environ. Resour.* 32: 395-419.

Pasteur, K. 2011. *From vulnerability to resilience. A framework for analysis and action to build community resilience*. Practical Action Publishing, Warwickshire, OK. 113 pages.

Verbruggen, Aviel. 2007. *Glossary of Terms used in the IPCC Fourth Assessment Report*. Retrieved from <http://www.ipcc.ch/pdf/glossary/ar4-wg3.pdf>