

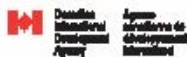
CV&A: A Guide to Community Vulnerability and Adaptation Assessment and Action. Compiled by Taito Nakalevu.

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SPREP Trainees and the Aitutaki CV&A Team



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CV&A: A Guide to Community
Vulnerability and Adaptation
Assessment and Action

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Compiled by Taito Nakalevu

for the Secretariat of the Pacific
Regional Environment Programme
as Part of a CIDA-Funded Adaptation
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Cover photos (SPREP): Coconut palms are slowly dying from inundation at Tegua, Vanuatu

Inset: Trainers and the Aitutaki CV&A Team. (Left to right) Back row: Bobby Bishop, Piki Teina, Taito Nakalevu, Terepoto Williams, Frank Wickham, Katherine Moetiti, Louisa Rio, Tereapii Uluka, Tereapii Titi. Front row: Mauke Mauke, Tereapii Williams, Pasha Carruthers, Toaine Tativa, Tereapii Strickland, Oro Kamoe.

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This guide is illustrated throughout with pictures taken by the compiler at various stages of the CV&A process.
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EXECUTIVE SUMMARY

*“Genuine development means the construction by a human society of its own history, its own destiny, its own universe of meanings.”
(Goulet 1987)*

This guide to Community Vulnerability and Adaptation Assessment and Action (CV&A) was developed by the Secretariat of the Pacific Regional Environment Programme (SPREP). It aims to assist community vulnerability and adaptation assessment work to be carried out by the four pilot Pacific Island Countries that are implementing the Capacity Building for the Development of Adaptation Measures (CBDAMPIC) project. These countries are: Cook Islands, Fiji, Samoa and Vanuatu.

The CV&A guide outlines six main phases for executing an assessment at local community level:

- (1) Adaptation Context,
- (2) Diagnostic,
- (3) Assessment and Evaluation,
- (4) Development,
- (5) Implementation, and
- (6) Monitoring phases.

The guide is a tool to understanding Pacific communities’ vulnerability to climate change, variability and sea level change; and to determining what action needs to be carried out in order to adapt to these changes. In the CV&A process, the focus of data collection is the community that constitutes elders, men, women, youths and children. Their experience in relation to climate variability, change over time, and extreme events become very important. The assessment focuses on current vulnerability to both climate and non-climate related factors, and on examining current adaptive capacity. It then includes evaluation of vulnerability to future

climate related risks, involving key stakeholders in the evaluation process. This eventually leads to the formulation of adaptation policies that would strengthen adaptive capacity.

Climate modelling and scenario generation and social science have a role to play in the process but are not the starting point. This community-focused approach to vulnerability and adaptation assessment is innovative and different from the model-based impact assessments commonly used world-wide.

This guide builds on the various participatory methodologies that have already been introduced into the Pacific. These include; Rapid Rural Appraisal (RRA), Participatory Learning and Action (PLA), and Comprehensive Hazard and Risk Management (CHARM).

Although developed specifically for the CBDAMPIC project, the CV&A guide can be used for similar purposes by all Pacific island countries as well as other regions of the globe.

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Mr Penehuro Lefale, National Institute for Water and Atmospheric Research (NIWA)
in New Zealand and

Dr Graham Sem, United Nations Framework Convention on Climate Change
Secretariat (UNFCCC) in Bonn, Germany.

Further reviews of this guide should render it even more appropriate to the Pacific community in general, as well as to other regions elsewhere.

ACRONYMS USED IN THE TEXT AND THEIR EXPLANATION

| | |
|----------|--|
| AIACC | Integrated Methods and Models for Assessing Coastal Vulnerability and Adaptation to Climate Change |
| CBDAMPIC | Capacity Building for the Development of Adaptation Measures in Pacific Islands Countries |
| CHARM | Comprehensive Hazard and Risk Management |
| CIDA | Canadian International Development Assistance (Asia-Pacific Bureau) |
| CV&A | Community Vulnerability and Adaptation Assessment and Action |
| ENSO | El Niño - Southern Oscillation |
| IPCC | International Panel on Climate Change |
| IPCC-TAR | Third Assessment Report by IPCC |
| NIWA | National Institute for Water and Atmospheric Research |
| PICs | Pacific Island Countries |
| PLA | Participatory Learning and Action |
| RRA | Rapid Rural Appraisal |
| SIDs | Small Island Developing States |
| SPREP | Secretariat of the Pacific Regional Environment Programme |
| TAG | Technical Advisory Group |
| UNFCCC | United Nations Framework Convention on Climate Change |

TECHNICAL TERMS

Described here are the technical terms that are used consistently in this guide.

Adaptation is the adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (IPCC-TAR 2001).

Adaptive Capacity is the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or cope with the consequences (IPCC-TAR 2001).

Community in the Pacific context refers to a group of people as an extended family living together under an organised institutional structure, culture and religious setting. It also means people living in settlements that are not in any way related but do have a form of institutional command structure that is followed, whether it is traditional or developed by the people.

Climate Change in this guide refers to any change in climate over time, whether due to natural variability or as a result of human activities (IPCC definition). This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), where climate change refers to: a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and that is in addition to natural climate variability observed over comparable time periods.

CV&A Team in this guide refers to a group of individuals with different expertise (multi-disciplinary) that form a functional working group to carry out a vulnerability and adaptation analysis at community level.

Facilitator in this guide refers to a particular individual who has been appointed to lead discussion during participatory community vulnerability and adaptation assessment sessions as well as to lead the multi-disciplinary experts who are part of the CV&A Team.

Precautionary Principle as per Article 3 of the UNFCCC: Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures - taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.

Risk is the chance of injury or loss defined as a measure of the probability and severity of an adverse effect to health, property, the environment, or other things of value.

Risk Management Approach is the systematic application of management policies, procedures, and practices to the tasks of analysing, evaluating, controlling, and communicating about risk issues.

Vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is the function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity (IPCC TAR 2001).

THE CV&A GUIDE



1. INTRODUCTION

This guideline to Community Vulnerability and Adaptation (CV&A) Assessment and Action outlines the various steps that will assist in the identification, analysis and development of community adaptation strategies to challenges and opportunities (risks) related to climate change. The CV&A guide is a collection of activities that provides a learning process to empower local communities to identify, analyse, and develop ways and means of increasing their local adaptive capacity to current and future challenges and opportunities related to climate change.

This guide is based on the premise that Pacific islanders are continually adapting to climate change in their daily lives. In recent years, several studies have revealed the likelihood of an increase in the frequency and severity of climate related disasters in the future (Jones et al. 1999). Coupled with other immediate and pressing needs such as economic development, poverty elimination, education and health; adaptation to climate change is becoming a difficult and costly exercise. The inability to adequately adapt does not in any way lessen the knowledge people have of their own situations. It is therefore important to fully involve local communities in analysing their own situations and identifying appropriate solutions to their vulnerabilities. These guidelines are also mindful of the need to exchange the latest information and knowledge on the effects of climate change on local communities.

People do consciously and unconsciously carry out vulnerability and risk assessments in their daily lives. They also have their own ways of expressing and articulating their vulnerabilities and the risks they face—based on their own environments, social and economic circumstances. For example, people have moved their dwellings inland away from the coast due to coastal erosion and storm surges associated with tropical cyclones. People have also experimented with different ways of harnessing water to keep a daily supply available during droughts. They have changed crops and cropping patterns because of salt-water intrusion and changing wind patterns.

2. THE CHALLENGE



It has been recognised globally that most communities' ability to adapt to climate-related risks are limited for many reasons, but this is more so for Small Island Developing States (SIDS). The Third Assessment Report by the International Panel on Climate Change (IPCC-TAR 2001) projects with confidence that global average temperature and sea levels will rise under all scenarios. Projected increases in global mean temperatures from 1990 to 2100, for a range of plausible greenhouse gas emission scenarios, lie between 1.4 and 5.8°C with global mean sea level expected to rise 988 cm by the year 2100. The IPCC TAR also notes that an increase

in tropical cyclone peak wind intensities and mean and peak precipitation intensities are likely over some areas. Despite the many uncertainties as to the nature and consequences of global warming, the climate of the Pacific islands region will continue to be dominated by:

- the inter-annual variability associated with El Niño - Southern Oscillation phenomenon
- extreme events such as tropical cyclones, floods and drought and
- persistent features such as the trade winds and convergence zones.

According to Hay et al. (2002), the region will be likely to warm by between 0.6 and 3.5°C in this century due to the enhanced greenhouse effect. This represents a rate of warming which is much larger than the observed changes during the last century, and is very likely without precedent during at least the last 10,000 years. The projected temperature increase can be compared to the temperature difference for the region, of around 3 to 4°C between the middle of the last Ice Age and the present day.

Given the scenarios of climate change projected for the region, the most significant and immediate challenges for the Pacific, as well as Small Island Developing States in general, would be related to extreme climate events. Changes in rainfall regimes, soil moisture budgets, the speed and direction of prevailing winds, short-term variations in regional and local sea-levels, and patterns of storm surges would have major impacts on the livelihood of many communities and their natural environments (; World Bank 2000).

3. THE CV&A PROCESS



3.1 What is CV&A?

CV&A is a systematic approach to assessing communities' vulnerability and adaptive capacity to climate change. There are several approaches to doing this: they include the livelihood approach; the hazard management approach; or a combination of both. All these approaches are interrelated and may not be too distinct at the grassroots level: people may not necessarily differentiate between methodologies or disciplines but by what actually impacts most on their lives.

The starting point of any CV&A is the community. The primary focus of the assessment will be to identify and assess to what climatic conditions the communities are vulnerable, in order to devise appropriate adaptive interventions. (Starting points to a vulnerability assessment vis-à-vis impact assessment are slightly different. See work carried out by Smit & Pilifosova 2002.)

3.2 Purpose

To outline a systematic process to be followed or adapted by Pacific communities when carrying out a CV&A, in order to develop appropriate programmes that will assist in reducing the vulnerabilities of communities to climate change.

3.3 Guiding Principles

1. Community participation and consultation in any development is critical in the Pacific, as the majority of natural resources are community-owned and their endorsement is vital before any implementation can be carried out.
2. Engaging communities at the outset of any development process that affects them will ensure appropriate input and ownership.
3. The CV&A approach adopts the premise that climate change is already happening now in the Pacific and is already affecting the livelihood of communities. Thus, support should be provided now to communities so that their resilience to current and future climate change is enhanced.
4. This guide should assist facilitators and the community to centre principally on how climate change affects people's livelihood, their current coping mechanisms and develop strategies to build resilience to future climate change.

3.4 Target Group

This CV&A is developed for technical people (facilitators) and community workers. These users will be trained on how to use the guide when working with their local communities.

4. THE CV&A PHASES

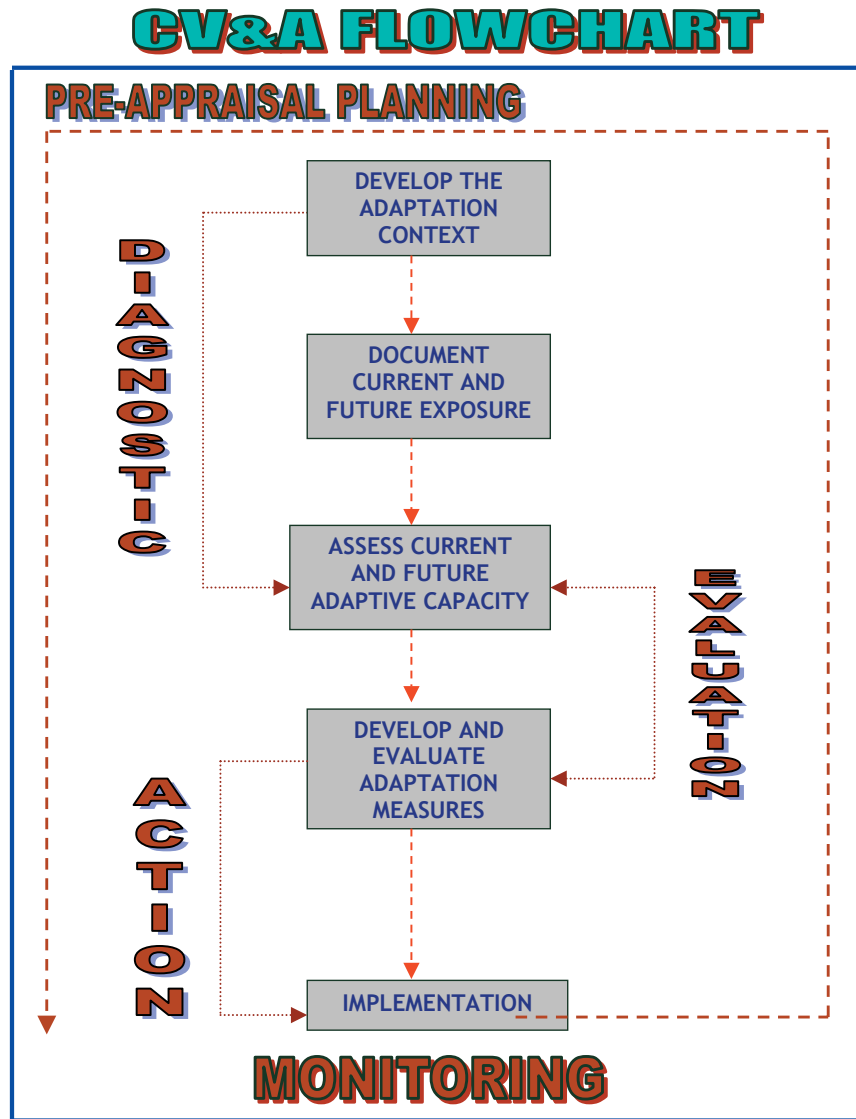


In principle, the CV&A guide advocates six main phases:

Adaptation Context phase
Diagnostic phase
Assessment and Evaluation phase
Development phase
Implementation phase and
Monitoring phase

This is graphically illustrated by the flowchart opposite.

Figure 1 Flowchart illustrating the six main phases of the CV&A guide.



The six main phases can be summarised as follows:

Adaptation context phase - This is an opportunity to define the policy framework that will guide the CV&A work at community level. It should contribute and provide the linkage from community to national planning processes. It should also provide a chance for the CV&A Team to address critical management issues that may have to be considered before carrying out field activities. Setting the adaptation context also helps later when community vulnerabilities and adaptation strategies need to be mainstreamed into the national planning and budgeting processes of government, in order to be implemented.

Diagnostic phase - Identification, jointly by communities and facilitators, of the risks associated with the climate change impacts that they face in their daily lives, using the participatory learning-by-doing (hands-on) approach. The identification process will be a combination of an information exchange between communities and facilitators and later, a process of raising awareness about the many issues involved.

Assessment and evaluation phase - Assess with communities the causal relationships between the risks they are facing (that is, the cause-and-effect relationships) *now and possibly in the future*. For example, an assessment may consider: how a community is coping with present risks (traditional coping mechanisms and responses); how their adaptive capacity can be increased in the face of new climate related challenges; and what systems are already in place to cope with the effects of likely changes. It may ask which regions, sectors and communities will be most likely to be impacted upon by climate change. What does the community perceive as important for adaptation and what is their experience in coping with past extremes? How are the human consequences of climate change shaped by conjunctions and dynamic relationships between climate events and social and other climatic factors?

The assessment component would include determining (linking) how current risks faced by communities would manifest in future given predicted changes in climate scenarios.

Development phase, including an evaluation of adaptation options - Develop with communities possible solutions to the challenges / problems identified and their benefits (opportunities) or constraints. How does one solution differ from another in reducing the vulnerabilities of communities, e.g. reduction of losses versus costs of changes? This is also an opportunity to assess prospects for mainstreaming possible strategies. What adaptation actions can be incorporated into existing management and policy frameworks? The prioritisation of adaptation options will also need to be considered in view of the limited resources available; short-term, medium-term and long-term adaptation options need to be considered. Are there any activities or actions that could be considered for adaptation?

Evaluation of adaptation options will be required by relevant local, national or regional experts, as the situation demands, on how a preferred solution will reduce the vulnerabilities of communities to climate change. But what would be the evaluation criteria-are they based on social, political, economic and environmental considerations? would this be determined?

Implementation phase of adaptation initiatives - This refers to the actual 'action or undertaking' of solutions that have been identified and evaluated during the diagnostic and evaluation process. A proposal may have to be developed jointly with the community to identify what needs to be done, who does what and the resources needed. Are actions practical and socially and environmentally sound; are there resources available for these types of activities; what are the timelines, etc.?

Monitoring phase - There is a need for ongoing monitoring and evaluation by the climate change country teams and SPREP, on the progress of actions undertaken at community level throughout the project. If there is a need to reconsider project design for reasons and circumstances that the project comes across, then due consideration should be taken and the solution development and implementation stage would need to be revisited.

4.1 Phase 1 Adaptation Context



Purpose

The purpose of Phase 1 is to define the policy framework that will guide the CV&A work with communities to which it will contribute. Linkages from community to national planning processes and management issues will have to be considered by the CV&A Team before carrying out field activities.

Task 1 Policy Framework

Identify the existing policy framework (or lack thereof) by which climate change adaptation work at national and community level will be guided, or to which the work will contribute. Also describe the process that will ensure that community CV&A recommendations are taken into consideration in national planning and financial processes. What government policies do the CV&A work contribute to? Think of poverty reduction, sustainable development or disaster management, national development plans and environmental sustainability plans. If there is a common approach already in use—for instance in development planning or mapping hazards—then it makes sense to begin with that framework. It may need to be extended to incorporate climatic risks and climate change.

Task 2 Preliminary Planning and Arrangements

To achieve the planned objectives of the CV&A, careful analysis and planning from its inception is crucial. This is to ensure that every aspect of the CV&A is discreetly mapped out, tested, refined and acceptable to the specific communities before actual implementation takes place. Box A below provides some tasks that may need to be undertaken prior to any CV&A field activity.

BOX A: Tasks to be considered prior to any CV&A

- Formation of a core multidisciplinary CV&A Team to be backed up by a capable facilitator.
- Develop and agree on a conceptual and methodological framework that will serve to focus and guide data collection and subsequent analyses.
- Ensure that the CV&A Team is fully aware of the framework and understands how it will guide their work.
- Compile existing information on communities to be visited, e.g. geography, ethnicity, religious beliefs, major occupations, and environmental data: including cyclone history/pathways, rainfall pattern, flood and drought records, type of agricultural crops grown etc.
- Clearly identify who your target groups are before carrying out a CV&A. A careful analysis of target group will need to be carried out beforehand e.g. if male-dominated, should there be a need for break-out groups for women only, youths and older folks? Facilitators for women's groups may have to be women: it is not usually acceptable in some cultures for men who are not part of the community, to be seen talking or in discussion with women.
- There may also be some participatory tools that will have to be prepared beforehand to be introduced at the facilitator's discretion. Lessons from past experience suggest that if adequate attention is not given to details when working with communities, important information may be missed in the data collection process. This fundamental problem may prove costly if distance and accessibility is a major factor.
- Ensure that protocols (cultural and religious) are adhered to. It helps gain the acceptance and confidence of target community.

4.2 Phase 2 Identification of Current Risks



Purpose

The purpose of phase 2 is to ensure that all climate-related vulnerabilities of communities are carefully identified and characterised.

Task 1 Identification

Having determined the various groupings for the CV&A, it would also be important to consider in advance some questions that will assist you in developing your

participatory discussions, to achieve the outcomes you are hoping to achieve. Box B below suggests some questions as well as participatory techniques/tools that can be used by a facilitator to initiate discussions on vulnerability and adaptation. Annex 1 also provides some detail questions that facilitators may wish to consider when carrying out a CV&A.

BOX B: Possible Research Questions

| Research questions | Participatory tools that can be used |
|---|--|
| What are the natural occurrences experienced by the community that reflect climate variability and extremes over the last 50 years or so? | <ul style="list-style-type: none"> • Historical Time Line • Household Interviews • Focus Group Discussion |
| What are the impacts of these natural occurrences on the socio-economic well-being of local communities (e.g. housing, income, food, education, health, potable water)? | <ul style="list-style-type: none"> • Impact Ranking Matrix • Transect Walk • Focus Group Discussion |
| What are the different socio-economic groups and institutions/agencies in the area that are affected by climate variability and extremes? <ul style="list-style-type: none"> - Farmers (subsistence/ commercial) - Paid employment - Fisher-folk (subsistence/commercial) | <ul style="list-style-type: none"> • Semi-Structured Interview; • Social/Wealth ranking matrix • Focus Group Discussion |
| What are the vulnerable sectors in the community? <ul style="list-style-type: none"> - Geographical location - Transportation - Communication - Shelter - Health - Water and sanitation - Education - Livelihood - Disaster frequency and intensity etc. | <ul style="list-style-type: none"> • Stakeholder analysis of different socio-economic groups • Questionnaire |

BOX B (Continued): Possible Research Questions

| Research questions | Participatory tools that can be used |
|--|--|
| What makes the different socio-economic groups vulnerable to climate variability/change/events? | <ul style="list-style-type: none"> • Stakeholder analysis of different socio-economic groups, may also include the role of governments (local and national), NGOs, churches, etc. • Cause-and-effect diagram |
| Do men and women give different weights/ importance to climate change-related vulnerabilities? | <ul style="list-style-type: none"> • Semi Structured Interview • Questionnaire • Focus Group Discussion |
| Do different occupational groups (e.g. fishermen, day labourers, farmers) rank climate change-related vulnerabilities differently? | <ul style="list-style-type: none"> • Attitude ranking matrix • Semi Structured Interview • Focus Group Discussion |
| Identify the types of 'social capital' that exists in communities (i.e., social organisations, networks, trading systems, etc.) in order to surmise their adaptive capacity under current oceanic and climatic conditions. | <ul style="list-style-type: none"> • Semi Structured Interview • Questionnaire • Focus Discussion |

Further clarification of the different issues of concern can be determined using an impact and frequency-ranking matrix. It is suggested that the facilitator may use the impact and frequency-ranking matrix to further clarify issues such as the severity of problems and the frequency of the problems people may be facing. (See Box C.) This tool is important because it can help people understand why a decision is made, thus avoiding any misunderstanding amongst the community.

Box C: Impact and Frequency Ranking Matrix

Example

Is lack of moisture a concern for farmers? Instead of asking about the impact directly, the people could complete a matrix ranking exercise using high, medium or low scores or numbers such as 10 for high, 5 for medium and 1 or below as low impact. Instead of using the markers or pens, seeds or stones can be used. In this way, there is an element of giving as well as learning taking place because people will be discussing the issues amongst themselves before they give scores. You are indirectly creating an increase in awareness level as well as understanding on the part of the people who are participating in the assessment exercise.

Example of an Impact/Frequency ranking matrix (Y=yes)

| ISSUES & CONCERNS | Impact | | | Frequency | | |
|--------------------|--------|--------|-----|-----------|--------|-----|
| | High | Medium | Low | High | Medium | Low |
| Lack of moisture | Y | | | Y | | |
| Erosion | | Y | | | | Y |
| Water salinisation | Y | | | Y | | |

Task 2 Prioritisation

Varied answers will emerge from discussions as a result of people's own experience and perception. In anticipation of this, you need to determine which vulnerabilities are likely to be further analysed in order to try to action it. A combination of vulnerabilities may need to be looked at, or a single specific one. The communities, with the assistance of government officers who also have a wide

range of experience and expertise, will have to determine these. A simple ranking matrix can be used to determine priority issues of concern to the community (Table 1).

Table 1 Ranking matrix to determine immediate issues of concern.

Key: I - of most immediate concern and needs attention immediately
 II - of concern but can only be postponed for a little while
 III - of concern but can be dealt with at a later date

| Immediate issues of concern to the community | Ranking | | | |
|--|---------|--------|--------|---------|
| | Male | Female | Youths | Overall |
| Lack of quality drinking water | I | I | I | I |
| Loss of culturally significant land | III | III | II | III |
| Salinisation of fresh water | II | II | II | II |

The purpose of prioritisation at this point is to determine which climate change-related issues articulated by the communities are a priority and in need of immediate attention. These will thus be further analysed under the CV&A process. Other climate and non-climate change stresses identified by the community could be relayed to relevant government and non-government agencies for their attention, without spending much time in further analysing them. A very simple matrix such as the one shown overleaf could be employed.

Notes to facilitators:

- Allow ample time for group discussion and response; and
- Do not drive the process, but facilitate the process. When driving the process, you risk shaping the response and it may not be the true reflection of people’s thoughts.

Table 2 Matrix of vulnerability and coping mechanism

| Vulnerability | Causal factors | Current coping mechanism |
|-----------------------|-----------------------|---------------------------------|
| Salt water inundation | | |
| Coastal erosion | | |
| Water deficiency | | |
| Loss of land | | |

4.3 Phase 3 Assessment of Current and Future Risks



Purpose

The purpose of this phase is to ensure that the challenges faced by communities are adequately assessed. They should take into consideration past, present and future coping adaptation strategies based on predicted climatic changes.

Task 1 Analysis

We suggest two approaches for analysis:

- Analyse the challenges faced by the communities using the assistance of facilitators and experts; and
- Further analysis and dialogue to be carried out by the Team with assistance from other relevant experts (if needed).

Analytical sessions provide the communities with the opportunity to self-examine how they have carried out community development programmes and their own practices, e.g. deforestation, slash-and-burn agriculture, etc. It also serves to raise the awareness level of communities to realise the linkages between their actions and potential consequences.

Assessments could include the following questions:

- What systems are in place to cope with the effects of changes?
- What are the reasons for not being able to cope with past extremes?
- What do communities perceive as important adaptation strategies to increase resilience?

Results can be documented using a simple matrix of problems with related causes, and how the people are now coping with the risk (Table 2, opposite). Alternatively they can have more detail as in the case study below of Panita community in Vanuatu.

Box D: Matrix of Pilot Community-Identified Vulnerabilities for the Pilot Community Lateu, Tegua.

| Vulnerabilities Identified | Who is | Vulnerability | Causes of Vulnerability |
|--|---|----------------------|--|
| Dwelling houses and kitchen inundated due to rise in water table | 70-80% of village and population affected | Critical | <ul style="list-style-type: none"> • Flooding/inundation of settlement by the sea • Sea level change • Tectonic subsidence • Short and intensive rainfall due to climate variability • Flat and low elevation of village site • Location of village on coast • Close proximity to water bodies • Low topography of village • Cyclones • Storm surges and waves |
| Insufficient drinking water | 100% of population | High | <ul style="list-style-type: none"> • Climate variability • El Niño • Limited roof catchments • Limited water storage facilities • Prolonged dry seasons droughts |
| Lack of timely meteorological advice on seasonal changes and extreme events. Have to rely on traditional knowledge | 100% of population | Critical | <ul style="list-style-type: none"> • Geographical isolation • No communication facilities available • Lack of access to climate and weather forecasts/communication |
| Increase in water borne disease e.g. malaria | 20% - 30% of population | High | <ul style="list-style-type: none"> • Flooding • Close proximity to water bodies • Lack of adequate medical supplies • Lack of consistency in medical supplies |

Box D provides an analysis of the vulnerability of Panita community using a Vulnerability Matrix. Vulnerability levels are determined through analysis of the population's current coping capacity or ability to adapt, an analysis of the different exposures (hazard/risk) and percentage of people affected. This is very much a qualitative assessment based on people's experience and judgement of things happening around them. This assessment should be complemented by physical, social as well as economic assessments of facilitators.

Cause-and-effect diagrams can also be mapped out to clearly determine the cause of a particular problem. An example of a causal and effect diagram is included as Appendix 2.

Task 2 Linkages

Findings from the community will need to be linked to the latest projections on climate change as stipulated in the IPCC-TAR (2001) and regional climate models. It would be beneficial to make projections of how current climatic attributes that affect communities could have an impact on them in the future. Adaptation measures could then be planned accordingly, taking future risks into consideration now.

The question that needs to be asked is how climate change will manifest itself in future, as predicted by Global and Regional Climate Models (GCMs). Will the nature of the risks faced today change, or intensify with future climate change? Linking the findings from the community to future climate change scenarios will assist in this analysis. This will strengthen the adaptive capacity of communities to current and future climate variability and long-term climate change.

Say, for example, one of the recurring problems identified by communities is drought. It is affecting their cropping patterns and also their general livelihood.

The connectivity issue here is how will drought manifest in future as predicted by the GCMs. Is there likelihood that the drought will be exacerbated because of projected lack of precipitation; or will there be likelihood of more precipitation due to climate change?

4.4 Phase 4 Development and Evaluation of Adaptation Options



Purpose

The purpose of this phase is to develop and evaluate the best possible solutions to be implemented by the communities in order to minimise, reduce or even stop the vulnerabilities identified.

Task 1 Solution development

Develop with communities the solutions to the challenges they have identified. This development is not carried out in isolation: it will be a flow-on from the problem analysis that was carried out with the communities under Steps 1 and 2.

Task 2 Evaluation

Assess the solutions that have been identified with communities. There are two reasons advocated here, on why there is a need to evaluate solutions after the communities have identified them. The first is: to determine the best and most appropriate, practical and cost-effective possible solution to addressing the challenges. The second: is that solutions should be evaluated on the basis of whether they have been tried before elsewhere; and if so, what lessons could be learned from this experience.

For example, if water shortage is a problem and the use of water storage tanks is the solution suggested. A point of evaluation is whether water tanks had been installed before as a solution to the water problem. If so, did they solve the water problem completely or not? Were the water tanks distributed: individually or communally? Having the benefit of hindsight, how could the problem be solved better using the same water tanks as a solution? Such important issues need to be critically looked at, when carrying out an evaluation of the solution to the problems identified by the community.

4.5 Phase 5 Implementation of Adaptation Initiatives



Purpose

The purpose of this phase is to develop programmes or projects that will lead to implementation at pilot sites.

Task 1 Proposal Development

After carrying out all necessary analysis and evaluation, action will need to be undertaken. To systematically carry out implementation of the action already

agreed upon, stakeholders and resources will need to be identified. In other words, clarification needs to be sought on what needs to be done (Action), who does what (Responsibility), what is required to effectively carry out the action (Resources and Costs) and the schedule of implementation (Time).

Task 2 Mainstreaming

To ensure the sustainability of any development carried out at community level, there are various layers of governing structure that exist and will need to be observed during the CV&A process. Some Pacific island countries have provincial and district level administrations whilst others have Island Councils. All of these important governing institutions need to be involved or be informed of what is happening. They need to be teased into the CV&A process so that they are able to identify with the process and become active partners in the implementation of any action.

It is also important to discuss ways and means of mainstreaming community adaptation recommendations into development planning and budgeting processes of governments.

Three entry points are suggested:

1. that the CV&A guide currently used by the National Community Vulnerability and Adaptation Assessment Team (National CV&A Teams) be endorsed as one of the main assessment tools used by government to carry out community vulnerability and adaptation assessments;
2. institutionalise a Multi-Sectoral CV&A Assessment Team that will work at community level to carry out vulnerability and adaptation assessments; and develop adaptation recommendations as well as mainstream these adaptation strategies into the planning and budgeting machinery of their different government agencies;

3. communities use existing channels that are available within government to route their community adaptation recommendations for funding assistance and implementation by government.

It is entirely the prerogative of a country to decide upon and adopt these or other processes. However, the ultimate goal is to ensure that adaptation needs are taken into consideration for appropriate action.

Task 3 Implementation

Action at community level should be carried out by the community with assistance from facilitators. Facilitators in this case for the Pacific may include some or all of the following:

- Government Departments concerned;
- Provincial and Village Councils;
- Non-Organisations;
- Consultants if and when needed; and
- The Church.

4.6 Phase 6 Monitoring



Purpose

The purpose of this phase is to ensure that regular monitoring and evaluation by the climate change country teams and SPREP on the progress of actions undertaken at community level.

Task 1 Monitoring

There may be a need to reconsider project design in the course of the project, based on valid reasons and circumstances. Due consideration should be given to this and solution development and implementation stage need to be revisited.

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APPENDIX 1 - IMPORTANT RESEARCH QUESTIONS TO ASK

| Research Questions | PRA Technique | Remarks |
|--|---|---|
| What are the natural occurrences in the areas that reflect climate variability and extremes over the last 50 years or so? | Participatory Time Lines; Analysis of climate related events; and Household Interview. | Focused group discussion of different socio-economic groups will be conducted in the study community. |
| What are the impacts of these natural occurrences on the socio-economic well being of local communities? | Participatory impact analysis of climate related events and Household interview. | Impacts of climate variability and extremes to local communities may include effects on water supply, crop production, livelihood, loss of lives and properties etc. |
| What are the different socio-economic groups and institutions/ agencies in the area that are affected by climate variability and extremes? | Stakeholder analysis of socio-economic groups dependent on the watershed. Institutional analysis of different agencies concerned on watershed management. | The different socioeconomic groupings of local communities will be identified as well as the different government, private and non-government institutions working in the area. |
| Who are the vulnerable sectors in the community? | Stakeholder analysis/ focus group discussions. Identification of vulnerability index. Household interviews | Identification of vulnerable socio-economic groups probably based on livelihood, e.g. crop farmers tilling their own land, tenants, people whose livelihoods are at risk, etc. Vulnerability index will also be developed based on literature and consultation with the community members. Such index could include among others, household size, total income, total expenditure, crop sales price in a bad year, crop land, road, access, livestock holdings, social capital, household assets etc. |

| Research Questions | PRA Technique | Remarks |
|---|---|--|
| What makes the different socio-economic groups vulnerable to climate change/variability and extremes? | Household interviews, focus group discussions. | Identification of causal factors that influence present vulnerability. |
| In which part of the community are the vulnerable groups located? | Community mapping of vulnerable areas. | Vulnerable areas in selected communities will be identified using participatory mapping technique with the aid of existing topographic and administrative maps with delineated boundaries. Vulnerable areas may be located in top of slopes, mid-slopes or at the flats/near coastlines. |
| What are the communities' current coping mechanisms/ strategies and capacities to climate variability and extremes? | Focus group discussions and household interviews. | Various forms of coping mechanism may include out-migration, selling of productive assets, (resorting to adaptive coping strategies (e.g. curtailing consumption of some items, etc. normal income generating pattern). |
| What lessons can be gleaned from current vulnerability and coping capacities for adapting to future climate change? | Focus group discussions and household interviews. | Recommendations to promote appropriate adaptation strategies to future climate change will be generated from the local communities. |

Semi Structured Interview (SSI)

Semi-Structured Interview, known in short as SSI, involves preparing and using a list of predetermined discussion points or questions to guide discussions. This interview is often carried out individually and in confidentiality.

1. Are you affected by weather/climate or climate-related conditions (e.g. water, erosion etc.)?

2. Sometimes this is sought by asking about which years, over the last 10, were problematic in some way - then asking how, in what way, ... to identify the types of vulnerabilities.

3. That then naturally leads to "how did you deal with those problems?" which is essentially learning about how they "adapted" or how effective were the adaptation options available.

4. You can also ask about how well their adaptive strategies would work if the conditions became more frequent or more severe etc., and what else might be done (i.e. addressing future adaptation needs and options). Then you ask (near the end) about perceptions of change in climatic/weather conditions.

Some other general questions could be:

1. Is the weather changing, what do you think?

2. If it is changing how has it changed?

3. What aspect of the change in climate do you feel affects you most (variability, intensiveness, frequency etc....). Explain:

4. What does it affect?

5. How do communities receive climate information in their communities?

6. Is it serving the communities needs in terms of climate information or there is a need to be improved?

7. List down how it can be improved

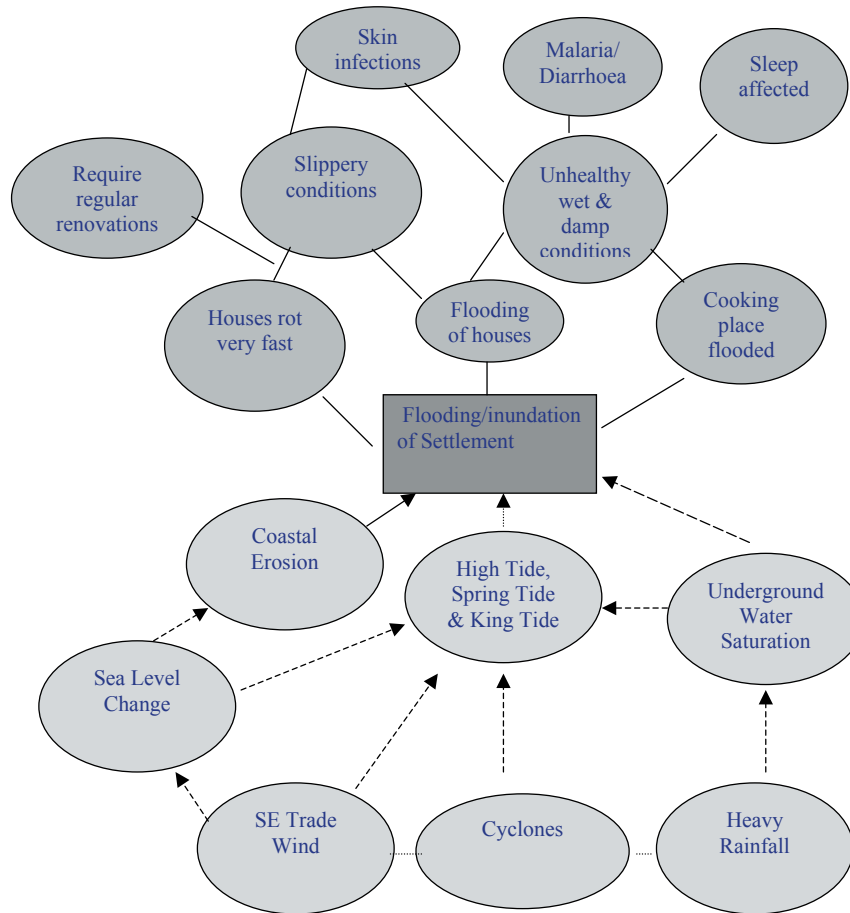
Or...

i. What are the various climate related stresses that affect your livelihood? [SSI]

ii. What aspects of your livelihood does it affect? [SSI]

iii. Which areas of your livelihood does it affect most? [Stress vs. Effect on livelihood matrix]

Appendix 2 -- A causal analysis of settlement flooding (Lateu Community, Vanuatu).



The aim is to come to an agreement on a solution to be implemented. To achieve this, the causes of the problem need to be carefully analysed.