DISCUSSION DRAFT

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Strategies for Vulnerability and Adaptation Assessment in the Context of National Communications

by
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INTRODUCTION

Under the provisions of the United Nations Framework Convention on Climate Change (UNFCCC), the signatory countries to the Convention are obligated to make periodic National Communications to the Conference of the Parties. Part of National Communications involves reporting on the country's vulnerability and capacity to adapt to possible changes in climate. International funding mechanisms, such as the Global Environment Facility (GEF), serve to financially support developing countries in building the capacity to enable them to conduct assessments of climate change vulnerability and adaptation (V&A) assessments as a basis for National Communications.

In addition, programmes like CC:Train (UNITAR) and the National Communications Support Programme (NCSP) provide logistical and technical support in terms of training packages, workshops, guidance documents, networking and the like. Many of the small island developing states (SIDS) of the world have taken advantage of the support provided, prepared V&A assessments, and submitted their initial National Communications to the UNFCCC Conference of the Parties.

The purpose of this paper is to broadly review the experience of SIDS thus far in assessing climate change V&A in the context of National Communications. The paper focusses on four questions. Is there converge in understanding of the concepts of "impacts", "vulnerability" and "adaptation"? What are the strategies that have been employed in conducting V&A assessments? What is entailed in enhancing "adaptive capacity"? And what appear to be the key gaps and next steps required to build adaptive capacity?

A CONCEPTUAL FRAMEWORK FOR V&A ASSESSMENT

Over the last several years, there does appear to be an increasing convergence of common understanding as regards terms like impacts, adaptation and vulnerability. This understanding can be conveniently summarised in the conceptual diagram shown in **Figure 1**.

It is now widely appreciated that the changes and variations in *climate system* cannot be viewed in isolation from those of the *human systems*. The human dimensions of change, including drivers such as population growth and distribution, technological and economic development trends, and social and cultural alterations, play a critical role in determining the degree of *exposure* of various sectors in SIDS to climate change, variability and extremes. Thus, in conducting assessments of future effects, scenarios of future demographic change and socio-economic development need to be consistently woven alongside scenarios of climate and sea-level change (Carter and La Rovere, 2000). In the case of the coastal zone, for example, projections of future patterns of coastal population, infrastructure and tourism are crucial elements in assessing future climate change effects.

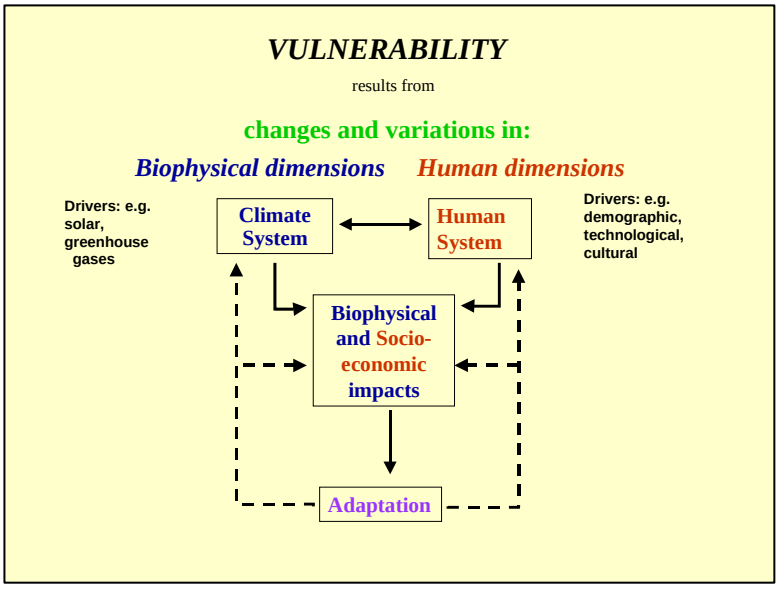

Figure 1: A conceptual framework for climate change vulnerability and adaptation

It is the interplay of both natural and human systems that result in *biophysical* and *socio-economic impacts.* Such impacts are most often assessed by "sector" – agricultural, coastal, water resource or forestry, for example. The *sensitivity* of the sector to changes in climate and sea level depends on its *resilience*. For example, coral reefs suffering from physical damage and pollution have a lowered resilience to sea level and temperature changes, thereby increasing the sensitivity of adjacent shorelines to erosion and flooding over time.

It is the dynamic, evolving nature of the overall system that presents opportunities for *adaptation* (responses that lessen adverse impacts or enhance beneficial effects) and mitigation (responses that prevent the climate changes) as feed-backs over time (denoted by the dashed arrows in Figure 1). Adaptation can occur naturally (e.g. the acceleration of coral growth with sea-level rise, or the migration of flora and fauna as climate changes). In V&A assessments, the emphasis tends to be placed on adaptation as human actions, such as enhancing natural resilience (e.g. avoiding reef pollution or ensuring that land-use "corridors" are available for flora and fauna to migrate), reducing "damage" potential (e.g. relocating a coastal village further inland or changing crop varieties), or protecting property and people (e.g. building a sea-wall). For many SIDS there are still large challenges that remain in identifying the full range of adaptation options and in evaluating their effectiveness (see section below for further discussion of adaptation).

The concept of *vulnerability* actually embraces all the components shown in Figure 1. As expressed by the latest assessment of the Intergovernmental Panel on Climate Change (IPCC), vulnerability "…is the degree to which a system is susceptible to damaging or adverse impacts from climate change. It results from the combination of system exposure, sensitivity and adaptive capacity (IPCC, 2000)". Vulnerability and adaptation are thus inseparable.

STRATEGIES FOR VULNERABILITY AND ADAPTATION ASSESSMENT

In the context of preparing National Communications, what strategies are available for conducting assessments of V&A? A number of SIDS in the Pacific and Caribbean have recently adopted a strategy that involves a two-pronged approach which includes:

- **V&A studies or analyses**
- **National V&A Statements**

How did this strategy come about, and what does it entail? Following the Earth Summit and the birth of the Climate Convention in 1992, it became clear that some common guidelines for V&A assessment were needed. The IPCC quickly responded with a set of draft guidelines (Carter et al., 1994), as did the U.S. Country Studies Program (Benioff et al, 1996) and UNEP (UNEP, 1998). In effect, these various guidelines present similar methodological frameworks for conducting **climate change V&A studies or analyses,** within which specific methods and models are described. Based on these guidelines, amongst others, a set of eight "how-to steps" in V&A studies were incorporated into V&A training packages (PICCAP, 1999; CC:Train/UNITAR, 1998) and used in the SIDS context:

- Scoping
- Select Methods
- Data-sets and Baselines
- Test Methods
- Develop Scenarios
- Examine Future Impacts
- Identify Adaptation Options
- Integrate & Synthesise

However, in attempting to implement these steps, many SIDS have encountered major obstacles, mainly related to the lack of country-specific data, models and existing studies. As well, there has often been a lack of capacity in some sectoral areas for carrying out specific tasks. Such gaps have hindered the progression from one step to the next. Thus, while substantial progress has often been made in describing baseline conditions and climate change scenarios, many V&A studies have stalled at the step of fully analysing future impacts and in identifying and evaluating adaptation options. This has been a common experience amongst SIDS.

From this experience has come the realisation that carrying out a full V&A study will necessarily be a ***long-term, evolving process*** for many SIDS, as the information gaps are gradually filled and the capacity built. In the meantime, however, there is the immediate, pressing need for preparing the V&A section for National Communications. How can this more immediate need be met?

One approach developed within PICCAP (Campbell et al., 1999) involves the preparation of a **National V&A Statement**. The purpose of the V&A Statement is different from, but complementary to, that of the V&A study. By comparison, the National V&A Statement is more of a cross-cutting, ***"stock-taking" exercise at a particular point in time*.** In general, the key questions upon which the Statement focusses are:

- What do we know?
- What don't we know?
- What needs to be done?
- Priority gaps and needs?

The complementary relationship between the Statement and the V&A study is shown schematically in **Figure 2**. The aim of the Statement is to "assess" the state of knowledge as it is currently reflected in the V&A studies. In contrast to the more technical V&A study, the Statement is designed to be short and concise (around 20 pages) and highly evaluative, making judgements about gaps, needs and priorities.

The last point is particularly important. Especially if endorsed by government and incorporated into National Communications, the Statement can serve to document the next steps for subsequent funding. In this respect the Statement can also provide guidance, through the preparation of "scoping" reports and "workplans", for the longer-term V&A studies.

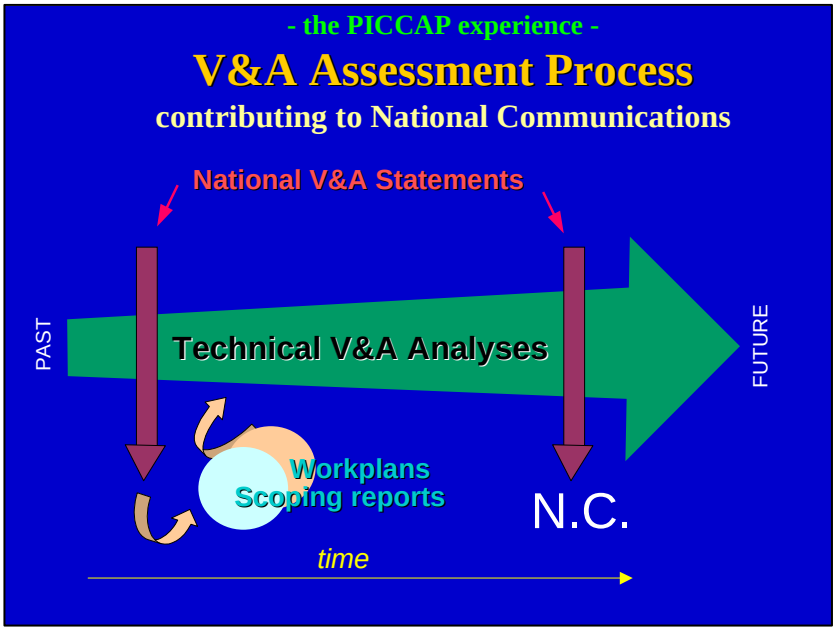

Figure 2: A strategy for V&A assessment contributing to National Communications

In summary, the National V&A Statement provides the intermediate transition between on-going V&A studies and National Communications. The process can be repeated periodically for future National Communications. As an overall strategy, the combination of Statements and on-going V&A studies contribute to a continually evolving ***Assessment Process***, as suggested in Figure 2.

STRATEGIES FOR IMPLEMENTING ADAPTATION

Ultimately, the purpose of V&A assessment is to implement adaptation. But what is entailed in "implementing adaptation"?

In the strictest sense, the term "adaptation" is limited in meaning to specific actions or measures that directly avoid the adverse effects of climate change. These include such measures as changing crop varieties, increasing water supply, building a sea-wall, and so on. However, as discovered by many SIDS, there are potential "adaptations" that also involve the human dimension elements (refer to Figure 1) and somewhat indirectly reduce vulnerability. For example, such measures might include the planning of population growth and distribution, preserving traditional knowledge for dealing with environmental changes, or alleviating poverty that makes people less resilient to climate variability and extremes such as tropical cyclones.

Moreover, there are also measures that make decision-making conditions more conducive to adaptation. These might include, for example: education on climate change, increasing information through outreach programmes, creating institutional frameworks for action, networking government and NGO groups, revising plans and policies to incorporate climate change issues, etc.

Are all of these measures "adaptation"? What are the bounds to adaptation? Where does adaptation start and where does it stop? These questions arise largely as a consequence viewing adaptation statically as discrete measures.

Alternatively, adaptation can also be viewed more broadly as a *process*. This alternative is implicit to many of the documents now emerging from SIDS. As shown in **Figure 3**, such an ***adaptation process*** could be conceived as comprising the following components:

- **Capacity building:** Skills and tools are required for technical assessments, planning and policy development in the context of climate change.

- **Awareness raising:** A sufficient political awareness of climate change issues is required to garner the support for action, within government, NGOs, private sector and the public at large.

- **Adaptation assessment**. Assessments of V&A are required at scales appropriate to adaptation, notably at village and community (as well as national) levels.

- **Policy, plan and project development:** A key element of the adaptation process is the incorporation of climate change in general, and adaptation in particular, into development policies, plans and projects (for the Pacific region, guidelines have been prepared; see Campbell and de Wet, 1999).

- **Project implementation:** Over time, as a consequence of the above components, various projects will be implemented that, either implicitly or explicitly, have adaptation measures incorporated into them.

- **Evaluation and monitoring**. Monitoring and evaluating the outcomes is necessary to adjust the process and change directions if required.

This last component highlights the fact that the adaptation process is *dynamic* and must be able to *evolve* as the character of changes in climate and society become evident over time. The corresponding ***strategy*** for implementing adaptation would thus involve ***the strengthening of these components in order to facilitate a desirable evolution of the adaptation process***. An optimum strategy would perhaps be considered one that seeks to strengthen all components of the process in a holistic and balanced approach (de Wet, 1999).

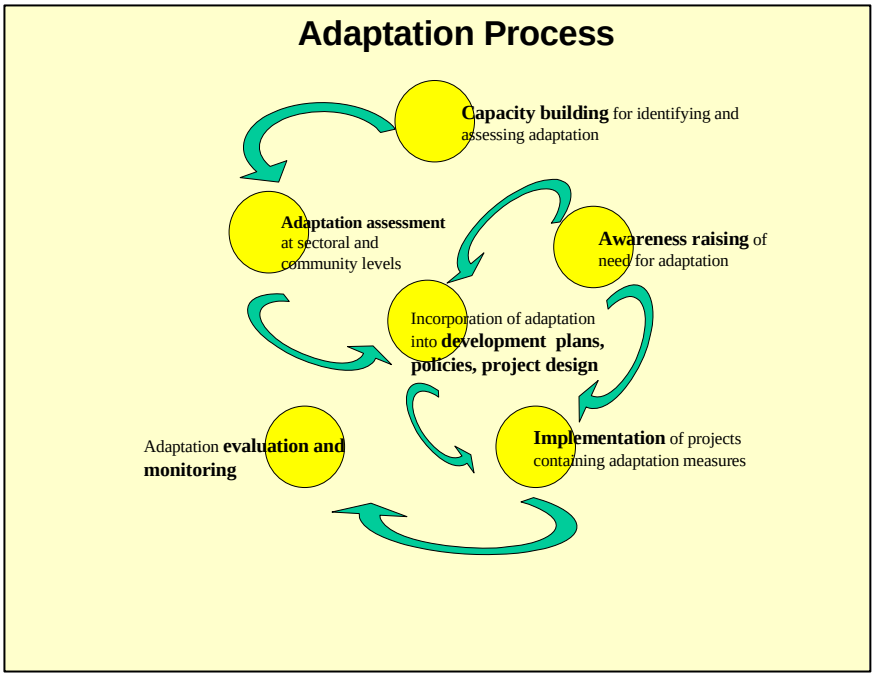

Figure 3: A holistic view of adaptation to climate change as a dynamic process

SUMMARY AND CONCLUSIONS: GAPS AND NEXT STEPS

In summary, this is the key concept: ***both V&A assessment and adaptation to climate change are dynamic, evolving processes***. If viewed from this perspective, as many SIDS are apparently beginning to do, two possible ***strategies*** for assessing V&A and implementing adaptation are:

- V&A Assessment: a dual approach involving on-going V&A Studies and National V&A Statements

- Adaptation: facilitating the adaptation process through a holistic, integrated approach involving capacity building, awareness raising, technical assessments, revisiting development policies and plans, implementing projects, and monitoring and evaluation

Within the context of this paper, there are a number of avenues that could be followed in moving forward with National Communications. From the experience of a number of SIDS, the following appear to be important gaps that need to be addressed:

- ***Methods for community-level, integrated V&A assessments***. Most V&A assessments are conducted by sector, from a national perspective. However, a major source of vulnerability, as well as the scope for adaptation, often lies at village and community levels. Methods for integrated assessment at community level, and training in their use, are required.

- ***In-country capacity building emphasising adaptation processes.*** Most V&A assessments in SIDS, as well as training courses, are relatively weak on the human dimensions side of V&A assessment. Country-specific training on adaptation as a holistic, dynamic process would improve the situation. The possibility of internet-based remote training courses should be explored in order to reach more people.

- ***Enhanced awareness-raising activities*****.** Many SIDS acknowledge that the full contingent of stakeholders and government "buy-in" has not reached a critical threshold to significantly advance the priority of climate change issues.

- ***Greater sharing amongst SIDS of emerging technical capacities for V&A assessment.*** Many SIDS have major constraints in terms of methods for data collection, models and analytical tools. However, some recent emerging methods are sufficiently generic to allow their development and transfer to other country situations.

- ***Greater attention to identifying development policies, plans and projects as potential mechanisms for encouraging adaptation***, as well as identifying the ***barriers*** that may prevent their use for this purpose. The key to adaptation may be in knowing the "pressure points" for promoting its adoption.

These items result, of course, from a personal interpretation of the situation in SIDS. Certainly, the list is not exhaustive. They are offered as a basis for discussion and modification in the context of the Regional Exchange workshop.

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