

*Fieldwork Report***Fieldwork in the Kiribati archipelago (South Pacific) on the issues of vulnerability and adaptive capacity to climate change****THE CONTEXT*****General questioning***

Low-lying coastal territories and particularly Small Island Developing States (SIDS) are particularly at risk both for environmental and anthropogenic endogenous features. Nevertheless, their small size could also provide them certain flexibility in order to implement strong adjustments in their development scheme. In between a pessimistic and an optimistic viewpoint, how to get a nuanced vision of the vulnerability and the adaptive capacity of SIDS facing climate change?

Why Kiribati?

As overwhelming recognized, the Kiribati archipelago is among the states (with Maldives and Tuvalu e.g.) which are the most threatened by climate change. Because of its environmental characteristics, and because it belongs to the Less Developing Countries, the risk it represents is the disappearance of a sovereign country.

In parallel, we must be aware that this small islands state is not devoid of importance when adopting a contextualized point of view: for example, the emerged surface of Kiribati (811 km²) is 678 times smaller than the one of France (550 000 km², without considering overseas territories) and its population (110 000 inhabitants) is 563 times less numerous than the French one (62.5 millions pers., without considering overseas territories); however, its mean population density (136 inhab./km²) is 1.2 higher than the French one. Furthermore, urban densities in Kiribati appear very high (1 483 inhab./km² in South Tarawa). Given these few figures, we easily understand that in proportion to continental contexts, such coral archipelagos present stakes and challenges often underestimated.

Dates of the fieldwork

From January 20th to February 18th 2010

Finally, we must remind that this report solely exposes the main purposes why we conduct this mission and what were the main methods we developed on the field. The results of these investigations are not for the moment available in the synthetic formula, but the "next steps" section will provide an insight of their future dissemination.

THE OBJECTIVES OF THE MISSION AND WHAT WAS DONE ON THE FIELD

Five axes were developed.

1. Vulnerability assessment

The vulnerability issue is relevant for drawing up a panorama of the weaknesses and the strengths of a territory in face of natural hazards, at the crossroads of various determinants (spatial configuration, societal cohesion, environmental sensitivity, economic diversification, territorial coherence and level of development). In parallel, we argue that because of the numerous and partly irreducible climatic and anthropogenic uncertainties, it remains very speculative to try to directly measure the level of vulnerability of a specific territory to climate change. Our hypothesis is rather that monitoring the evolution of this territory's current level of vulnerability is a better option than trying to quantifying

how much it will be vulnerable in 2050 or 2100. In this view, the challenge consists in building tools which are usable by local decision-makers and stakeholders because they are the ones will be responsible for the monitoring approach.

In terms of methodology, this field session in Kiribati has been based upon IDDRI's methodological experienced in the CIRCE project: development of a methodology for assessing the vulnerability of Mediterranean tourism coastal areas to natural hazards coming from the sea. Schematically, vulnerability is defined by three main components: coastal environment sensitivity (S); anthropogenic features (A), namely infrastructures, buildings and populations; and the level of exposure of those elements to coastal erosion and flooding (E). For each of these components, indicators and criteria are defined, allowing the scoring of S, A and E levels, and then the mapping of vulnerability. Two main underlying scientific positions were considered in the Mediterranean and in the Kiribati studies: (i) to focus at a local scale (infra-islands) in order to propose a very precise mapping of the situation and emphasizing "key-areas of vulnerability"; (ii) to promote a "simple" tool allowing an appropriation by local stakeholders in a context where too much technology-based approach are not always relevant.

The bases of this methodology are presented in *Annex 2*.

Fieldwork consisted in:

- *Readjusting of the Mediterranean methods regarding the specificities of coral atolls and islands;*
- *Applying the assessment grid to the entire coasts of South Tarawa and Abemama atolls;*
- *Developing specific cases studies at a micro-local scale (an inhabited sand spit, a special district into an island, the airport area, etc.) in order to better understand the underlying rationales of vulnerability (cf. the great influential factors of vulnerability);*
- *Bibliographical analysis and data collecting (e.g. aerial photographs, vital statistics);*
- *Interviews.*

2. Adaptive capacity

IDDRI's researches are also focused on the understanding of adaptive capacity (AC), namely through the elaboration of an innovative integrated research framework on AC. It is based upon three main topics: the influential factors of AC, the relevant spatial scale(s) for adaptation and the relevant temporal scale(s) for adaptation. The aim of the Kiribati field mission was to move from a theoretical scheme to concrete means to implement this framework.

Several questions: which tangible indicators look relevant in order to describe the influential factors and to analyse their role on the global level of AC? Are some of them more influent than others in the Kiribati context? In which way local issues (e.g. coastal management, water and food availability) participate to the national situation and, at the opposite, how much national issues explain the local situations¹? And in which way short term concerns (related to current development) represent constrains or opportunities to deal with longer scales concerns (related to climate change threats).

On the field, we test a panel of indicators in order to build descriptive and analytical grids. This work was made very closely to the vulnerability assessment. In order to deal with the spatial and temporal scales issues: field observations and interviews (see Annex 3) with different stakeholders (mainly in the Ministries and the Adaptation project).

3. Adaptive strategy

From a more political perspective, the mission aimed at better understanding the manner the country, at different levels and regarding different stakeholders, sees the issue of adaptation as a long term strategy, and which options did the decision-makers have identified and implemented.

On the field, interviews with two main partners: the Kiribati Adaptation Project (which holds the question of adaptation programmes and projects) and the Office of the President.

4. A referent vision on adaptation to climate change

There is a crucial need, for a territory and before starting identifying ways for adaptation, to define a view of what it would look like in the future (e.g. in 2050 or 2100). One objective was to test how to

¹ In our work, the local scale corresponded to the different islands (e.g. Betio, Bairiki, Bikenibeu in South Tarawa) and their sub-components, and the global scale corresponded to the atolls (South Tarawa, Abemama) and the country as a whole.

apprehend this question on the field and with different kinds of stakeholders (local populations, projects managers, decision-makers).

Interviews were conducted with people from the population as well from the Office of the President. Questions were used as, e.g., 'from your point of view, what must signify being E-Kiribati in the next decades?', but at this exploratory stage, the interview methodology was not precisely defined. The goal was mainly to test the relevance of pursuing research on this topic.

5. International negotiations and "Vulnerable 14"

Doing fieldwork in a SIDS just after the CoP 15 was an opportunity for IDDRI to get the point of view of the Kiribati's delegation about the results of Copenhagen as well as about the international process in general.

Furthermore, the Kiribati and the Maldives have recently taken the lead of a new coalition, called 'Vulnerable 14' (V-14). This coalition gathers 14 countries² recognized by the international community as being the most vulnerable to climate change. One of its key messages is that these countries would become the "green leaders" of the world, mainly because they have no other choice than giving the example.

On the field, we met one of the head of the Kiribati's delegation to Copenhagen and discussed about the feeling of the delegation after this event (recognized or ignored?), and its attempts regarding the international process on climate negotiations and about the future strategy of Kiribati/AOSIS (notably the role of the V-14 group).

MAIN QUESTIONS AND THE NEXT STEPS

1. Vulnerability assessment

- Which efficiency of our assessment methodology in order to describe with a certain degree of precision the vulnerability at different scales (the country, an atoll, an island, and an islet of population)?
- At which scale (the village, the atoll, the country) does the analysis of vulnerability is the more relevant in order to develop pragmatic adaptation actions?
- To what extend this case study is useful for other contexts (low-lying coastal areas and others)?

Next steps:

- Writing **scientific papers** emphasizing the field results (with maps of vulnerability);
- Producing **non-scientific papers**;
- During a next field session in Kiribati, organizing **a workshop and a field visit** on 'vulnerability assessment' with the different stakeholders involved in coastal management, development issues and adaptation to climate change.

2. Adaptive capacity

- Is the research framework based upon the six influential factors relevant in the Kiribati context?
- What are the main strengths and the main weaknesses of the country/atolls/islands regarding the adaptation needs?
- Kiribati presents strong current constrains of development (drinking water availability, waste management, modest economic opportunities for young people, etc.). In such a context, is it realistic to try to enhance adaptation to climate change? To what extend current development problems constitute barriers for adapting to climate change?

Next steps:

- Writing a **scientific synthesis** on the lessons drawn from the Kiribati's context regarding the implementation of IDDRI's research framework on AC;

² The other countries involved are Barbados, Costa Rica, Ethiopia, Ghana, Guyana, Kenya, Nepal, Philippines, Rwanda, Tuvalu and Vietnam. Nine countries are observers of V-14: China, Denmark, France, Japan, Netherlands, Norway, Russia, United Kingdom and the USA.

- *Drawing-up a balance on:*

- (i) *The relevance of the **research axis** of our AC framework (influential factors, spatiotemporal scales, links AC/Vulnerability/Development). Are new axes required?*
- (ii) *The **methods** which must be involved on the field.*

3. Adaptive strategy

- In which way does the strategy imagined by Kiribati decision-makers address the underlying rationales of adaptation to climate change (short vs. long terms, bringing together the different atolls, gather the needs of the current and the future generations, etc.)?
- Which are the main leverages and barriers the country has to face to in order to improve and implement an adaptation strategy?
- Regarding the fact that atolls, accustomed to be almost self-sufficient, do not recognize the state level of authority, how much a national adaptation strategy based upon differentiated adaptation options could be relevant for the country (reference to the relevant scales of adaptation)?

Next steps:

- *Writing a **synthesis paper** and submit it to the local stakeholders in charge of this issue;*
- *Comparing the Kiribati Adaptation Strategy to the one of other SIDS to develop, time after time, a **typology of the concrete responses of the SIDS to climate change threats**. Two papers (one in French, one in English) will be written (in collab.) during April 2010, comparing the Maldives and the Kiribati.*

4. The referent vision for adaptation

Two main conclusions arose from the interviews we conducted: (i) this issue of a referent vision of adaptation must be addressed, but (ii) we currently need to develop new and specific methods to do so.

Next steps:

- *To develop a methodology for interviews; this will require (i) to define precise questions and (ii) to identify the relevant public.*

5. International negotiations and "Vulnerable 14"

- Beyond the respective role of existing groups (AOSIS, African Countries...), could V-14 be a new pressure group in the future climate international negotiations?
- Besides the climate international negotiations arena, which role could V-14 play towards the public opinion on 'the urgency faced by the most vulnerable countries'?

Next steps:

- ***Pursuing the investigations** close to members of the Kiribati delegation, but also close to other stakeholders indirectly involved in the international negotiations issue (e.g. the Adaptation Project and the Ministry of Environment);*
- *Developing investigations close to **other members of the V-14 group** (including from Observers Countries like France);*
- *Producing a **short paper** focused on the functioning of V-14 and on the originality this approach represents (different kinds of territories and threats) – in collaboration with François Gemenne?*

Annexe 1 – LIST OF THE MAIN PERSONS AND INSTITUTIONS MET IN FIJI AND KIRIBATI

In Fiji

In italics, people we met elsewhere or who we were in email contact with.

Organism	Person	Position	Email contact	Field(s) of interest *
University of South Pacific (Fiji campus)	(1) Eberhard H. Weber (2) Mark Stephens (3) Tony Weir (4) Frank Thomas (5) Peta Stinson	(1) Director of the geography Unit (2) Research fellow (3) Research fellow (4) Research fellow (5) Research fellow	eberhard.weber@usp.ac.fj mark.stephens@usp.ac.fj weirtoabs@yahoo.co.uk thomas_fr@usp.ac.fj peta.stinson@gmail.com	V-ACC
SOPAC	Arthur Webb	Director of the Islands and Coastal Unit	arthur@sopac.org	V-ACC
UNDP	(1) Moortaza Jiwanji (2) Waisale Nagiolevu	Programme Officer	moortaza.jiwanji@undp.org Waisale.Nagiolevu@undp.org	V-ACC, CCIN
Ambassade de France, Fiji	Bernard MAIZERET	Conseiller culturel et de la coopération	bernard.maizeret@diplomatie.gouv.fr	CCIN, V-ACC
<i>SPC (Secretariat of the Pacific Community, Nouméa, Nouvelle Calédonie)</i>	(1) Aude Chenet (2) Antoine Teitelbaum	<i>Programme Officers</i>	AudeC@spc.int AntoineT@spc.int	V-ACC
<i>Coastal Zone Management, (Perth, Australia)</i>	<i>Robert Kay</i>	<i>Programme Officer</i>	robert.kay@coastalmanagement.com	V-ACC, CCIN

In Kiribati

Organism	Person	Position	Email contact	Field(s) of interest *
University of South Pacific (Kiribati campus)	Ueantabo Neemia MacKenzie	Director and researcher	mackenzie_u@usp.ac.fj	V-ACC, CCIN
Ministry of Foreign Affairs	(1) David Lambourne (2) Uering Iteraera	(1) Member of the delegation, (2) Assistant of the Deputy Secretary	dlambourne@mfa.gov.ki as@mfa.gov.ki	CCIN, V-ACC
Kiribati Adaptation Project	K. Taburue	-	-	V-ACC
Ministry of Environment	Michael Foon	Climate Change Officer	mike.ecd@melad.gov.ki	CCIN
Climate Change in Kiribati	Linda and John (firstname?),	Media Center	info@climate.gov.ki	CCIN, V-ACC

* V-ACC = Vulnerability and Adaptation to Climate Change, including vulnerability assessment (1.), AC analyses (2.) and the issues of the adaptation strategy (3.) and the referent vision of adaptation (4.)

CCIN = Climate Change International Negotiations, including the V-14 issue (5.).

In bold, the priority field of interest.

Annexe 2 – METHODOLOGICAL PROCEDURE FOR COASTAL VULNERABILITY ASSESSMENT

The methodological procedure that is to be applied in Kiribati is based upon 10 categories of criteria that are listed below. For each criterion, 3 to 5 levels of vulnerability are described. The total score determines the vulnerability level. This procedure applies to consistent island or coastal units characterized by homogenous physical and human features. Thus, the dimension of units can vary from one site to another.

Physical criteria

1. Island type
2. Morphological description of the site
3. Presence or absence of a protection zone, either terrestrial or on the foreshore
4. Level of exposure of the coast to waves and associated currents

5. Recent evolution of the coastline

Human criteria

6. Development scheme

7. Level of exposure of transport facilities and production units to coastal hazards

8. Level of exposure of key services and infrastructures to coastal hazards

9. Level of exposure of main urban centres and densely populated areas

10. Mitigation strategies of coastal stakeholders for reducing vulnerability

Annexe 3 – QUESTIONNAIRE SURVEY CARRIED OUT AMONG RESIDENTS

1. What are your home island and your home village?
2. When did you leave your home island and where did you live then (personal itinerary up to now)?
3. What's your job and where do you work? What is your husband's/wife's job?
4. Do you live on your own land?
5. Is it easy (availability and cost) to buy land here?
6. How many people are you living together on your land, and who are they?
7. How do you get fresh water (well, water tank...)?
8. Do you or members of your family go fishing?
9. Do you sell and/or buy fish?
10. What do you grow for eating?
11. Do you grow pigs and/or chickens?
12. What do you buy for eating?
13. Do you sometimes get food or water from neighbours?
14. How much does it cost you approximately to buy food at the store each month?
15. Is your land exposed to high tides or to storm waves?
16. Are you exposed to droughts? If yes, how do you cope with droughts?
17. Are you exposed to water shortage? If yes, how do you cope with it?
18. What is the most important thing for you that you want to preserve for your children?
19. Concerning climate change, have you noticed some changes?
20. Are you worried about climate change either for Kiribati or for your own family?
21. What would make your life easier here in Kiribati?