

The newsletter of the project “Protected Areas Resilient to Climate Change in West Africa (PARCC)” provides information on latest updates on project’s and related initiatives’ activities and results.

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Testing new questions for the METT in the Gambia

It is well known that climate change impacts are diverse and widespread. Thus effective protected area (PA) management also needs to consider climate change impacts and how PAs could adapt to these impacts. The management effectiveness of protected areas can be assessed with different tools. Among those, the Management Effectiveness Tracking Tool (METT) is one of the most commonly used. Within the framework of the PARCC project, the existing METT has been

extended by two additional questions on climate change with each four possible answers:

1. **Climate change planning:** Has the protected area been designed to take into account the likely effects of climate change?

- 1.0: Climate change was not taken into account during PA design or planning, and no action has been taken to address its impacts
- 1.1: Climate change was not taken into account during PA design, some planning has been done, but no action taken to address its impacts
- 1.2: Climate change was not taken into account during PA design, but some planning has been done and some actions taken to address its impacts
- 1.3: Climate change was taken into account during PA design and/or planning, and actions are implemented to address its impacts

2. **Climate change adaptation:** Is the protected area being consciously managed to adapt to climate change?

- 2.0: There have been no efforts to consider adaptation to climate change in management
- 2.1: Some initial thought has taken place about likely impacts of climate change, but

this has yet to be translated into management plans

- 2.2: Detailed plans have been drawn up about how to adapt management to predicted climate change, but these have yet to be translated into active management
- 2.3: Detailed plans have been drawn up about how to adapt management to predicted climate change, and these are already being implemented

Beside this new module on climate change, a question on governance and resource rights was also included:

3. *Governance and resources rights*: Does the Protected area consider traditional and customary resource rights?

- 3.0: Protected area has not recognized traditional and customary resource rights
- 3.1: Protected area has recognized but not supported traditional and customary resource rights
- 3.2: Protected area has recognized and partially supported traditional and customary resource rights
- 3.3: Protected area has recognized and fully supported traditional and customary resource rights



Tanji Bird Reserve, The Gambia. © Kirstin Ulrichs

During February and March 2013 the updated METT tool was tested in The Gambia as a pilot country. There are eight protected areas in The Gambia: Niimi National Park, Tanbi Wetland National Park, Kiang West National Park, River Gambia National Park, Baobolong Wetlands Reserve, Abuko Nature Reserve, Tanji Bird Reserve and Bolong Fenyo Community Wildlife Reserve. All of these PAs were visited and the METT tool was applied by interviewing the respective PA managers and

staff members. The interviewees decided jointly which indicator/answer option they chose. The METT data were successfully collected for all of the eight PAs in The Gambia with the following results:

In general, the use of biological resources and harm within a PA is exposing the highest threat to the PAs of The Gambia. The second most severe threat is caused by climate change and severe weather. Especially coastal erosion is of concern to six of the eight PAs.

The assessment of the management effectiveness was made by assigning a score ranging between 0 to 3 for each question (linked to four alternative answers, as described above). Taking into account the specific new questions relating to climate change, the final result is as follows for each PA:

- Niimi National Park: 70.27%
- Tanbi Wetland National Park: 44.14%
- Kiang West National Park: 74.36%
- River Gambia National Park: 71.57%
- Baobolong Wetlands Reserve: 67.54%
- Abuko Nature Reserve: 61.54%
- Tanji Bird Reserve: 86.32%
- Bolong Fenyo Community Wildlife Reserve: 67.52%

Concerning the integration of climate change in their management planning, all PAs except River Gambia National Park and Bolong Fenyo Community Wildlife Reserve have already included climate change in their management plans.

On average all PAs of The Gambia achieved a management effectiveness score of approximately 68 percent. This shows that PAs in The Gambia tend to show a good management. The only PA lacking behind is Tanbi Wetlands Reserve with a score of 44 percent. This gap can be mainly explained by important funding problems. Tanji Bird Reserve received the highest score of approximately 86 percent.

The Gambian PA managers and staff are very motivated to improve their management. They were very interested in testing the new

METT and using it later on to report progress of their PA management.

The pilot study in The Gambia therefore showed that the updated METT is a valuable tool for management effectiveness assessment of PAs. However, there could be small improvements concerning the comprehensibility of a few METT questions. After further adjustments, the aim is to get the new METT endorsed at a higher level and encourage its use at the global level.

The updated METT was also tested in Togo in two PAs, Oti-Kéran and Oti-Mandouri. Both PAs scored “0” for both additional questions on climate change, and the final result was 23.5% for Oti-Kéran and 20.5% for Oti-Mandouri. However, as the two PAs, will be preparing their management plan, they will now take into account climate change in their activities.

The PARCC project participates in the review of the GEF Strategic Programme for West Africa (SPWA) Biodiversity projects

The PARCC project manager, along with other GEF project managers, participated in a regional GEF review meeting in March 2013 in Ouagadougou, Burkina Faso. This meeting was organized to review the experiences from the implementation of the biodiversity component of the GEF Strategic Programme for West Africa (SPWA). It was convened by IUCN PACO and funded by the World Bank through the GEF/WB project on “Scaling up the impacts of good practices in linking poverty alleviation and biodiversity conservation” implemented by the IUCN PACO-Protected areas programme since 2011. This project mainly focuses on enhancing capacities for PA management by delivering short courses and a Master’s degree on PA management for West African practitioners and other key stakeholders.

The objective of the SPWA-Biodiversity Programme is to scale-up biodiversity

conservation in West Africa, while capitalizing on socio-economic benefits from sustainable use to support poverty alleviation and growth. The meeting brought together all projects coordinators (and other resource persons) of the 20 projects funded under this programme to review the progress made, share experiences and results, and draw lessons from the implementation of the different projects in the West Africa region.

The PARCC project presented its main achievements to date, work in progress, and lessons learned, with a focus on the following outputs:

- National data collection;
- Assessment of species extinction risk (Red List) and climate change vulnerability of reptile, freshwater fish and mammal species in West Africa;
- A framework methodology that combines two approaches of vulnerability assessment (Traits-based Vulnerability Assessments, and Species Distribution Modelling), to assess the vulnerability to climate change of PAs;
- Additional modules for the METT to take into account the possible climate change impacts on PAs;
- The development and updating of a website and data portal for the project.



Kéran River, Oti-Kéran national park, Togo © Bora Masumbuko

The PARCC project also has a strong capacity building component, which directly responds to the objective of the SPWA, and has provided, since the beginning of the project, training on: Climate modeling and the use and interpretation of climate information for biodiversity, Climate change vulnerability assessments, Adaptive responses to climate

change impacts and Species vulnerability to climate change.

The necessity of having updated data and information to better take into account the conservation of critical areas that might be affected by climate change was emphasized during the discussions. The issue of data quality and availability is among the issues that the PARCC project is addressing by collecting relevant and recent data on climate change, protected areas, and species vulnerability.

National workshops on climate information and species vulnerability

Last year, regional meetings were held on the use of climate data and models (Freetown, Sierra Leone), and on species vulnerability to climate change (Lomé, Togo). At the national level, these workshops were followed by national meetings which provided more capacity building on these topics. The first national workshops were held in English speaking countries (Sierra Leone and the Gambia) in April 2013.

The main objective of the workshops was to build capacity on how to better link climate and climatic variability to the health of particular species populations. Participants were able to extract and analyze climate data, conduct species risk assessments, and identify possible adaptive responses.

In terms of adaptive responses (possible actions that could help reduce the vulnerability of the species), the following actions were identified in The Gambia:

- Restore habitats and protect them from human influence
- Improve PA management
- Build artificial ponds
- Set up fire management strategy and early warning systems
- Increase awareness of the communities on bushfires and other issues
- Improve human capacity (train field ecologists)

- Set aside as PA all the areas where the species occur
- Stock enhancement through aquaculture and regulation of mesh-size fishing nets
- Closed season during the spawning period

In Sierra Leone participants identified the following activities:

- Conduct awareness raising campaigns for the communities, and promote a participative community approach
- Advocating and lobbying
- Review, modify and enforce environmental laws and policies
- Clear definition of roles and responsibilities of ministries and agencies
- Protect habitats
- Establish water monitoring programmes
- Conduct effective forest management
- Create internal or transboundary corridors
- Implement agro-forestry and other sustainable forestry initiatives



Western Area Peninsula Forest Reserve, Sierra Leone © Elise Belle

Regarding the next steps needed to achieve effective climate change adaptation for biodiversity, participants from both countries think that the government and other stakeholders should focus on the following aspects:

- Increase funding
- Monitoring (biological, climate and fire)
- Capacity building
- Sensitisation and awareness raising
- Improved Knowledge
- New policy and legislation
- Community involvement
- Livelihood initiatives
- Resource management
- Partnerships and collaborations

A gap analysis of climate change resilience areas: a preliminary study

Given the possible impacts of climate change on PAs and species, different approaches have been developed to mitigate these impacts. One of these approaches identifies species that are likely to be affected by climate change, either through distribution modeling or trait-based analyses.

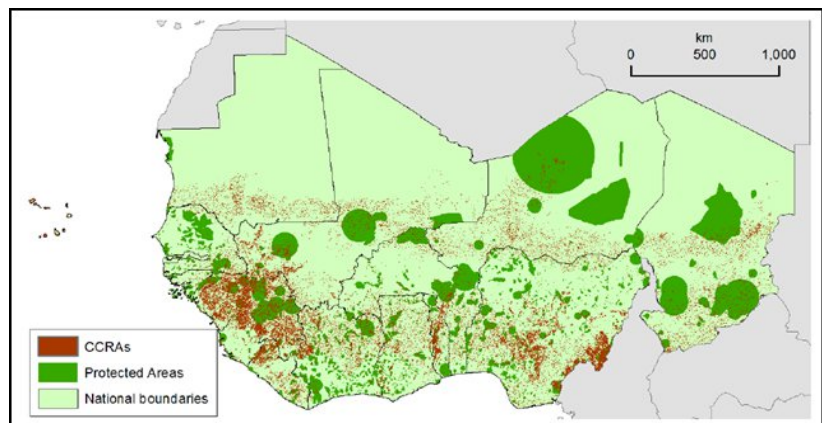
Another approach being explored here is to identify areas where climate change impacts might be lower. DICE, a technical partner in the PARCC project, described this approach and conducted analyses to test its suitability. The preliminary analysis for West Africa consisted of mapping possible climate change resilience areas (CCRAs) and measuring how well they are protected by the current PA network. That way, areas where changes in temperature may be less severe were identified.

The analysis was based on a map showing natural vegetation on which large patches were identified as polygons and then combined with slope and aspect data. The final CCRA layer showed land that met the slope and aspect constraints and fell within these large patches of natural vegetation.

The gap analysis then involved calculating and showing the total area of CCRAs within each planning unit and the percentage that is currently protected. Using data on bird distributions produced by BirdLife International and the University of Durham, it was possible to investigate patterns of bird species richness and percentage CCRA coverage per planning unit. The number of bird species found in CCRA sites was calculated. These sites were defined as planning units where the CCRA cover was more than 25%. The percentage range of each bird species that fell within these CCRA sites was then calculated. Finally, the number of

species that may be more vulnerable to climate change because they are not associated with these resilience areas was counted.

The results show that out of a total area of 7,321,631 km² for the West Africa planning region, 524,661 km² make up CCRAs, with different coverage of CCRAs between countries, ranging from 2.3% of Mauritania to 41% of Guinea. The protection level for these CCRAs is relatively high at the regional scale, with 22.7% falling within existing PAs.



Extent of preliminary Climate Change Resilience Areas (CCRAs) in each West African country

CCRAs occur on steep slopes, north-facing slopes and in large patches of vegetation. Many CCRAs are already protected and those countries with the highest PA coverage tend to have the highest levels of CCRA protection, suggesting that these sites are also well represented in national PA systems.

There was no trend in the percentage of a planning unit that was covered by CCRAs and the number of bird species predicted to be present. Some planning units with a high coverage of CCRAs had high species richness whereas others had low species richness. The high species richness suggests that conserving these sites would protect a number of species in areas where climate change might be less severe. Thus, conservation planners should consider setting targets for representing CCRAs in their PA networks, so they preferentially protect areas that are important for meeting species targets both now and in the future.

This method could be used to complement Species Distribution Modelling and trait-based approaches. One of the issues of CCRAs is that we lack a strong evidence base for assuming that the climate in these CCRAs will remain stable or provide more suitable conditions for species facing changes in temperature and precipitation.

However, this preliminary analysis will need to be further developed after discussions about the following issues: data resolution, the use of the newly available global land-cover data, thresholds to use to define the presence of CCRAs, impacts of using a broader range of species in the CCRA analysis, and how important CCRAs are for conserving threatened or susceptible species.

However, this preliminary analysis implies that mapping and using CCRAs could be useful for:

- a) Investigating the resilience of PAs in West Africa to climate change, by measuring how well CCRAs are covered by the existing PA network; and
- b) Identifying additional priority areas for conservation that also fall within a CCRA, and so are less likely to be affected by climate change.

The full report is available on the project data portal: www.parcc-web.org

Analyzing and understanding the links between climate change, protected areas and communities in Togo

A study is currently underway in each of the PARCC project countries to better understand the links between climate change (CC), protected areas (PAs) and communities, thereby helping to develop climate coping strategies that could be integrated into national conservation policies. This issue of the newsletter highlights preliminary results of this study in Togo. The subsequent editions will provide the results for the other countries.

In Togo, there is little or no documentation on the links between the communities living around PAs, climate change and PAs, but there are several projects, strategy papers and programs related to these questions, even if they do not explicitly make the connection between the three components. We can mention among others: the Second National Communication on Climate Change, the National Adaptation Program of Action (NAPA, 2008), the poverty profile of Togo from 2006 to 2011, the RIPIESCA¹ project and the National Program of Investment for the Environment and the Natural resources (PNIERN) which includes PNADE (national program of decentralized environment management actions).



Meeting with local communities in Tomety-Kondji, Togo
© Gabriel Segniabeto

In Togo, sudden changes in rainfall and temperatures were detected which coincide with some droughts occurred in West Africa. The Oti Plain for example, in the north of the country, has experienced over the past fifty years, a high climate variability, especially since the late 1960's, marked by a succession of periods of rainfall surplus and deficit and a significant warming over the past two decades.

Local populations feel some of the phenomena related to climate change such as more intense insolation, higher temperatures, irregular and low rainfall, strong winds during the rainy season, falling crop yields, frequent

¹ Recherche Interdisciplinaire et Participative sur les Interactions entre les Ecosystèmes, le Climat et les Sociétés d'Afrique de l'Ouest

floods, and droughts. Only 28.23% of the populations attribute these changes to changes in land use.

The impacts of climate change affect all sectors, including energy, water resources, agriculture and health. Regarding agriculture, livestock and fisheries, for example, some of the impacts of changes in temperature and rainfalls are:

- Intensification of erosion by runoff
- Warming, drying and increased evaporation of water from certain ponds and rivers that are sources of livestock watering
- Negative impact on the productivity of the land cover and animal pastures of depression areas, inducing the resurgence of diseases such as avian influenza, trypanosomiasis in cattle.
- Permanent saltwater intrusion into rivers, fish ponds and other water reservoirs; this causes the migration of fishes to other freshwater bodies, the death of little fishes and a decline of the reproductive performance.



Agricultural activities in the Missahoe Forest, Togo © Gabriel Segniabeto

The socio-economic impacts result in lower crop yields and incomes, lower marketing of products and rising in prices, intensification of the rural exodus, increase of famine, change in eating habits, and exacerbation of poverty.

As part of this study, consultations were carried out in the communities to assess their understanding, perception of the issue and the impacts of climate change on their activities. These consultations were conducted around the following PAs: Oti-Mandouri, Oti-

Keran, Fazaou Malfakassa, Abdoulaye, Assoukoko, North Togodo, South Togodo and Missahoe. All people living around the PAs noted the important roles played by ecosystems in their environment.

Riparians of Oti-Mandouri (north of the country) believe that CC has been occurring for a long time in their locality. They noticed that the climate has changed abruptly from the 1970-1980's, with for example inadequate and irregular rainfall, late or early cessation of rainfall. In Diguengue in the forest area, an early rainy season (as of February) was also reported in 2013. These rainfalls did not encourage agricultural practices for slash-and-burn, a common practice in this environment.

No action is taken by most of the local populations living in and around PAs to face the impacts of climate change. According to those interviewed, the idea of converting to income generating activities (IGA) was never mentioned. These activities could be a solution to precarious living conditions that riparian populations may experience.

In the Savannah region in the north, to adapt to the situation, millet and sorghum are now replaced by early varieties of sorghum and maize. As soils become unproductive, to face their precarious situation, some choose to penetrate the PAs to do farming or to search for other resources to meet their needs (e.g. honey or game). Others produce charcoal or gather wood to sell for a living, which greatly contributes to the destruction of natural habitats in protected areas.

NGOs in Togo help these riparian communities to cope with the effects of climate change in the following ways:

- The NGO RAFIA develops sustainable use practices such as erosion control, IGA like beekeeping
- The NGO *Amis de la Terre* promotes beekeeping in the National Park reassigned area of Togodo South in order to improve the living conditions of local populations
- In some villages around the National Park of Oti-Keran, the NGO AGBOZEGUE helps communities in the planning and management of village lands

At the government level, adaptation measures are stated in some documents (including those mentioned above), but the strategies do not take into account the relationships between the three parameters (climate change, communities and PA), or considers the populations living in and around PAs. It should however be noted that the second orientation of the national environmental policy plans is to "*build resilience and adaptive capacity of populations to climate change.*"

In conclusion, even if policies, strategies and programs have not yet offered any concrete solutions to help communities around PAs to adapt to climate change and thus limit the impact of their activities on PAs, national policy makers are concerned about the issue of the vulnerability of communities living around PAs. To date, awareness-raising is the main activity of policy makers according to the results of the interviews, but efforts are underway to help these communities reduce the effects of climate change and address issues related to the impacts of community pressures on natural resources of PAs.

Links to partners' web sites:

UNEP DEPI www.unep.org/depi
UNEP-WCMC www.unep-wcmc.org
IUCN-PAPACO www.iucn.org/papaco ;
www.papaco.org
IUCN Global Species Programme
www.iucn.org/about/work/programmes/species/
Met Office Hadley Centre
www.metoffice.gov.uk/
DICE University of Kent
[/www.kent.ac.uk/dice/](http://www.kent.ac.uk/dice/)
Birdlife International www.birdlife.org
Durham University www.dur.ac.uk

All meeting and other technical and scientific reports are available on the project data portal:

<http://www.parcc-web.org>

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We welcome any contribution relevant to the subject in the form of articles, news, announcements, photos, events, etc.

Thanks in advance for contributing.



Red colobus monkey, Bijilo National Park, The Gambia © Andrew Hartley