



CLIMAFRI Newsletter

Vol. 3

December 2021



Dear Readers,

The year 2021 was again a year defined by COVID-19, by working remotely and by finding unconventional solutions. Despite these challenges, it was also a year for CLIMAFRI defined by collaboration – international, transboundary and often virtual. In this newsletter, we would like to highlight different ways in which collaboration took place in this past year and how it allowed to reach common goals.

One of the cooperations that stood out this year was the cooperation between CLIMAFRI and the Mono River Basin Authority (MBA), which was operationalized only in 2019 and has the mandate to manage water sustainably in the transboundary Mono catchment. The Strategic Plan of the MBA contains five strategic objectives, among which the objective 5 states to *“promote the development and implementation of the main water resource management tools of the basin in accordance with the national policies and strategies for integrated water resource management and the MBA convention.”* The CLIMAFRI project has the aim to directly support the MBA with its key project outputs, namely the Mono basin information system and a flood risk management plan. You can read more about the newly established cooperation on page 2.

For now, we would like to take the opportunity to thank you for your support and collaboration and send you best holiday wishes!



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Mono River Basin
Authority



Dr. Razaki SANOUSSI
Executive Deputy Director
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Dr. Yvonne Walz
CLIMAFRI project
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CLIMAFRI

Implementing **CLIM**ate-sensitive **Adaptation** strategies to reduce **Flood Risk** in the transboundary Lower Mono River catchment in Togo and

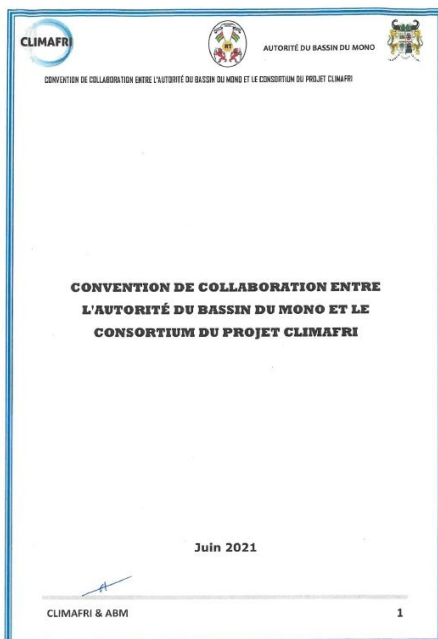
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German-African cooperation in times of COVID-19

Cooperation between CLIMAFRI and the Mono River Basin Authority

By: Nicolas Dadjia GNAKPAOU et Dr. Razaki SANOUSSI (ABM)



Cooperation agreement between CLIMAFRI and MBA, signed in June 2021

The Strategic Plan 2016-2020 of the Mono Basin Authority (MBA) stipulates in its strategic objective 5 to “*promote the development and implementation of the main water resources management tools of the basin in accordance with the national policies and strategies for integrated water resources management and the MBA convention.*”

To achieve this, MBA maintains cooperative relations with regional and international institutions in order to benefit from their support for the progressive implementation of the main water resources management tools. Within this framework, the MBA maintains relations with technical and financial partners. The CLIMAFRI project contributes most recent research on current and future flood risk in the transboundary Mono catchment and plans to implement the final results as part of the toolbox for the MBA. The uptake of CLIMAFRI results has been confirmed this year in the agreement with CLIMAFRI, signed in June 2021.

The objective of the current agreement between MBA and CLIMAFRI is to support the operationalization of MBA with data and information on transboundary flood risk management and, on the other hand, to derive the results of CLIMAFRI in a targeted manner so that the data and information are useful and used. The MBA mandate involves the establishment of an observatory for the transboundary Mono river basin. The CLIMAFRI project has foreseen two key outputs of the project, namely a river basin information system and a flood risk management plan, which should be a direct part of the planned MBA observatory. The agreement aims to clarify the collaboration in order to ensure that the remaining time of the project is used to jointly design the CLIMAFRI outputs in such a way that they are ready to be taken up by the MBA in the framework of the planned observatory. To this end, both parties will share all information and documents necessary to achieve these objectives.

Making field work possible through strong collaboration

By: Simon Wagner, PhD student (MCII)

Contributor: Dr. Sophie Thiam (ZEF), Ibiyêni Paula Nadège DOSSOUMOU, PhD student (WASCAL Togo)

A key pillar of the CLIMAFRI project is its participatory and on the ground research. In times of COVID-19, this proved to be especially challenging. One example for this was the conduction of an empirical household survey which was originally planned for March 2020 as a cooperation between the project partners ZEF, MCII (UNU-EHS) and WASCAL Togo. Under the lead of ZEF, the cooperation started with the project partners creating a shared questionnaire that catered for their research interests in a joint manner. Shortly before the beginning of the data collection in the field in March 2020, it got canceled due to COVID-19 related travel restrictions being implemented globally.

What followed was a time of uncertainty on how the COVID-19 situation would develop further globally and what it would mean for how to proceed with the data collection. In the meantime, the project partners harnessed the time to regularly exchange and further improve the questionnaire based on insights from ongoing literature reviews and online workshop activities. Also, during that time, Ph.D. student Nadège Dossoumou (WASCAL Togo), based in Lomé, joined the CLIMAFRI project and contributed strongly to the further improvement of the questionnaire as well as the planning of the data collection logistics. Through her valuable input and the advantage of her being based in Togo, it became possible again to resume planning for a concrete period at the beginning of 2021 to begin the household survey data collection. Under the observation of COVID-19 safety measures, the data collection was successfully carried out from February-March 2021 when COVID-19 case numbers were relatively low in Togo and Benin. The project partners from Germany, however, did not travel to the field adhering to the travel regulations of their respective institutions.

The key to success in this collaboration was the readiness of the partners to share responsibilities in a way that enabled supporting each other in the best way possible. Dr. Sophie Thiam (ZEF) oversaw and led the data collection process from an academic and organizational perspective and was permanently available throughout the data collection process to provide guidance to the project partners involved. Nadège Dossoumou (WASCAL Togo) led the data collection activities in the field by training and coordinating the team of interviewers, establishing contacts with focal points in targeted villages as well as traveling along with the team during the data collection phase. Simon Wagner (MCII) transferred the questionnaire into a digital format on the platform KoboToolBox that enabled the data collection on mobile devices, assisted with fixing technical glitches, and informed Nadège Dossoumou about the daily progress in questionnaire submissions in the database.

This successful collaboration exemplified the importance of strong partnerships with local partners in research projects as well as mutual trust and support in times of crisis. The project partners are hopeful to be having similar forms of collaboration in the future.

Sharing intermediate results



Main CLIMAFRI outputs, as shared during the intermediate results workshop

CLIMAFRI is a participatory research project and has the aim of co-producing results and findings together with the stakeholder community in the study area. Regular exchange between stakeholders and the CLIMAFRI consortium are thus crucial. One of these exchanges took place in March 2021.

Around one year before the end of the project in 2022, the project consortium shared the status quo of the result production, the planned process to reach

finalized results and discussed certain aspects with the stakeholder community. The workshop took place virtually, but the participants had the opportunity to attend in person in WASCAL Benin or WASCAL Togo, making it a hybrid workshop. Around 40 participants from Benin and Togo participated at this transboundary, international, hybrid workshop.

As a first part of the workshop, the stakeholder community was highlighted – making sure that all the participants have the chance to get to know each other. This was especially important, as this was a transboundary workshop with participants from Benin and Togo. Afterwards, the main CLIMAFRI outputs – as illustrated in the graph – and their components were presented. After this, we used to opportunity to discuss the concrete co-design process on four selected topics in more detail in break out groups.



„Family picture“ of the CLIMAFRI stakeholder community during the intermediate results workshop

Points that were discussed included for example requirements for the implementation of the flood risk management plan, the participatory communication strategy, the design of risk information products as well as the potential of insurance in flood adaptation in the Lower Mono River Basin.

First CLIMAFRI Publications

In 2021, two publications of the CLIMAFRI PhD students Rholan Hougue and Simon Wagner got accepted and published. The newsletter is a nice opportunity to congratulate the two of them for their first papers and to celebrate their hard work in the project. Please find below a short overview over their research papers.

Evaluation of the performance of remotely sensed rainfall datasets for flood simulation in the transboundary Mono River catchment, Togo and Benin

– Rholan Hougue et al.



Publication by Hougue et al., 2021

New Hydrological Insights for the Region: With the grid-to-point assessment, results show poor performances at daily and annual scales while the seasonal cycles were well reproduced with Nash-Sutcliffe efficiency (NSE) equal or higher than 0.94, and correlation coefficient above 0.9. All assessed products exhibited high probability of detection (POD) and low false alarm ratio (FAR) at dekadal scale. Based on NSE values of hydrologic modelling, best results were achieved by PERSIANN, followed by GPCC and TAMSAT, but CHIRPS performed worst with negative values. By filling the gaps of gauge data with the satellite-based products, we noticed that filling the missing does not necessarily improve the quality of the data and that may not be needed in the case of the Mono basin if interpolation methods like kriging are applied.

Hougue, N.R., Ogbu, K.N., A.D.S., Ewers, M., Evaluation of the performance of remotely sensed rainfall datasets for flood simulation in the transboundary Mono River catchment, Togo and Benin, Journal of Hydrology: Regional Studies, 36 (2021), 100875.

<https://doi.org/10.1016/j.ejrh.2021.100875>.

Abstract

Study region: This study focused on the Mono River Basin in west Africa.

Study focus: The lack of extensive and functional measurement networks for flood monitoring, introduces satellite-based rainfall datasets as an alternative which needs however to be evaluated beforehand. This study investigated the performance of four satellite and gauge-based rainfall products – Climate Hazards Group Infrared Precipitation with Station data (CHIRPS), Precipitation Estimation from Remotely Sensed Information using Artificial Neural Networks-Climate Data Record (PERSIANN), Tropical Applications of Meteorology using Satellite data and ground-based observations (TAMSAT), the Global Precipitation Climatology Centre full daily data (GPCC) – with grid-to-point and hydrologic modelling approaches at different time scales over the Mono basin.

When does risk become residual? A systematic review of research on flood risk management in West Africa – Simon Wagner et al.

Abstract

Flood events in West Africa have devastating impacts on the lives of people. Additionally, developments such as climate change, settlement expansion into flood-prone areas, and modification of rivers are expected to increase flood risk in the future. Policy documents have issued calls for conducting local risk assessments and understanding disaster risk in diverse aspects, leading to an increase in such research. Similarly, in a shift from flood protection to flood risk management, the consideration of various dimensions of flood risk, the necessity of addressing flood risk through an integrated strategy containing structural and non-structural measures, and the presence of residual risk are critical perspectives raised. However, the notion of “residual risk” remains yet to be taken up in flood risk management-related academic literature. This systematic review seeks to approach the notion of residual risk by reviewing information on flood impacts, common measures, and recommendations in academic literature.

The review reveals various dimensions of impacts from residual flood risk aside from material damage, in particular, health impacts and economic losses. Infrastructural measures were a dominant category of measures before and after flood events and in recommendations, despite their shortcomings. Also, spatial planning interventions, a more participatory and inclusive governance approach, including local knowledge, sensitisation, and early warning systems, were deemed critical. In the absence of widespread access to insurance schemes, support from social networks after flood events emerged as the most frequent measure. This finding calls for in-depth assessments of those networks and research on potential complementary formal risk transfer mechanisms.



Publication by Wagner et al., 2021

Wagner, S., Souvignet, M., Walz, Y., Balogun, K., Komi, K., Kreft, S., Rhyner J. When does risk become residual? A systematic review of research on flood risk management in West Africa. Reg Environ Change 21, 84 (2021). <https://doi.org/10.1007/s10113-021-01826-7>

Training of Trainers

Between the 26th of January and the 16th of February 2022, the CLIMAFRI Training of Trainers event will take place. It seeks to ensure the sustainability of the CLIMAFRI project outputs by enabling a diverse group of experts from stakeholder organizations and communities to act as multipliers in the Lower Mono River Basin region and pass on the knowledge created by the project. The curriculum is designed in a way that participants will spend an equivalent of about one workday per week on attending scheduled live sessions (webinars) and working on self-paced tasks according to their own schedules and it should prepare them to later on teach the skills needed to use the tools developed by the CLIMAFRI project.

Interested?

Are you a stakeholder from the study area and interested to join the training of trainers?

Please feel free to contact us for more information under walz@ehs.unu.edu

The training will offer 4 different modules and the participants will choose between one and four of those modules based on their interest, their expertise and area of work.

Program Structure

The program starts with a short **Opening Workshop** to present the program, introduce the participants and project staff, the CLIMAFRI project results, and answer initial questions. Besides the training participants, colleagues such as their supervisors and other management staff are welcome to join this session and get a better picture of the program.

All participants are expected to join the first Module (**Module 1: Training of Trainers**) on training methodology. This will give them the basic skills and tools to prepare and deliver their own training sessions based on the content provided in this program.

Training Goals

- Understand basic principles of learner-centric training
- Plan training workshops adapting the content to local context
- Deliver training sessions based on the provided material
- Understand and interpret the overall project outputs

In addition, **they choose one or more of the following modules**, based on their interest, their expertise and area of work:

| | | |
|---|---|---|
| <p>Module 2: River Basin Information System</p> <p>For technical staff familiar with modelling and GIS.</p> <p>This module will provide participants with basic knowledge about the information system and the ability to further develop their skills for using it to conduct modelling and risk assessment.</p> <p>Training Goals</p> <ul style="list-style-type: none"> • Understand components of the information system • Understand indicator-based risk assessment • Practice flood risk assessment with the provided tool • Understand capabilities and applications of the tool and models <p>Additional requirements:</p> <ul style="list-style-type: none"> • Windows 10 machine with at least 8 GB RAM; at least a current mid-range processor • 50 GB of free disk space • Download of ca. 3 GB of tutorial material <p>Additional prerequisites:</p> <ul style="list-style-type: none"> • Experience with modelling and GIS • Some theoretical background of risk assessment • basic knowledge of programming | <p>Module 3: Flood Risk Management Plan and Adaptation Measures</p> <p>For policy and decision makers doing strategic planning.</p> <p>This module will provide participants with knowledge on the contents of a FRMP and provide deeper insights into the derived adaptation measures.</p> <p>Training Goals</p> <ul style="list-style-type: none"> • Understand and interpret the current situation, adaptation measures, and recommendations as described in the FRMP • Understand how to transfer outputs from the River Basin Information System to the Flood Risk Management Plan • Use the flood risk management plan for planning and decision-making purposes <p>Additional prerequisites:</p> <ul style="list-style-type: none"> • Some experience with strategic planning and decision-making | <p>Module 4: Communication and Stakeholder Engagement</p> <p>For communication staff and community leaders.</p> <p>This module will provide participants with tools to help them make decision that involve affected communities and stakeholders.</p> <p>Training Goals</p> <ul style="list-style-type: none"> • Understand risk communication based on actor networks, social innovation, and cultural conditions • Make decisions based on the Flood Risk Management Plan • Involve communities and stakeholders in the implementation of the FRMP <p>Additional prerequisites:</p> <ul style="list-style-type: none"> • Experience with communication and stakeholder engagement |
| <p>The program ends with a closing workshop to sum up the training outcomes and allow volunteering participants to present their work. As with the opening workshop, other colleagues of the participants are invited to join and get an impression of what has been achieved.</p> | | |

Outlook 2022



African Handbook of Climate Change Adaptation

The African Handbook of Climate Change Adaptation discusses current thinking and presents some of the main issues and challenges associated with climate change in Africa. It introduces evidence from studies and projects which show how climate change adaptation is being successfully implemented in African countries:

<https://www.springer.com/gp/book/9783030451059>.

Project Overview

CLIMAFRI Project Summary

The overall objective of the CLIMAFRI project is to co-develop and co-implement adaptation strategies for sustainable management of flood risk and natural resources in the transboundary Mono River Catchment. The specific scientific and technical objective of the consortium is to collaboratively establish the River Basin Information System through the integration of science-based data with information and knowledge from local stakeholders and communities. To achieve the sustainable implementation of the River Basin Information System, it is a key objective of CLIMAFRI to train professional staff on multiple scientific and technical aspects during the process of establishing the information system and to embed the information system within the responsible authority(ies) in the (transboundary) region.

Project Partners

German:

- > Björnson Consulting Engineers GmbH,
- > Center for Development Research,
- > United Nations University – EHS,
- > University of Bayreuth,
- > University of Bonn,

African:

- > Ministry of Environment, Sustainable Development and Nature Protection (Togo),
- > Ministry of Living Environment and Sustainable Development (Benin),
- > Université d'Abomey Calavi,
- > Université de Lomé,
- > WASCAL

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<https://www.bmbf-client.de/en/projects/climafri>

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