



# Virtual Workshop #6

## Adaptation and Water

### Panelists and Useful Links

<p><b>Eva Radek,</b> Coalitions and Events Officer, Climate Chance</p>	<p>Official website: <a href="https://www.climate-chance.org/en/">https://www.climate-chance.org/en/</a> Find out more about our African Coalitions: <a href="https://www.climate-chance.org/en/get-involved/african-coalitions/">https://www.climate-chance.org/en/get-involved/african-coalitions/</a>  Check out our Series of Virtual Workshop: <a href="https://www.climate-chance.org/en/get-involved/climate-chance-virtual-workshops/">https://www.climate-chance.org/en/get-involved/climate-chance-virtual-workshops/</a> or contact us at <a href="mailto:association@climate-chance.org">association@climate-chance.org</a></p>
<p><b>Marie-Laure Vercambre,</b> Director-General, French Water Partnership</p> <p><b>Alexandre Alix,</b> Project Officer “Water and Climate”, French Water Partnership</p>	<p>Website: <a href="https://www.partenariat-francais-eau.fr/en/">https://www.partenariat-francais-eau.fr/en/</a></p>
<p><b>Madyoury Tandia,</b> Project Coordinator, Association Tenmiya</p>	<p>To find out more about the organisation : <a href="https://www.tenmiya.com/">https://www.tenmiya.com/</a></p>
<p><b>Georges Gulemvuga,</b> Director of Water Resources, CICOS</p> <p><b>Christophe Brachet,</b> Deputy Director and Project Chief, International Office for Water - IO Water</p>	<p>For more information on CICOS : <a href="https://www.cicos.int/">https://www.cicos.int/</a>  and on IO Water : <a href="https://www.iowater.org/">https://www.iowater.org/</a></p>
<p><b>Noureddine Sakhraoui,</b> In charge of purification and depollution, Lydec</p>	<p>For more information on Lydec : <a href="https://client.lydec.ma/site/">https://client.lydec.ma/site/</a></p>
<p><b>Médard Dahodo,</b> Project Officer, CIDR Pamiga/CREDEL</p>	<p>For more information : <a href="http://www.pamiga.org/">http://www.pamiga.org/</a> <a href="https://credelbenin.org/">https://credelbenin.org/</a></p>



### **Key-Takeaways:**

-The Workshop covered various aspects related to climate change adaptation and water resources, right from hydrological monitoring, to water treatment, and development of water-based industries like fisheries. All the organisations represented were affected by the COVID-19 pandemic as projects fell behind schedule, and a lot of the activity in this sector cannot be conducted virtually.

- The French Water Partnership works with a network of more than 200 members on issues of water and the SDGs, water and climate change, biodiversity and nature-based solutions, and access to drinking water, sanitation and hygiene in fragile contexts.

- CICOS, with the support of IOWater, works in the Congo basin on an Integrated Water Resources Management (IWRM) project. The mission is to improve operational hydrological monitoring in the area and offer services such as hydroelectricity feasibility studies or navigation, to strengthen the capacities of local populations and institutions to adapt to climate change. +

-CIDR Pamiga and CREDEL have an IWRM and flood-management project in the Ouémé Basin, in Bénin. Working with the local population, the project aims at water and soil conservation in the region. In the one year since the project began, several parameters have been considered, with a target of reducing flooding by 15%.

-Lydec's water treatment plant in Médiouna receives wastewater in the region, and purifies it by removing macro-waste, followed by aeration and filtration processes. The project has had positive impacts on surrounding agricultural land, and has also expanded the settlements in the area. The plant has an experimental garden which uses the water treated by the plant and serves to raise awareness among local farmers and to promote research.

-The Association Tenmiya works on developing the fish market and surrounding area in Nouakchott, and improving the role of local fishermen. The market stayed open during the pandemic and lockdown, and the focus on protective measures delayed the projects that were envisioned, including the treatment and reuse of water from the market, and the creation of complimentary fruit and vegetable markets.

### **Eva Radek, [Climate Chance](#) :**

Greetings and thanks to the panelists, co-organizers and all participants in Virtual Workshop. Brief presentation of Climate Chance: it is an international association founded in 2015 ahead of COP21. The idea was to bring together non-state actors in their diversity to work together on the issue of territorial climate action.

We have an online portal on the issue of territorial climate action, bilingual - French/English. This portal focuses on projects in the field, good practices, and especially projects



implemented on the African continent. This portal therefore provides access to information on climate change issues at the territorial level.

We also have an [Observatory](#) which for three years now has been publishing an annual Report on territorial climate action at the global level, analyzing the territorial climate action carried out.

Finally, we also organize annual [Summits](#) where we gather our community before the COPs, it is an opportunity for the members of each of the African coalitions to join together and move forward with the work of thematic roadmap. This year, we have not been able to hold the planned Summit in Kigali because of the health crisis. It is for this reason that we are organizing this [Virtual Workshop Series](#), which allows us to continue to mobilize our community and make our coalitions work despite the absence of physical meetings.

**Marie-Laure Vercambre, [French Water Partnership](#) :**

Thanks to Climate Chance for this opportunity to break the silos.

The FWP also has the status of an association, created in 2007 and has about 200 members in 6 different colleges (state, parliamentarians, local authorities, economic actors, research centers, individuals, etc.). All these members work on 4 main themes: water in the Sustainable Development Goals, water and climate change, biodiversity and nature-based solutions, and finally access to drinking water, sanitation and hygiene in crisis or fragile situations. The members therefore work internationally and also in Africa.

The FWP's mission is to push for drinking water issues to be taken more into account on the international agenda, and then to publicize the solutions implemented and developed by certain French actors. For more information on French expertise on water "Water Expertise France" (WE France): projects led by 102 actors in 9 areas of expertise. Operators and solutions are all accessible on this platform.

On the website in the "Production" tab, are available the publications produced with members including the latest "Water and Climate, Place à l'Action" published at COP25.

**Alexandre Alix, [French Water Partnership](#):**

Water and Climate Officer at the FWP.

**Georges Gulemvuga, [CICOS](#) :**

Thanks to Climate Chance and PFE. Presentation of the initiatives that are being developed in the second largest river basin in the world, that of the Congo. CICOS was created in 1999 by Cameroon, the Central African Republic and the DR Congo (now joined by Angola and



Gabon) in order to promote river navigation. In February 2007, the member countries extended the mandate of CICOS to Integrated Water Resources Management (IWRM).

The mission focuses on hydrological monitoring as there has been a sharp decline in hydrometric databases over the last 30 years, particularly in Africa. The basins which around the 1960s had more than 400 hydrometric stations have decreased, in the 1990s there were only 10 of them left. It seemed appropriate because we only manage what we know, it seemed important to us to go towards the search for solutions to rehabilitate this monitoring.

Spatial altimetry had also been reduced. But it can reverse this downward trend, because it is a new technology: "virtual stations" in addition to in-situ stations. In perspective, SWOT 2021, the next mission: spatial and temporal variations of water levels. This will be a great opportunity.

In the search for solutions, CICOS signed an agreement with AFD in 2015 at COP21, followed by a declaration of intent between CICOS and the French government to develop Operational Water Information Systems for climate change adaptation in the Congo Basin. This is how the project to support CICOS, financed by AFD 2016-2019, will be launched: "Strengthening hydrological monitoring in the Congo Basin".

The purpose of this CICOS support project is to strengthen the implementation of transboundary IWRM in the Congo River Basin for adaptation to climate change. The objectives were therefore :

- to strengthen the capacities of CICOS to better ensure the operational hydrological monitoring function
- strengthen the capacity of institutions and populations to adapt to climate change by contributing to the creation of services for users
- integrate the use of earth observation satellites for hydrological monitoring

The project had three axes:

- Hydrological monitoring (rehabilitating in situ and virtual stations)
- Operational development of the CICOS Hydrological Information System
- Development of operational downstream services for the following uses: navigation, hydropower, etc.

The assistance was provided by IOWater so CICOS was taken as a pilot in the follow-up of the project. The working group "Space Hydrology" is a mixed group constituted at the end of 2014 and led by OiEau in order to gather AFD, CNES, IRD, INRAE, BRLi, CNR and CLS. The objective was therefore to capitalize on innovations through technical transfer that meets the needs of water resource users. In the fields of hydrology, space techniques, hydrological products and associated concrete applications.



**Christophe Brachet, [International Office for Water](#) :**

Since IOWater participated in the activities mentioned by Georges above, here is what was concretely achieved:

- Supply of a historical database on spatial altimetry, with validation and characterization of the accuracy of the data (IRD Legos - CNES). Currently at 15 cm accuracy of direct measurement but thanks to SWOT, the hope is to reach 10 cm accuracy which is very interesting.
- Installation of two hydrometric stations at a satellite track in the Congo Basin (IRD-HSM)
- Calculation of flows from altitudes (NARIN)
- Holding of a regional workshop (CICOS, Yaoundé in March 2018)
- Operational development of the Hydrological Information System (HIS) of the Congo Basin (BRLi - IRD)
- Application to uses in the Congo Basin: hydropower and navigation (CNR)

The CICOS HIS has been developed by BRLi, IRD and CICOS to integrate in-situ measurements (water heights, flows and calibration curves of the National Hydrological Services of the Congo Basin), then water heights from spatial altimetry. This system is now operating at CICOS.

Research has been carried out on the hydroelectric potential of the Congo Basin. An application developed with CNR on the hydroelectric potential deduced from virtual stations (in kW/km) :

- From the virtual stations of water level -> slope of the watercourse
- Combined with additional flow and DTM information (SRTM) -> hydroelectric potential over a given area

AFD and the various partners with CICOS have enabled better use of water data and information (including spatial innovation) and models to adapt to climate change. Collaboration between CICOS, relevant institutions and the private sector should be continued and pursued.

**Noureddine Sakhraoui, [Lydec](#) :**

Lydec is the water and electricity distribution company of Greater Casablanca, a subsidiary of Suez.

The Mediouna wastewater treatment plant: the wastewater is treated by pit and collection of macro-waste. Then, all waste larger than 40 mm is retained and landfilled. The pre-treatment ends with a sandblasting/degreasing action and thus the macro-waste is physically removed.



Oxygen is supplied to the bacteria by means of an aerator. Filtration membranes separate the sludge from the treated water, but they also have a disinfecting role (so they can eliminate viruses for example). The membranes are effective enough to block the passage of the Covid-19. The other operations are drying the sludge and deodorizing all the premises to discharge a depolluted area.

This installation of the WWTP has had a strong positive impact on the area (see photos of the powerpoint). Since this installation, agricultural land has been recovered.

Since the installation of the plant in 2013 other facilities have appeared around it. Today it is completely surrounded by houses. This has an impact on the waste water but also on the smells.

Piloting of a wastewater reuse project in an experimental urban agriculture garden. On 1200m<sup>2</sup>, a space arranged with researchers to plant several species of plantations. The objective is to create an educational space to raise awareness among farmers and producers in the region, but also academics and researchers. Being the start of the project and today, very good results: 100% of the species show that water treatment has been effective. This project has been awarded a prize and therefore has contributed to the economic and urban development of the region.

### **Médard Dahodo, [CIDR Pamiga](#), [CREDEL](#) :**

Project Officer at CIDR Pamiga in Benin.

The project was chosen for the "floods" issue following a report on devastating floods that are worsening year after year with climate change. Floods are very recurrent in the Delta. The area is also increasingly populated with populations not always "used" to floods (recurrent or exceptional).

A flood flow that comes :

- from the upstream of the Ouémé Catchment Area (Upper Ouémé)
- the plateau areas of the Lower and Middle Ouémé Valley

The floods in Benin are the "neutral" and "real-life" starting point for the IWRM reflection to then address other issues. More conflictual problems such as the conflicts between farmers and breeders and the overexploitation of fisheries. Other problems that are still not sufficiently relevant:

- water quality disturbed due to erosion
- use of agricultural inputs, eutrophication (water hyacinths)
- deforestation

The project we are setting up is technically and financially supported by the Normandy Water Agency (222,000€), the duration is two years (June 2019 - June 2021). It is implemented by



CIDR Pamiga and CREDEL, also with Africa Green. In addition to the larger program, OmiDelta, supported by Dutch cooperation.

The project has three components :

1. Governance and knowledge IWRM
2. Flood adaptation and resilience measures
3. Dissemination of a sustainable financing mechanism for IWRM at the scale of the Ouémé Basin

Which are declined on 3 levels:

1. The BV for upstream- downstream consultation
2. The OMOV for the development of a flood risk management plan
3. 3 HUs as action research sites

Following component number 1, a hydrological study has identified 5 hydrological units and 3 hydrological black spots that contribute to flooding. In addition, an inventory of knowledge and practices for water and soil conservation was conducted and resulted in the status report.

**Madyoury Tandia, [Association Tenmiya](#):**

In Mauritania, here at Tenmiya, we have been working with the Ministry of Fisheries for a rehabilitation of the fishing market at Nouakchott, in the capital; it is an economical project financed by the bank, but also having an adaptation and environmental aspect;

Various aspects and activities include:

- rehabilitation of fish markets
- improve role of fishermen
- controlled entry and exit
- control electricity for safety
- sanitation project to develop toilets and latrines
- housing around the market
- station for water treatment: evacuation of domestic and industrial waste water, water from treating/processing fish. We considered this aspect in order to collect the used water, treat it and re-use it; in order to feed to the project on the seaside, we will use treated water from this station. We also want to implement a fruit and vegetable market, and use this water also for this market, for gardens - along the coast, which is fragile in Mauritania

COVID19 Impact: impact on project development, 6 months behind schedule. We had to slow down project development, to implement protective measures in these markets visited by more than 10,000 people a day-- other markets in the city were closed but not the fish



market -- so all the measures were taken to protect the population. We carried out various awareness actions, support other measures

### Q&A session

**-Question for Noureddine from Yvan Kédaj:** Who does the follow up and monitoring of water quality, as part of the urban agricultural garden you presented? Are you envisioning a larger project? More on various experimental projects in some areas- is it something that can be duplicated? What were the responses of the population, when we talk about reused water, how do we approach this?

**Response:** This garden is part of our plant, the re-used water is always checked, we analyse the various parameters every week, and we also measure the efficiency of the treatment and quality of water through this. We do a monitoring of heavy metals and plastics on the reused water; as of today the membranes present an extraordinary standard. So the experimental garden is a place of research and learning for university students and farmers. Generalising such a project would require a deeper study, we did this to encourage the local population to take up urban agriculture in Mediouna.

**-Additional Question:** Is there regular control, on other aspects like health, are there authorities doing further analysis or counter analysis?

**Response:** The station of Mediouna is a plant that has received permission to use waters in the regions of the basin, so it is checked regularly, on a term-basis. Every 3 months, there can be a test without notice, and we are not sent the results, we would only be informed if non-compliance, so far there have been none. So we are basically controlled by the state authorities.

**-Question to all panelists:** how were your activities affected by the health crisis?

**Noureddine:** COVID19 has impacted our activity, we were following our continuous activity plan, and were able to continue our mission-- industrial activity and monitoring cannot be done from a distance, so we were on-site for everything that required it. During the 3 months of lockdown, some were able to work from home- but remote work cannot replace human presence.

**Georges:** As a regional structure, we are supporting various countries in hydrological and meteorological monitoring. Many initiatives were delayed, especially in working with international partners. The action plan for this year did not take place. We work virtually, but this is not always easy in Africa- might have technical problems. In terms of the pandemic, the level of infection had been different from place to place, but preventive measures are the same everywhere.

**-Question to Médard:** on the conflict between farmers and breeders, did this have an impact on security?





**Response:** Yes the issue of the conflict is something that went beyond the competence of our project, this conflict started several years ago. It has reached such a point that some people have died; the state has had to make decisions, at our level what we do is try to raise awareness, advocate, find solutions. When cattle damage the fields, the farmers would kill the cattle and the breeders would shoot back, leading to an escalation. This is a long-term conflict. Of course it affects food security, if the cattle come, they ruin the field and eat the crops, this creates a problem.

**-Question to Médard:** what have been the first impacts in terms of flood management?

**Response:** The project was implemented just a year ago. We are just looking at different parameters now, and the aim is to reduce flooding by 15 % - we are following some indicators, following the volume of water which we'll allow to infiltrate. There is a study that enabled us to monitor the indicators, but don't have figures yet to say the problem is resolved.

**Question to all panelists:** How did your projects integrate/ involve local communities? Have they been participative?

**Médard:** Yes very much so, we first issued sensitisation plans to the population; it is up to them to choose which micro actions they want to implement, and we have supported financially. When we work on farmland, on soil and water, the population is involved, we don't look for labour elsewhere.

**George:** CICOS works with the involvement of local stakeholders, all of our activities are presented to all stakeholders and they have to approve, and in the implementation stage, we do it with them. There is total transparency on our level of involvement, all the tools we have and technical aspects are done with technical teams in the Congo basin.