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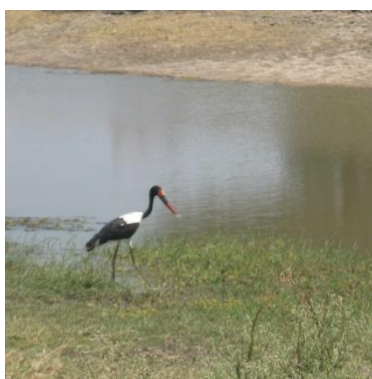
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# INVESTMENT PLAN FOR THE STRENGTHENING OF RESILIENCE TO CLIMATE CHANGE IN THE NIGER BASIN

*Final version*

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# INVESTMENT PLAN FOR THE STRENGTHENING OF RESILIENCE TO CLIMATE CHANGE IN THE NIGER BASIN

## *Final version*

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## EXECUTIVE SUMMARY

The African continent is among the most vulnerable to climate change due to a combination of the anticipated effects of climate change and to ongoing development challenges, high poverty levels, and low adaptive-capacity. Among a wide array of possible impacts of climate change, Africa will experience compounded stress on water resources that already face significant strain from overexploitation and degradation, with drought stress exacerbated in drought-prone regions. The Niger River Basin in West Africa is on the extreme end of the vulnerability scale. The Basin suffers further from a large Adaptation Deficit - national and local governments are not equipped to respond to ongoing climate-related events, much less escalated future events.

The Niger Basin is an expansive region in West Africa that is home to more than 130 million people throughout the nine countries of Benin, Burkina Faso, Cameroon, Chad, Ivory Coast, Guinea, Mali, Niger, and Nigeria. The Niger River and its tributaries are a vital lifeline providing drinking water, irrigation, aquaculture, energy, and transport to these nine riparian countries. Heavy reliance on natural resources, combined with ongoing conflicts, and political instability make it one of the most fragile river basins in Africa. Over 70% of the population lives in areas where food security depends on unreliable rainfall and highly variable inter-annual and intra-annual river flows. Climate variability has long been a challenge and an obstacle for development in the Basin.

Climate change will compound these extreme events and raise further obstacles to the region's achievement of the Sustainable Development Goals related to water management, food security, environmental sustainability, and health, among others. The impacts of climate change increase the risk of natural disasters such as floods and droughts, degrade the biodiversity and ecosystems associated with the river, and have consequences on every economic sector. These impacts have a compounding effect that threatens food and energy security, economic development, and the preservation of the ecosystems in the Niger Basin.

Financial, technological and managerial capacity gaps in the Niger Basin increase the overall challenge of managing the river's variability and responding effectively to peoples' needs. In addition, the absence of adequate infrastructure undermines countries' abilities to store water in times of scarcity, control flooding, and provide stable and affordable energy. All of these factors increase threats to food and energy security, economic development, health of the ecosystems, and overall stability in the Basin.

Yet despite these development challenges and high poverty levels – 6 of the 9 riparian countries are considered Least Developed Countries (LDCs) and are among the twenty poorest in the world – there are vast opportunities for improving livelihoods in the Basin and strengthening its overall development. **Two key elements bring hope to the region** for addressing these challenges: (1) a history of cooperation between the riparian countries of the Niger Basin; and (2) an exceptionally high potential for sustainable development that includes resilience-building and strengthening of adaptive capacity.

The Niger Basin countries recognize that **the shared nature of their water resources presents an opportunity for a collaboration and coordination** that will derive greater resilience-building outcomes. The Investment Plan for the Strengthening of Resilience to Climate Change in the Niger River Basin (abbreviated as Climate Resilience Investment Plan - CRIP) was prepared and will be implemented by the Niger riparian countries and the Niger Basin Authority (NBA), one of the oldest African intergovernmental agencies, created in 1964 in Niamey, Niger.

In the spring of 2015, during a ministerial round table on the future of the Niger River, the nine riparian countries agreed to launch an initiative directed at building a coherent ensemble of actions



and investments to strengthen the resilience to climate change in the Niger River Basin, with the objective of mobilizing resources for climate-related development.

The CRIP includes 246 actions that are divided in two packages: (1) the Knowledge Package and (2) the Sectoral Investment Package. Actions were culled from the NBA's Operational Plan, member countries' National Adaptation Programmes of Action (NAPAs) and National Adaptation Plans (NAPs), as well as country proposals. These actions include:

Knowledge Package	Sectoral Investment Package
<p>Measures to enhance knowledge and strengthen response to climate and hydrological risks</p> <p>Measures to assess vulnerability, communicate, and raise awareness</p> <p>Measures to strengthen capacity and integrate adaptation into bodies and management instruments of the national and regional institutions of the Basin</p>	<p>Measures targeting vulnerability to water stress</p> <p>Measures targeting vulnerability to flooding</p> <p>Measures targeting vulnerability to soil degradation</p> <p>Measures targeting vulnerability to degradation of the grazing land</p> <p>Measures targeting vulnerability to degradation of the ecosystems</p> <p>Measures targeting vulnerability to deterioration of the water quality</p> <p>Measures targeting vulnerability linked to the rising sea-level</p> <p>Measures strengthening resilience (e.g. generation of jobs, revenues, etc.)</p>

Full implementation of the plan is estimated to cost USD \$3.11 billion. The plan will mobilize funding from a wide array of sources, some of which have committed support early in the Plan's development process. Additional funds will be mobilized with the support of regional and multilateral partners, such as the Niger Basin Authority (NBA), the African Development Bank (AfDB), and the World Bank (WB). In practice, the CRIP will bring together adaptation measures planned in the Niger River Basin and help to mobilize complementary adaptation financing, including from specialized climate funds. All financing for the investment plan is aligned and consistent with existing plans at the regional and national levels.

The CRIP integrates fully with the NBA's Operational Plan that structures the implementation of the Overall Development Plan of the Niger River Basin. Activities in the CRIP are programmed based on the level of urgency expressed by the countries and the level of preparedness of these activities. Each investment included in the Plan was examined and vetted by the Member States through a comprehensive consultative process with multi-sectoral participation, strategically coupled with exercises to build local capacity.

This comprehensive basin-approach to addressing development and resilience is widely considered a best practice, but rarely implemented in the developing world due to the urgency of development needs as well as resource and capacity constraints. Yet in light of the rapidly advancing effects of climate change and the certain devastation that these impacts will bring to the most vulnerable countries and communities in the world, the CRIP is a bold and necessary step toward concerted action for a sustainable future in the Niger Basin.





## PREAMBLE

“In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate. “

Intergovernmental Panel on Climate Change  
5<sup>th</sup> Assessment Report (2013)

Between 2013 and 2014 the leading global consortium of scientists known as the Intergovernmental Panel on Climate Change (IPCC), released their 5<sup>th</sup> Assessment Report confirming the onset of climate change. They proved what many small farmers, native tribes, and laypeople were already noticing in their surrounding environment. More startlingly in the IPCC report – known for its conservative approach to climate scenarios – was the affirmation that “Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems.” In other words, mitigation of greenhouse gases, regardless of its level of ambition and pervasiveness, can no longer deter the inevitable impacts of an already changing climate. Countries worldwide must prepare for these impacts and adapt to the changes to come.

The African continent is among the most vulnerable to climate change due to a combination of the anticipated effects of climate change and to ongoing development challenges, high poverty levels, and low adaptive-capacity. Among a wide array of possible impacts of climate change, Africa will experience compounded stress on water resources that already face significant strain from overexploitation and degradation, with drought stress exacerbated in drought-prone regions. Water resource scarcity is directly linked to potential increased human security risks, violent conflict, and migrations, which are among the most disquieting potential consequences of climate change for the African continent. The IPCC warns that increased migration could lead to human suffering, human rights violations, political instability and conflict. These are all dangers that African countries must avoid in order to protect their societies and to continue progressing in their development.

The Niger River Basin in West Africa is on the extreme end of the vulnerability scale, especially to impacts on water resources and coastal zones. The Basin suffers further from a large Adaptation Deficit - national and local governments are not equipped or prepared to respond to ongoing climate-related events, much less escalated future events. This deficit is directly related to the level of development and capacity in the region – 6 of the 9 riparian countries are Least Developed Countries – as well as political and security challenges that are pervasive throughout the Basin. These issues take the forefront of government agendas and financial planning, demanding what limited resources there are and leaving countries in a compromised position to begin addressing climate change. While the knowledge and financing requirements for climate adaptation in the Basin are high, the ability to attend to these needs are beyond their reach. What this means in practical terms for these countries is that they have a much longer, more costly road to travel to secure the future safety and well-being of their people. Intensified efforts to increase adaptation can reduce risks and impacts, but under current circumstances only to a limited extent. What is clear is that the region needs to find a way to continue their sustainable development *while* also adapting to climate change – effectively, the Niger riparian countries need a climate resilience-building approach to development.

Understanding the importance and urgency of increasing their ability to address climate change, and further recognizing the increased benefit of regional cooperation to strengthen these efforts, the Niger Basin countries have undertaken to prepare a regional approach to building climate resilience while continuing development efforts.



In a bold effort to tackle the onset of climate change with ambition and courage, the nine riparian countries of the Niger Basin – Benin, Burkina Faso, Cameroon, Chad, Ivory Coast, Guinea, Mali, Niger, and Nigeria – developed and adopted the Niger Basin Climate Resilience Investment Plan (CRIP). Collectively they pledged to advocate for technical support and financing to implement its 246 resilience-focused priority actions and quickly put into motion its components. The Plan builds on a history of strong riparian cooperation in the Niger Basin and represents an important opportunity to take a coordinated approach in building regional climate resilience.

After the ministerial round table on the future of the Niger River, held on 19th April, 2015 in Washington, D.C., during the Spring meetings of the World Bank and the International Monetary Fund, participants agreed to launch an initiative aiming to constitute a coherent set of measures and concrete investments that directly contribute to strengthening climate resilience in the Niger Basin. With the support of BRLingenierie consultants, this initiative led to the development of the Investment Plan for the Strengthening of the Resilience to Climate Change of the Niger Basin (abbreviated to Climate Resilience Investment Plan - CRIP), which will be presented to the international community during the 21st session of the UNFCCC Conference of the Parties in Paris in December 2015 (COP 21). In view of the funding needs of the basin in terms of strengthening the resilience to climate change, this initiative is also a means of harmonizing the adaptation programmes planned in the Niger River Basin (NB) and mobilising the sources of climate funding.

This document constitutes a consolidated version of the CRIP. It incorporates the contributions and suggestions transmitted by the Member States during the national consultative workshops held in August 2015, during the civil society regional consultative workshop (NGO, Regional Coordination of Users, National Coordinations of Users) held on 12 September 2015 at Cotonou, Benin and during the Extraordinary Session of NBA Council Ministers, held on 29 and 30 September 2015 at Cotonou, Benin.

The CRIP consists of a selection of measures contributing to strengthening the resilience to climate change in the Niger Basin, identified in the following existing plans and programmes, and subsequently validated by a consultation process with the countries:

- ▶ Ten-year Operational Plan of the Niger Basin Authority (NBA), based on the contributions of the Member States and in line with the Sustainable Development Action Plan (SDAP) for the Niger Basin and its Investment Programme. For its implementation, the Operational Plan draws on the Integrated Programme for Agricultural Development and Adaptation to Climate Change (PIDAACC, an NBA/ADB project), the measures of which have been incorporated into the CRIP;
- ▶ National Adaptation Programmes of Action (NAPA) and National Adaptation Plans (NAP) of the Member States;
- ▶ Other national or regional programmes for adaptation to climate change and contributions of the States.

Particular attention has been paid to the consistency and compatibility of the CRIP with the various national initiatives (Intended Nationally Determined Contribution - INDC) and regional initiatives (economic communities, basin organisations) in order to facilitate the subsequent implementation of these initiatives at national level by the countries.

This document was presented during the meeting of the Finance Ministers of NBA Member States that took place in Lima (Peru) on 7 October, 2015 as part of the annual World Bank and IMF meetings.



The Extraordinary Session of NBA Council Ministers, held between 2 and 5 November 2015 at Bamako, Mali, recommended the adoption of the CRIP by the Heads of States and Governments of the Member Countries, in the context of the presentation of the initiative during the United Nations Convention on Climate Change COP21, in December, 2015 in Paris, France, where countries are also expected to agree to a new global climate pact for addressing climate change.





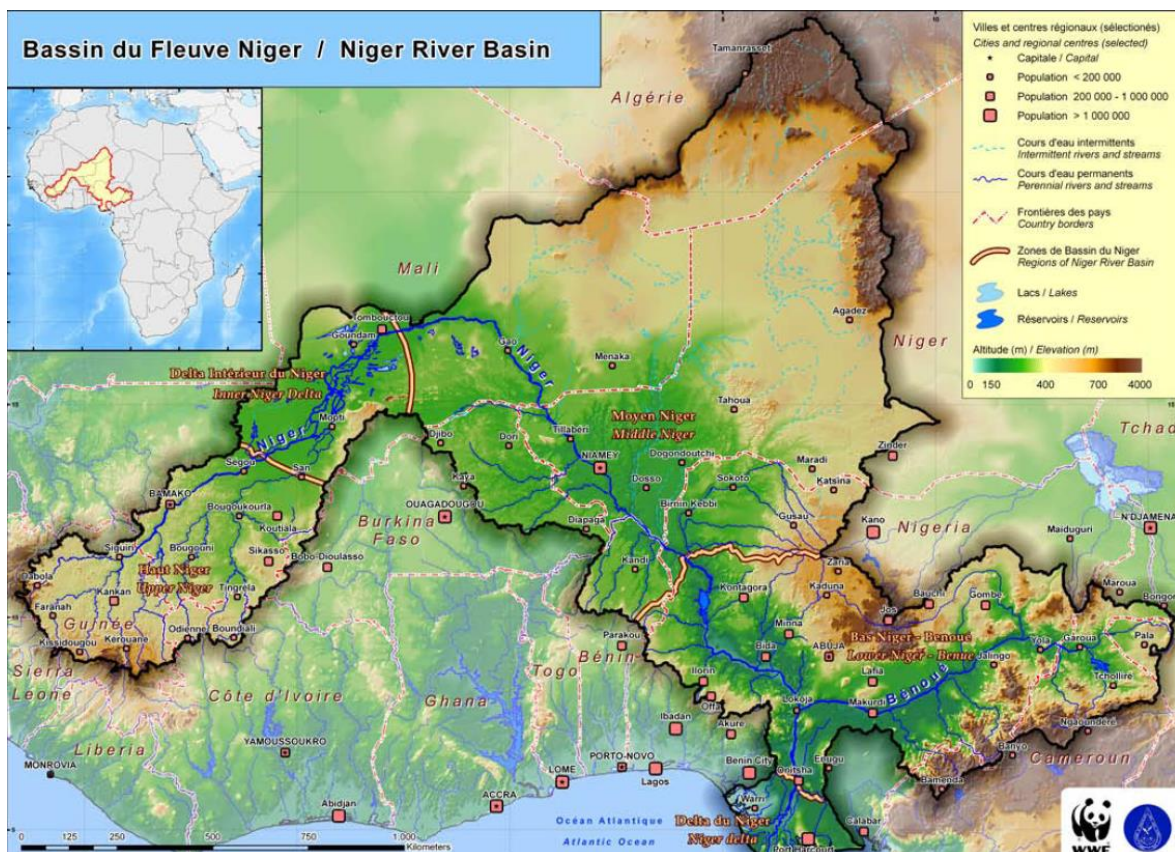
# 1. VULNERABILITY OF THE NIGER BASIN TO CLIMATE RISKS

## 1.1 MAIN CHARACTERISTICS OF THE NIGER BASIN

The Niger Basin covers an area of over 2.2 million km<sup>2</sup>, including approximately 1.5 million km<sup>2</sup> of hydrologically active basin spread across 9 countries - Guinea, Côte d'Ivoire, Mali, Burkina Faso, Niger, Benin, Chad, Cameroon, Nigeria<sup>1</sup>. Its geographical coverage, composed of vast desert areas, is characterised by the presence of wide valleys, flood plains and areas of swamp (NBA, 2007).

The basin's population of 130 million is expanding very rapidly and is projected to possibly surpass 180 million inhabitants by 2025 (NBA, 2007). Living conditions are threatened by the extremely variable flow of the Niger River. A long period of low water levels (the annual flow at Bamako between 1970-2005 was over 30% less than that between 1905-1970), linked to falling rainfall, was followed by a period of higher water levels. This led to flooding which caused significant damage in the basin (particularly in 2013 and 2014). Most of the population and the economy of the countries in the Niger Basin rely on agriculture, pastoralism or other means of subsistence based on natural resources, and is directly dependent on the water resources of the Niger River or its tributaries. Fair distribution of the water resources and the preservation of the aquatic ecosystems in the basin, including the remarkable wetlands of the Inner Delta and the maritime delta, are thus two of the greatest challenges faced by the riparian countries of the Niger River and its tributaries.

Figure 1-1: Map of the Niger Basin



Source: Atlas – Niger Basin, WWF – Wetlands – UNOPS, NBA 2007.

<sup>1</sup> Algeria is connected to the basin through ephemeral rivers, which occasionally contribute small proportions of flow to the Niger drainage system, and is not a member country of the Niger Basin Authority.





## 1.2 EXTREME VULNERABILITY TO CLIMATE RISKS

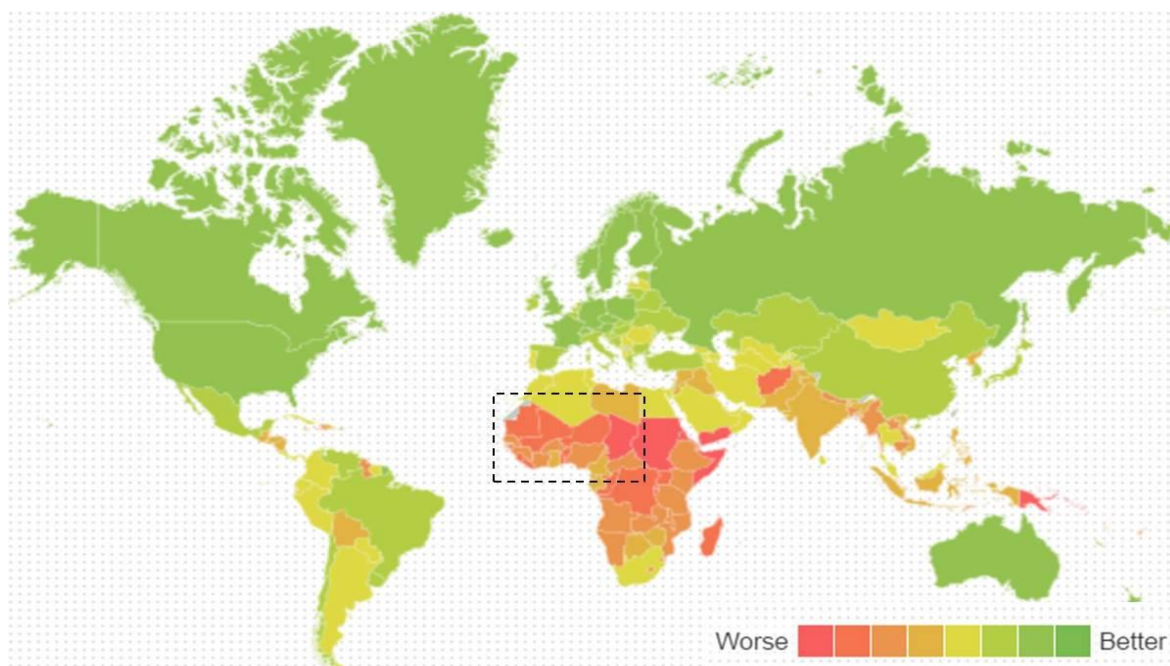
### AN EXTREMELY VULNERABLE REGION

The Niger Basin (NB) is a region considered by the Intergovernmental Panel on Climate Change (IPCC) to have one of the **highest vulnerabilities to the negative impacts/adverse effects of climate change in the world**. The main vulnerability factors in the basin are as follows:

- ▶ 6 out of the 9 Member States are ranked among the Least Developed Countries by the United Nations (Benin, Burkina Faso, Guinea, Mali, Niger, Chad). Their Gross National Product per capita, their Human Capital Index and their Economic Vulnerability Index are among the least favourable. A large section of their populations is vulnerable, as characterized by high mortality, high malnutrition, low levels of education, and little access to clean drinking water and energy;
- ▶ Populations with natural resources-dependent livelihoods that are highly sensitive to climatic variations;
- ▶ Frequent droughts which have had a negative impact on the natural resources;
- ▶ Continuous degradation of the forest resources, mainly for firewood to satisfy the energy needs of the population;
- ▶ High average rate of population growth of around 3% annual growth on average across the basin's populated zones, which puts strong pressure on the natural resources and the environment;
- ▶ Fragile institutions;
- ▶ Security problems and displaced populations in the region, particularly in Mali, Niger, Chad, Cameroon, Nigeria, etc.) The impacts of climate change and recurrent natural disasters also lead to mass migration in the region.

These vulnerability factors are also to be found in other regions of the world but the combination of all these factors in the same region is very rare and results in considerably complicating the situation. **As a consequence, the NB is exceptionally vulnerable to climate risks** (see Figure 1-2)

Figure 1-2 : Vulnerability index to climate change (ND-GAIN 2013)



## GREAT UNCERTAINTY WITH REGARD TO CLIMATE RISK

Assessment of the climate risks in the Niger Basin carried out by the Niger Basin Authority (NBA) and the World Bank in 2013 on the one hand and the Member States as part of their preparation of the National Adaptation Programmes of Action (NAPA) on the other indicate that **inter-annual and intra-annual climatic variations are naturally high in the basin.**

With regard to climate change, these studies highlight the **uncertainty of climate projections for the NB.** Nevertheless, they do identify three broad trends with regard to climate change:

- ▶ An overall rise in temperature of 1°C to 3°C, and consequently an increase in evapotranspiration;
- ▶ A rise in sea-level in the maritime delta;
- ▶ Increased variability of rainfall and the extreme weather events associated with this such as flooding and drought).

The impact of climate change on the average annual rainfall remains uncertain however, with some climatic models suggesting a decrease and others an increase (see Appendix C).

The significant level of uncertainty in climatic projections makes it very difficult to assess the impacts of climate change on the water cycle in the Niger Basin, requiring consideration of an increase in both the frequency and intensity of extreme weather events such as flooding or severe drought, and a rise or fall in the average values of climate and hydrological parameters.

## MULTIPLE SECTORAL IMPACTS

The impacts of climate change on the water cycle increase the risk of natural disasters such as floods and droughts, degrade the biodiversity and ecosystems associated with the river, and have consequences on every economic sector - agriculture, livestock, fishing, hydroelectricity, navigation, health, etc. – via the following pathways:

- ▶ **Change in availability of the water resources** impacts the agricultural yields, animal production and hydroelectric power capability.
- ▶ **Modification of the flow regime of the river and its tributaries**, including increased siltation, has a damaging effect on the navigability of the river, increases the risk of flooding and impacts the safety and security of the issues at stake, degrades the soil and destabilises the ecosystems along the river;
- ▶ **Changing quality of the water** affects the cost of producing clean drinking water, facilitates the circulation of water-borne diseases, modifies the habitats of the aquatic ecosystems and thus affects fish production.

These impacts have a compounding effect that threatens food and energy security, economic development, and the preservation of the ecosystems in the Niger Basin.

*See detailed description of the sectoral impacts in the flowcharts included in Appendix D.*

In response to climate change, the main levers for action to protect, manage and develop the water resources of the Niger River include the development of storage infrastructures and improved water usage efficiency, the fight to protect the remarkable ecosystems of the basin against degradation, improvement of the resilience of the populations and the strengthening of regional co-operation (World Bank, 2012).



## 2. FRAMEWORK OF THE CLIMATE RESILIENCE INVESTMENT PLAN DEVELOPMENT STRATEGY

### 2.1 CRIP DEVELOPMENT STRATEGY

#### ORIGIN OF THE INITIATIVE

The demographic challenges of the Niger Basin and the resulting increase in water and energy requirements, the threat of the cycle of droughts which began at the start of the 1970's continuing, and the environmental issues faced by the basin have led the Member States to make a strong commitment, in the context of the NBA, in the "Shared Vision" process, which in 2007 resulted in the formulation of the Sustainable Development Action Plan (SDAP) and subsequently its transformation in 2008 into an Investment Plan (IP). After a first phase of implementation of the IP in the form of a priority five-year plan (2008-2012), the Member States furthered their commitment to regional co-operation through a second phase of the implementation of the SDAP/IP by giving the NBA a Strategic Plan (2013-2022) and a ten-year Operational Plan (2016-2024).

Aware of their vulnerability with regard to climate change, the Member States emphasized their willingness to adopt a coherent approach to tackling climate related challenges during the ministerial round table on the future of the Niger River, held on 19th April, 2015 in Washington, D.C. during the Spring Meetings of the World Bank and the IMF, the participants agreed to launch an initiative aiming to constitute a coherent set of measures and concrete investments to strengthen resilience to climate change in the Niger Basin.

This initiative has resulted in the development of an Investment Plan for the Strengthening of Resilience to Climate Change in the Niger Basin - abbreviated to Climate Resilience Investment Plan - "CRIP" - based on existing key planning documents for the Niger Basin. The CRIP is a short/medium term initiative (5 to 10 years) and aims to highlight a group of measures that can be implemented rapidly.

#### A CONSULTATIVE DEVELOPMENT PROCESS BASED ON THE EXISTING PLANNING DOCUMENTS

The existing planning documents used for its development include mainly:

- ▶ The Operational Plan 2016-2024 (currently being finalised). This follows on from the Strategic Plan (2012) and aims to continue the implementation of the measures of the SDAP and its revised Investment Programme. It includes the 256 priority measures directly identified by the Member States during the implementation process conducted from 2013 to 2015 (see details of the way the NBA planning documents have developed in Appendix B). This includes the measures driven by the various projects of the NBA and its technical and financial partners (PIDAACC/ADB, P-DREDGE/WB, PGBFN/WB, P-GIRE2/AFD, etc.);
- ▶ The National Adaptation Programmes of Action (NAPA) and the National Adaptation Plans (NAP) developed by 6 of the 9 Member States<sup>2</sup> with the support of the UNFCCC and the UNDP from 2006 to 2010. For the other Member States, equivalent documents (e.g. NAPCC in Cameroon) or national subscriptions were used;
- ▶ The contributions put forward by the Member States during the national consultations conducted in August 2015 and during a Regional Workshop held on 12 September, 2015 at Cotonou, for the preparation of this document.

<sup>2</sup> Cameroon, Côte d'Ivoire and Nigeria have not officially submitted an NAPA to the UNFCCC.





The consultation process conducted with the Member States through their NBA National Focal Structure, their CRIP focal point and their COP21 focal point, representatives of the civil society (IUCN, Wetlands International, Regional Coordination of Users, National Coordination of Users), regional organisations, and donors, ensures that local, national and regional stakeholders adopt the CRIP initiative.

## A PLAN FOR ADAPTATION TO CLIMATE CHANGE

**The Climate Resilience Investment Plan thus consists of a selection of measures resulting from these documents and contributing to strengthening resilience<sup>3</sup> of the populations in the Niger Basin to climate change.**

Strengthening resilience to climate change of the populations, ecosystems, infrastructures and institutions of the Niger Basin consists in **reducing their exposure, reducing their sensitivity and strengthening their adaptive capacity** to the climate risks specific to the Niger Basin (see Figure A-1) according to an overall development path where climate change is one of the major constraints.

The CRIP thus includes **mainly measures for adaptation<sup>3</sup>, and also measures for mitigation<sup>3</sup>** as collateral benefits resulting from the adaptation measures, thereby representing win-win measures. No-regret<sup>3</sup> and low-regret<sup>3</sup> measures and flexible adaptation<sup>3</sup> are also included in the CRIP.

For example, some agricultural, agroforestry or forest restoration and management measures not only make it possible to enhance the resilience of the populations to climate change, but also constitute mitigation measures by carbon sequestration in the plant biomass or in the soils, which they foster. In the same way, the construction of a multi-purpose dam is deemed to be an adaptation measure as the dam contributes to improving the availability of the water resource during low-water periods, the protection against flooding and the improvement of the means of subsistence of the local populations (fishing, tourism). The hydroelectric component of the dam also constitutes a mitigation measure, contributing to energy generation without the emission of greenhouse gas (GHG).

Particular attention is paid to the integration of the measures of the CRIP on a larger scale, over a longer time-frame and under contrasting hypotheses for the future changes, and also to the consideration of interactions between sectors and between funding in order to **avoid any risk of maladaptation**.<sup>3</sup> Some measures aiming to reduce vulnerability to climate change can thus have a negative effect or even increase the vulnerability of other systems, sectors or social groups. For example, the reservoirs of dams may evaporate large volumes of water. These volumes evaporated into the atmosphere will not feed the usages for which they were intended downstream and damage the water balance on the scale of the basin, which in turn increases the vulnerability of users to droughts.

The package of measures included in the CRIP **targets the different entry points inherent to the reduction of climate risk**. It includes preventive measures - prevention of the negative effects of climate change on the management of water resources, preparation - before the occurrence of the climate contingency (e.g. improvement/development of stream flow or climate networks, early warning systems), - reactionary measures during the contingency (e.g. secure the water supply during drought / periods of severe low water levels), and measures to restore or repair after the contingency (e.g. restoration of infrastructures). Moreover, all the sectors related to the management of water resources will be incorporated.

<sup>3</sup> See definitions in Appendix 3.



Finally, the CRIP **takes into account the extreme uncertainty which reigns over the future climate in the Niger Basin**. By remaining open to the future integration of measures yet unidentified or which are not currently eligible, the CRIP maintains a degree of flexibility and continues to adapt to the very diverse potential impacts foreseen in the Niger Basin.

### **CONSISTENCY WITH NATIONAL AND REGIONAL INITIATIVES**

The CRIP will be presented to the international community during the 21st session of the UNFCCC Conference of the Parties in Paris in December 2015 (COP 21). In view of the funding of the needs of the basin in terms of strengthening the resilience to climate change, this CRIP is also a means of mobilising funding. The sources of funding identified are the funds financing adaptation such as the Green Climate Fund, the Climate Investment Fund or the Adaptation Fund, and multilateral and bilateral donors in countries with or without links to a climate initiative. In order to be able to call upon these funds, the CRIP fulfils the conditions and criteria of each of them (see details in Appendix I).

The initiatives for the COP21 relating to the Niger River Basin are numerous, particularly in terms of adaptation to climate change. The Intended Nationally Determined Contributions (INDC) of the countries includes an adaptation part. The regional institutions (BOAD, ECOWAS, WAEMU, ECCAS, CEMAC, or CILSS) each have initiatives for adaptation to climate change specific to the water resource management sector. These take the form of interventions (e.g. setting up of the Regional Water Observatory for West Africa for the CCRE (Water Resources Coordination Centre) or the Irrigation in the Sahel initiative of the CILSS) or funding tools (e.g. the Fund for the Green Economy in Central Africa (FEVAC) set up by the ECCAS). These strategic documents define priority areas for intervention at national and regional level to enhance resilience to climate change. **The CRIP has thus been developed so that, on the one hand, the measures selected are compatible and complementary to these initiatives and on the other hand to ensure they are coherent at national and regional level.**

Finally, some countries in the NB also share other international basins, the management authorities of which have also developed initiatives for the COP21 (VBA, LCBC, CICOS, OMVS). Particular attention has been paid to ensuring the coherence of these initiatives in order to facilitate their subsequent implementation at national level by the countries.



## **2.2 METHOD OF SELECTING THE MEASURES OF THE CRIP**

### **2.2.1 Definition of the criteria for selection of the measures**

#### **2.2.1.1 Aims**

The first aim is to define criteria that makes it possible to select from measures in the existing planning documents (the OP, NAPA/NAP's and contributions of the Member States submitted during consultations), those measures relevant to the protection, management and development of the water resources in the basin which appear in the thematic field of action of the NBA and contribute to strengthening the resilience of the populations, ecosystems, infrastructures and institutions in the Niger Basin to the climate risks specific to that region. This involves laying down criteria specific to water resources management projects in the Niger Basin.

The second aim is to ensure the selection of measures which fall within the geographical area of the basin, which are adopted by the countries and which display a level of preparation allowing rapid implementation to be envisaged, in order to facilitate access to the sources of funding identified.

#### **2.2.1.2 The selection criteria**

Ten criteria have been defined. They are classed according to their nature as technical, institutional, administrative or economic (Table 2-1).



**A measure must fulfil both of the following conditions to be selected in the CRIP:**

- **It must contribute to strengthening resilience to climate change and thus fulfil at least one of the following 2 corresponding criteria.** These two criteria correspond to the two main categories of adaptation measures identified:

- *Institutional measures, knowledge enhancement measures or capacity-building measures contributing to enhancing resilience to climate change (criterion 1).*

This category includes knowledge enhancement measures et measures for forecasting hydro-climatic hazards and their impacts on the water resources regime (sub-criterion 1.1), measures contributing to the assessment of the vulnerability of populations, ecosystems, infrastructures and institutions in the NB, to communication, education and awareness-raising (sub-criterion 1.2) and measures contributing to enhancing the integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin (sub-criterion 1.3)

- *Sector-specific measures contributing to strengthening resilience of the populations and ecosystems of the basin to the climate changes identified in the Niger Basin (criterion 2).*

All the flowcharts in appendix D are an integral part of the definition of technical criterion No.2. Any measure targeting one of the impacts identified in these flowcharts belongs to this category. This includes measures aiming to reduce vulnerability linked to water stress conditions, flooding, deterioration of the water quality, soil degradation, degradation of the grazing land, degradation of the ecosystems, or to the rising sea-level and measures aiming to strengthen resilience (e.g. generation of jobs, revenues, etc.)

- **Moreover, it must satisfy all of the following criteria (3 to 10):**

- *contribute to the sustainable development and management of the Niger Basin (criterion 3)*
- *avoid maladaptation (criterion 4) (see Appendix E)*
- *contribute to the protection, management and development of the water resources in the Niger Basin, as well as of the related ecosystems (criterion 5)*
- *be compatible with the planning documents and agreements concerning the Niger Basin (criterion 6)*
- *be well-adopted by the Member States (country ownership) (criterion 7)*
- *demonstrate the level of preparation required (criterion 8)*
- *pre-identified funding (criterion 9)*
- *economic feasibility (criterion 10)*

The detailed methodology for comparing projects with each of these criteria is provided in Appendix E.

The criteria subject to scoring (criteria 1, 2, and 8) will be used to **prioritise the measures** selected in the CRIP.

Criteria 9 and 10 focus more specifically on the funding of the measures:

- Criterion 9 aims to assess the project funding conditions. The level of funding identified for each operation has been collected from the countries. Projects benefiting from signed financing agreements are not selected. This criterion allows the selection of measures for which funding has been identified for all or part of the budget but not confirmed, or for which no funding has been identified.

► The feasibility of the measures (criterion 10) will be assessed at the time of their selection for funding. This analysis will be conducted based on feasibility studies produced by the countries for each measure, as part of their preparation. Measures for which no feasibility study has been produced are selected in the CRIP with the aim of mobilizing funding in order to carry out these feasibility studies. The associated target amount corresponds to a portion of the overall amount indicated for these measures.



Table 2-1: Criteria for the selection and prioritisation of the measures in the CRIP to strengthen resilience to the impacts of climate change

Criteria	Justification	Description/Example and [nature of the measure]
<b>Criteria for the assessment of the contribution of the measures to resilience to climate change</b>		
1. • Institutional measures, knowledge enhancement measures or capacity-building measures contributing to enhancing resilience to climate change	<p>Managing hydro-climatic variability and uncertainty requires an improved knowledge of the climate and its impacts on the water resources, enhancement of the capacities of the stakeholders and strengthening of the institutions.</p> <p>For the purpose of prioritisation, this criterion will be scored from 1 to 3 in order to quantify the contribution to resilience with regard to the impacts of climate change identified in the Niger Basin.</p>	<p>1.1 Contribute to strengthening <u>knowledge</u> and forecasting of hydro-climatic events and their impacts on the water resources regime.</p> <ul style="list-style-type: none"> <li>• Collection/generation of meteorological, hydrological and hydrogeological data, development of monitoring networks, setting up of reliable information networks and effective management and sharing platforms (improvement of the quality and accessibility of the data) [Reduction of exposure – Preparation]</li> <li>• Research activities aiming to model the processes and assess the impacts of climate change on the water resources, the wetlands and soil degradation and their vulnerability [Reduction of exposure – Preparation]</li> <li>• Development and implementation of decision-making tools for the management of climate-related risks and to improve weather-forecasting (rainfall, stream flow) in the short, medium and long term. [Reduction of exposure – Preparation]</li> <li>• Communication, awareness-raising</li> </ul> <p>1.2 Contribute to the assessment of the vulnerability of populations, ecosystems, infrastructures and institutions in the Niger Basin, to communication and awareness-raising.</p> <ul style="list-style-type: none"> <li>• Communication / awareness-raising with regard to the vulnerability of the populations to climate change</li> <li>• Assessment of the vulnerability of the populations, ecosystems, infrastructures and institutions to climate change</li> </ul> <p>1.3 Contribute to ensuring the integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin</p> <ul style="list-style-type: none"> <li>• Strengthening the technical and regulatory capacities, etc.</li> <li>• Integration of the adaptation strategy in the preparation of international agreements, strategic documents, the regulations, standards and organisational procedures of the NBA and the</li> </ul>



Criteria	Justification	Description/Example and [nature of the measure]
		institutions of the Basin. <ul style="list-style-type: none"> <li>Promotion of rules for the management of the natural resources that are compatible with the aim of this CRIP.</li> <li>Implementation of international agreements linked to climate change.</li> </ul>
2. Sector-specific measures contributing to strengthening <u>resilience</u> of the populations and ecosystems of the basin to the climate changes identified in the Niger Basin	This is the main aim of the Climate Resilience Investment Plan: contribute to reducing the vulnerability of the issues at stake (by reducing the exposure or sensitivity or improving the resilience) to the sectoral impacts identified in the Niger Basin For the purpose of prioritisation, this criterion will be scored from 1 to 3 in order to quantify the contribution to resilience with regard to the impacts of climate change identified in the Niger Basin.	Any measure targeting the favourable or unfavourable effects identified in each of the sectors or strengthening resilience of the populations, ecosystems, infrastructures and institutions with regard to these impacts fulfils this criterion. It is based on the flowcharts illustrating the effects of climate change per sector laid out in Appendix D. Measures to strengthen resilience will target: <ul style="list-style-type: none"> <li>Vulnerability to water stress conditions</li> <li>Vulnerability linked to flooding</li> <li>Vulnerability linked to the deterioration of the water quality</li> <li>Vulnerability linked to soil degradation</li> <li>Vulnerability linked to degradation of the grazing land</li> <li>Vulnerability linked to degradation of the ecosystems</li> <li>Vulnerability linked to the rising sea-level</li> <li>Strengthening of the resilience (e.g. generation of jobs, revenues, etc.)</li> </ul> For the purpose of prioritisation, this criterion will be scored from 1 to 3 in order to quantify the contribution to resilience with regard to the impacts of climate change identified in the Niger Basin.
<b>Criteria for funding measures</b>		
3. Contribute to the sustainable development and management of the <u>Niger Basin</u>	This involves ensuring that the measures selected have implications within the boundary of the Niger Basin. This concerns cross-border operations and national or local operations.	Measures concerning the regions outside the catchment area of the Niger Basin will not be selected. E.g. Measures concerning the coastal area of Côte D'Ivoire and Guinea will not be selected.
4. Integration on a larger scale, over longer time-frames and under contrasting hypotheses with regard to the future changes, consideration of the interactions between sectors and between funding. -	The aim of this criterion is to avoid selecting measures which generate "maladaptation"	Some adaptation measures may increase the vulnerability of other ecosystems, sectors or populations if (i) they increase emissions of greenhouse gas, (ii) they disproportionately affect the most vulnerable, (iii) they have a very high opportunity cost, (iv) they



Criteria	Justification	Description/Example and [nature of the measure]
<u>Maladaptation</u>		<p>reduce incentives to adapt, or (v) if they set paths which limit the choices available to future. These five risks of maladaptation offer a basis by which adaptation measures can be screened for their possible adverse effects (Barnett &amp; O'Neill, 2009).</p> <p>In the field of management and development of the water resources, and especially for large hydraulic structures, this criteria aims to eliminate measures which, for example:</p> <ul style="list-style-type: none"> <li>• cause a deterioration of the global water balance</li> <li>• lead to poor or low economic valorization of the water resource</li> </ul> <p>The overall water balance and the economic valorization of the water resource are assessed with the help of indicators. These indicators are described in detail in Appendix E.</p>
5. Contribute to the <u>protection, management and development of the water resources</u> in the Niger Basin, as well as related ecosystems.	The NBA will lead the implementation of the CRIP. The measures included in it must remain within its thematic field of action, linked to the management and development of the water resources of the Niger River.	E.g. Measures consisting of the creation of food banks do not contribute to the protection, management and development of the water resources of the Niger River. They are deemed to be outside the field of action of the NBA.
6. <u>Compatibility</u> with the main planning documents and agreements concerning the Niger Basin, (IP, SP, OP, Water Charter and its appendices)	The measures included in the CRIP and which are not among the measures in the strategic documents of the NBA must be compatible with the agreements currently in force in the Basin such as the Water Charter and its appendices. Moreover, the CRIP is intended to be an upgradable document into which measures can be integrated in the future.	Measures which are not compatible with the measures of the strategic documents and agreements such as the Water Charter and its appendices are disqualified.  <i>N.B. this criterion is deemed to be satisfied by measures selected from among the strategic documents of the NBA (Operational Plan)</i>
7. <u>Country ownership</u> . Consultations of the stakeholders.	Sound adoption of the measures by the countries involved guarantees the long-term sustainability of the expected results.	<i>N.B. this criterion is deemed to be fulfilled by the measures selected from the Operational Plan and from the SDA/NAP which have been the subject of a national consultation, identification and prioritisation process. The fact that these measures are included in these documents is deemed to indicate that these measures have been successfully adopted by the countries.</i>
8. <u>Stage of preparation</u> of the project.	Criterion of certain climate investment funds: rapid implementation measure Required to trigger a decision to offer financial support.	What is the stage of preparation of the project: idea, identification, feasibility, preliminary outline, final design, detailed design (planning of) implementation?





Criteria	Justification	Description/Example and [nature of the measure]
	With regard to the quality of the studies, compliance with good practices and international standards promoted by the World Bank and multilateral donors is taken into consideration in the process for the selection of measures to include in the CRIP.	This criterion is subject to scoring. N/A: no information, 1: idea, 2: identification carried out, 3: feasibility carried out, 4: preliminary outline / final design completed, 5: detailed design completed or (planning of) implementation.  Threshold: the identification studies must be complete. Measures which do not satisfy this threshold are disqualified.
9. Level of funding identified	Criterion of certain climate investment funds: no substitution for national or regional funding.	What proportion of the estimated cost of the project is covered by the identified funding? <i>The threshold is yet to be set.</i> It is considered that measures for which a financing agreement has been signed are in the process of being implemented and are not selected. Measures for which funding has been identified for all or part of the budget but not signed, or for which no funding has been identified are selected.
10. Economic feasibility	Criterion of certain climate investment funds: Required to trigger a decision to offer financial support	The feasibility of the measures (criterion 10) will be assessed at the time of their selection for funding. This analysis will be conducted based on feasibility studies produced by the countries for each measure, as part of their preparation. Measures for which no feasibility study has been produced are selected in the CRIP with the aim of mobilizing funding in order to carry out these feasibility studies. The associated target amount corresponds to a portion of the overall amount indicated for these measures.





## 2.2.2 Justification of the measures selected

This section aims to provide the main justification concerning the selection or non-selection of the measures with regard to their contribution to strengthening resilience to climate change. For this purpose, the table shown below **crosses the main types of sectoral activities (lines) with the various types of adaptation measures (columns)**. The table also indicates the **risks of maladaptation linked to a decline in the water balance** (second to last column) and the **possibility of co-beneficiaries in terms of mitigation** (last column).

For the record, the strategic focuses of the Strategic Plan and the Operational Plan to which the main types of sectoral measures belong are reiterated.

It should be noted that this table only concerns the contribution to strengthening resilience (criteria 1 and 2) and, in part, criterion 4 on the risks of maladaptation. The other criteria are considered elsewhere.

The justification for each of the measures taken individually and for the other eight criteria are supplied in Appendix E.

It should be noted that the measures resulting from programmes for adaptation to climate change (NAPA, NAPCC, PIDAACC, etc.) contribute de facto to strengthening the resilience to climate change. However, assessment of the measures from the NAPA lies in the following questions:

- ▶ Is their geographical area compatible with the geographical area of the Niger Basin? (criterion 3)
- ▶ Do they generate maladaptation? (criterion 4)
- ▶ Do they contribute to the protection, management and development of the water resources in the Niger Basin? (criterion 5)
- ▶ Are they compatible with the strategic documents concerning the Niger Basin? (criterion 6)



	a. Knowledge of climate contingencies	b. Assessment of vulnerability	c. Institutional integration of adaptation	d. Reduction of vulnerability linked to water stress	e. Reduction of vulnerability linked to flooding	f. Reduction of vulnerability linked to the deterioration of the water quality	g. Reduction of vulnerability linked to soil degradation	h. Reduction of vulnerability linked to degradation of the grazing land	i. Reduction of vulnerability linked to degradation of the ecosystems	j. Reduction of vulnerability linked to the rise in sea level	k. Strengthening resilience	Risk of degradation of the global water balance	Mitigation
<b>Strategic focus 1: Water as a lever to economic development</b>													
Development of a multi-purpose regulation structure													
Restoration of a multi-purpose regulation structure													
Development of a hydroelectric power plant													
Restoration of a hydroelectric power plant													
Development of an irrigated sector													
Restoration of an irrigated sector													
Development of rain-fed agriculture													
Development of dry season agriculture													
Development of sustainable fishing management													
Development / Restoration of pastoral hydraulic facilities													
Measures concerning pastoral management and transhumance of livestock													
Development of eco-tourism linked to water													
Development of transport													
Development of the drinking water supply													
<b>Strategic focus 2: Preservation of the ecosystems in the Basin</b>													
Improvement of streamflow networks													
Decision-making tools													
Flood-protection dykes													
Forest management measures Reforestation, agroforestry, promotion of renewable energy sources other than wood													
Protection of river banks and ponds													
Measures to reduce soil erosion and silting													
Enhancement measures concerning invasive species													
Management measures for protected areas													
Measures to raise awareness to water-borne diseases													
Development of adaptation strategies													
<b>Strategic focus 3: Innovative, sustainable funding</b>													
Studies and development of funding mechanisms													
<b>Strategic focus 4: Co-operation with the States and partners</b>													
Rendering the NBA management tools operational													
Distribution and implementation of the Water Charter													
<b>Strategic focus 5: Organisational performance</b>													
Tools and procedures for monitoring & assessing implementation of the strategic documents													
Measures to enhance capabilities													



### 3. CLIMATE RESILIENCE INVESTMENT PLAN AIMING TO STRENGTHEN CLIMATE RESILIENCE IN THE NIGER BASIN

#### 3.1 PRESENTATION AND ARCHITECTURE

The CRIP consists of a selection of measures, chosen with regard to the first 9 criteria defined in section 2.2.1. The selection will be narrowed down when the funding is mobilised by matching the measures to the last criterion, concerning the economic feasibility of the projects (criterion 10). Justification of their selection is described in detail in Appendix E.

The CRIP is intended to be an upgradable document into which measures can be integrated in the future, according to the same selection process.

**The ability of the institutions in the Niger Basin to address issues transcending sectors, such as climate change, both at local and national level, and at the level of the Basin, is critical to the achievement and robustness of the results expected by implementing the CRIP.** For this reason, the institutional measures for strengthening the capacity-building measures and the knowledge strengthening measures have been isolated in a **package of "Knowledge and Institutions" measures**. Its implementation is presented as a priority in order to guarantee that the second package of measures in the CRIP will be fully effective.

It should be noted that the measures of the Operational Plan included in the "Knowledge and Institutions" package mainly concern the NBA. They are supplemented by measures targeting the national and local institutions resulting from the NAPA/NAP's. Additional measures to strengthen the Member States at national level may be identified during the consultations and possibly integrated in order for the conditions for implementation of the measures in the second CRIP package to be met both at regional and at national and local levels

The CRIP mainly contains adaptation measures, and also mitigation measures as collateral benefits resulting from the adaptation measures. It is thus organised as follows:

► **Package of Knowledge and Institutions measures**

1. Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools
2. Assessment of vulnerability. Communication education and awareness-raising
3. Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin

► **Package of sectorial measures contributing to strengthening resilience of the populations and ecosystems of the basin to the impacts of climate change identified in the Niger Basin (criterion 1):**

4. Measures targeting vulnerability to water stress
5. Measures targeting vulnerability to flooding
6. Measures targeting vulnerability to soil degradation
7. Measures targeting vulnerability to degradation of the grazing land
8. Measures targeting vulnerability to degradation of the ecosystems
9. Measures targeting vulnerability to deterioration of the water quality
10. Measures targeting vulnerability linked to the rising sea-level
11. Measures strengthening resilience (e.g. generation of jobs, revenues, etc.)

In its current version (23 November 2015), The Investment plan for the Enhancement of Resilience to Climate Change in the Niger Basin contains 246 measures, distributed as follows:



Table 3-1 : Breakdown of CRIP actions based on the type of adaptation measure

Types of measures contributing to climate resilience building	Number of actions
<b>Package of "Knowledge and Institutions"</b>	<b>[54]</b>
1 - Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools	26
2 - Assessment of vulnerability. Communication and awareness-raising	9
3 - Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin	19
<b>Package of sectorial measures contributing to enhancing the resilience of the populations and ecosystems of the basin to the impacts of climate change identified in the NB</b>	<b>[192]</b>
4 - Measures targeting vulnerability to water stress	77
5 – Measures targeting vulnerability to flooding	7
6 – Measures targeting vulnerability to soil degradation	30
7 - Measures targeting vulnerability to degradation of the grazing land	8
8 - Measures targeting vulnerability to degradation of the ecosystems	47
9 - Measures targeting vulnerability to deterioration of the water quality	5
10 - Measures targeting vulnerability linked to the rising sea-level	1
11 – Measures strengthening resilience (e.g. generation of jobs, revenues, etc.	17

The following two tables set out the measures selected in the two packages in the CRIP, after the selection process described in section 2. The measures are organized according to their nature with regard to adaptation / resilience to climate change. The measures in the "Knowledge and Institutions" package are those validating criterion No.1. The sub-categories corresponding to sub-categories 1.1, 1.2 and 1.3. The measures in the second package are those that fall under criterion No.1. The sub-categories are also identical.

It should be noted that certain measures may belong to several categories of adaptation measures. In this case, they have been allocated to the category for which the contribution is the most significant. The two columns on the right indicate the values of criteria No.2 (Contribution to resilience) and No.10 (Stage of preparation of the project). The meaning of the values taken by these two criteria is given in Appendix E. These criteria may be used to prioritise measures.

Some of the measures of the CRIP resulting from NAPA/NAP's or national contributions may concern areas that are partially outside the Niger Basin, such as the national territory or administrative areas (municipalities, regions, etc.). These measures are included in the CRIP in proportion to the portions of the Basin concerned.

All the detailed information (cost, values of the assessment criteria, etc.) about all the measures analysed is given in Appendix E.

A summary of the measures per country is also given in Appendix F.



## 3.2 SELECTED ACTIONS

### SELECTED ACTIONS IN THE CLIMATE RESILIENCE INVESTMENT PLAN FOR NIGER BASIN – KNOWLEDGE AND INSTITUTIONS PACKAGE

Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
<b>1 – Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools</b>					
Development of a data bank relating to climate change	National communication concerning climate change - Benin	761 483	Identification on-going	3	2
Enhancement of capabilities with regard to climate observation in the Benin section of the Niger basin	National communication concerning climate change - Benin	3 892 023	Identification on-going	3	2
Setting up of a climate hazard forecasting and early warning system for food safety in 4 vulnerable agro-ecological zones	NAPA Benin	8 190 000	70% identified -	3	2
Development of a sound national Water Information System (WIS)	NC PAGIRE Burkina Faso	16 464 951	Identification on-going	3	2
Development of research activities in water management, more particularly in the context of adaptation to climate change	NC PAGIRE Burkina Faso	5 245 771	Identification on-going	3	2
Reduction of vulnerability to climate change by enhancing measures for prevention and management of food crises in the Oursi and Boulsa zones.	NAPA Burkina Faso	7 446 000	Identification on-going	3	2
Equipment and improvement of knowledge concerning the quality of the water resources (Materials and equipment, Improvement of knowledge of the quality of the water resources)	PO_R2 Burkina Faso	707 563	60% identified - PIDACC	3	2
Setting up a system for observation, information management and warning with regard to climate hazards in Cameroon	PNACC Cameroon	2 220 000	Identification on-going	3	2
Develop models for the allocation of the water resources of river basin agencies	NC - PND Ivory Coast	1 184 529	Identification on-going	3	2
Development of adaptation and water resource management tools	PO_R2 Ivory Coast	452 101	60% identified - PIDACC	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Development of an early warning system to safeguard agricultural productivity	NAPA Guinea	150 000	Identification on-going	3	2
Improvement of knowledge of water resources and enhancement of the hydro-meteorological and hydrogeological data collection system	PO_R2 Guinea	756 303	Identification on-going	3	2
Study for the development of a communication strategy and setting up of an Information System for the integrated management of the resources of the Niger River Basin	NC PNSFN Mali	465 351	Identification on-going	2	2
Study of the design of the observatory of the Niger River in Mali	NC PNSFN Mali	126 914	Identification on-going	3	2
Support for knowledge of the quality of the water resources and acquisition of meteorological equipment	PO_R2 Mali	4 042 017	60% identified - PIDACC	3	2
Strengthening of the existing pollution control team and creation and equipping of 4 new stations	PO_R2 Niger	282 353	60% identified - PIDACC	3	2
Monitoring of the application of the minimum low water flows.	PO_R2 Nigeria	1 764 706	Identification on-going	3	2
Development of tools for the modelling of hydrological forecasts	PO_R2 Nigeria	1 176 471	Identification on-going	3	2
Support for the functioning of Niger-HYCOS	PO_R2 Nigeria	1 324 370	Identification on-going	3	2
Modelling of hydraulic variation	PO_R2 Nigeria	1 201 681	Identification on-going	3	2
Useful research work for the future models / Research work to integrate, in future models, scenarios dealing with the increase in temperature in order to calculate the need in water of the plants and the evaporation of the damming lakes	PO_R2 Nigeria	1 774 790	Identification on-going	3	2
Improvement of the quality of seasonal forecasting and its integration in the strategy for monitoring vulnerability.	NAPA Chad	1 700 000	Identification on-going	3	2
Observatoire National sur les Changements Climatiques (ONCC) / National Observatory for Climate Change	NAPA Chad	1 600 000	Identification on-going	3	2
Hydraulic modelling of the inner delta of the Niger	Component of CIWA project	1 400 000	50% identified - CIWA	3	2
Rendering the decision-making tools operational	PO_R4 SE-ABN	2 917 647	60% identified -	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			PIDACC		
Monitoring water resources in the Niger Basin	PO_R2 SE-ABN	10 729 412	Identification on-going	3	2
<b>2 - Assessment of vulnerability. Communication and awareness-raising</b>					
Adaptation of the national gender policy and women's vulnerability to climate change	PNACC Cameroon	2 220 000	Identification on-going	3	2
Raising the awareness of the population, professionals, administration and decision-makers to the effects of climate change and the measures to be taken	PNACC Cameroon	2 220 000	Identification on-going	3	2
Education, professional training and enhancement of capabilities concerning climate change	PNACC Cameroon	5 550 000	Identification on-going	3	2
"One School, 5 hectares of forest" project	PO_R2 Ivory Coast	3 721 008	Identification on-going	3	6
Reforestation project in schools	PO_R2 Niger	339 496	Identification on-going	3	2
Reduction of the vulnerability of populations to climate change / Management of climate-related hazards and adaptation to climate change	NAPA Chad	2 000 000	Identification on-going	3	2
Improvement of information, education and communication concerning adaptation to climate change	NAPA Chad	1 100 000	Identification on-going	3	2
Inventory and general mapping of the ecosystems of the basin	PO_R2 SE-ABN	108 494 118	Identification on-going	3	2
Development of external communication	PO_R5 SE-ABN	3 705 042	Identification on-going	3	2
<b>3 - Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin</b>					
Development of the water development and management scheme for the national part of the Niger Basin	PO_R2 Benin	621 849	Identification on-going	1	2
Development of a good practice guide	PO_R2 Benin	598 319	60% identified - PIDACC	1	2
Development of strategies for adaptation to climate change	PO_R2 Benin	608 403	100% identified - PIDACC	1	2
Inclusion of climate hazards when updating the Land Use Plan	PNACC Cameroon	3 330 000	Identification	1	2





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			on-going		
Protection of the resources and ecosystems in the national part of the Niger Basin	PO_R2 Cameroon	8 438 655	Identification on-going	1	2
Strengthening the shared management of natural resources in the national part of the Niger Basin	PO_R2 Cameroon	1 260 504	Identification on-going	1	2
Enhancement of communities' ability to adapt	PO_R2 Ivory Coast	352 941	60% identified - PIDACC	1	2
Enhancement of the ability to adapt and intervene	PO_R2 Ivory Coast	2 110 924	Identification on-going	1	2
Support for the development of collaborative management of the Tinkisso, Niger- Tinkisso and Sankarani - Fié Ramsar sites	PO_R2 Guinea	425 210	50% identified - PIDACC	1	2
Adaptation to climate change (flooding)	PO_R2 Guinea	1 179 832	60% identified - PIDACC	1	2
Training activities for those involved in the management of the water resources in the Basin	NC PNSFN Mali	162 450	Identification on-going	1	2
Project for the Management and Sustainable Use of Natural Resources and Adaptation to Climate Change	PO_R2 Niger	912 605	Identification on-going	1	2
Strengthening of community capacity for adaptation (flooding)	PO_R2 Niger	991 597	60% identified - PIDACC	1	2
Enhancement of the shared management of the water resources in the national part of the Niger Basin	PO_R2 Niger	2 174 790	Identification on-going	1	2
Strengthening the Shared management of water resources in the Basin (Inventory and dissemination of good practices in protecting ecosystems)	PO_R2 Nigeria	226 891	60% identified - PIDACC	1	2
Strengthening of community capacity for adaptation to climate change (Inventory and dissemination of good practices in restoring degraded ecosystems; Inventory and dissemination of good practices in protecting ecosystems)	PO_R2 Nigeria	277 311	60% identified - PIDACC	1	2
Capitalisation and dissemination of good practices for the restoration of degraded ecosystems	PO_R2 SE-ABN	11 532 773	60% identified - PIDACC	1	2
Distribution and application of the Water Charter to all States	PO_R4 SE-ABN	134 454	Identification on-going	1	2
Development of the gender policy (finalise the policy and implement it)	PO_R5 SE-ABN	153 782	Identification	1	2





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			on-going		

CIWA: Cooperation in International Waters in Africa

NC: National Contribution

DIN: Inner Delta of the Niger

ONCC: National Observatory for Climate Change

NAPA: National Adaptation Programmes of Action

PIDACC: Programme for Integrated Development and Adaptation to Climate Change in the Niger Basin

NAP: National Adaptation Plan

PNACC: National Programme for Adaptation to Climate Change

PNSFN: National Programme to Safeguard the Niger River

PO: NBA Operational Plan

SE/ABN: Executive Secretariat of the NBA

SIE: Water Information System



**SELECTED ACTIONS IN THE CLIMATE RESILIENCE INVESTMENT PLAN FOR NIGER BASIN – SECOND PACKAGE**

Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
<b>4 - Measures targeting vulnerability to water stress</b>					
Adaptation of the farming calendars to the new climate context	National communication on climate change Benin	2 538 276	Identification on-going	3	2
Mobilisation of surface water in order to adapt to climate change in the most vulnerable municipalities of the departments in the Centre and the North	NAPA Benin	2 875 000	Identification on-going	3	2
Rehabilitation and agricultural diversification of twenty agro-pastoral reservoirs in Benin	PO_R1 Benin	7 515 966	10% identified - PIDACC	3	2
Construction of ten (10) multi-purpose dams	PO_R1 Benin	35 647 059	10% identified - PIDACC	3	2
Rehabilitation and diversification of 5 small dams at Gamagou, Gah, Guessou, Sombi, Kérékou, Wara and Zougou Pantrossi in Superior Alibori region	PO_R1_Benin	1 500 000	56% identified PIDACC	3	4
Safeguarding of cereal production by the promotion of supplementary irrigation in the provinces of Oudalan and Nammemtenga.	NAPA Burkina Faso	408 660	Identification on-going	3	2
Development and management of the waterhole at Oursi	NAPA Burkina Faso	275 000	Identification on-going	3	2
Development of irrigated crops in the provinces of Gourma, Namemtenga, Tapoa and Sanmatenga.	NAPA Burkina Faso	443 300	Identification on-going	3	2
Safeguarding of agricultural production by the use of appropriate technological packages in the South-West and East regions.	NAPA Burkina Faso	297 924	Identification on-going	3	2
Rehabilitation of the Baskouré dam and preparation of 60 hectares of lowlands in the municipalities of Baskouré, Diabo and Fada	PO_R1 Burkina Faso	1 452 101	30% identified - PIDACC	3	5
Construction of the Coalla dam (5 Mm3) in the province of Gnagna (East) and preparation of 122 ha of irrigated land	PO_R1 Burkina Faso	5 749 580	50% identified - PIDACC	3	5
Rehabilitation of the dam and 14 ha of irrigated utilised agricultural land equipped with 50 wells at Dabesma (Gnagna, East)	PO_R1 Burkina Faso	1 363 025	30% identified - PIDACC	3	5
Rehabilitation of the dam and creation of 192 ha of irrigated land downstream of the Sidi-Komplenga dam (Gnagna, East)	PO_R1 Burkina Faso	3 290 756	Identification on-going	3	5
Creation of 241 ha of irrigated land at the SIRBA dam (Gnagna, East)	PO_R1 Burkina Faso	3 448 739	Identification	3	5



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			on-going		
Rehabilitation of the dam and creation of 11 ha of irrigated utilised agricultural land and preparation of 100 ha of horticultural land at Tanga (Kouritenga, Centre-East) equipped with 50 wells	PO_R1 Burkina Faso	1 885 714	40% identified - PIDACC	3	5
Rehabilitation of the Kiemna dam	PO_R1 Burkina Faso	334 454	40% identified - PIDACC	3	4
Rehabilitation of the Bani dam	PO_R1 Burkina Faso	768 252	20% identified - PIDACC	3	5
Rehabilitation of the Touro dam	PO_R1 Burkina Faso	1 568 067	40% identified - PIDACC	3	5
Rehabilitation of the Boudieri dam	PO_R1 Burkina Faso	1 351 261	40% identified - PIDACC	3	5
Completion of the construction of the Bambakari dam (163 Mm3) in the province of Déno (Sahel) and preparation of 300ha of irrigated land	PO_R1 Burkina Faso	31 751 261	20% identified - PIDACC	3	5
Development of the waterhole in Dori	PO_R1 Burkina Faso	86 301 389	0% identified - PIDACC	3	2
Enhancement and safeguarding of access to water resources and wastewater treatment in a context of climate change	PNACC Cameroon	8 880 000	Identification on-going	3	2
Development of integrated farming which is resilient to the effects of climate change	PNACC Cameroon	8 880 000	Identification on-going	3	2
Construction of hydro-agricultural dams, development and utilisation of the Garoua area upstream (Bocklé, Garoua III, Bénoué department)	PO_R1 Cameroon	2 813 445	10% identified - PIDACC	3	2
Development and utilisation of the Lagdo II area	PO_R1 Cameroon	74 386 555	Identification on-going	3	4
Development and utilisation of the Faro-Bénoué confluence area	PO_R1 Cameroon	21 581 513	Identification on-going	3	4
Development of smallholders irrigation schemes	PO_R1 Cameroon	62 512 605	Identification on-going	3	4
Development of the west Garoua area	PO_R1 Cameroon	13 361 345	Identification on-going	3	4
Development of small individual areas	PO_R1 Cameroon	7 517 647	10% identified - PIDACC	3	4



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Construction of multipurpose dams	PO_R1 Cameroon	4 872 269	20% identified - PIDACC	3	2
Development of multi-purpose hydroagricultural infrastructures in the municipality of Garoua	PO_R1 Cameroon	1 100 840	50% identified - PIDACC	3	2
Rehabilitation of 84 reservoirs in the region of Bagoue and Kabadougou	PO_R1 Ivory Coast	56 003 361	Identification on-going	3	2
Low-cost development of 10,000 ha of plains in Kabadougou and Folon (north-west)	PO_R1 Ivory Coast	3 215 126	60% identified - PIDACC	3	2
Project for the construction of a dam and hydroagricultural development at KOUBAN 80ha	PO_R1 Ivory Coast	2 952 941	100% identified - PIDACC 55%, BOAD 30% , Etat 15%	3	2
Project for the construction of a dam and hydroagricultural development at Katiendé 22ha	PO_R1 Ivory Coast	3 524 370	70% identified - PIDACC 55%, Etat 15%	3	2
Project for the construction of a dam and hydroagricultural development at Dimbasso. 182 ha	PO_R1 Ivory Coast	5 835 294	70% identified - PIDACC 55%, Etat 15%	3	2
Low-cost development of 20,000 ha of Bagoué floodplains	PO_R1 Ivory Coast	106 198 319	90% identified - 3 bailleurs à 30% chacun + Etat 10%	3	2
Construction of multi-purpose mini-dams	NAPA Guinea	600 000	Identification on-going	3	2
Construction of hillside reservoirs	NAPA Guinea	180 000	Identification on-going	3	2
Construction of improved wells	NAPA Guinea	250 000	Identification on-going	3	2
Dissemination of rainwater harvesting basins	NAPA Guinea	280 000	Identification on-going	3	2
Development of irrigated rice farming in Middle and Upper Guinea	NAPA Guinea	300 000	Identification on-going	3	2
Exploitation of indigenous knowledge and positive practices	NAPA Guinea	300 000	Identification	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			on-going		
Promotion of breeding small ruminants	NAPA Guinea	325 000	Identification on-going	3	2
Promotion of bricks made of compacted earth with the aim of reducing the environmental impact of fired bricks	NAPA Guinea	600 000	Identification on-going	3	2
Intensification of pearl millet farming in the northern area of Guinea	NAPA Guinea	350 000	Identification on-going	3	2
Fomi safeguard policies elaboration	PO_R1 Guinea	2 000 000	50% identified -	3	3
Rehabilitation of dams and construction of reservoirs for irrigation and fish farming at Kankan, Kouroussa, Mandiana, Faranah, Dinguiraye, Kérouané and Kissidougou.	PO_R1 Guinea	9 132 773	60% identified - PIDACC	3	4
Programme for the development of agriculture which is resilient to climate change.	NC Fast start Mali	94 000 000	40% identified -	3	2
Programme for the development of irrigation in the Bani and Sankarani basin	NC PNSFN Mali	205 346 539	Identification on-going	3	2
Programme for harvesting and storing rainwater	NC Fast start Mali	62 800 000	50% identified -	3	2
Feasibility study of small developments in the tops of the sub-watersheds of the upper stretches of the Niger and Bani rivers for environmental restoration	NC PNSFN Mali	813 941	Identification on-going	3	2
Rehabilitation and equipping of village irrigation areas in the region of Gao	PO_R1 Mali	5 588 235	60% identified - PIDACC	3	2
Support for the production of seeds of agricultural origin	PO_R1 Mali	2 974 790	Identification on-going	2	2
Project to support the development of agriculture in the Douentza area	PO_R1 Mali	14 159 664	60% identified - PIDACC	3	4
National Horticultural Support Project	PO_R1 Mali	6 105 882	Identification on-going	3	4
Rehabilitation of the irrigated area of Tara 101 ha	PO_R1 Niger	1 278 992	Identification on-going	3	2
Rehabilitation of the irrigated area of Galmi 250 ha	PO_R1 Niger	2 823 529	60% identified - PIDACC	3	2
Construction of a new reservoir dam at Aboka	PO_R1 Niger	1 194 958	60% identified - PIDACC	3	3



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Construction of the Kaoura Abdou hydroagricultural dam at Badaguichiri	PO_R1 Niger	17 442 017	Identification on-going	3	5
Creation of an irrigated area and rehabilitation of the dyke at Gatawani Dolé	PO_R1 Niger	12 774 790	Identification on-going	3	2
Construction of two (2) weirs for floodplain crop production (Gorouol, DolBel, Terra)	PO_R1 Niger	2 605 042	60% identified - PIDACC	3	2
Rehabilitation of Kainji dam (Including Units 7, 8, 9, 10 et 11)	PO_R1 Nigeria	136 800 000	Identification on-going	3	2
Irrigation development inTada Shonga (Kwara State)	PO_R1 Nigeria	1 845 378	Identification on-going	3	2
Construction of multipurpose dams, irrigation schemes and support measures to adapt to climate change	PO_R1 Nigeria	243 858 824	0% identified - PIDACC	3	2
Development of water points for cattle and development of transhumance pathways	PO_R1 Nigeria	5 092 437	10% identified - PIDACC	3	2
Strengthening the Shared management of water resources in the Basin (Construction of weirs, and erosion control and runoff water catchment infrastructures; Quantitative management of water resources)	PO_R2 Nigeria	225 210	60% identified - PIDACC	1	2
Mobilisation of surface water for agriculture and to supply cattle.	NAPA Chad	1 800 000	Identification on-going	3	2
Diversification and intensification of crop production in the Sudanian and Sahelian areas of Chad	NAPA Chad	1 200 000	Identification on-going	3	2
Improvement and dissemination of crop calendars	NAPA Chad	1 000 000	Identification on-going	3	2
Development of the rice-growing area of Voli (Gounou Gaya). 1,020 ha	PO_R1 Chad	15 630 252	10% identified - PIDACC	3	5
Hydro-agricultural development at Fianga. 5,000 ha	PO_R1 Chad	2 823 529	Identification on-going	3	4
Djarao, Domo and Léo hydro-agricultural development. 10,000 ha	PO_R1 Chad	169 371 429	Identification on-going	3	4
Hydro-agricultural development at Ghétahlé -Tréné. 5,000 ha	PO_R1 Chad	1 164 706	Identification on-going	3	4
Development of an area for floodplain crop production in the region of Mayo	PO_R1 Chad	741 176	Identification	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Kebbi Est (at Tikem). 600 ha			on-going		
Development of the waterhole at Torrock for crops and to provide drinking water for cattle	PO_R1 Chad	1 048 739	30% identified - PIDACC	3	2
Rural, Pastoral and Transhumance Infrastructure project.	PO_R1 Chad	17 616 807	0% identified - PIDACC	3	2
<b>5 – Measures targeting vulnerability to flooding</b>					
Construction of flood-protection dykes	PO_R2 Benin	50 732 773	0% identified - PIDACC	3	2
Flood protection	PO_R2 Ivory Coast	1 307 563	Identification on-going	3	2
The project for the development and recovery of the banks of the Niger River in the District of Bamako	NC PNSFN Mali	846 092	20% identified -	2	2
Feasibility study for the reshaping of the Niger River in the towns of Mopti and Bamako	NC PNSFN Mali	1 692 184	Identification on-going	1	2
Construction of structures to fight flooding in the region of Gao	PO_R2 Mali	2 124 370	60% identified - PIDACC	3	2
Construction of flood protection dikes around Niamey irrigation scheme and other related infrastructure	PO_R1 Niger	1 793 277	60% identified - PIDACC	3	2
Flood management Project	PO_R2 Nigeria	4 954 622	10% identified - PIDACC	3	2
<b>6 – Measures targeting vulnerability to soil degradation</b>					
Anti-erosion and anti-silting measures, continued	PO_R2 Benin	7 075 630	0% identified - PIDACC	3	2
Improve water resource protection against siltation and invasive species	CN PAGIRE Burkina Faso	16 837 232	Identification on-going	3	2
Restoration of land and anti-erosion measures	PO_R2 Burkina Faso	7 078 992	50% identified - PIDACC	3	2
Stabilisation of 2,500 ha of dunes in the provinces of Oudalan, Séno and Yagha	PO_R2 Burkina Faso	2 831 933	Identification on-going	3	2
Recovery of 6,191 ha of degraded land in Séno and Oudalan (restoration of land (Restoration of land, studies)	PO_R2 Burkina Faso	3 828 571	10% identified - UEMOA	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Conservation and participatory management of sub-watersheds (support for protection, studies and enhancement of capacities)	PO_R2 Cameroon	12 169 748	Identification on-going	3	2
Development of the Mayo–Louti catchment area (restoration of land, studies)	PO_R2 Cameroon	3 257 143	Identification on-going	3	5
Restore degraded land through the promotion of agroforestry and community reforestation	NC - AGIR Ivory Coast	8 577 681	Identification on-going	3	2
Protection of the basin (Departments of Odienné, Boundiali, Madinani, Minignan and Tengréla) / Treatment of degraded land for the protection of the banks	PO_R2 Ivory Coast	1 931 092	Identification on-going	3	2
Promotion and development of reforestation in the North of the country (wood energy)	PO_R2 Ivory Coast	1 495 798	10% identified - PIDACC	3	2
Restoration and protection of the tributaries of the Niger River by reforestation campaigns and anti-erosion and anti-silting measures	PO_R2 Ivory Coast	1 297 479	60% identified - PIDACC	3	2
Fight against the impacts of gold-mining on the environment and health	PO_R2 Ivory Coast	349 580	Identification on-going	3	2
Restoration of the banks and development of agroforestry	PO_R2 Guinea	1 368 067	60% identified - PIDACC	3	2
Reforestation of 300 ha on the banks of waterholes	PO_R2 Guinea	354 622	60% identified - PIDACC	3	2
Protection of spring heads and banks (sub-watersheds of the Niandan, Tinkisso, Milo)	PO_R2 Guinea	695 798	60% identified - PIDACC	3	2
36- Topographical and photographic survey by LIDAR laser procedure of dam reservoirs (Sélingué, Markala, Talo, Djenné)	NC PNSFN Mali	473 812	Identification on-going	1	2
"Green Wall" experimental project	PO_R2 Mali	9 910 924	Identification on-going	3	2
Protection of banks by planting and transplanting bourgou, and measures against invasive plants	PO_R2 Mali	8 258 824	60% identified - PIDACC	3	2
Anti-erosion and anti-silting measures, and sustainable forest management	PO_R2 Mali	9 981 513	60% identified - PIDACC	3	2
Development of agroforestry and sustainable management of soil fertility	PO_R2 Niger	34 584 689	100% identified -	3	4





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Development and planting of village forests in the Tillabéry regions, Téra, Say, Torodi and Makalondi municipalities (20,000 ha)	PO_R2 Niger	1 344 538	60% identified - PIDACC	3	2
Support for the improvement of soil fertility, restoration of degraded land	PO_R2 Niger	37 417 575	100% identified -	3	4
Stabilisation of dunes in the regions of Tillabéry and Dosso (Kandadji area, Dallol, Maouri and Foga area, Ouallam area) (3,000 ha)	PO_R2 Niger	1 026 891	60% identified - PIDACC	3	2
Soil and water conservation in the regions of Tillabéry, Dosso and Tahoua; Kandadji, Maouri, Foga areas; Ouallam, Kollo, Konni, Madaoua and Bouza area (15,000 ha)	PO_R2 Niger	1 285 714	60% identified - PIDACC	3	2
Integrated project to stabilise the dunes and combat poverty (Namaro)	PO_R2 Niger	472 269	Identification on-going	3	2
Biological and mechanical treatment of koris in Tillabery and Tahoua region (15 000m3)	PO_R2 Niger	2 594 958	60% identified - PIDACC	3	2
Restoration of fallow land and promotion of agroforestry (10,000 ha)	PO_R2 Niger	1 680 672	60% identified - PIDACC	3	2
Erosion, flood and siltation control in Nigeria.	PO_R2 Nigeria	20 292 437	Identification on-going	3	2
Rehabilitation of degraded agricultural land	PO_R2 Nigeria	1 253 782	Identification on-going	3	2
Construction of defensive structures and restoration of land for the development of agricultural activities	NAPA Chad	1 300 000	Identification on-going	3	2
<b>7 - Measures targeting vulnerability to degradation of the grazing land</b>					
Bukina Faso National Observatory on Pastoralism (ONPB)	Bukina Faso Climate Investment Projects	3 294 682	Identification on-going	3	2
Forage production and stockpiling of emergency supplies for cattle in the Burkina Faso area of the Sahel	NAPA Burkina Faso	330 000	Identification on-going	3	2
Safeguarding pastoral areas in the regions of the Sahel and the East.	NAPA Burkina Faso	300 000	Identification on-going	3	2
Reduction of the vulnerability of the livestock sector to the effects of climate change (REVEECC)	PNACC Cameroon	5 550 000	Identification on-going	3	2
Support for management of the pastoral area and prevention of conflicts in the northern area	PO_R1 Ivory Coast	1 863 866	60% identified - PIDACC	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Programme of pastoral development resilient to climate change;	NC Fast start Mali	109 900 000	50% identified -	3	2
Support for vulnerable groups for cattle and sheep fattening in the regions of Gao, Timbuktu	PO_R1 Mali	3 915 966	60% identified - PIDACC	3	2
Improvement of intercommunity grazing areas	NAPA Chad	1 500 000	Identification on-going	3	2
<b>8 - Measures targeting vulnerability to degradation of the ecosystems</b>					
Adaptation of households to climate change by the promotion of renewable energies and efficient economical hearths and pressure cookers in areas vulnerable to climate change and where the land is severely degraded	NAPA Benin	2 106 600	Identification on-going	3	2
Promotion of wildlife and habitat management by local communities in the region of Mouhoun	NAPA Burkina Faso	810 000	Identification on-going	2	2
Promotion of energy-saving equipment (improved stoves, M'Bora stew pot) and renewable energy technologies (pressure cooker, water heater and solar dryers, etc.)	NAPA Burkina Faso	1 230 000	Identification on-going	3	2
Development, rational management of natural training and use of non-wood forest products (NWFP) in the East region of Burkina Faso	NAPA Burkina Faso	700 000	Identification on-going	3	2
Forest development in the provinces of Oudalan and Séno	PO_R2 Burkina Faso	1 712 605	10% identified - UEMOA	3	2
Reduction of the vulnerability of forests to climate change in Cameroon	PNACC Cameroon	8 880 000	Identification on-going	3	2
Support for fishermen and fish-farmers around the Lagdo dam	PO_R1 Cameroon	4 752 941	20% identified - PIDACC	2	5
Provision for the fight against aquatic invasive species in Cameroon, Ivory Coast and Nigeria (30 000 ha + 5000 ha + 2500 m3)	PO_R1 Cameroun	4 192 347	60% identified - PIDACC	3	2
Project to support communities in the savannah area for protection against desertification and the loss of the means of subsistence of the local communities.	NC - Management of community forests Ivory Coast	1 710 327	Identification on-going	3	2
Rehabilitation of the classified forest of BOUNDIALI in the north of Ivory Coast with the participation of the neighbouring populations (as for PO_R22208_CI_15)	NC - SODEFOR Ivory Coast	1 718 098	Identification on-going	3	2
Rehabilitation of the classified forest of FENGOLO - PALE in the north of Ivory Coast with the participation of the neighbouring populations (as for PO_R22208_CI_15)	NC - SODEFOR Ivory Coast	1 065 560	Identification on-going	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Performance of work to restore the forests in the rural sector	NC - DCDF Ivory Coast	1 300 000	Identification on-going	3	2
Project to plant useful forest trees in the communities of the regions of Poro, Tchologo and Bagoué	NC - PND Ivory Coast	1 297 905	Identification on-going	3	2
Restoration project for degraded forests in the rural sector	NC - PND Ivory Coast	1 086 213	Identification on-going	3	2
Support the fight against bushfires	NC - AGIR Ivory Coast	3 578 969	Identification on-going	3	2
Creation of a fish farm in Minignan	PO_R1 Ivory Coast	206 723	60% identified - PIDACC	2	4
Support for the development of fishing activities around dams (Boundiali, Minignan and Odienné)	PO_R1 Ivory Coast	2 942 857	60% identified - PIDACC	2	3
Development of fisheries infrastructure Aménagement des infrastructures de pêche	PO_R1 Ivory Coast	1 030 252	60% identified - PIDACC	2	2
Promotion of fire management and prohibited access	NAPA Guinea	300 000	Identification on-going	3	2
Support for the implementation of community forest management plans	NAPA Guinea	600 000	Identification on-going	3	2
Creation of cane rat ranches in order to reduce bushfires and improve living conditions for rural populations	NAPA Guinea	300 000	Identification on-going	3	2
Promotion of the use of solar energy to dry fish with the aim of reducing the use of wood for smoking	NAPA Guinea	300 000	Identification on-going	3	2
Construction of nursery ponds to rear fry	PO_R1 Guinea	282 353	60% identified - PIDACC	2	3
Construction of fish ponds in Guinea	PO_R1 Guinea	759 664	60% identified - PIDACC	2	3
Implementation of the Kankan wildlife reserve management plan	PO_R2 Guinea	2 100 840	60% identified - PIDACC	2	2
Preservation of the ecosystems and conservation of biodiversity (Ramsar - Niger, Niandan –Milo, Niger-Mafou,)	PO_R2 Guinea	932 773	60% identified - PIDACC	3	2
Intensive reforestation programme to rebuild the forest ecosystems in Mali	NC Fast start Mali	188 800 000	30% identified -	3	2
The Economic and Environmental Rehabilitation project for the Niger River	NC PNSFN Mali	60 918 627	90% identified -	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
Project to develop fish farming in floating cages and in ponds	PO_R1 Mali	3 073 950	60% identified - PIDACC	2	5
Firewood production project and installation of a wood market in the region of Gao and Timbuktu	PO_R2 Mali	810 000	Identification on-going	3	2
Project for development, management of natural resources and promotion of Moringa oleifera (Tajaé, Malbaza and Tsernaoua)	PO_R2 Niger	6 052 101	Identification on-going	3	2
Sustainable management of the forest resources and promotion of alternative energy sources	PO_R2 Niger	126 242 017	30% identified -	3	4
Support for the development of the fishing and fish-farming sector	PO_R1 Niger	9 425 210	20% identified -	2	2
Support for fish-farming and training of fishermen	PO_R1 Niger	5 280 672	100% identified -	2	2
Development of 300 ha of ponds overrun with Typha australis (Dosso region)	PO_R1 Niger	1 136 134	100% identified -	3	2
Development and use of the valley of Goroubi (Tamou and Torodi)	PO_R1 Niger	3 040 336	Identification on-going	3	2
Rehabilitation of the classified forest of Guesselbodi (2,000 ha)	PO_R2 Niger	11 023 691	60% identified - PIDACC	3	4
Development and adaptation of fisheries to climate change	PO_R1 Niger	13 021 357	100% identified -	2	2
Rehabilitation of a nursery pond in Moli and construction of a nursery pond in Madarounfa	PO_R1 Niger	1 003 361	60% identified - PIDACC	2	2
Develop some protected zones	PO_R2 Nigeria	2 598 319	Identification on-going	3	2
Conservation and management of the middle of Niger area	PO_R2 Nigeria	566 387	Identification on-going	3	2
Socio-economic utilisation of invasive aquatic plant species	PO_R2 Nigeria	151 490 756	Identification on-going	3	2
Capitalization of the fight against the water hyacinth and the proliferation of sida cordifolia	PO_R2 Nigeria	1 258 824	Identification on-going	3	2
Delimitating the zones for the conservation (forests, protected zones) / Identification of sites	PO_R2 Nigeria	593 277	Identification on-going	3	2
Fight against bush fire	PO_R2 Nigeria	176 471	Identification	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			on-going		
Conservation measures of Forest galleries on secondary rivers	PO_R2 Nigeria	1 297 479	Identification on-going	3	2
Support to fisheries development	PO_R1 Nigeria	2 171 429	10% identified - PIDACC	2	2
<b>9 - Measures targeting vulnerability to deterioration of the water quality and health</b>					
Protection of children under 5 and pregnant women against malaria in the areas most vulnerable to climate change	NAPA Benin	1 112 500	Identification on-going	3	2
Mark out and display protection areas around the main water resources	NC - PND Ivory Coast	1 015 310	Identification on-going	3	2
Rendering surface water drinkable using Hydropur©	NAPA Guinea	320 000	Identification on-going	3	2
Pollution warning station on the Niger River	NC PNSFN Mali	177 679	Identification on-going	2	2
Global study of pollution of the waters of the Niger River in Upper Niger in Mali	NC PNSFN Mali	255 520	Identification on-going	2	2
<b>10 – Measures targeting vulnerability linked to the rising sea-level</b>					
Conservation and management of the coastal delta zone of the Niger river	PO_R2 Nigeria	1 090 756	Identification on-going	3	2
<b>11 – Measures strengthening resilience (e.g. generation of jobs, revenues, etc.)</b>					
Development of improved wood carbonisation techniques and promotion of economical stoves in order to reduce deforestation	National communication on climate change Benin	4 061 242	Identification on-going	1	2
Climate insurance project for farmers (PACE)	Projets d'investissements Climat Burkina Faso	22 438 361	Identification on-going	3	2
Project to set up three areas for the intensification of animal production (ZIPA)	Projets d'investissements Climat Burkina Faso	41 143 764	Identification on-going	3	2
Creation of a palm grove covering 100 ha along the Gourouol in the province of Oudalan	PO_R1 Burkina Faso	1 741 176	Identification on-going	1	5
Diversification of the energy offer in a context of climate change	PNACC Cameroun	22 200 000	Identification on-going	3	2
Reduction of the effects of climate change on the fisheries sector	PNACC Cameroun	3 330 000	Identification	3	2



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options	
				Contribution to resilience	Preparation stage
			on-going		
Enhance the resilience of vulnerable populations by restoring degraded land (agroforestry and community reforestation)	NC - PND Ivory Coast	8 579 373	Identification on-going	3	2
Support to the development of community and private Anacard tree planting	NAPA Guinea	600 000	Identification on-going	3	2
Promotion of market gardening	NAPA Guinea	250 000	Identification on-going	3	2
Integrated Management of Natural Resources Programme	CN PNSFN Mali	1 951 500	100% identified -	3	2
Fish-farming development programme	NC Fast start Mali	31 000 000	60% identified -	3	2
Integrated national project for development and adaptation to climate changes in the Niger Basin	CN PNIDAC	72 000 000	10% identified -	3	5
Support for the potato sector in Mali	PO_R1 Mali	344 538	Identification on-going	2	4
Economic promotion of agricultural and forest products in Mali	PO_R1 Mali	2 579 832	Identification on-going	1	2
Rehabilitation of 300 km between Labezanga and Dolé (Gaya)	PO_R1 Niger	1 085 714	60% identified - PIDACC	1	2
Construction of 30 landing stages between Labezanga and Dolé (Labezanga, Ayorou, Tillabéry, Gothuey, Niamey, Kollo, Gaya, Dolé), et Konni, Madarounfa, Abalak	PO_R1 Niger	1 302 521	60% identified - PIDACC	1	2
Development of Resilience of the population and the Ecosystem in the Basin (Conservation of biodiversity/Forest management; Preservation of biodiversity / Management of the fauna reserve)	PO_R2 Nigeria	4 139 496	60% identified - PIDACC	3	2

AGIR : Global Alliance for Resilience

CIWA: Cooperation in International Waters in Africa

NC: National Contribution

DCDF: Land Registry and Forestry Development Department (Côte d'Ivoire)

DIN: Inner Delta of the Niger

ONCC: National Observatory for Climate Change

NAPA: National Adaptation Programmes of Action

PIDACC: Programme for Integrated Development and Adaptation to Climate Change in the Niger Basin

NPA: National Adaptation Plan

PNACC: National Programme for Adaptation to Climate Change

PND: National Development Plan

PNSFN: National Programme to Safeguard the Niger River

PO: NBA Operational Plan

SE/ABN: Executive Secretariat of the NBA

SIE: Water Information System

SODEFOR: Forestry Development Corporation of Côte d'Ivoire



### 3.3 CRIP EXPECTED RESULTS AND IMPACTS - MONITORING AND EVALUATION

#### EXPECTED RESULTS AND MONITORING OF IMPLEMENTATION

This plan recognizes the need for the NBA to develop a robust monitoring and evaluation (M&E) program to support accountability and learning as it passes from its current design phase to the implementation phase in the months ahead. Such a program will include : **a results framework to identify the intended impacts and outcomes of the plan** as a whole and the individual interventions (including the logical cause-and-effect relationship between the interventions' inputs and activities and these results) ; and indicators to serve as progress markers toward the intended results outlined in the results framework.

First, NBA will work with countries and stakeholders to develop an agreed upon results framework and the associated indicators. Below is a list of **potential results indicators aiming at assessing intended impacts and outcomes of the plan**. The countries and the stakeholders could use it as a starting point for ultimately settling on the most relevant aggregate indicators for each of the selection criteria.

Table 3-2 : CRIP performance indicators

Performance indicators	Nature of the corresponding measures
The number of beneficiaries (direct/indirect) affected	All
The number of climate, hydrological or hydrogeological stations installed or rehabilitated.	Measures to enhance knowledge of the climate / hydrological hazard (category 1 of the CRIP)
The number of decision-making tools developed (forecasting, early warning, hydraulic modeling / allocation)	Measures to enhance knowledge of the climate / hydrological hazard (category 1 of the CRIP)
The number of people made aware of CC	Communication and awareness-raising measures (category 2 of the CRIP)
The number of people trained in adaptation to CC	Measures to enhance capabilities (category 3 of the CRIP)
Overall regulation volume	Capacity to adapt to water stress
Newly-irrigated or rehabilitated areas (ha)	Hydro-agricultural developments (categories 4 and 11 of the CRIP)
Tonnage of agricultural, livestock and fish production.	Increase in agricultural, livestock and fish production
Number of drinking water distribution / wastewater networks or associated infrastructure	Measures to combat deterioration of the water quality (category 6 of the CRIP)
Transhumance corridors set up (km)	Measures to combat degradation of the grazing land (category 8 of the CRIP)
Number of pastoral water sources	Pastoral hydraulic infrastructures (categories 4 and 8 of the CRIP)
Number of flood-protection measures (dykes, storage structures, etc.)	Hydraulic structures, dredging activities, etc. (categories 5 and 7 of the CRIP)
Protected / rehabilitated / reforested areas (forests, protected species, springs, etc.) (ha)	Measures to protect the ecosystems of the NB, to combat erosion, silting, deterioration of the water quality (categories 6, 7, 8 and 9 of the CRIP)
Length of the river maintained/rehabilitated for navigation (km)	Measures to combat silting and enhance resilience (categories 6 and 11 of the CRIP)
Length of coast protected (km)	Measures to protect coastal areas (category 10 of the CRIP)
Number of fishermen installed / assisted.	Measures to develop fish-farming (category 11 of the CRIP)
MW/GW installed or rehabilitated	Hydroelectric developments (categories 4, 5 and 11 of the CRIP)
Number of measures taking Gender into account	All





Outcome indicators could not be estimated at this stage, due to a lack of detailed information on some of the CRIP actions. In order to have a first overview of the expected results and the distribution of the CRIP actions at this stage of its development, the following maps (Figure 3-1) were developed:

- ▶ They show the breakdown of sectoral interventions, from the Second Package, and the amount involved in the national portions of each sub-basin;
- ▶ The map 3-1 concerns the actions to develop socio-economic infrastructure, from categories 4, 5, 10 and 11. The ratio of the amount invested for the CRIP actions on the population size of each sub-region is proposed as a first approach of estimating the beneficiaries of the CRIP. This mapping highlights the wide distribution of investment throughout the basin and emphasizes the shared benefits of the CRIP;
- ▶ The map 3-2 gathers the actions for the protection and conservation of ecosystems and the environment, from categories 6, 7, 8 and 9. The ratio of the amount invested for the CRIP actions on land area of each sub-region is proposed as a first approach of estimating the beneficiary impacts of the CRIP on the basin ecosystems. This mapping illustrates the distribution of financing by sub-basin and national areas, especially into places of low economic development rather than only to areas of higher population density, as is often the case;
- ▶ The actions of the package "Knowledge and Institutions" refer to the entire basin and have not been shown;
- ▶ The amounts correspond to the implementation and financing strategy, presented below, respectively in Sections 3.4 and 4.

These maps highlight that the sectoral interventions of the CRIP do not just focus on traditional economic growth areas, around major cities of the basin, as is often the case, but they will also impact the most remote rural areas which directly suffer the impacts of climate change. The CRIP will strengthen the resilience of the population to climate change by improving the shared prosperity in the basin.



Figure 3-1: Distribution of the CRIP actions contribution to socio-economic infrastructure development in the Niger basin

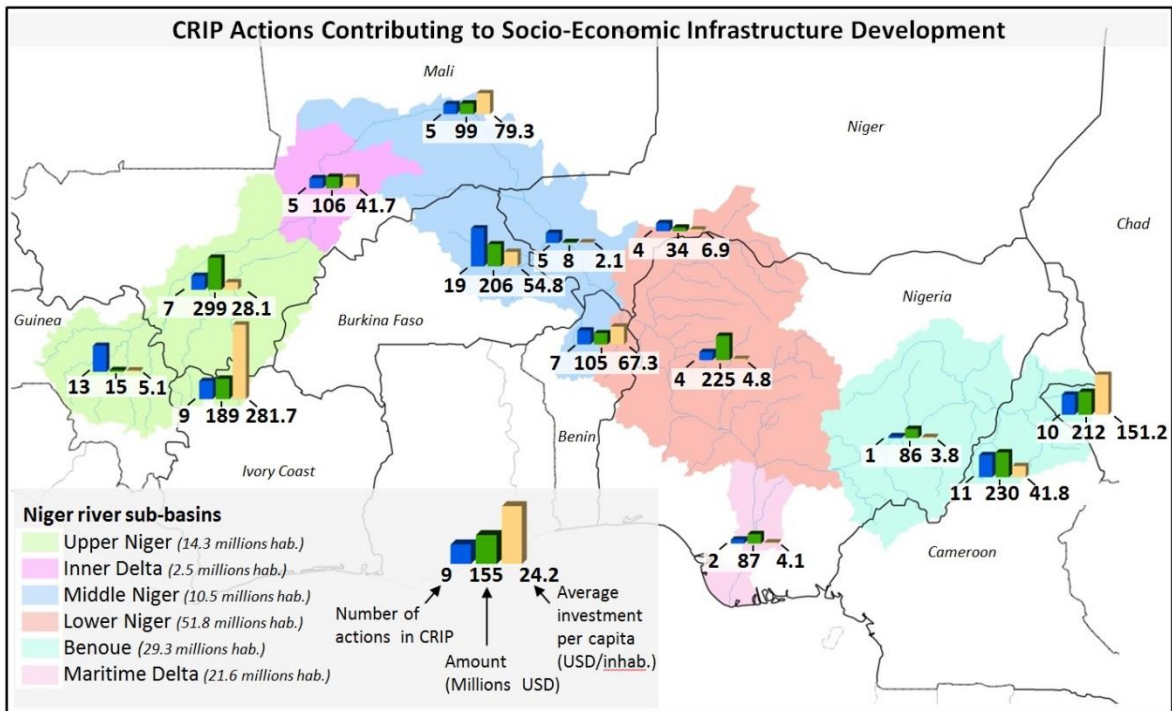
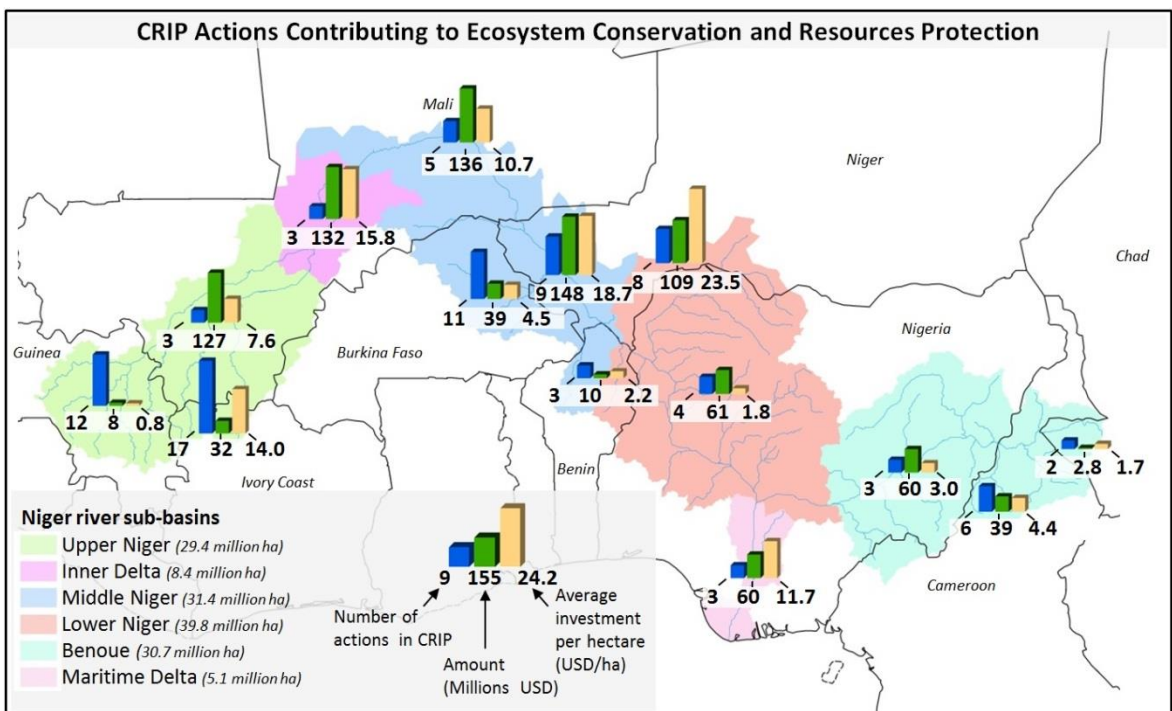


Figure 3-2: Distribution of the CRIP actions contributing to ecosystem conservation and resources protection in the Niger basin



### **ASSESSMENT PROGRAMME**

Beyond this, however, the program will also include evaluation, which is a separate analysis that draws upon the results framework and indicators, but also involves additional independent data collection and analysis. Evaluation typically examines why and how results have been achieved, what has worked well and not worked well, and what kind of improvements to design and implementation could improve results. Including an impact evaluation mechanism in the implementation of this plan improves the empirical understanding around approaches and practices that are most successful at building resilience in the Niger Basin. Incorporating this evidence-base into the Program's learning cycle will thus help NBA build the necessary capacity in the region (both at national and local levels) for M&E of climate resilience investments amongst the stakeholders



## 3.4 IMPLEMENTATION STRATEGY

### 3.4.1 Programmation

To insure consistency with the Operational Plan of the NBA, the CRIP has been integrated into the 3-year plans 2016-2018, 2019-2021 and 2022-2024 aiming at implementing the OP. To do so, NBA developed an implementation strategy that is detailed in Appendix J.

This implementation strategy is based on the prioritization of the CRIP actions. The CRIP actions were assigned to the 3-year plans according to the level of emergency, as precised by the countries, to their contribution to resilience strengthening and to their readiness level (the two latter parameters are detailed in the last 2 columns of the tables of actions in section 3.2). For instance, the activities related to the PIDACC were assigned to the first 3-year plan.

On this basis, the CRIP actions have been scheduled in coordination with the OP actions of NBA (see Appendix H). This physical and financial scheduling is synthetized in the table shown in section 4.2.

### 3.4.2 Gender equality

The need to address gender in adaptation to climate change is widely recognized. In many parts of the world, women and men experience and respond to climate impacts differently. They are also involved in climate change solutions in differing ways depending on their roles in society and in their communities. Recognizing and integrating gender considerations in resilience-building is paramount to ensuring effective outcomes.

In the Niger Basin, women are primarily responsible for food production, household water supply, energy production for heating and cooking, childcare, and sharing traditional knowledge. These areas of daily life are complicated and even impaired by a rapidly and unpredictably changing climate. In rural communities, women use and manage natural resources that also at risk to the impacts of climate change. And yet, women often lack access to financial and technical support, emergency response systems, and other support systems needed to cope with those impacts.

Although they are disproportionately affected, women also play a crucial role in building resilience to climate change. They have many crucial skills and relationships that are needed to adapt to changing environmental realities. As the heart of their communities, they are often responsible for knowledge dissemination, development of coping strategies, and implementation of community-based solutions. Moreover, women's knowledge, networks, and strategies to deal with climate variability are best enabled and supported when women are represented in relevant decision-making at all levels.

The NBA and its member countries plan to implement CRIP activities in a gender informed way – both to reduce vulnerability of women to the effects of climate change and to harness the unique role and skills of women to build climate resilience. Countries foresee gender considerations playing an important role in the design, decision-making, stakeholder engagement, and implementation phases of relevant CRIP activities. Specifically, gender will be mainstreamed into activities such as capacity building, communication, project formulation, studies, and assessment. Notably, a number of country projects are specifically designed to strengthen women's role in adaptation measures related to water management and food production. One country will develop their national gender policy by considering women's vulnerability to climate change with support from the CRIP, and the NBA will also develop its own gender policy in order to support coherent implementation of all CRIP actions.



## 4. FUNDING OF THE CLIMATE RESILIENCE INVESTMENT PLAN

### 4.1 POSITIONING WITH REGARD TO OTHER ADAPTATION PROGRAMMES

It does not compete with other national or regional investment programmes. It aims to mobilise additional sources of investment, specific to adaptation to climate change, for the implementation of measures taken from the OP, the NAPAs, the NAP's and national contributions to strengthening resilience to climate change in the Niger Basin. It incorporates the adaptation measures of the various projects of the NBA (PIDAACC/ADB, P-DREDGE/WB, P-GIRE2/AFD, etc).

Moreover, the CRIP is consistent and compatible with the various national initiatives (INDC, national adaptation plans in particular) and regional initiatives in connection with adaptation to climate change.

**The CRIP is thus positioned as an investment plan encompassing/harmonizing all the adaptation measures planned in the NB.** Each of the projects of the NBA or the national or regional action programmes included in the CRIP constitutes a lever for implementation of the measures they drive. As such, **being fully incorporated into the CRIP, the PIDAACC, an NBA adaptation project supported by the ADB, has a central place. The ADB is thus a valued partner of this initiative.**

The Integrated Programme for Agricultural Development and Adaptation to Climate Change in the Niger Basin (PIDAACC/NB) aims to contribute to improving the life of the populations and their resilience to the effects of climate change by the sustainable management of the natural resources. Its preparation is funded by the African Development Bank (ADB) and follows on from the Silting Control Programme in the Niger Basin (SCP/BN), co-funded by the ADB. It includes 38 measures, distributed between 3 components: (i) Integrated Development of Water Resources, (ii) Development of the Resilience of the Populations and Ecosystems and (ii) Coordination and management of the Programme. The PIDAACC/BN will enable the Investment Programme (IP) to be made operational and the implementation of the NBA Operational Plan (OP) by 2021, through the measures it drives.

### 4.2 COST OF THE CLIMATE RESILIENCE INVESTMENT PLAN

The overall amount of the Climate Resilience Investment Plan in its current version, i.e. a selection of measures, based on the OP, NAPAs, NAPs and national contributions, screened using the first 8 criteria defined in section 2.2.1, is approximately **3,111,000,000 USD (3.11 billion USD)**. The costs have been estimated based on the information contained in the description sheets for the projects provided by the countries and the NBA. The tables below summarize the cost of the CRIP per type of adaptation measure and per country.

NB: It should be noted that some measures may belong to several categories of adaptation measures. In this case, they have been allocated to the category for which the contribution is the most significant. The figures given in the table below should therefore be interpreted in perspective. For example, the multi-usage infrastructures adopted in the CRIP have been classed in category 4 "Vulnerability linked to water stress", which partly explains the high amount associated with this category. However, these structures also significantly contribute to flood protection and therefore also fall under category 5 but the amount of the activity has not been counted in this category.



Moreover, the Plan does not attempt to parse out incremental costs of adaptation activities. Rather, it considers the full amount of each investment as its contribution to resilience-building in the Niger Basin. It is recognized, though, that some financing mechanisms could request more nuanced analyses of the additionality of adaptation costs to justify funding certain projects contained in the Plan; something that the implementing partners will work to provide when required.

*Table 4-1: Cost of the Climate Resilience Investment Plan per type of adaptation measure*

<b>Types of measures contributing to climate resilience building</b>	<b>Number of actions</b>	<b>Overall cost of the measures chosen in the CRIP pre-selection (\$US)</b>
<b>Governance and Knowledge package</b>	<b>[54]</b>	<b>[242,000,000]</b>
1 - Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools	26	78,000,000
2 - Assessment of vulnerability. Communication and awareness-raising	9	129,000,000
3 - Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin	19	35,000,000
<b>Package of sectorial measures contributing to enhancing the resilience of the populations and ecosystems of the basin to the impacts of climate change identified in the NB</b>	<b>[192]</b>	<b>[2,867,000,000]</b>
4 - Measures targeting vulnerability to water stress	77	1,619,000,000
6 – Measures targeting vulnerability to flooding	7	63,000,000
6 – Measures targeting vulnerability to soil degradation	30	201,000,000
7 - Measures targeting vulnerability to degradation of the grazing land	8	127,000,000
8 - Measures targeting vulnerability to degradation of the ecosystems	47	636,000,000
9 - Measures targeting vulnerability to deterioration of the water quality	5	3,000,000
10 - Measures targeting vulnerability linked to the rising sea-level	1	1,000,000
11 – Measures strengthening resilience (e.g. generation of jobs, revenues, etc)	17	219,000,000

Details of the costs per project are given in the detailed list of measures (sections 3.2) and Appendix F.

The CRIP does not constitute a fixed breakdown of resources between the countries. The total cost per country reflects only the number of projects that were identified and considered consistent with the resilience criteria defined in the CRIP. Actual financing of the plan will depend on the interest of financing entities and specific country priorities.

#### **Financial scheduling of the CRIP based on the prioritization of the actions**

NBA developed a strategy to implement the CRIP, based on the prioritization of the actions (see section 3.4) and on their breakdown in the three 3-year plans of the OP. This turns into a financial programming of the CRIP actions. The programming of each CRIP action is detailed in the tables presented in Appendices G and H, and summarized in the following synthesis table.





Table 4-2 : Financial programming of the CRIP actions based on the 3-year plans of the OP.

Type of adaptation actions	PO - PT1		PO - PT2		PO - PT3		TOTAL	
1 - Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools	43%	33 600 000	30%	23 700 000	27%	20 700 000	100%	78 000 000
2 - Assessment of vulnerability. Communication and awareness-raising	21%	26 700 000	32%	41 600 000	47%	61 100 000	100%	129 400 000
3 - Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin	37%	13 200 000	48%	16 900 000	15%	5 400 000	100%	35 500 000
<b>Package 1</b>	<b>30%</b>	<b>73 500 000</b>	<b>34%</b>	<b>82 200 000</b>	<b>36%</b>	<b>87 200 000</b>	<b>100%</b>	<b>242 900 000</b>
4 - Measures targeting vulnerability to water stress	24%	395 800 000	51%	828 700 000	24%	394 300 000	100%	1 618 800 000
5 - Measures targeting vulnerability to flooding	24%	15 400 000	76%	48 100 000	0%	0	100%	63 500 000
6 - Measures targeting vulnerability to soil degradation	18%	35 200 000	80%	160 000 000	3%	5 900 000	100%	201 100 000
7 - Measures targeting vulnerability to degradation of the grazing land	36%	46 200 000	34%	43 700 000	29%	36 800 000	100%	126 700 000
8 - Measures targeting vulnerability to degradation of the ecosystems	31%	194 200 000	55%	349 900 000	14%	91 800 000	100%	635 900 000
9 - Measures targeting vulnerability to deterioration of the water quality	93%	2 700 000	7%	200 000	0%	0	100%	2 900 000
10 - Measures targeting vulnerability linked to the rising sea-level	55%	600 000	45%	500 000	0%	0	100%	1 100 000
11 - Measures strengthening resilience (e.g. generation of jobs, revenues, etc)	24%	52 300 000	31%	68 200 000	45%	98 300 000	100%	218 800 000
<b>Package 2</b>	<b>26%</b>	<b>742 400 000</b>	<b>52%</b>	<b>1 499 300 000</b>	<b>22%</b>	<b>627 100 000</b>	<b>100%</b>	<b>2 868 800 000</b>
<b>TOTAL</b>	<b>26%</b>	<b>815 900 000</b>	<b>51%</b>	<b>1 581 500 000</b>	<b>23%</b>	<b>714 300 000</b>	<b>100%</b>	<b>3 111 700 000</b>





## 4.3 FUNDING PLAN

The CRIP aims to encompass and harmonize all the adaptation measures planned in the NB. Each of the projects of the NBA or the national or regional action programmes included in the CRIP and for which funding is identified constitutes a lever for implementation of the measures they drive. The CRIP can therefore already draw on the projects and action programmes which are due to be implemented imminently (e.g. PIDAACC).

### 4.3.1 Current state of identified funding sources

#### *On the scale of the overall CRIP document*

According to the information it has been possible to collect at the time of this report preparation, 618 million USD have already been identified, which represents 20% of the overall amount. The financing sources identified for each of the measures are specified in the tables in section 3.2.

*Table 4-3: Level of identification of funding for the measures selected in the Climate Resilience Investment Plan aggregated by type of adaptation measures<sup>3</sup>*

Types of measures contributing to climate resilience building	Overall cost of the measures chosen in the CRIP pre-selection (\$US)	Share of cost for which a funding source has been identified (\$US)	Percentage of the over cost covered by identified funding sources
<b>Governance and Knowledge package</b>	<b>[242,000,000]</b>	<b>[20,500,000]</b>	<b>[8.5%]</b>
1 - Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools	78,000,000	11,200,000	14.4%
2 - Assessment of vulnerability. Communication and awareness-raising	129,000,000	0	0.0%
3 - Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin	35,000,000	9,300,000	26.6%
<b>Other measures contributing to strengthening resilience of the populations and ecosystems of the basin to the impacts of climate change identified in the Niger Basin (criterion 1):</b>	<b>[2,869,000,000]</b>	<b>[598,200,000]</b>	<b>[20.8%]</b>
4 - Measures targeting vulnerability to water stress	1,619,000 000	222,600,000	13.7%
7 – Measures targeting vulnerability to flooding	63,000,000	3,600,000	5.7%
6 – Measures targeting vulnerability to soil degradation	201,000,000	93,100,000	46.3%
7 - Measures targeting vulnerability to degradation of the grazing land	127,000,000	58,100,000	45.7%
8 - Measures targeting vulnerability to degradation of the ecosystems	636,000,000	191,100,000	30.0%
9 - Measures targeting vulnerability to deterioration of the water quality	3,000,000	0	0.0%
10 - Measures targeting vulnerability linked to the rising sea-level	1,000,000	0	0.0%
11 – Measures strengthening resilience (e.g. generation of jobs, revenues, etc	219,000,000	29,700,000	13.6%
<b>TOTAL</b>	<b>[3,109,000,000]</b>	<b>[617,800,000]</b>	<b>[19.9%]</b>



With regard to the measures for which funding has not been identified, the World Bank and the ADB have begun consultations with the Technical and Financial Partners to mobilize supplementary resources for this initiative. The process is ongoing. A table summarising the distribution of the commitments of the various donors and partners for the financing of the CRIP will be drafted based on the interest and commitments expressed after the consultations.

### **On the scale of each of the 3-year plans of the OP implementing the CRIP**

The following table illustrates the fundraising efforts that will be necessary to insure the sustainability and efficiency of the CRIP. It shows the level of already identified funding and their breakdown in the 3-year implementation plans.

Moreover, the table presents the possible – yet to be confirmed – contribution of the countries to the CRIP. It is assumed that this contribution would reach at least 10% of each action cost. This contribution has been considered as identified funding (see fundraising strategy in the next section). In addition, the direct beneficiaries will also be asked to contribute financially or in kind, to the implementation of the actions that directly concern them, except for the most important infrastructure. At the time of this report preparation, and based on this assumption, 28% of the overall amount of the CRIP actions assigned to the first 3-year implementation plan is already identified.

*Table 4-4 : Breakdown of the identified and to be identified funding sources for the CRIP actions according to the 3-year plans of the OP.*

		PO - PT1 2016-2018	PO - PT2 2019-2021	PO - PT3 2022-2024	TOTAL
<b>Overall cost</b>	<i>millions USD</i>	815 800 000	1 581 400 000	714 400 000	3 111 600 000
	<i>% the overall cost of the CRIP</i>	26.2%	50.8%	23.0%	100%
<b>Identified amount</b>	<i>millions USD</i>	230 600 000	509 900 000	189 400 000	929 900 000
	<i>% the overall cost of the CRIP</i>	7.4%	16.4%	6.1%	29.9%
<b>Amount to be raised</b>	<i>millions USD</i>	585 200 000	1 071 500 000	525 000 000	2 181 700 000
	<i>% the overall cost of the CRIP</i>	18.8%	34.4%	16.9%	70.1%

### **4.3.2 Fundraising strategy**

The Investment Plan for the Strengthening of Resilience to Climate Change includes 246 actions for a total amount of 3.11 billion USD. The identified financing represents about 20%. Thus, 80% of the cost of the CRIP, which is 2.492 billion USD is still to be mobilized for its implementation.

Targeted financing sources include:

- ▶ Counterpart contributions of both NBA Member Countries and actions' beneficiaries;
- ▶ Adaptation financing funds;
- ▶ The Green Climate Fund;
- ▶ FEM;
- ▶ Multilateral donors in link or not with a climate initiative (WB, AfDB, etc.);
- ▶ Bilateral donors in link or not with a climate initiative (EU, USAID, GIZ, KfW, FDA, BADEA, etc.);
- ▶ Regional financial institutions in link or not with a climate initiative (BOAD, WAEMU, CEMAC).



The strategy for mobilizing the above-mentioned financing is set forth as follows:

### **FINANCIAL INVOLVEMENT OF NBA MEMBER COUNTRIES AND THE BENEFICIARIES OF THE ACTIONS IN IMPLEMENTING THE CRIP**

NBA Member Countries, engaged in a shared vision for a sustainable development of the basin since 2002, and acknowledging the big challenge which the strengthening of the resilience of populations, infrastructures, ecosystems and institutions to climate change particularly represents, own the CRIP.

The collectively commit themselves to:

- ▶ Embark on advocacy on the Investment Plan for the Strengthening of Resilience to Climate Change in the Niger Basin (CRIP) in order to mobilize Technical and Financial Partners;
- ▶ Mobilize national counterpart contributions for financing the actions of the Investment Plan for the Strengthening of Resilience to Climate Change in the Niger Basin (CRIP) for up to 10% of the cost of the investments planned. For this, budgetary entries will be made as from the 2016 fiscal year in Member Countries' respective budgets;
- ▶ Finalize country and community consultations on the feasibility of innovative and sustainable financing mechanisms for which we have Decision No.5 of the 9th and 10th NBA Summits of Heads of State and Government on the implementation of the mechanisms for an autonomous and sustainable financing of NBA, with the involvement of the private sector;

In order to ensure beneficiaries' ownership of the realizations, and the sustainability of investments, the direct beneficiaries of the CRIP actions will bring their counterpart contributions which vary between 5% and 10% of the costs, depending on the actions; that percentage will be defined during the financial programming of each action.

In addition, the direct beneficiaries will also be asked to contribute financially or in kind, to the implementation of the actions that directly concern them, except for the most important infrastructure.

### **CONTRIBUTION OF THE DEVELOPMENT BANKS SUPPORTING THE CRIP (WB, AfDB)**

- ▶ The advocacy and sensitization of TFPs will be intensified before COP21 in order to mobilize them and to bring them to decide on the level of their involvement in the financing of the CRIP. For this, the World Bank, Lead Member of NBA TFPs, and the African Development Bank (AfDB), Lead Member of PIDACC/NB Partners, will support NBA and Member Countries in CRIP promotion and implementation.
- ▶ NBA and Member States will officially solicit the two Development Banks so that they announce their contribution by the COP21. This should create a domino effect for bringing other partners by concretely taking part in the financing of the CRIP.

### **CONTRIBUTION OF OTHER TECHNICAL AND FINANCIAL PARTNERS (TFPs)**

- ▶ NBA will send official requests about CRIP to every other TFPs and will invite them at the CRIP presentation at COP21;
- ▶ The World Bank and NBA, with the support of a Champion, will intensify advocacy and sensitization towards partners before COP21 by visiting, if need be, their headquarters to ensure the successful presentation of CRIP to CoP21. The advocacy will continue during and after COP21;
- ▶ A meeting of PIDACC partners will be held in February 2016, with the support of AfDB/AWF and ICA, for mobilizing PIDACC financing, a priority program of the CRIP;
- ▶ Regional programme sheets will be developed, in relation with Member Countries, for submission to donors and climate funds (GCF, FEM, etc).



**FUNDRAISING TOOLS FOR THE CRIP**

- ▶ A fundraising working group will be established and managed by NBA from January 2016 ;
- ▶ NBA, with the support of the World Bank and the African Development Bank, will establish a Fiduciary Fund for strengthening resilience to climate change in the Niger Basin, which will constitutes a sustainable funding tool;
- ▶ National and regional resilience programs/projects will be developed and implemented over the period 2016-2024.



## 5. NEXT STAGES OF THE PROCESS

- ▶ Presentation of the CRIP at the Climate Conference in Paris (COP 21), during a high level panel discussion organized at the Africa Pavillon on 2 December 2015.
- ▶ Funds mobilization ;
- ▶ Implementation.





# APPENDIXES





## Appendix A : **Definitions**



## DEFINITION OF CLIMATE RISK

Climate risk can be broken down into the climate hazard itself and the vulnerability of the system in question (population, ecosystem, infrastructure, institution). See Figure A-1 below.

**Climate change:** A change in climate conditions which can be characterised (e.g. using statistical tests) by shifts in average and/or property variability modifications and which persist over a long period of time, typically decades or more. Climate change can be a result of anything from natural internal processes (natural variability) to external forces or persistent anthropogenic changes to the composition of the atmosphere or how land is used.

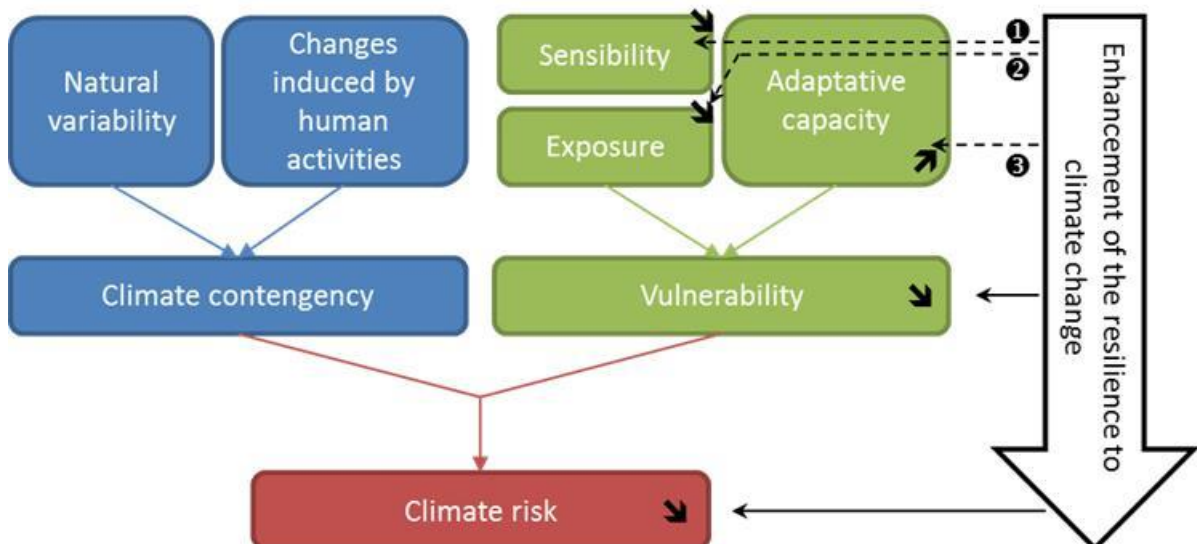
**Vulnerability:** Vulnerability to climate change is the degree to which geophysical, biological and socio-economic systems are susceptible to, and unable to cope with, adverse impacts of climate change (see ; Füssel and Klein, 2006). The term ‘vulnerability’ may therefore refer to the vulnerable system itself, e.g., low-lying islands or coastal cities; the impact to this system, e.g., flooding of coastal cities and agricultural lands or forced migration; or the mechanism causing these impacts, e.g., disintegration of the West Antarctic ice sheet.

**Exposure:** The presence of people means of subsistence, resources and environmental services, elements of infrastructure or economic, social or cultural assets in an area which is susceptible to damage.

**Sensitivity:** The degree to which a system is either positively or negatively influenced by climate variability or climate change. Effects in this sense may be direct (e.g. changes to agricultural yield owing to changes in average values for temperature amplitude or variability) or indirect (e.g. damage caused by the increased frequency of coastal flooding due to the sea level rising).

**Adaptive capacity:** The ability of a system, institution, human being or any other organism to mitigate adverse effects or adapt to the consequences of or capitalise on the beneficial effects of climate change.

Figure A-1 : Diagram defining the climate risk and possible strategies to strengthen resilience to climate change.



**Key:** The various types of climate change resilience-building measures. ❶ Measures aimed at reducing climate hazard sensibility, ❷ measures aimed at reducing climate hazard vulnerability, ❸ measures aimed at building adaptive capacity to climate hazards.

Source: Inspired by Gitz V. & Meybeck A., 2012. Risks, vulnerabilities and resilience in a context of climate change. FAO.



## DEFINING ADAPTATION AND RESILIENCE

**Mitigation:** Human actions aimed at reducing the anthropogenic impact on climate forcing; this approach consists of reducing the sources of greenhouse gas (GHG) emissions or expanding GHG storage. An approach aimed at stabilising greenhouse gas (GHG) concentrations in the atmosphere to levels which could prevent any dangerous anthropogenic interference with the climate system by promoting efforts to reduce or limit GHG emissions or improve GHG sequestration.

**Adaptation:** In human systems this refers to an approach involving the adjustment of the current or expected climate, as well as the consequences thereof, so as to mitigate harmful effects and harness beneficial effects. In natural systems this refers to an approach involving the adjustment of the current climate as well as the consequences thereof; human intervention may facilitate adaptation for the expected climate.

*Note: Mitigation measures can limit climate change, whereas the goal of adaptation measures is the reduction of the vulnerability of natural and socio-economic systems, thereby combating climate change at lower cost.*

**Resilience:** The capacity a system and its various components presents with respect to anticipating, absorbing and/or withstanding the effects of hazards or to quickly and effectively recover from said hazards, including via protective measures, resulting in the rehabilitation and improvement of basic structures and operations (see Figure 2-1).

*Note: Climate change resilience building for watersheds is an approach which encompasses adaptation and is part of the broader development of the river basin. Climate change is therefore viewed as a constraint (amongst other things) affecting development. This notably includes 'no regret' measures.*

**Maladaptation:** The risk of implementing measures which may ultimately harm populations/ecosystems, i.e. measures which may be beneficial in the short term or at the local level but may also affect vulnerability or the ability to adapt to climate change over the long term or other spatial scale.

Some adaptation strategies may increase the vulnerability of other ecosystems, sectors or populations where (i) they increase greenhouse gas emissions, (ii) they disproportionately have an impact on more vulnerable areas, (iii) opportunity costs prove too high, (iv) they reduce incentives for adaptation or (v) where they lead to pathways which limit the choices available to future generations. These five risks for maladaptation provide a basis which can be used to analyse any possible adverse effects arising from adaptation measures (Barnett & O'Neill, 2009).

### The various types of adaptation measures

The United Nations Economic Commission for Europe has defined the various options in terms of projects available based on expected climate benefits (United Nations & the EEC, 2009):

- ▶ Win-win options (measures which are shown to be highly cost-effective and which minimise climate risk and offer further advantages). These often refer to activities dealing with the effects of climate change and/or meeting other social and environmental objectives, e.g. efficient use of water, particularly hot water (reduces demand for water as well as GHG emissions).
- ▶ No regret options (measures which are known to be cost-effective and useful, regardless of the magnitude of climate change). These are measures which are warranted due to current climate conditions and which are compatible with projected climate change, e.g. the promotion of good soil management practices to limit the risks of diffuse pollution.
- ▶ Low regret options (measures with low cost-effectiveness, but significant benefits which depend on future climate change), e.g. an oversized drainage network.
- ▶ Flexible adaptation options (measures which are designed to be modified in future), e.g. designing a reservoir such that the size could be increased in future.



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Sources:

- ▶ IPCC Fifth Assessment Report: Climate Change 2014
- ▶ IPCC, SREX, 2012. Disaster and extreme weather event risk management to meet the needs of climate change adaptation.
- ▶ IPCC Fourth Assessment Report: Climate Change 2007



## Appendix B : **Design process of NBA's planning documents**



So as to better align future measures to be proposed within the scope of the Niger Basin Authority (NBA) Operational Plans (OPs) and/or Strategic Action Plans (SAPs), it is important to firstly highlight the co-ordination required from the various elements involved with the NBA programmatic framework (see the illustration below).

In 2002, NBA Member States decided to draft a **Shared Vision** which would consist of making the Niger River Basin 'an area of sustainable development with respect to the integrated management of water resources and related ecosystems so as to improve the quality of life and offer prosperity for the surrounding populations'.

Afterwards, during the 8th Heads of State and Government Summit held on 30 April 2008 in Niamey, Niger, the Member States adopted a **Sustainable Development Action Programme (SDAP)** for 2027, an **Investment Programme (IP)** for 2008-2027 and a **Water Charter**.

The SDAP is a strategic reference document which defines and offers guidelines on the integrated and shared development process for NBA Member States.

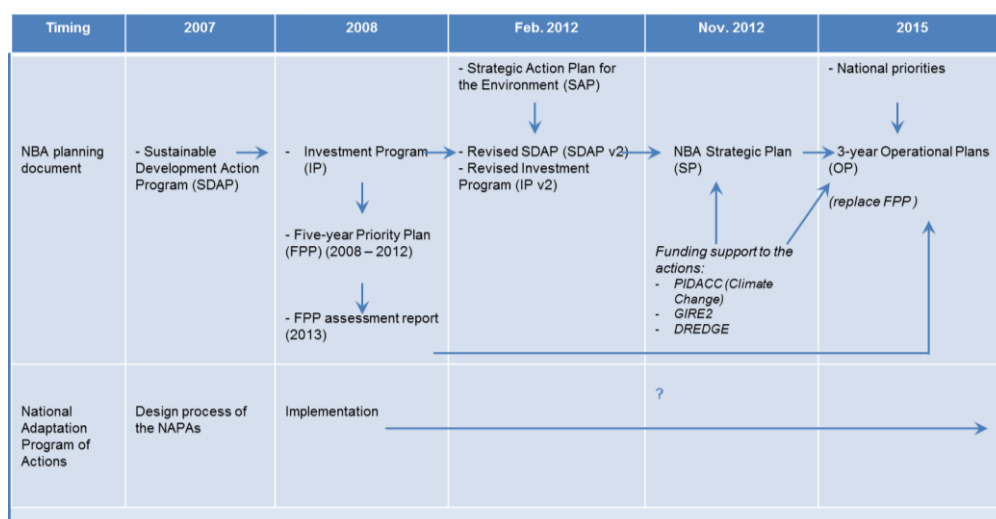
The IP, which is the budgetary implementation document for the SDAP, consists of three (3) main priority development components: (i) the development of socio-economic infrastructures, (ii) the protection of resources and ecosystems and (iii) capacity building for and the involvement of key players for the Integrated Water Resources Management (IWRM) scheme.

The IP is spread out over several five-year plans: (i) the **Five-year Priority Plan (FPP)** for 2008-2012, (ii) the Second Five-year Plan for 2013-2017, (iii) the Third Five-year Plan for 2018-2022 and the Fourth Five-year Plan for 2023-2027.

In November 2012 the NBA drafted a **ten-year Strategic Plan (SP)** for 2013-2022.

This SP defined five strategic areas of action: (i) water as an economic development lever, (ii) the preservation of basin ecosystems, (iii) innovative and sustainable financing, (iv) co-operation with fellow Member States and partners and (v) organisational performance.

The operationalization process for this strategic plan consisted in a series of national and regional workshops held in 2013 and 2014 with the goal of identifying priority actions and projects for Member States (indexed in the form of project information sheets) per IP and SDAP measures and NBA strategic plan guidelines as well as agreeing on which priority actions and projects implemented in the Niger River Basin should be monitored by the NBA over the next ten years. The NBA Operational Plan for 2016-2024 consists of the physical and financial programming for these priority actions and projects. This document is currently being validated by NBA authorities.



## **Appendix C : Climate projections and impacts on the water cycle in the Niger River Basin**



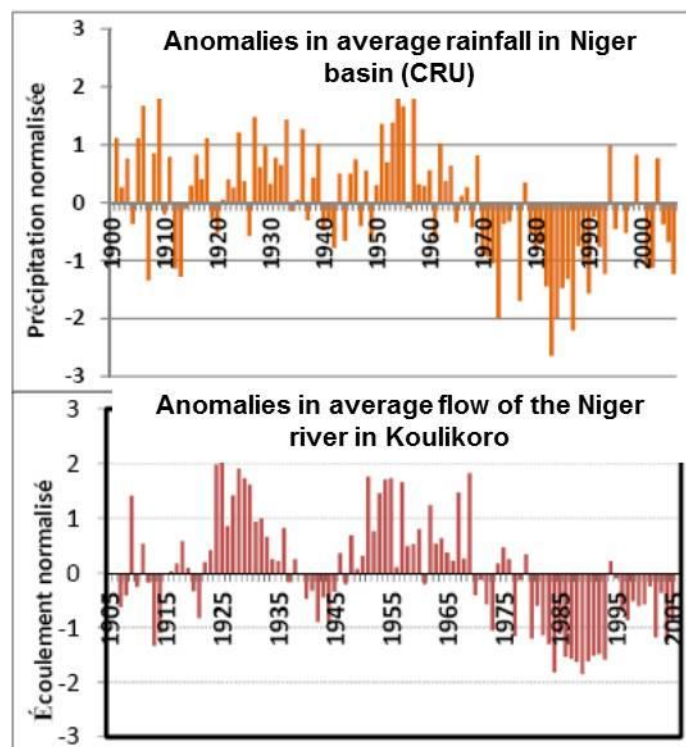


Sources:

- ▶ *A global perspective on African climate*, Giannini et al. 2008
- ▶ *Evaluation des risques climatiques pour le Bassin du Fleuve Niger (Assessing climate risk for the Niger River Basin)*, ABN-BM, 2013
- ▶ *Climate Change, Water and Conflict in the Niger River Basin*, USAID, 2011

## THE KEY ROLE OF CLIMATE VARIABILITY IN THE NRB

Illustration showing spatial and temporal variability in terms of rainfall (upper part) and Niger river flows (lower part).

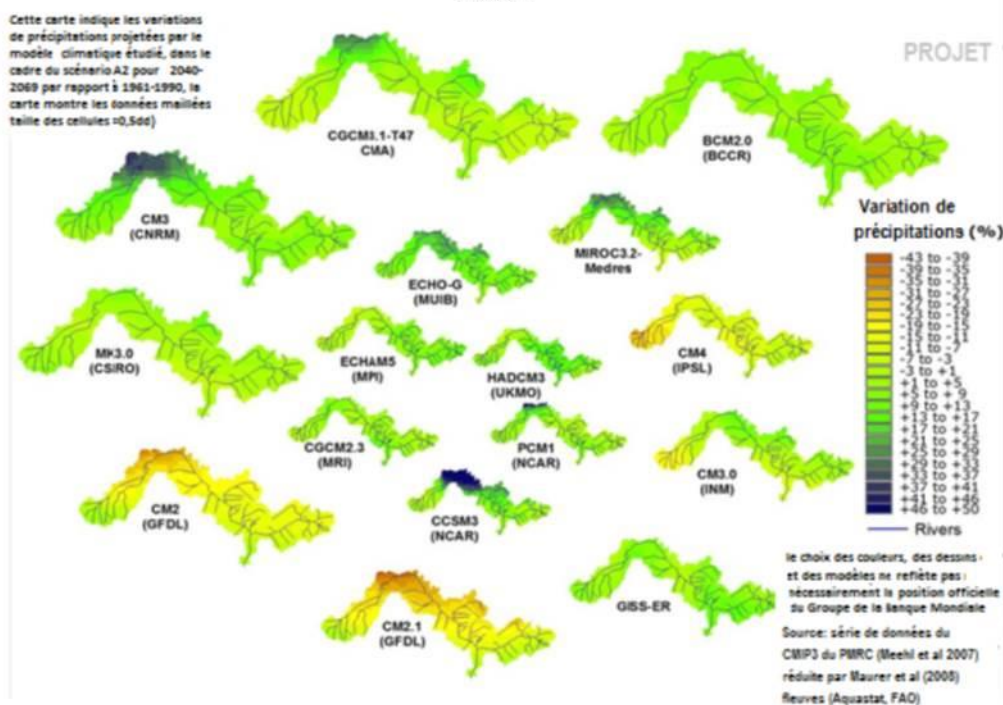


Source: *Evaluation des risques climatiques pour le Bassin du Fleuve Niger (Assessing climate risk for the Niger River Basin)*, ABN-BM, 2013



## A LARGE DEGREE OF UNCERTAINTY REGARDING HOW RAINFALL ASPECTS WOULD BE AFFECTED BY CLIMATE CHANGE

### Climate projections - Anomalies in average rainfall and temperature in Niger Basin



Source: *Evaluation des risques climatiques pour le Bassin du Fleuve Niger (Assessing climate risk for the Niger River Basin)*, ABN-BM, 2013

→ A high degree of uncertainty is currently present in for Niger River Basin climate projections, particularly with regard to rainfall.

### CLIMATE AND HYDROLOGICAL HAZARDS CONTEMPLATED

There are two aspects to the development of climate variables within the context of climate change:

- ▶ extreme weather phenomena;
- ▶ shifts in mean values (e.g. migration of isohyets, disturbance of rainfall patterns).

With climate projections being quite uncertain for some parameters (particularly rainfall), it is difficult to assess likely climate and hydrological impacts in terms of the nature of these impacts, their intensity, frequency and spatial variability.

Taking a generic inventory of climate and hydrological impacts has been proposed (see Table 1-1), with this list being used to draw up a cause and effect flow chart (Figure 1-1) afterwards. This chart is then broken down for each sector for the purposes of identifying the specific second-order impacts.



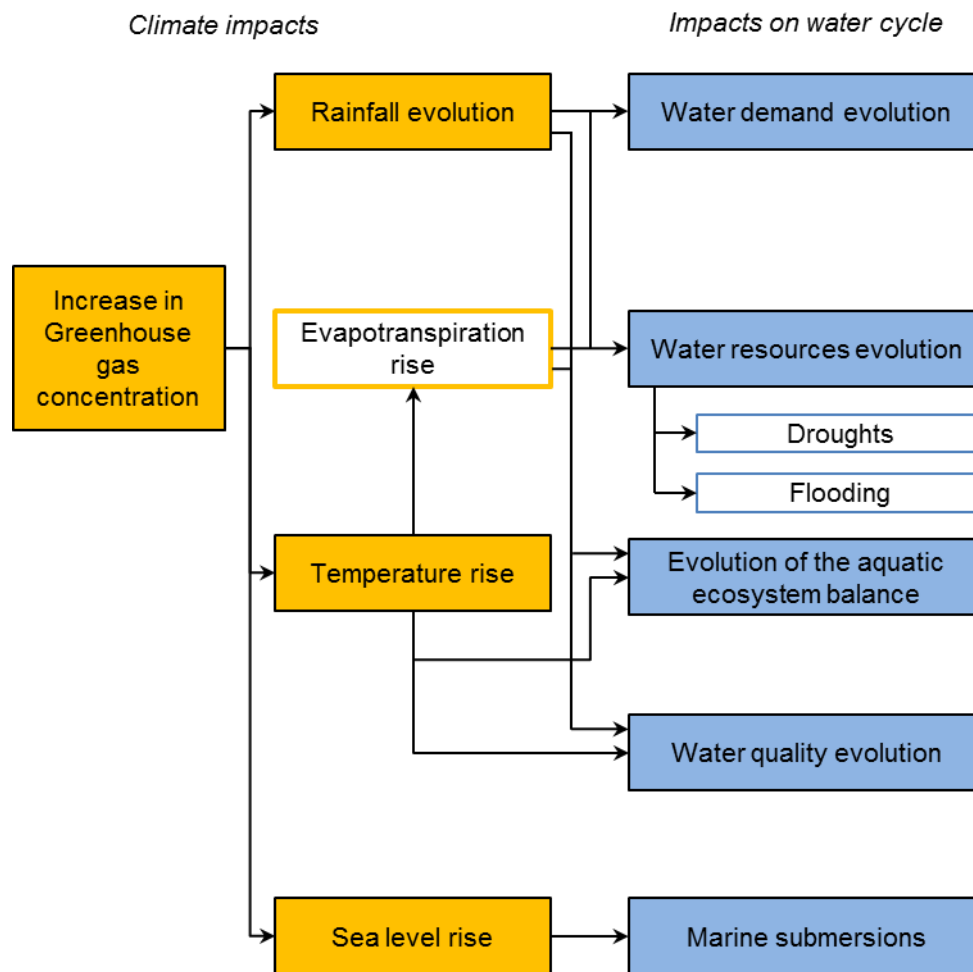
Table C-1: Possible effects of climate change in the NRB

Parameters	Possible development of climate parameters based on projections	Climate hazards/impact contemplated
<b>Temperature</b>	Mean annual temperatures rising from 1°C to 3°C Heat waves	Impact on evapotranspiration  Severe heat  Contributes to the growth of invasive species (such as crickets, water hyacinths) or epidemics  Fosters conditions leading to fires/wildfires
<b>Evapotranspiration</b>	Rise in evapotranspiration as a consequence of temperature rise	
<b>Rainfall</b>	Average rainfall: uncertainty regarding isohyet development and rainfall pattern variability, changes to seasonality/crop calendar and other disturbances. Negative outcome: lower average rainfall. Positive outcome: high average rainfall.  Extreme weather events: uncertainty, more frequent and more severe rainfall?	Drought: Lower average flow rates, reduced groundwater recharge, → less of the resource available on average  More frequent instances of severe drought: Lower flow rates at low water, rains fall later each year, → seasonal resource shortages become more frequent and intense  Severe rainfall → Acceleration of soil erosion
<b>Other climate parameters</b>	Increased CO2 concentration	

Source: SPCR & NAPAs & ABN-BM 2013



Figure C-2: Development of climate and hydrological elements as a result of climate change - cause and effect flow chart



*Source: BRLi*



## Appendix D : **Sectoral impacts of climate change in the Niger River Basin**



## SECTOR-SPECIFIC IMPACTS

Sources:

- ▶ *Evaluation des risques climatiques pour le Bassin du Fleuve Niger (Assessing climate risk for the Niger River Basin)*, ABN-BM, 2013
- ▶ *Climate change, water and conflict in the Niger River Basin*, USAID, 2011
- ▶ *AGHRYMET study*, 2010
- ▶ NAPA studies

**A background of great uncertainty in terms of the nature, intensity, spatial variability and timing of climate change impact in the Niger River Basin.**

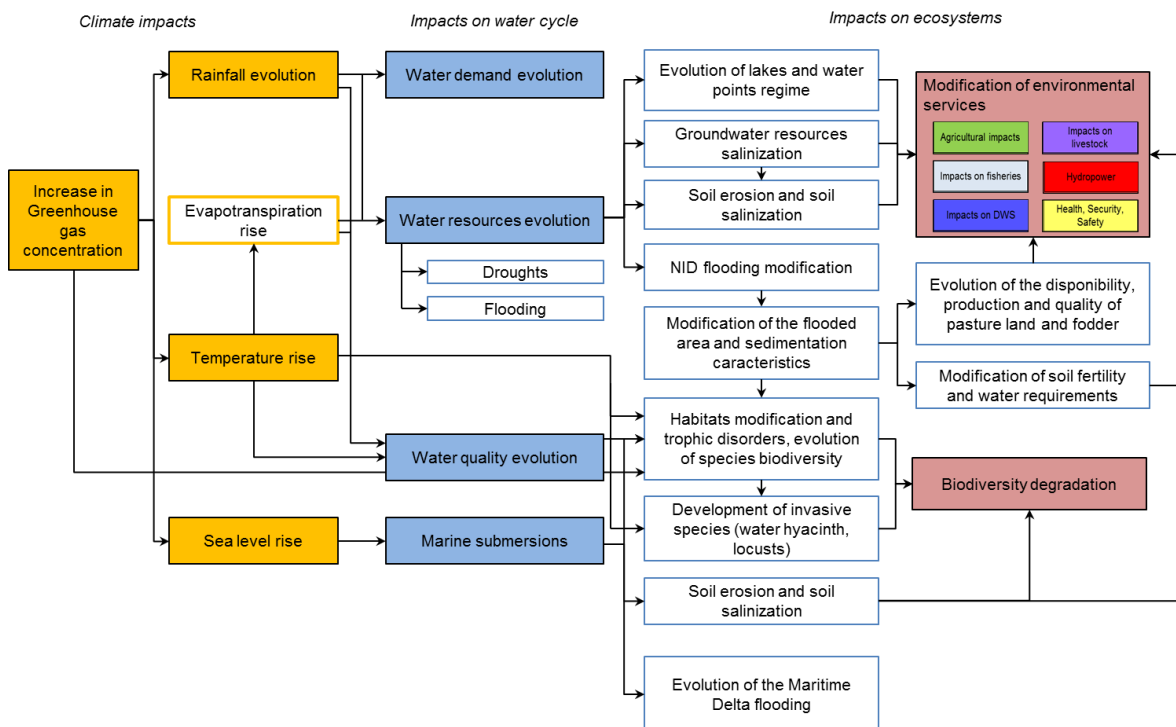
## ECOSYSTEMS

Increased sand encroachment.

Vegetation cover reduced.

Deterioration of biodiversity.

Remarkable ecosystem in the NID --> role in local population subsistence and key impact downstream



## AGRICULTURE

Lower crop yield as a result of increasing temperatures (maize, millet, sorghum: -5% per +1°C, -10% per +2°C, up to -15-25% per +3°C per CILSS/AGRHYMET 2007 and 2009 studies; even greater drop for cereals per an FAO study; for rice: this is more complex as there is a beneficial short term effect from an increase in CO<sub>2</sub> concentration, although over the long term yield decreases, per Keita 2009, Sarr 2007).

Increased number of disasters/infections (disease, pests)

Agricultural season shortened: changes to crop calendars

Soil erosion and salinization

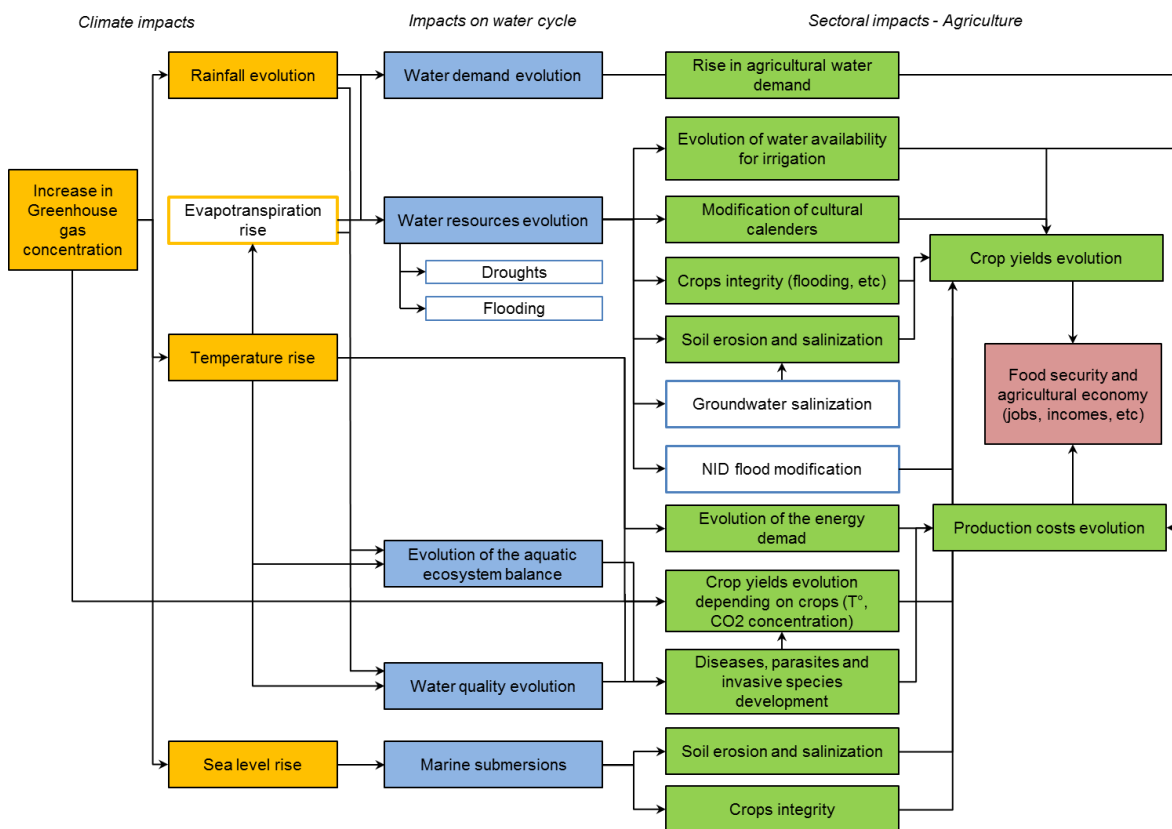
Salinization of underground water resources (owing to reduced recharge, salt barriers)

Increased demand for irrigation water

[Surface area for flooding reduced in the NID if flow rates are reduced.]

➔ Reduced crop yield.

➔ Deterioration of food safety (low crop production vs rapidly growing populations)



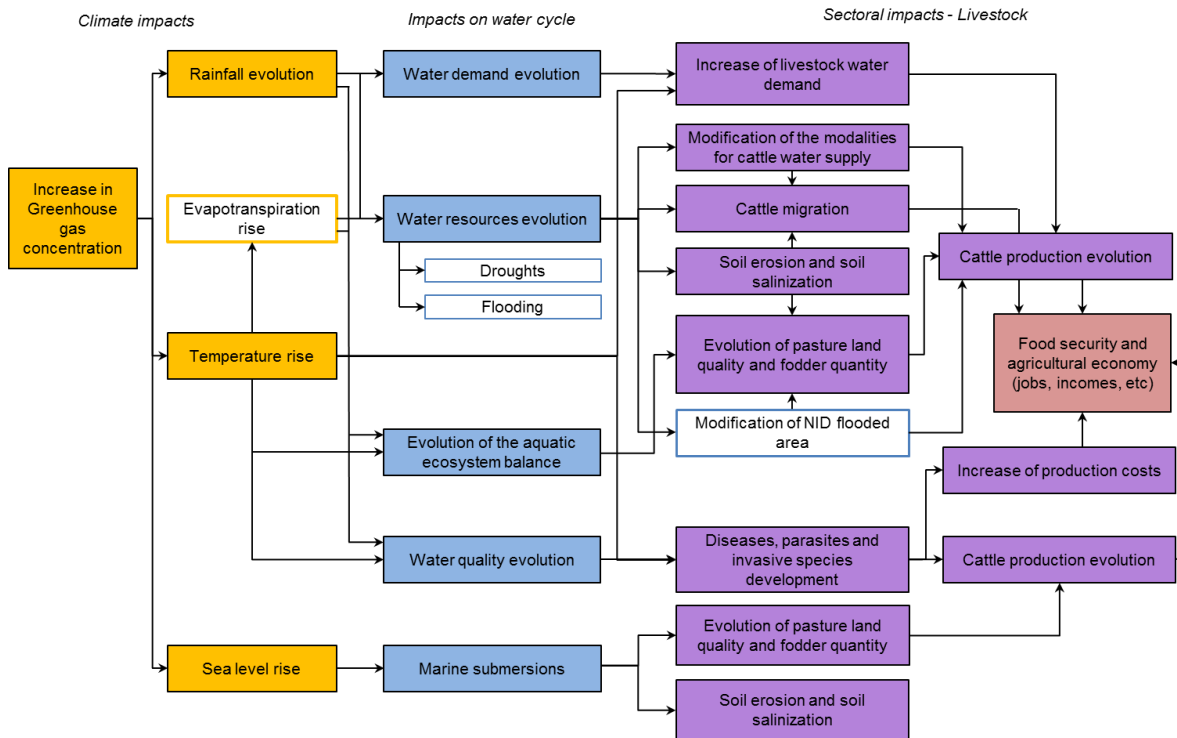
## LIVESTOCK

Lower availability of watering points.

Reduced production in pastures / reduced availability of feed [this is particularly related to the lower amount of flooded land in the NID in the event flow rates drop].

Increased mortality rates (parasites, disease, droughts)

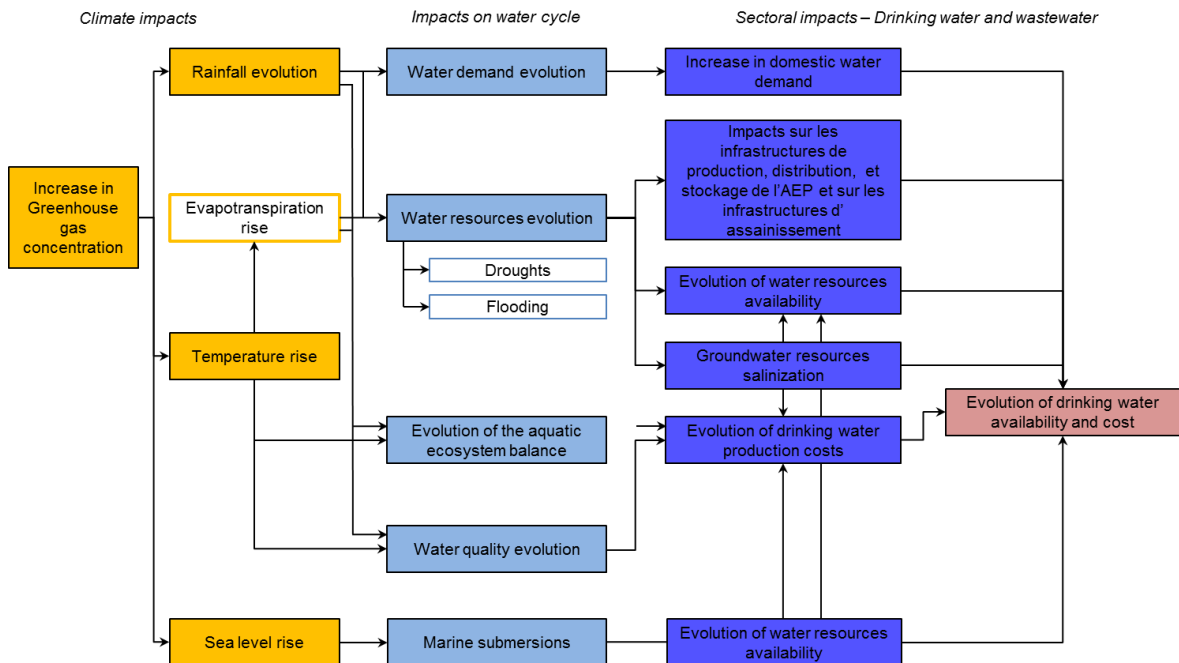
- ➔ Reduced animal production and human migration to more favourable areas.
- ➔ Deterioration of food safety (low crop production and rapidly growing populations)





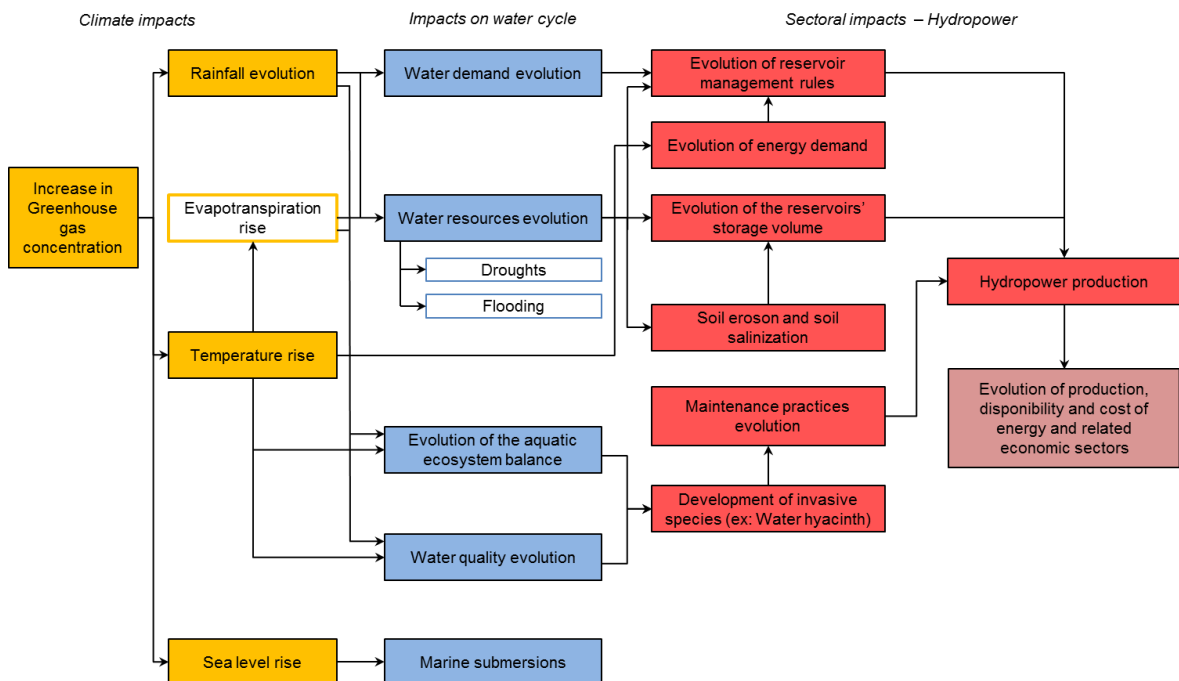
## DRINKING WATER SUPPLY

Reduced resource availability at water points.



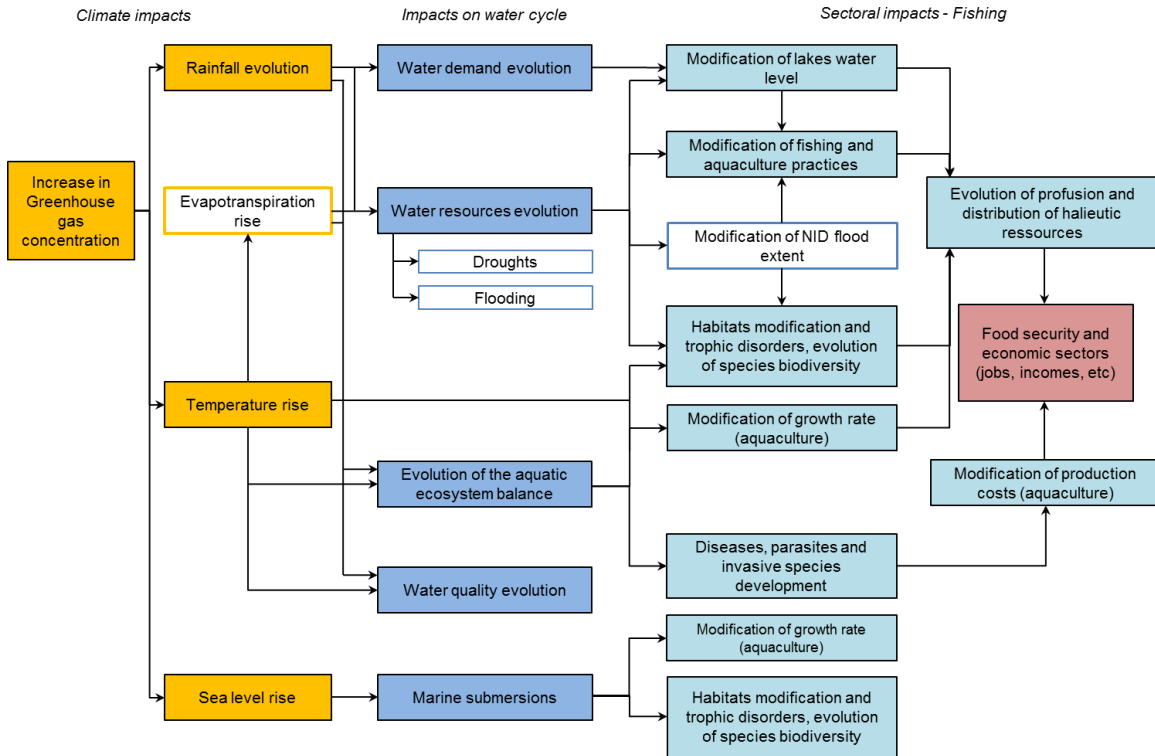
## HYDROPOWER

Erosion increases sedimentation levels and may reduce dam storage/production capacity.



## FISHING

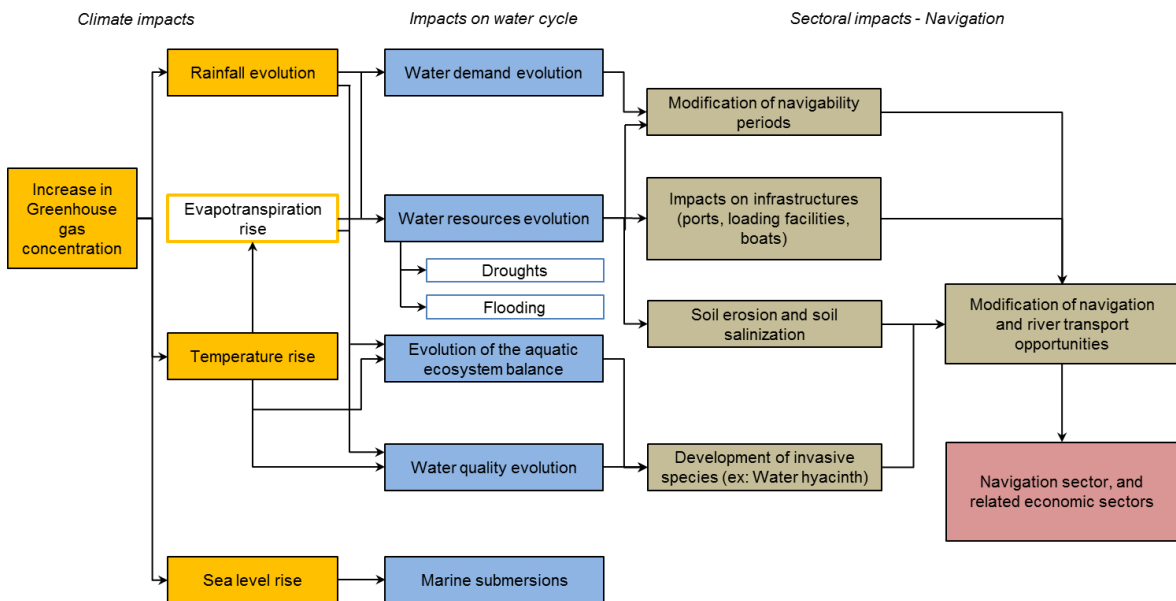
Lower water levels or disappearance of water points.



## NAVIGATION

[Reduced numbers of days per year waterways are navigable in the event of reduced flow rates]

Erosion increases sand encroachment and sedimentation, which may reduce navigability.

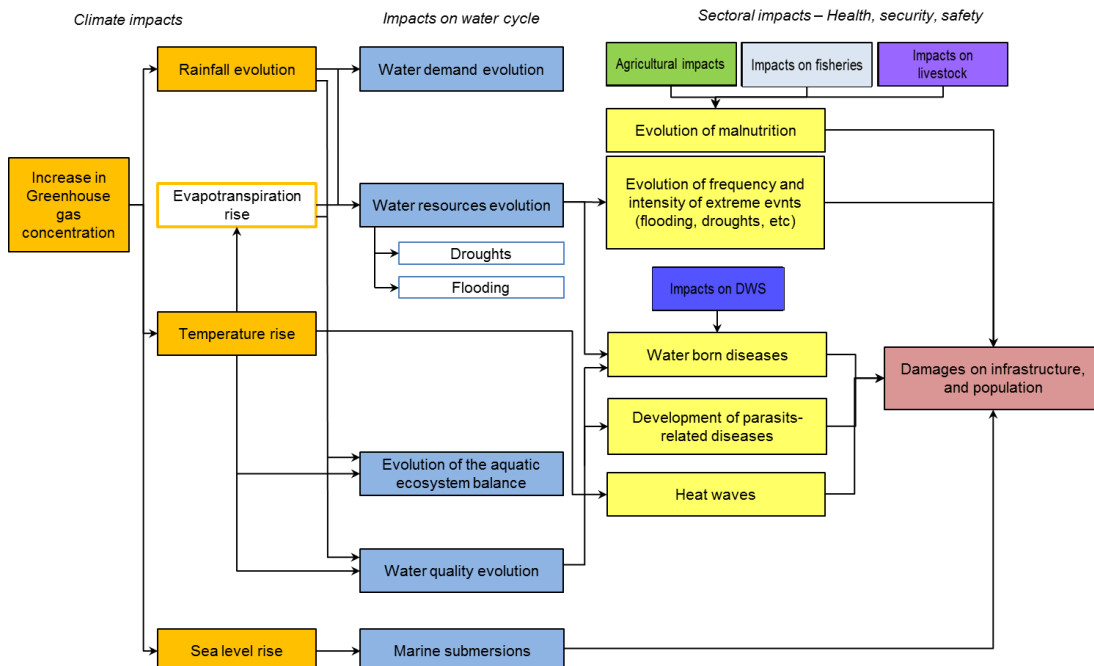


## HEALTH – SECURITY/SAFETY

More frequent and severe flooding.

Lower water quality during low water periods (as well as during flood periods - pollution as a result of sewage).

Diseases, parasites.



## **Appendix E : Selection methodology of the actions to be incorporated into the Climate Resilience Investment Plan**



## METHODOLOGY USED TO COMPARE PROJECTS WITH CRITERIA

Criteria	Ranking
Criterion 1 - Improved awareness with respect to hazards, progress made with respect to assessing vulnerabilities, integration of climate change adaptation in public policies.	0/1/2/3
Criterion 2 - Strengthening resilience	0/1/2/3
Criterion 3 - Contributing to the management and sustainable development of the Niger River Basin (NRB)	0/1
Criterion 4 - Preventing maladaptation	0/1
Criterion 5 - Management and development of NRB water resources in line with protective measures	0/1
Criterion 6 - Compatibility with main planning documents and agreements relative to the NRB	0/1
Criterion 7 - Country ownership	0/1
Criterion 8 - Project preparation stage	N/A: no information, 1: ideas in place, identification under way, 2: identification carried out, 3: feasibility studies under way, 4: feasibility studies carried out, 5: APS/APD, EIES carried out, 6: detailed design prepared or implementation (planning).
Criterion 9 - Financing level identified	/
Criterion 10 - Economic feasibility	/

For criterion 8, Project Preparation Stage, the goal here is harmonisation with the project preparation stage assessment system used in the NBA OP.

**For criteria to be marked as '0/1/2/3'**, assessment in this respect is as follows:

- ▶ 0: this measure has no connection to climate change resilience building or adaptation.
- ▶ 1: this measure has an indirect connection with climate change resilience building or adaptation.
- ▶ 2: the main objective for the measure is not climate change adaptation or resilience building although it would greatly contribute to the foregoing (as a co-benefit).
- ▶ 3: this measure is directly related to climate change resilience building or adaptation.

**For criteria to be marked as '0/1':**

- ▶ '0' means the criterion has not been met,
- ▶ whilst '1' means the criterion has been met.

### CRITERION 6 DEFINITION. MALADAPTATION.

Criterion definition: Broader integration over a longer period of time and under contrasting possible scenarios for any future changes, bearing in mind interactions between sectors and financing.

The goal of this criterion is preventing measures being selected, particularly major developments such as multiple use structure work and irrigated perimeters, which could result in 'maladaptation'.

Works should provide significant benefits in terms of adaptation:



- ▶ Structural works capable of storing volumes of water during times when the resource is abundant and then releasing it during drier periods ('regulation') for the purpose of meeting needs which otherwise would not be met. These works should therefore be able to reduce instances where the availability of water resources is lower than normal as well as the deterioration of ecosystems and the water quality at low water marks. Works should likewise assume a protective function against flooding by reducing water levels, thereby reducing the vulnerability of populations downstream of the risk. Lastly works should be able to provide benefits for mitigation via hydropower generation.
- ▶ Irrigated perimeters are used to bring water to crops during periods where this resource is not available. They therefore reduce vulnerability caused by low water resource availability and may constitute, where certain conditions have been met - e.g. the type of crops being grown, the overall agro-economic context they are used in, financial beneficiaries etc. - a food safety improvement tool.

These types of works tend to generate more economic activity and revenue.

However irrigated perimeters may also induce effects which prove inhibitive to climate change adaptation (maladaptation):

- ▶ Structural works reservoirs may allow large volumes of water to evaporate. With the amount that has evaporated into the atmosphere, there is not enough for the intended use downstream. Lastly these works, whenever floods are levelled off, are susceptible to flash flood waves in wet zones located downstream and which could have a negative impact on ecosystems and economic activities which depend on said ecosystems (e.g. the Inner Delta or Coastal Delta).
- ▶ Irrigated perimeters induce losses when water is transferred from its place of removal to the place of application for crops. The flow rate may also end up competing with other intended uses downstream which would be more relevant with respect to climate change adaptation.

In order to assess, at least as an initial approach, the performance level of works with respect to adaptation, an indicator should be set which allows for the comparison of positive and negative effects:

For multiple use reservoirs, we would propose using the following indicators:

$$HYD1 \text{ indicator} = \frac{\text{Annual volume evaporated}}{\text{Regulation volume}}$$

$$ECO1 \text{ indicator} = \frac{\text{Net Updated Value for the basin bearing in mind project scale}}{\text{Annual volume evaporated}}$$

For irrigated perimeters:

$$IRR1 \text{ indicator} = \frac{\text{Gross volume taken}}{\text{Crop requirements}}$$

For adaptation it would be desirable for the measures being put forward:

- ▶ not to reduce the overall water balance;
- ▶ not to induce poor or low valuation of water resources.

These indicators could therefore be used to identify measures which could generate maladaptation.



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Subsidiarity and overall vision for the watershed

Additionally the values of these indicators for two or more similar works could be compared for the purposes of prioritising implementation.



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# Appendix F : Documents and contributions used for the selection of the actions





This table details the documents and contributions provided by the countries and which were used for the selection of actions in the CRIP. The minutes of the national consultations held in August 2015 for the development of the CRIP can be provided by the project team at NBA or WB.

COUNTRY	PLANNING DOCUMENTS AND NATIONAL CONTRIBUTIONS USED FOR THE SELECTION OF THE ACTIONS IN THE CRIP
Burkina Faso	<ul style="list-style-type: none"> <li>• NAPA (2007) PNA (2015), PAGIRE, SDAGE Mouhoun, Climate change investment plan (contribution submitted in September 2015)</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>
Benin	<ul style="list-style-type: none"> <li>• NAPA (2008)</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• 2<sup>nd</sup> National Communication of Benin about Climate Change</li> <li>• Addition information transmitted on 19 September 2015</li> </ul>
Cameroon	<ul style="list-style-type: none"> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• Minutes of the national consultation held in August 2015 for the development of the CRIP</li> <li>• PNACC (2015)</li> <li>• Addition information transmitted on 13 September 2015</li> </ul>
Côte d'Ivoire	<ul style="list-style-type: none"> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• Minutes of the national consultation held in August 2015 for the development of the CRIP (including PND et AGIR)</li> <li>• Support to local communities</li> <li>• Savanes de Boundiali SODEFOR NBA Project</li> <li>• Forest rehabilitation project in FENGOLO PALE SODEFOR</li> <li>• Project of forest rehabilitation in rural areas</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>
Guinea	<ul style="list-style-type: none"> <li>• NAPA (2007), with update of actions currently under implementation</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• Minutes of the national consultation held in August 2015 for the development of the CRIP</li> <li>• National contribution (1 action)</li> <li>• 2 planning documents (PQDSE, DSRP)</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>
Mali	<ul style="list-style-type: none"> <li>• NAPA (2007)</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• National Programme to Safeguard the Niger River</li> <li>• Minutes of the national consultation held in August 2015 for the development of the CRIP</li> <li>• National contribution</li> <li>• National strategy for adaptation to climate change</li> <li>• PNIDACC (2014)</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>
Niger	<ul style="list-style-type: none"> <li>• NAPA/NAP (2006)</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> </ul>



COUNTRY	PLANNING DOCUMENTS AND NATIONAL CONTRIBUTIONS USED FOR THE SELECTION OF THE ACTIONS IN THE CRIP
	<ul style="list-style-type: none"> <li>• Minutes of the national consultation held in August 2015 for the development of the CRIP</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>
Nigeria	<ul style="list-style-type: none"> <li>• National contribution (July 2015)</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• Suggestion of detailed activities (August 2015)</li> <li>• Minutes of the national consultation held in August 2015 for the development of the CRIP</li> <li>• Comparison table between Nigeria priorities and actions selected in the PO.</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>
Chad	<ul style="list-style-type: none"> <li>• NAPA (2010)</li> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• Addition information transmitted on 13 September 2015</li> </ul>
ES-NBA	<ul style="list-style-type: none"> <li>• National report of the consultation workshop held for the development of the Operational Plan (NBA, 2013-2014)</li> <li>• CIWA/WB Project Information Document</li> <li>• PIDACC/BN concept note and preparation report</li> <li>• Addition information transmitted on 16 September 2015</li> </ul>



## Appendix G : **Selected actions classified by country**



**BENIN**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PANA_BN_4	Protection of children under 5 and pregnant women against malaria in the areas most vulnerable to climate change	NAPA Benin	3	2	1 112 500	Identification on-going	100%	0%	0%
CN_BN_1	Development of a data bank relating to climate change	National communication concerning climate change Benin	3	2	761 483	Identification on-going	93%	7%	0%
PANA_BN_1	Setting up of a climate hazard forecasting and early warning system for food safety in 4 vulnerable agro-ecological zones	NAPA Benin	3	2	8 190 000	70% identified -	72%	28%	0%
CN_BN_2	Adaptation of the farming calendars to the new climate context	National communication concerning climate change Benin	3	2	2 538 276	Identification on-going	65%	35%	0%
CN_BN_3	Development of improved wood carbonisation techniques and promotion of economical stoves in order to reduce deforestation	National communication concerning climate change Benin	1	2	4 061 242	Identification on-going	65%	35%	0%
CN_BN_5	Enhancement of capabilities with regard to climate observation in the Benin section of the Niger basin	National communication concerning climate change Benin	3	2	3 892 023	Identification on-going	59%	41%	0%
PO_R2251_BEN_18	Development of a good practice guide	PO_R2 Benin	1	2	598 319	60% identified - PIDACC	54%	46%	0%
PANA_BN_3	Mobilisation of surface water in order to adapt to climate change in the most vulnerable municipalities of the departments	NAPA Benin	3	2	2 875 000	Identification on-going	49%	39%	12%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	in the Centre and the North								
PANA_BN_2	Adaptation of households to climate change by the promotion of renewable energies and efficient economical hearths and pressure cookers in areas vulnerable to climate change and where the land is severely degraded	NAPA Benin	3	2	2 106 600	Identification on-going	43%	57%	0%
PO_R2131_Ben_19	Development of strategies for adaptation to climate change	PO_R2 Benin	1	2	608 403	100% identified - PIDACC	36%	64%	0%
PO_R22202_BEN_12_22_23	Anti-erosion and anti-silting measures, continued	PO_R2 Benin	3	2	7 075 630	0% identified - PIDACC	30%	70%	0%
PO_R2312_BEN_11	Construction of flood-protection dykes	PO_R2 Benin	3	2	50 732 773	0% identified - PIDACC	16%	84%	0%
PO_R12102_BEN_05	Rehabilitation and diversification of 5 small dams at Gamagou, Gah Guessou, Sombi Kérékou, Wara and Zougou Pantrossi in Upper Alibori region.	PO_R1_Bénin	3	4	1 500 000	56% identifié - PIDACC	5%	72%	23%
PO_R12101_BEN_05	Rehabilitation and agricultural diversification of twenty agro-pastoral reservoirs in Benin	PO_R1 Benin	3	2	7 515 966	10% identified - PIDACC	5%	72%	23%
PO_R11203_BEN_06	Construction of ten (10) multi-purpose dams	PO_R1 Benin	3	2	35 647 059	10% identified - PIDACC	3%	29%	68%
PO_R21208_BEN_10	Development of the water development and management scheme for the national part of the Niger Basin	PO_R2 Benin	1	2	621 849	Identification on-going	0%	100%	0%



**BURKINA FASO**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R12105_BF_08	Rehabilitation of the dam and creation of 192 ha of irrigated land downstream of the Sidi-Komplenga dam (Gnagna, East)	PO_R1 Burkina Faso	3	5	3 290 756	Identification on-going	99%	1%	0%
PNA_BF_7	Development of irrigated crops in the provinces of Gourma, Namemtenga, Tapoa and Sanmatenga.	NAPA Burkina Faso	3	2	443 300	Identification on-going	98%	2%	0%
PO_R12104_BF_06__07	Rehabilitation of the dam and 14 ha of irrigated utilised agricultural land equipped with 50 wells at Dabesma (Gnagna, East)	PO_R1 Burkina Faso	3	5	1 363 025	30% identified - PIDACC	97%	3%	0%
PNA_BF_3	Development and management of the waterhole at Oursi	NAPA Burkina Faso	3	2	275 000	Identification on-going	96%	4%	0%
PNA_BF_8	Safeguarding pastoral areas in the regions of the Sahel and the East.	NAPA Burkina Faso	3	2	300 000	Identification on-going	94%	6%	0%
PNA_BF_9	Safeguarding of agricultural production by the use of appropriate technological packages in the South-West and East regions.	NAPA Burkina Faso	3	2	297 924	Identification on-going	85%	15%	0%
PO_R12126_BF_04_05	Construction of the Coalla dam (5 Mm3) in the province of Gnagna (East) and preparation of 122 ha of irrigated land	PO_R1 Burkina Faso	3	5	5 749 580	50% identified - PIDACC	82%	18%	0%
PO_R12125_BF_01__02	Completion of the construction of the Bambakari dam (163 Mm3) in the province of Déno (Sahel) and preparation of 300ha of irrigated land	PO_R1 Burkina Faso	3	5	31 751 261	20% identified - PIDACC	72%	28%	0%
PNA_BF_12	Promotion of energy-saving equipment (improved stoves, M'Bora stew pot) and renewable energy technologies (pressure cooker, water heater and solar dryers, etc.)	NAPA Burkina Faso	3	2	1 230 000	Identification on-going	68%	32%	0%
PO_R2113_BF_18	Forest development in the provinces of	PO_R2 Burkina	3	2	1 712 605	10%	54%	46%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	Oudalan and Séno	Faso				identified - UEMOA			
PNA_BF_5	Development, rational management of natural training and use of non-wood forest products (NWFP) in the East region of Burkina Faso	NAPA Burkina Faso	3	2	700 000	Identification on-going	52%	48%	0%
PO_R12205_BF_29	Development of the waterhole in Dori	PO_R1 Burkina Faso	3	2	86 301 389	0% identified - PIDACC	51%	49%	0%
PNA_BF_1	Reduction of vulnerability to climate change by enhancing measures for prevention and management of food crises in the Oursi and Boulsa zones.	NAPA Burkina Faso	3	2	7 446 000	Identification on-going	49%	28%	23%
PO_R12107_BF_20	Rehabilitation of the Kiemna dam	PO_R1 Burkina Faso	3	4	334 454	40% identified - PIDACC	47%	53%	0%
PO_R12108_BF_21	Rehabilitation of the Bani dam	PO_R1 Burkina Faso	3	5	768 252	20% identified - PIDACC	46%	54%	0%
PO_R12111_BF_24	Rehabilitation of the Boudieri dam	PO_R1 Burkina Faso	3	5	1 351 261	40% identified - PIDACC	42%	58%	0%
PO_R12127_BF_09	Creation of 241 ha of irrigated land at the SIRBA dam (Gnagna, East)	PO_R1 Burkina Faso	3	5	3 448 739	Identification on-going	42%	58%	0%
PO_R12109_BF_22	Rehabilitation of the Touro dam	PO_R1 Burkina Faso	3	5	1 568 067	40% identified - PIDACC	41%	59%	0%
CN_BF_4_PAGIRE3.2	Development of research activities in water management, more particularly in the context of adaptation to climate change	NC PAGIRE Burkina Faso	3	2	5 245 771	Identification on-going	40%	30%	30%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R22237_BF_15	Stabilisation of 2,500 ha of dunes in the provinces of Oudalan, Séno and Yagha	PO_R2 Burkina Faso	3	2	2 831 933	Identification on-going	38%	62%	0%
PO_R22212_BF_15	Restoration of land and anti-erosion measures	PO_R2 Burkina Faso	3	2	7 078 992	50% identified - PIDACC	36%	64%	0%
PO_R22204_BF_17	Recovery of 6,191 ha of degraded land in Séno and Oudalan (restoration of land (Restoration of land, studies)	PO_R2 Burkina Faso	3	2	3 828 571	10% identified - UEMOA	33%	67%	0%
PNA_BF_2	Safeguarding of cereal production by the promotion of supplementary irrigation in the provinces of Oudalan and Nammemtenga.	NAPA Burkina Faso	3	2	408 660	Identification on-going	33%	66%	0%
PNA_BF_10	Promotion of wildlife and habitat management by local communities in the region of Mouhoun	NAPA Burkina Faso	2	2	810 000	Identification on-going	24%	76%	0%
PO_R12106_BF_10__11	Rehabilitation of the dam and creation of 11 ha of irrigated utilised agricultural land and preparation of 100 ha of horticultural land at Tanga (Kouritenga, Centre-East) equipped with 50 wells	PO_R1 Burkina Faso	3	5	1 885 714	40% identified - PIDACC	24%	76%	0%
CN_BF_5_PAGIRE4.2	Improve water resource protection against siltation and invasive species	NC PAGIRE Burkina Faso	3	2	16 837 232	Identification on-going	21%	44%	35%
PNA_BF_4	Forage production and stockpiling of emergency supplies for cattle in the Burkina Faso area of the Sahel	NAPA Burkina Faso	3	2	330 000	Identification on-going	100%	0%	0%
PO_R12103_BF_03__28	Rehabilitation of the Baskouré dam and preparation of 60 hectares of lowlands in the municipalities of Baskouré, Diabo and Fada	PO_R1 Burkina Faso	3	5	1 452 101	30% identified - PIDACC	100%	0%	0%
PO_R1251_BF_13	Creation of a palm grove covering 100 ha along the Gourouol in the province of Oudalan	PO_R1 Burkina Faso	1	5	1 741 176	Identification on-going	0%	44%	56%





N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R21201_BF__34	Equipment and improvement of knowledge concerning the quality of the water resources (Materials and equipment, Improvement of knowledge of the quality of the water resources)	PO_R2 Burkina Faso	3	2	707 563	60% identified - PIDACC	0%	100%	0%
CN_BF_3	Burkina Faso National Observatory on Pastoralism (ONPB)	PNA Burkina Faso	3	2	3 294 682	Identification on-going	N/A	N/A	100%
CN_BF_4	Climate insurance project for farmers (PACE)	PNA Burkina Faso	3	2	22 438 361	Identification on-going	N/A	N/A	100%
CN_BF_5	Project to set up three areas for the intensification of animal production (ZIPA)	PNA Burkina Faso	3	2	41 143 764	Identification on-going	N/A	N/A	100%
CN_BF_3_PAGIRE3.1	Development of a sound national Water Information System (WIS)	NC PAGIRE Burkina Faso	3	2	16 464 951	Identification on-going	N/A	N/A	100%



**CAMEROON**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PNACC_CAM_13	Enhancement and safeguarding of access to water resources and wastewater treatment in a context of climate change	PNACC Cameroon	3	2	8 880 000	Identification on-going	88%	12%	0%
PNACC_CAM_1	Setting up a system for observation, information management and warning with regard to climate hazards in Cameroon	PNACC Cameroon	3	2	2 220 000	Identification on-going	72%	28%	0%
PNACC_CAM_10	Adaptation of the national gender policy and their vulnerability to climate change	PNACC Cameroon	3	2	2 220 000	Identification on-going	72%	28%	0%
PNACC_CAM_4	Raising the awareness of the population, professionals, administration and decision-makers to the effects of climate change and the measures to be taken	PNACC Cameroon	3	2	2 220 000	Identification on-going	72%	28%	0%
PNACC_CAM_3	Inclusion of climate hazards when updating the Land Use Plan	PNACC Cameroon	1	2	3 330 000	Identification on-going	68%	32%	0%
PNACC_CAM_17	Reduction of the vulnerability of the livestock sector to the effects of climate change (REVEECC)	PNACC Cameroon	3	2	5 550 000	Identification on-going	65%	35%	0%
PNACC_CAM_18	Reduction of the effects of climate change on the fisheries sector	PNACC Cameroon	3	2	3 330 000	Identification on-going	65%	35%	0%
PNACC_CAM_19	Reduction of the vulnerability of forests to climate change in Cameroon	PNACC Cameroon	3	2	8 880 000	Identification on-going	65%	35%	0%
PO_R21215_CAM_17	Strengthening the shared management of natural resources in the national part of the Niger Basin	PO_R2 Cameroon	1	2	1 260 504	Identification on-going	54%	46%	0%
PNACC_CAM_16	Development of integrated farming	PNACC Cameroon	3	2	8 880 000	Identification	51%	49%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	which is resilient to the effects of climate change					on-going			
PO_R2211_CAM_16	Protection of the resources and ecosystems in the national part of the Niger Basin	PO_R2 Cameroon	1	2	8 438 655	Identification on-going	27%	73%	0%
PO_R12304_CAM_08	Support for fishermen and fish-farmers around the Lagdo dam	PO_R1 Cameroon	2	5	4 752 941	20% identified - PIDACC	21%	79%	0%
PNACC_CAM_6	Education, professional training and enhancement of capabilities concerning climate change	PNACC Cameroon	3	2	5 550 000	Identification on-going	19%	45%	36%
PNACC_CAM_12	Diversification of the energy offer in a context of climate change	PNACC Cameroon	3	2	22 200 000	Identification on-going	17%	45%	38%
PO_R22205_CAM_9	Development of the Mayo–Louti catchment area (restoration of land, studies)	PO_R2 Cameroon	3	5	3 257 143	Identification on-going	7%	93%	0%
PO_R22206_CAM_13	Conservation and participatory management of sub-watersheds (support for protection, studies and enhancement of capacities)	PO_R2 Cameroon	3	2	12 169 748	Identification on-going	7%	93%	0%
PO_R1241_CAM_14	Provision for the fight against aquatic invasive species in Cameroon, Ivory Coast and Nigeria (30 000 ha + 5000 ha + 2500 m3)	PO_R1 Cameroon	3	2	4 192 347	60% identified - PIDACC	7%	56%	37%
PO_R12129_CAM_02	Construction of hydro-agricultural dams, development and utilisation of the Garoua area upstream (Bocklé, Garoua III, Bénoué department)	PO_R1 Cameroon	3	2	2 813 445	10% identified - PIDACC	5%	95%	0%
PO_R12130_CAM_03	Development and utilisation of the Lagdo II area	PO_R1 Cameroon	3	4	74 386 555	Identification on-going	5%	95%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R12131_CAM_04	Development and utilisation of the Faro-Bénoué confluence area	PO_R1 Cameroon	3	4	21 581 513	Identification on-going	5%	95%	0%
PO_R12133_CAM_06	Development of the west Garoua area	PO_R1 Cameroon	3	4	13 361 345	Identification on-going	5%	95%	0%
PO_R12134_CAM_07	Development of small individual areas	PO_R1 Cameroon	3	4	7 517 647	10% identified - PIDACC	5%	95%	0%
PO_R12132_CAM_05	Development of smallholders irrigation schemes	PO_R1 Cameroon	3	4	62 512 605	Identification on-going	5%	57%	38%
PO_R12136_CAM_12	Construction of multipurpose dams	PO_R1 Cameroon	3	2	4 872 269	20% identified - PIDACC	2%	69%	29%



**IVORY COAST**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R12305_CI_01	Creation of a fish farm in Minignan	PO_R1 Ivory Coast	2	4	206 723	60% identified - PIDACC	100%	0%	0%
PO_R2316_CI_28	Development of adaptation and water resource management tools	PO_R2 Ivory Coast	3	2	452 101	60% identified - PIDACC	94%	6%	0%
CN_CI_6	Mark out and display protection areas around the main water resources	NC - PND Ivory Coast	3	2	1 015 310	Identification on-going	91%	9%	0%
CN_CI_12_DCDF	Performance of work to restore the forests in the rural sector	NC - DCDF Ivory Coast	3	2	1 300 000	Identification on-going	90%	10%	0%
CN_CI_4	Restoration project for degraded forests in the rural sector	NC - PND Ivory Coast	3	2	1 086 213	Identification on-going	90%	10%	0%
CN_CI_1	Project to support communities in the savannah area for protection against desertification and the loss of the means of subsistence of the local communities.	NC - Management of community forests Ivory Coast	3	2	1 710 327	Identification on-going	83%	17%	0%
CN_CI_2	Project to plant useful forest trees in the communities of the regions of Poro, Tchologo and Bagoué	NC - PND Ivory Coast	3	2	1 297 905	Identification on-going	78%	22%	0%
CN_CI_7	Develop models for the allocation of the water resources of river basin agencies	NC - PND Ivory Coast	3	2	1 184 529	Identification on-going	71%	26%	3%
PO_R12113_CI_20	Rehabilitation of 84 reservoirs in the region of Bagoue and Kabadougou	PO_R1 Ivory Coast	3	2	1 100 840	50% identified - PIDACC	62%	38%	0%
PO_R12307_CI_24	Development of fisheries infrastructure Aménagement des infrastructures de pêche	PO_R1 Ivory Coast	2	2	1 030 252	60% identified - PIDACC	62%	38%	0%
CN_CI_9	Support the fight against bushfires	NC - AGIR Ivory Coast	3	2	3 578 969	Identification on-going	55%	45%	0%
PO_R22211_CI_22	Fight against the impacts of gold-mining on the environment and health	PO_R2 Ivory Coast	3	2	349 580	Identification on-going	54%	46%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R2315_CI_27	Enhancement of communities' ability to adapt	PO_R2 Ivory Coast	1	2	352 941	60% identified - PIDACC	54%	46%	0%
CN_CI_3	Enhance the resilience of vulnerable populations by restoring degraded land (agroforestry and community reforestation)	NC - PND Ivory Coast	3	2	8 579 373	Identification on-going	52%	48%	0%
CN_CI_8	Restore degraded land through the promotion of agroforestry and community reforestation	NC - AGIR Ivory Coast	3	2	8 577 681	Identification on-going	52%	48%	0%
PO_R12140_CI_06	Projet de construction de barrage et d'aménagement hydroagricole à BAYA 22ha	PO_R1 Ivory Coast	3	2	3 215 126	60% identified - PIDACC	5%	58%	37%
PO_R22210_CI_21	Restoration and protection of the tributaries of the Niger River by reforestation campaigns and anti-erosion and anti-silting measures	PO_R2 Ivory Coast	3	2	1 297 479	60% identified - PIDACC	46%	54%	0%
PO_R12206_CI_03	Support for management of the pastoral area and prevention of conflicts in the northern area	PO_R1 Ivory Coast	3	2	1 863 866	60% identified - PIDACC	43%	57%	0%
PO_R12306_CI_02	Support for the development of fishing activities around dams (Boundiali, Minignan and Odienné)	PO_R1 Ivory Coast	2	3	2 942 857	60% identified - PIDACC	43%	57%	0%
PO_R2314_CI_26	Flood protection	PO_R2 Ivory Coast	3	2	1 307 563	Identification on-going	42%	58%	0%
PO_R22207_CI_14	Protection of the basin (Departments of Odienné, Boundiali, Madinani, Minignan and Tengréla) / Treatment of degraded land for the protection of the banks	PO_R2 Ivory Coast	3	2	1 931 092	Identification on-going	39%	61%	0%
PO_R22209_CI_18	"One School, 5 hectares of forest" project	PO_R2 Ivory Coast	3	6	3 721 008	Identification on-going	37%	63%	0%
PO_R2311_CI_29	Enhancement of the ability to adapt and intervene	PO_R2 Ivory Coast	1	2	2 110 924	Identification on-going	33%	67%	0%
PO_R12139_CI_05	Low-cost development of 10,000 ha of plains in Kabadougou and Folon (north-west)	PO_R1 Ivory Coast	3	2	56 003 361	Identification on-going	2%	59%	39%
PO_R12144_CI_10	Low-cost development of 20,000 ha of Bagoué	PO_R1 Ivory Coast	3	2	106 198 319	90% identified	2%	59%	39%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	floodplains					- Etat 10%, 3 bailleurs à 30% chacun			
PO_R12141_CI_07	Project for the construction of a dam and hydroagricultural development at KOUBAN 80ha	PO_R1 Ivory Coast	3	2	2 952 941	100% identified - PIDACC 56%, BOAD 30% , Etat 15%	18%	82%	0%
PO_R12142_CI_08	Project for the construction of a dam and hydroagricultural development at Katiendé 22ha	PO_R1 Ivory Coast	3	2	3 524 370	70% identified - PIDACC 56%, Etat 15%	18%	82%	0%
PO_R12143_CI_09	Project for the construction of a dam and hydroagricultural development at Dimbasso. 182 ha	PO_R1 Ivory Coast	3	2	5 835 294	70% identified - PIDACC 56%, Etat 15%	18%	82%	0%
PO_R22208_CI_15	Promotion and development of reforestation in the North of the country (wood energy)	PO_R2 Ivory Coast	3	2	1 495 798	10% identified - PIDACC	0%	100%	0%
CN_CI_10_SODEFOR_1	Rehabilitation of the classified forest of BOUNDIALI in the north of Ivory Coast with the participation of the neighbouring populations (as for PO_R22208_CI_15)	NC - SODEFOR Ivory Coast	3	2	1 718 098	Identification on-going	N/A	N/A	100%
CN_CI_11_SODEFOR_2	Rehabilitation of the classified forest of FENGOLO - PALE in the north of Ivory Coast with the participation of the neighbouring populations (as for PO_R22208_CI_15)	NC - SODEFOR Ivory Coast	3	2	1 065 560	Identification on-going	N/A	N/A	100%



**GUINEA**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PANA_GN_18	Construction of improved wells	NAPA Guinea	3	2	250 000	Identification on-going	100%	0%	0%
PANA_GN_20	Dissemination of rainwater harvesting basins	NAPA Guinea	3	2	280 000	Identification on-going	100%	0%	0%
PANA_GN_22	Development of irrigated rice farming in Middle and Upper Guinea	NAPA Guinea	3	2	300 000	Identification on-going	100%	0%	0%
PANA_GN_23	Promotion of breeding small ruminants	NAPA Guinea	3	2	325 000	Identification on-going	100%	0%	0%
PANA_GN_24	Promotion of market gardening	NAPA Guinea	3	2	250 000	Identification on-going	100%	0%	0%
PANA_GN_25	Creation of cane rat ranches in order to reduce bushfires and improve living conditions for rural populations	NAPA Guinea	3	2	300 000	Identification on-going	100%	0%	0%
PANA_GN_3	Exploitation of indigenous knowledge and positive practices	NAPA Guinea	3	2	300 000	Identification on-going	100%	0%	0%
PANA_GN_6	Promotion of the use of solar energy to dry fish with the aim of reducing the use of wood for smoking	NAPA Guinea	3	2	300 000	Identification on-going	100%	0%	0%
PANA_GN_7	Promotion of bricks made of compacted earth with the aim of reducing the environmental impact of fired bricks	NAPA Guinea	3	2	600 000	Identification on-going	100%	0%	0%
PANA_GN_8	Intensification of pearl millet farming in the northern area of Guinea	NAPA Guinea	3	2	350 000	Identification on-going	100%	0%	0%
PO_R21203_GUI_18	Improvement of knowledge of water resources and enhancement of the hydrometeorological and hydrogeological data collection system	PO_R2 Guinea	3	2	756 303	Identification on-going	100%	0%	0%
PO_R22214_GUI_17	Reforestation of 300 ha on the banks of	PO_R2 Guinea	3	2	354 622	60%	100%	0%	0%





N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	waterholes					identified - PIDACC			
PANA_GN_2	Support for the implementation of community forest management plans	NAPA Guinea	3	2	600 000	Identification on-going	84%	16%	0%
PANA_GN_19	Rendering surface water drinkable using Hydropur®	NAPA Guinea	3	2	320 000	Identification on-going	78%	22%	0%
PANA_GN_1	Support to community and private anacard tree planting	NAPA Guinea	3	2	600 000	Identification on-going	76%	24%	0%
PANA_GN_11	Development of an early warning system to safeguard agricultural productivity	NAPA Guinea	3	2	150 000	Identification on-going	68%	28%	4%
PO_R22213_GUI_16	Restoration of the banks and development of agroforestry	PO_R2 Guinea	3	2	1 368 067	60% identified - PIDACC	63%	37%	0%
PO_R2317_GUI_22	Adaptation to climate change (flooding)	PO_R2 Guinea	1	2	1 179 832	60% identified - PIDACC	58%	42%	0%
PO_R2242_GUI_13	Implementation of the Kankan wildlife reserve management plan	PO_R2 Guinea	2	2	2 100 840	60% identified - PIDACC	56%	44%	0%
PANA_GN_12	Promotion of fire management and prohibited access	NAPA Guinea	3	2	300 000	Identification on-going	55%	45%	0%
PO_R12308_GUI_11	Construction of nursery ponds to rear fry	PO_R1 Guinea	2	3	282 353	60% identified - PIDACC	54%	46%	0%
PO_R12309_GUI_12	Construction of fish ponds in Guinea	PO_R1 Guinea	2	3	759 664	60% identified - PIDACC	54%	46%	0%
PO_R22230_GUI_19	Protection of spring heads and banks (sub-watersheds of the Niandan, Tinkisso,	PO_R2 Guinea	3	2	695 798	60% identified -	47%	53%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	Milo)					PIDACC			
PO_R2231_GUI_20	Preservation of the ecosystems and conservation of biodiversity (Ramsar - Niger, Niandan –Milo, Niger-Mafou,)	PO_R2 Guinea	3	2	932 773	60% identified - PIDACC	47%	53%	0%
PANA_GN_16	Construction of multi-purpose mini-dams	NAPA Guinea	3	2	600 000	Identification on-going	40%	60%	0%
PANA_GN_17	Construction of hillside reservoirs	NAPA Guinea	3	2	180 000	Identification on-going	40%	60%	0%
PO_R2132_GUI_14	Support for the development of collaborative management of the Tinkisso, Niger- Tinkisso and Sankarani - Fié Ramsar sites	PO_R2 Guinea	1	2	425 210	50% identified - PIDACC	37%	63%	0%
PO_R11204_GUI_01 (extrait)	Fomi safeguard policies elaboration	PO_R1 Guinea	3	3	2 000 000	50% identified -	2%	39%	59%
PO_R12115_GUI_06	Rehabilitation of dams and construction of reservoirs for irrigation and fish farming at Kankan, Kouroussa, Mandiana, Faranah, Dinguiraye, Kérouané and Kissidougou.	PO_R1 Guinea	3	4	9 132 773	60% identified - PIDACC	0%	27%	73%



**MALI**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
CN_MLI_45_PNSFN_26	Pollution warning station on the Niger River	NC PNSFN Mali	2	2	177 679	Identification on-going	100%	0%	0%
CN_MLI_53_PNSFN_34	Feasibility study of small developments in the tops of the sub-watersheds of the upper stretches of the Niger and Bani rivers for environmental restoration	NC PNSFN Mali	3	2	813 941	Identification on-going	100%	0%	0%
CN_MLI_54_PNSFN_35	Global study of pollution of the waters of the Niger River in Upper Niger in Mali	NC PNSFN Mali	2	2	255 520	Identification on-going	100%	0%	0%
CN_MLI_57_PNSFN_38	Study for the development of a communication strategy and setting up of an Information System for the integrated management of the resources of the Niger River Basin	NC PNSFN Mali	2	2	465 351	Identification on-going	100%	0%	0%
CN_MLI_58_PNSFN_39	Study of the design of the observatory of the Niger River in Mali	NC PNSFN Mali	3	2	126 914	Identification on-going	100%	0%	0%
CN_MLI_59_PNSFN_40	Training activities for those involved in the management of the water resources in the Basin	NC PNSFN Mali	1	2	162 450	Identification on-going	100%	0%	0%
PO_R2318_MLI_32	Construction of structures to fight flooding in the region of Gao	PO_R2 Mali	3	2	2 124 370	60% identified - PIDACC	100%	0%	0%
CN_MLI_55_PNSFN_36	Topographical and photographic survey by LIDAR laser procedure of dam reservoirs (Sélingué, Markala, Talo, Djenné)	NC PNSFN Mali	1	2	473 812	Identification on-going	97%	3%	0%
CN_MLI_35_PNSFN_16	Programme for the development of irrigation in the Bani and Sankarani basin	NC PNSFN Mali	3	2	205 346 539	Identification on-going	58%	42%	0%
CN_MLI_4_Fast_start_4	Fish-farming development programme	NC Fast start Mali	3	2	31 000 000	60% identified -	56%	44%	0%
PO_R21204_MLI_17	Support for knowledge of the quality of the water resources and acquisition of meteorological equipment	PO_R2 Mali	3	2	4 042 017	60% identified - PIDACC	55%	45%	0%
PO_R22218_MLI_30	Anti-erosion and anti-silting measures, and	PO_R2 Mali	3	2	9 981 513	60% identified	36%	64%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	sustainable forest management					- PIDACC			
CN_MLI_3_Fast_start_3	Programme of pastoral development resilient to climate change;	NC Fast start Mali	3	2	109 900 000	50% identified -	36%	35%	29%
CN_MLI_2_Fast_start_2	Programme for the development of agriculture which is resilient to climate change.	NC Fast start Mali	3	2	94 000 000	40% identified -	35%	35%	30%
PO_R12311_MLI_09	Project to develop fish farming in floating cages and in ponds	PO_R1 Mali	2	5	3 073 950	60% identified - PIDACC	32%	68%	0%
CN_MLI_23_PNSFN_4	The Economic and Environmental Rehabilitation project for the Niger River	NC PNSFN Mali	3	2	60 918 627	90% identified -	32%	41%	27%
CN_MLI_56_PNSFN_37	Feasibility study for the reshaping of the Niger River in the towns of Mopti and Bamako	NC PNSFN Mali	1	2	1 692 184	Identification on-going	31%	69%	0%
PO_R12211_MLI_25	Support for vulnerable groups for cattle and sheep fattening in the regions of Gao, Timbuktu	PO_R1 Mali	3	2	3 915 966	60% identified - PIDACC	28%	36%	36%
CN_MLI_1_Fast_start_1	Intensive reforestation programme to rebuild the forest ecosystems in Mali	NC Fast start Mali	3	2	188 800 000	30% identified -	27%	42%	31%
CN_MLI_5_Fast_start_5	Programme for harvesting and storing rainwater	NC Fast start Mali	3	2	62 800 000	50% identified -	26%	74%	0%
CN_MLI_60_PNIDACC	Integrated national project for development and adaptation to climate changes in the Niger Basin	NC PNIDACC Mali	3	5	72 000 000	10% identified -	26%	40%	34%
CN_MLI_34_PNSFN_15	Integrated Management of Natural Resources programme	NC PNSFN Mali	3	2	1 951 500	100% identified -	23%	77%	0%
CN_MLI_24_PNSFN_5	The project for the development and recovery of the banks of the Niger River in the District of Bamako	NC PNSFN Mali	2	2	846 092	20% identified -	13%	87%	0%
PO_R12116_MLI08	Rehabilitation and equipping of village irrigation areas in the region of Gao	PO_R1 Mali	3	2	5 588 235	60% identified - PIDACC	7%	93%	0%
PO_R12148_MLI07	Project to support the development of agriculture in the Douentza area	PO_R1 Mali	3	4	14 159 664	60% identified - PIDACC	4%	96%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R22217_MLI_18	Protection of banks by planting and transplanting bourgou, and measures against invasive plants	PO_R2 Mali	3	2	8 258 824	60% identified - PIDACC	4%	96%	0%
PO_R12149_MLI12	National Horticultural Support Project	PO_R1 Mali	3	4	6 105 882	Identification on-going	2%	71%	27%
PO_R12150_MLI13	Support for the potato sector in Mali	PO_R1 Mali	2	4	344 538	Identification on-going	2%	71%	27%
PO_R1252_MLI_11	Economic promotion of agricultural and forest products in Mali	PO_R1 Mali	1	2	2 579 832	Identification on-going	2%	71%	27%
PO_R22215_MLI_14	"Green Wall" experimental project	PO_R2 Mali	3	2	9 910 924	Identification on-going	0%	100%	0%
PO_R2257_MLI_19	Firewood production project and installation of a wood market in the region of Gao and Timbuktu	PO_R2 Mali	3	2	810 000	Identification on-going	0%	100%	0%
PO_R12151_MLI_24	Support for the production of seeds of agricultural origin	PO_R1 Mali	2	2	2 974 790	Identification on-going	0%	50%	50%



**NIGER**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R21205_NIG_36_	Strengthening of the existing pollution control team and creation and equipping of 4 new stations	PO_R2 Niger	3	2	282 353	60% identified - PIDACC	100%	0%	0%
PO_R2319_NIG_38_	Strengthening of community capacity for adaptation (flooding)	PO_R2 Niger	1	2	991 597	60% identified - PIDACC	100%	0%	0%
PO_R12312_NIG_12	Project for the Management and Sustainable Use of Natural Resources and Adaptation to Climate Change	PO_R1 Niger	2	2	13 021 357	100% identified -	100%	0%	0%
PO_R12314_NIG_14	Support for fish-farming and training of fishermen	PO_R1 Niger	2	2	5 280 672	100% identified -	100%	0%	0%
PO_R12315_NIG_15	Development of 300 ha of ponds overrun with <i>Typha australis</i> (Dosso region)	PO_R1 Niger	3	2	1 136 134	100% identified -	100%	0%	0%
PO_R2133_NIG_39	Enhancement of the shared management of the water resources in the national part of the Niger Basin	PO_R2 Niger	1	2	2 174 790	Identification on-going	64%	36%	0%
PO_R22223_NIG_31	Stabilisation of dunes in the regions of Tillabéry and Dosso (Kandadji area, Dallol, Maouri and Foga area, Ouallam area) (3,000 ha)	PO_R2 Niger	3	2	1 026 891	60% identified - PIDACC	63%	37%	0%
PO_R22224_NIG_32	Soil and water conservation in the regions of Tillabéry, Dosso and Tahoua; Kandadji, Maouri, Foga areas; Ouallam, Kollo, Konni, Madaoua and Bouza area (15,000 ha)	PO_R2 Niger	3	2	1 285 714	60% identified - PIDACC	63%	37%	0%
PO_R2243_NIG_35	Rehabilitation of the classified forest of Guesselbodi (2,000 ha)	PO_R2 Niger	3	4	11 023 691	60% identified - PIDACC	47%	53%	0%
PO_R22222_NIG_30	Biological and mechanical treatment of koris in Tillabery and Tahoua region (15	PO_R2 Niger	3	2	2 594 958	60% identified -	36%	64%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	000m3)					PIDACC			
PO_R22234_NIG_33	Restoration of fallow land and promotion of agroforestry (10,000 ha)	PO_R2 Niger	3	2	1 680 672	60% identified - PIDACC	33%	67%	0%
PO_R22235_NIG__34	Development and planting of village forests in the Tillabéry regions, Téra, Say, Torodi and Makalondi municipalities (20,000 ha)	PO_R2 Niger	3	2	1 344 538	60% identified - PIDACC	33%	67%	0%
PO_R2322_NIG_19	Development and adaptation of fisheries to climate change	PO_R2 Niger	1	2	912 605	Identification on-going	32%	68%	0%
PO_R12152_NIG_05	Construction of a new reservoir dam at Aboka	PO_R1 Niger	3	3	1 194 958	60% identified - PIDACC	27%	73%	0%
PO_R12316_NIG_29	Rehabilitation of a nursery pond in Moli and construction of a nursery pond in Madarounfa	PO_R1 Niger	2	2	1 003 361	60% identified - PIDACC	27%	73%	0%
PO_R12119_NIG_04	Rehabilitation of the irrigated area of Galmi 250 ha	PO_R1 Niger	3	2	2 823 529	60% identified - PIDACC	17%	83%	0%
PO_R1245_NIG_37	Construction of flood protection dikes around Niamey irrigation scheme and other related infrastructure	PO_R1 Niger	3	2	1 793 277	60% identified - PIDACC	9%	91%	0%
PO_R12158_NIG_16	Construction of two (2) weirs for floodplain crop production (Gorouol, DolBel, Terra)	PO_R1 Niger	3	2	2 605 042	60% identified - PIDACC	9%	64%	27%
PO_R1313_NIG_27	Rehabilitation of 300 km between Labezanga and Dolé (Gaya)	PO_R1 Niger	1	2	1 085 714	60% identified - PIDACC	4%	96%	0%
PO_R1323_NIG_28	Construction of 30 landing stages between Labezanga and Dolé (Labezanga, Ayorou, Tillabéry, Gothuey, Niamey, Kollo, Gaya,	PO_R1 Niger	1	2	1 302 521	60% identified - PIDACC	4%	96%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	Dolé), et Konni, Madarounfa, Abalak								
PO_R2115_NIG_22_	Project for development, management of natural resources and promotion of Moringa oleifera (Tajaé, Malbaza and Tsernaoua)	PO_R2 Niger	3	2	6 052 101	Identification on-going	0%	100%	0%
PO_R22220_NIG_20	Integrated project to stabilise the dunes and combat poverty (Namaro)	PO_R2 Niger	3	2	472 269	Identification on-going	0%	100%	0%
PO_R22221_NIG_21	Reforestation project in schools	PO_R2 Niger	3	2	339 496	Identification on-going	0%	100%	0%
PO_R22231_NIG_18	Sustainable management of the forest resources and promotion of alternative energy sources	PO_R2 Niger	3	4	126 242 017	30% identified -	0%	100%	0%
PO_R22232_NIG_24	Development of agroforestry and sustainable management of soil fertility	PO_R2 Niger	3	4	34 584 689	100% identified -	0%	100%	0%
PO_R22233_NIG_25	Support for the improvement of soil fertility, restoration of degraded land	PO_R2 Niger	3	4	37 417 575	100% identified -	0%	100%	0%
PO_R12117_NIG_02	Rehabilitation of the irrigated area of Tara 101 ha	PO_R1 Niger	3	2	1 278 992	Identification on-going	0%	83%	17%
PO_R12155_NIG_09	Construction of the Kaoura Abdou hydroagricultural dam at Badaguichiri	PO_R1 Niger	3	5	17 442 017	Identification on-going	0%	0%	100%
PO_R12157_NIG11	Creation of an irrigated area and rehabilitation of the dyke at Gatawani Dolé	PO_R1 Niger	3	2	12 774 790	Identification on-going	0%	0%	100%
PO_R12313_NIG_13	Support for the development of the fishing and fish-farming sector	PO_R1 Niger	2	2	9 425 210	20% identified -	0%	0%	100%
PO_R1244_NIG23	Development and use of the valley of Goroubi (Tamou and Torodi)	PO_R1 Niger	3	2	3 040 336	Identification on-going	0%	0%	100%





**NIGERIA**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R2111_NIA_22	Delimitating the zones for the conservation (forests, protected zones) / Identification of sites a) Advocacy to Niger, Benue, Zamfara and Katsina States (Construction of Earthdam, Boreholes, washbores, handdug wells etc). b) To establish and support seed banks	PO_R2 Nigeria	3	2	593 277	Identification on-going	100%	0%	0%
PO_R22226_NIA_24	Fight against bush fire a) Capacity building of the Federal Fire Service b) Procurement of fire fighting facilities towards combating bush fire.	PO_R2 Nigeria	3	2	176 471	Identification on-going	100%	0%	0%
PO_R2254_NIA_32	Capitalization of the fight against the water hyacinth and the proliferation of sida cordifolia a) Procurement of Open water Kit for open water hyacinth control. b) Training of operators and technicians c) Operation and maintenance of harvester.	PO_R2 Nigeria	1	2	226 891	60% identified - PIDACC	100%	0%	0%
PO_R21212_NIA_32	Strengthening the Shared management of water resources in the Basin (Construction of weirs, and erosion control and runoff water catchment infrastructures; Quantitative management of water resources) a) Reconnaissance survey to identify	PO_R2 Nigeria	1	2	225 210	60% identified - PIDACC	95%	5%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	suitable locations for weirs, erosion control structure and runoff management b)Engagement of Consultants to design the infrastructures c) Engagement of Contractor for the construction of weirs, erosion control structures and infrastructures								
PO_R2214_NIA_23	Measures for the conservation of forestry galleries on secondary rivers (Conservation of biodiversity/Forest management)	PO_R2 Nigeria	3	2	1 297 479	Identification on-going	83%	17%	0%
PO_R2320_NIA_13	Flood management Project a) Undertake flood forecasting and warning on flood prone areas b)Undertake flood hazard assessment including hazard mapping and risk evaluation c)Develop and promote regulations for flood plain management based on flood plain zoning. d) Put in place structures for flood prevention, control and water conservation.	PO_R2 Nigeria	3	2	4 954 622	10% identified - PIDACC	76%	24%	0%
PO_R21206_NIA_9	Development of tools for the modelling of hydrological forecasts a)Procurement and installation of hardware and software for hydrological modeling; b)Training and capacity building	PO_R2 Nigeria	3	2	1 176 471	Identification on-going	54%	46%	0%
PO_R2134_NIA_12__10	Modelization of hydraulic variation a) Develop a methodology and	PO_R2 Nigeria	3	2	1 201 681	Identification on-going	54%	46%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	<p>approach to understand how existing flow dynamics models can be used with the addition of flow and pressure monitors to improve understanding of network flow dynamics, their relationships to system operational changes and user demands, and thus to water quality dynamics throughout the system. The methodology should allow an understanding of flow dynamics in real-time or near real-time.</p> <p>b) Dam safety review processes and status for Jibiya, Kampe –omi and Doma dams.</p> <p>c) Emergency Action plan and procedures in the three chosen dams.</p> <p>d) Provision of automatic guaging station and flood measuring station upstream of kanji and the drainage basins between kanji and jebba dams.</p> <p>c). Provision of Meteorological and hydrological stations at both kanji and jebba</p>								
PO_R2234_NIA_18	<p>Capitalization of the fight against the water hyacinth and the proliferation of sida cordifolia</p> <p>a) Procurement of Open water Kit for open water hyacinth control.</p> <p>b) Training of operators and technicians</p> <p>c) Operation and maintenance of harvester.</p>	PO_R2 Nigeria	3	2	1 258 824	Identification on-going	54%	46%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R2241_NIA_14	Conservation and management of the coastal delta zone of the Niger river a) Construction of flood protection drainage facilities in Koton-Karfe, Mamu Awka, Yenogua and Koko. b) To create reinforcement and adaptation of basic water infrastructure and promotion of integrated coastal management of the coastal zone.	PO_R2 Nigeria	3	2	1 090 756	Identification on-going	54%	46%	0%
PO_R2255_NIA_35	Strengthening of community capacity for adaptation to climate change (Inventory and dissemination of good practices in restoring degraded ecosystems; Inventory and dissemination of good practices in protecting ecosystems) / a) Integration of Climate Change Adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin b) Interaction (build strong synergy development) with various tier of government (Federal, State and Local Government), NGOs, CBOs, Private Sector. b) Awareness Creation at community levels in each vulnerable catchment in the country. c) Improve understanding of the local communities on climate change issues -community town hall meetings; jingles in local dialect in	PO_R2 Nigeria	1	2	277 311	60% identified - PIDACC	54%	46%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	radios; production of pamphlets for extension workers .								
PO_R2256_NIA_6	<p>Research work to integrate, in future models, scenarios dealing with the increase in temperature in order to calculate the need in water of the plants and the evaporation of the damming lakes</p> <p>a) Hydrological data collection and analysis on existing and planned reservoirs, reservoirs operation,</p> <p>b) Procurement of computer hardware and software, training and capacity building.</p> <p>c) Catchment protection strategies through agro-forestry and afforestation programmes and drilling of wind pump boreholes and rainwater harvesting within each catchment.</p>	PO_R2 Nigeria	3	2	1 774 790	Identification on-going	54%	46%	0%
PO_R2232_NIA_15	<p>Conservation and management of the middle of Niger area</p> <p>a) Construction of 400 windpump boreholes along the middle Niger are</p> <p>b) Development of seed banks for economic trees</p> <p>c) Promotion of agro-forestry in the middle Niger for soil conservation and catchment protection</p>	PO_R2 Nigeria	3	2	566 387	Identification on-going	47%	53%	0%
PO_R2252_NIA_17	<p>Socio-economic utilisation of invasive aquatic plant species</p> <p>a) Procurement of aquatic weeds harvesters</p> <p>b) Training of operators and</p>	PO_R2 Nigeria	3	2	151 490 756	Identification on-going	47%	53%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	technicians c) Operation and maintenance of harvester.								
PO_R2235_NIA_33	Development of Resilience of the population and the Ecosystem in the Basin (Conservation of biodiversity/Forest management; Preservation of biodiversity / Management of the fauna reserve) a) Support to the development of traditional fish farming b) Procurement of fishing inputs such as Yamaha Outboard engines of various Horse powers, mono filament nets, twines and lead/sinkers, chokor smoking kilns. c) Seedling development and distribution for agro-forestry. d) Community sensitization on best environmental conservation practices	PO_R2 Nigeria	3	2	4 139 496	60% identified - PIDACC	46%	54%	0%
PO_R22225_NIA_21	Erosion, flood and siltation control in Nigeria. a) Reconnaissance survey to identify vulnerable zones within the basin b) Engagement of Consultants to design suitable flood and erosion control structures and sites to be dredged c) Engagement of suitable contractors for the construction of each facility. d) Construction of 2000 tubewells each for Kebbi, Sokoto, Kwara, and	PO_R2 Nigeria	3	2	20 292 437	Identification on-going	36%	64%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	<p>Zamfara states</p> <p>e) Procurement of 2000 Nos, 3" water pumps each for Kebbi, Sokoto, Kwara, and Zamfara states.</p> <p>f) Bathymetric survey of Jibiya, Kampe – Omi and Doma Dam</p> <p>g) Survey and Di-silting of Jibiya, Kampe – Omi and Doma Dams and Reservoirs along the River Niger and its Tributaries in Nigeria for flood control and protection of water quality.</p> <p>h) Demarcation of flood plain downstream of jebba.</p>								
PO_R2?1_NIA_XXX	<p>Monitoring of the application of the minimum low water flow.</p> <p>a) Expansion of surface water monitoring network through installation and operation of stream gauging equipment Procurement of Flow</p> <p>b) Measurement equipment;</p> <p>c) Drilling of groundwater monitoring boreholes and instrumentation with data loggers.</p>	PO_R2 Nigeria	3	2	1 764 706	Identification on-going	33%	67%	0%
PO_R2114_NIA__19	<p>Develop some protected zones</p> <p>a) Advocacy to Kebbi, Sokoto, Niger, Yobe, Adamawa, Taraba, Zamfara and Katsina States (Construction of Earthdam, Boreholes, washbores, handdug wells etc). Seedling</p> <p>b) To establish and support seed banks.</p>	PO_R2 Nigeria	3	2	2 598 319	Identification on-going	33%	67%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R21213_NIA_11	Support for the functioning of Niger-HYCOS a) Operation and maintenance of the existing 18 No Data Collection Platform (DCP) stations; b) Expansion of network the DCPs equipped with Sutron Meteosat; Data processing; Training	PO_R2 Nigeria	3	2	1 324 370	Identification on-going	33%	67%	0%
PO_R22236_NIA_8	Rehabilitation of degraded agricultural land	PO_R2 Nigeria	3	2	1 253 782	Identification on-going	33%	67%	0%
PO_R12160_NIA27	Irrigation development in Tada Shonga (Kwara State)	PO_R1 Nigeria	3	2	1 845 378	Identification on-going	27%	73%	0%
PO_R12317_NIA_03_04	Support to fisheries development	PO_R1 Nigeria	2	2	2 171 429	10% identified - PIDACC	27%	73%	0%
PO_R1112_NIA01	Rehabilitation of Kainji dam (Including Units 7, 8, 9, 10 et 11)	PO_R1 Nigeria	3	2	136 800 000	Identification on-going	15%	48%	37%
PO_R12212_NIA_05	Development of water points for cattle and development of transhumance pathways	PO_R1 Nigeria	3	2	5 092 437	10% identified - PIDACC	8%	79%	13%
PO_R12161_NIA_28_30_31_33	Construction of multipurpose dams, irrigation schemes and support measures to adapt to climate change	PO_R1 Nigeria	3	2	243 858 824	0% identified - PIDACC	3%	33%	64%





**CHAD**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PANA_TD_3	Improvement and dissemination of crop calendars	NAPA Chad	3	2	1 000 000	Identification on-going	62%	38%	0%
PO_R12216_TCH_11	Rural, Pastoral and Transhumance Infrastructure project.	PO_R1 Chad	3	2	17 616 807	0% identified - PIDACC	54%	46%	0%
PANA_TD_8	National Observatory for Climate Change	NAPA Chad	3	2	1 600 000	Identification on-going	53%	38%	9%
PO_R12213_TCH_05	Development of the waterhole at Torrock for crops and to provide drinking water for cattle	PO_R1 Chad	3	2	1 048 739	30% identified - PIDACC	50%	50%	0%
PANA_TD_5	Construction of defensive structures and restoration of land for the development of agricultural activities	NAPA Chad	3	2	1 300 000	Identification on-going	40%	60%	0%
PANA_TD_7	Improvement of the quality of seasonal forecasting and its integration in the strategy for monitoring vulnerability.	NAPA Chad	3	2	1 700 000	Identification on-going	40%	60%	0%
PANA_TD_4	Improvement of information, education and communication concerning adaptation to climate change	NAPA Chad	3	2	1 100 000	Identification on-going	38%	62%	0%
PO_R12165_TCH_08	Hydro-agricultural development at Fianga. 5,000 ha	PO_R1 Chad	3	4	2 823 529	Identification on-going	36%	64%	0%
PO_R12166_TCH_09	Djarao, Domo and Léo hydro-agricultural development. 10,000 ha	PO_R1 Chad	3	4	169 371 429	Identification on-going	36%	64%	0%
PANA_TD_6	Improvement of intercommunity grazing areas	NAPA Chad	3	2	1 500 000	Identification on-going	35%	52%	13%
PO_R12167_TCH_10	Hydro-agricultural development at Ghétahlé -Tréné. 5,000 ha	PO_R1 Chad	3	4	1 164 706	Identification on-going	34%	66%	0%
PANA_TD_10	Reduction of the vulnerability of populations to climate change /	NAPA Chad	3	2	2 000 000	Identification on-going	33%	67%	0%



N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
	Management of climate-related hazards and adaptation to climate change								
PANA_TD_1	Mobilisation of surface water for agriculture and to supply cattle.	NAPA Chad	3	2	1 800 000	Identification on-going	31%	67%	2%
PO_R12162_TCH_02	Development of the rice-growing area of Voli (Gounou Gaya). 1,020 ha	PO_R1 Chad	3	5	15 630 252	10% identified - PIDACC	26%	74%	0%
PANA_TD_2	Diversification and intensification of crop production in the Sudanian and Sahelian areas of Chad	NAPA Chad	3	2	1 200 000	Identification on-going	24%	50%	26%
PO_R12168_TCH_12	Development of an area for floodplain crop production in the region of Mayo Kebbi Est (at Tikem). 600 ha	PO_R1 Chad	3	2	741 176	Identification on-going	20%	80%	0%



**ES-NBA**

N°	Action title	Reference document and beneficiary country	Contribution to resilience	Preparation stage	Overall action cost (USD)	Funding sources	Financial scheduling and Implementation		
							PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
PO_R5221_SE/ABN	Development of the gender policy (finalise the policy and implement it)	PO_R5 ES-ABN	1	2	134 454	Identification on-going	100%	0%	0%
PO_R5321_SE/ABN	Development of external communication	PO_R5 ES-ABN	1	2	153 782	Identification on-going	100%	0%	0%
BM_DIN_MA_1	Hydraulic modelling of the inner delta of the Niger	CIWA Project	3	2	1 400 000	50% identified - CIWA	100%	0%	0%
PO_R4121_SE/ABN	Dissimination and application of the Water Charter to all States	PO_R4 ES-ABN	3	2	3 705 042	Identification on-going	70%	15%	15%
PO_R4111_SE/ABN	Rendering the decision-making tools operational	PO_R4 ES-ABN	3	2	10 729 412	Identification on-going	47%	49%	4%
PO_R21207_SE/ABN1_12_13	Inventory and general mapping of the ecosystems of the basin	PO_R2 ES-ABN	3	2	2 917 647	60% identified - PIDACC	30%	60%	10%
PO_R2253_SE/ABN_11	Capitalisation and dissemination of good practices for the restoration of degraded ecosystems	PO_R2 ES-ABN	1	2	11 532 773	60% identified - PIDACC	19%	34%	47%
PO_R2112_SE/ABN_10	Monitoring water resources in the Niger Basin	PO_R2 ES-ABN	3	2	108 494 118	Identification on-going	16%	30%	54%



## Appendix H : **Financial and implementation schedule of the CRIP actions**



### SELECTED ACTIONS IN THE CLIMATE RESILIENCE INVESTMENT PLAN FOR NIGER BASIN – KNOWLEDGE AND INSTITUTIONS PACKAGE

Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
<b>1 – Knowledge. Collection and generation of climatic and hydrological information. Weather-forecasting tools and decision-making tools</b>								
Improvement of knowledge of water resources and enhancement of the hydro-meteorological and hydrogeological data collection system	PO_R2 Guinea	756 303	Identification on-going	3	2	100%	0%	0%
Study for the development of a communication strategy and setting up of an Information System for the integrated management of the resources of the Niger River Basin	NC PNSFN Mali	465 351	Identification on-going	2	2	100%	0%	0%
Study of the design of the observatory of the Niger River in Mali	NC PNSFN Mali	126 914	Identification on-going	3	2	100%	0%	0%
Strengthening of the existing pollution control team and creation and equipping of 4 new stations	PO_R2 Niger	282 353	60% identified - PIDACC	3	2	100%	0%	0%
Hydraulic modelling of the inner delta of the Niger	Component of CIWA project	1 400 000	50% identified - CIWA	3	2	100%	0%	0%
Development of adaptation and water resource management tools	PO_R2 Ivory Coast	452 101	60% identified - PIDACC	3	2	94%	6%	0%
Development of a data bank relating to climate change	National communication concerning climate change - Benin	761 483	Identification on-going	3	2	93%	7%	0%
Setting up of a climate hazard forecasting and early warning system for food safety in 4 vulnerable agro-ecological zones	NAPA Benin	8 190 000	70% identified -	3	2	72%	28%	0%
Setting up a system for observation, information management and warning with regard to climate hazards in Cameroon	PNACC Cameroon	2 220 000	Identification on-going	3	2	72%	28%	0%
Develop models for the allocation of the water resources of river basin agencies	NC - PND Ivory Coast	1 184 529	Identification on-going	3	2	71%	26%	3%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Development of an early warning system to safeguard agricultural productivity	NAPA Guinea	150 000	Identification on-going	3	2	68%	28%	4%
Enhancement of capabilities with regard to climate observation in the Benin section of the Niger basin	National communication concerning climate change - Benin	3 892 023	Identification on-going	3	2	59%	41%	0%
Support for knowledge of the quality of the water resources and acquisition of meteorological equipment	PO_R2 Mali	4 042 017	60% identified - PIDACC	3	2	55%	45%	0%
Development of tools for the modelling of hydrological forecasts	PO_R2 Nigeria	1 176 471	Identification on-going	3	2	54%	46%	0%
Modelling of hydraulic variation	PO_R2 Nigeria	1 201 681	Identification on-going	3	2	54%	46%	0%
Useful research work for the future models / Research work to integrate, in future models, scenarios dealing with the increase in temperature in order to calculate the need in water of the plants and the evaporation of the damming lakes	PO_R2 Nigeria	1 774 790	Identification on-going	3	2	54%	46%	0%
Observatoire National sur les Changements Climatiques (ONCC) / National Observatory for Climate Change	NAPA Chad	1 600 000	Identification on-going	3	2	53%	38%	9%
Reduction of vulnerability to climate change by enhancing measures for prevention and management of food crises in the Oursi and Boulsa zones.	NAPA Burkina Faso	7 446 000	Identification on-going	3	2	49%	28%	23%
Rendering the decision-making tools operational	PO_R4 SE-ABN	2 917 647	60% identified - PIDACC	3	2	47%	49%	4%
Improvement of the quality of seasonal forecasting and its integration in the strategy for monitoring vulnerability.	NAPA Chad	1 700 000	Identification on-going	3	2	40%	60%	0%
Development of research activities in water management, more particularly in the context of adaptation to climate change	NC PAGIRE Burkina Faso	5 245 771	Identification on-going	3	2	40%	30%	30%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Monitoring of the application of the minimum low water flows.	PO_R2 Nigeria	1 764 706	Identification on-going	3	2	33%	67%	0%
Support for the functioning of Niger-HYCOS	PO_R2 Nigeria	1 324 370	Identification on-going	3	2	33%	67%	0%
Monitoring water resources in the Niger Basin	PO_R2 SE-ABN	10 729 412	Identification on-going	3	2	30%	60%	10%
Equipment and improvement of knowledge concerning the quality of the water resources (Materials and equipment, Improvement of knowledge of the quality of the water resources)	PO_R2 Burkina Faso	707 563	60% identified - PIDACC	3	2	0%	100%	0%
Development of a sound national Water Information System (WIS)	NC PAGIRE Burkina Faso	16 464 951	Identification on-going	3	2	N/A	N/A	100%
<b>2 - Assessment of vulnerability. Communication and awareness-raising</b>								
Adaptation of the national gender policy and their vulnerability to climate change	PNACC Cameroon	2 220 000	Identification on-going	3	2	72%	28%	0%
Raising the awareness of the population, professionals, administration and decision-makers to the effects of climate change and the measures to be taken	PNACC Cameroon	2 220 000	Identification on-going	3	2	72%	28%	0%
Development of external communication	PO_R5 SE-ABN	3 705 042	Identification on-going	3	2	70%	15%	15%
Improvement of information, education and communication concerning adaptation to climate change	NAPA Chad	1 100 000	Identification on-going	3	2	38%	62%	0%
"One School, 5 hectares of forest" project	PO_R2 Ivory Coast	3 721 008	Identification on-going	3	6	37%	63%	0%
Reduction of the vulnerability of populations to climate change / Management of climate-related hazards and adaptation to climate change	NAPA Chad	2 000 000	Identification on-going	3	2	33%	67%	0%
Education, professional training and enhancement of capabilities concerning climate change	PNACC Cameroon	5 550 000	Identification on-going	3	2	19%	45%	36%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Inventory and general mapping of the ecosystems of the basin	PO_R2 SE-ABN	108 494 118	Identification on-going	3	2	16%	30%	54%
Reforestation project in schools	PO_R2 Niger	339 496	Identification on-going	3	2	0%	100%	0%
<b>3 - Integration of climate change adaptation into the capabilities, bodies and management instruments of the national and regional institutions of the Basin</b>								
Training activities for those involved in the management of the water resources in the Basin	NC PNSFN Mali	162 450	Identification on-going	1	2	100%	0%	0%
Strengthening of community capacity for adaptation (flooding)	PO_R2 Niger	991 597	60% identified - PIDACC	1	2	100%	0%	0%
Strengthening the Shared management of water resources in the Basin (Inventory and dissemination of good practices in protecting ecosystems)	PO_R2 Nigeria	226 891	60% identified - PIDACC	1	2	100%	0%	0%
Distribution and application of the Water Charter to all States	PO_R4 SE-ABN	134 454	Identification on-going	1	2	100%	0%	0%
Development of the gender policy (finalise the policy and implement it)	PO_R5 SE-ABN	153 782	Identification on-going	1	2	100%	0%	0%
Inclusion of climate hazards when updating the Land Use Plan	PNACC Cameroon	3 330 000	Identification on-going	1	2	68%	32%	0%
Enhancement of the shared management of the water resources in the national part of the Niger Basin	PO_R2 Niger	2 174 790	Identification on-going	1	2	64%	36%	0%
Adaptation to climate change (flooding)	PO_R2 Guinea	1 179 832	60% identified - PIDACC	1	2	58%	42%	0%
Development of a good practice guide	PO_R2 Benin	598 319	60% identified - PIDACC	1	2	54%	46%	0%
Strengthening the shared management of natural resources in the national part of the Niger Basin	PO_R2 Cameroon	1 260 504	Identification on-going	1	2	54%	46%	0%
Enhancement of communities' ability to adapt	PO_R2 Ivory Coast	352 941	60% identified - PIDACC	1	2	54%	46%	0%
Strengthening of community capacity for adaptation to climate change (Inventory and dissemination of good	PO_R2 Nigeria	277 311	60% identified - PIDACC	1	2	54%	46%	0%





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
practices in restoring degraded ecosystems; Inventory and dissemination of good practices in protecting ecosystems)								
Support for the development of collaborative management of the Tinkisso, Niger- Tinkisso and Sankarani - Fié Ramsar sites	PO_R2 Guinea	425 210	50% identified - PIDACC	1	2	37%	63%	0%
Development of strategies for adaptation to climate change	PO_R2 Benin	608 403	100% identified - PIDACC	1	2	36%	64%	0%
Enhancement of the ability to adapt and intervene	PO_R2 Ivory Coast	2 110 924	Identification on-going	1	2	33%	67%	0%
Project for the Management and Sustainable Use of Natural Resources and Adaptation to Climate Change	PO_R2 Niger	912 605	Identification on-going	1	2	32%	68%	0%
Protection of the resources and ecosystems in the national part of the Niger Basin	PO_R2 Cameroon	8 438 655	Identification on-going	1	2	27%	73%	0%
Capitalisation and dissemination of good practices for the restoration of degraded ecosystems	PO_R2 SE-ABN	11 532 773	60% identified - PIDACC	1	2	19%	34%	47%
Development of the water development and management scheme for the national part of the Niger Basin	PO_R2 Benin	621 849	Identification on-going	1	2	0%	100%	0%

CIWA: Cooperation in International Waters in Africa

NC: National Contribution

DIN: Inner Delta of the Niger

ONCC: National Observatory for Climate Change

NAPA: National Adaptation Programmes of Action

PIDACC: Programme for Integrated Development and Adaptation to Climate Change in the Niger Basin

NAP: National Adaptation Plan

PNACC: National Programme for Adaptation to Climate Change

PNSFN: National Programme to Safeguard the Niger River

PO: NBA Operational Plan

SE/ABN: Executive Secretariat of the NBA

SIE: Water Information System



### SELECTED ACTIONS IN THE CLIMATE RESILIENCE INVESTMENT PLAN FOR NIGER BASIN – SECOND PACKAGE

Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
<b>4 - Measures targeting vulnerability to water stress</b>								
Rehabilitation of the Baskouré dam and preparation of 60 hectares of lowlands in the municipalities of Baskouré, Diabo and Fada	PO_R1 Burkina Faso	1 452 101	30% identified - PIDACC	3	5	100%	0%	0%
Construction of improved wells	NAPA Guinea	250 000	Identification on-going	3	2	100%	0%	0%
Dissemination of rainwater harvesting basins	NAPA Guinea	280 000	Identification on-going	3	2	100%	0%	0%
Development of irrigated rice farming in Middle and Upper Guinea	NAPA Guinea	300 000	Identification on-going	3	2	100%	0%	0%
Exploitation of indigenous knowledge and positive practices	NAPA Guinea	300 000	Identification on-going	3	2	100%	0%	0%
Promotion of breeding small ruminants	NAPA Guinea	325 000	Identification on-going	3	2	100%	0%	0%
Promotion of bricks made of compacted earth with the aim of reducing the environmental impact of fired bricks	NAPA Guinea	600 000	Identification on-going	3	2	100%	0%	0%
Intensification of pearl millet farming in the northern area of Guinea	NAPA Guinea	350 000	Identification on-going	3	2	100%	0%	0%
Feasibility study of small developments in the tops of the sub-watersheds of the upper stretches of the Niger and Bani rivers for environmental restoration	NC PNSFN Mali	813 941	Identification on-going	3	2	100%	0%	0%
Rehabilitation of the dam and creation of 192 ha of irrigated land downstream of the Sidi-Komplenga dam (Gnagna, East)	PO_R1 Burkina Faso	3 290 756	Identification on-going	3	5	99%	1%	0%
Development of irrigated crops in the provinces of Gourma, Namemtenga, Tapoa and Sanmatenga.	NAPA Burkina Faso	443 300	Identification on-going	3	2	98%	2%	0%
Rehabilitation of the dam and 14 ha of irrigated utilised agricultural land equipped with 50 wells at Dabesma	PO_R1 Burkina Faso	1 363 025	30% identified - PIDACC	3	5	97%	3%	0%

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Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
(Gnagna, East)								
Development and management of the waterhole at Oursi	NAPA Burkina Faso	275 000	Identification on-going	3	2	96%	4%	0%
Strengthening the Shared management of water resources in the Basin (Construction of weirs, and erosion control and runoff water catchment infrastructures; Quantitative management of water resources)	PO_R2 Nigeria	225 210	60% identified - PIDACC	1	2	95%	5%	0%
Enhancement and safeguarding of access to water resources and wastewater treatment in a context of climate change	PNACC Cameroon	8 880 000	Identification on-going	3	2	88%	12%	0%
Safeguarding of agricultural production by the use of appropriate technological packages in the South-West and East regions.	NAPA Burkina Faso	297 924	Identification on-going	3	2	85%	15%	0%
Construction of the Coalla dam (5 Mm3) in the province of Gnagna (East) and preparation of 122 ha of irrigated land	PO_R1 Burkina Faso	5 749 580	50% identified - PIDACC	3	5	82%	18%	0%
Completion of the construction of the Bambakari dam (163 Mm3) in the province of Déno (Sahel) and preparation of 300ha of irrigated land	PO_R1 Burkina Faso	31 751 261	20% identified - PIDACC	3	5	72%	28%	0%
Adaptation of the farming calendars to the new climate context	National communication on climate change Benin	2 538 276	Identification on-going	3	2	65%	35%	0%
Development of multi-purpose hydroagricultural infrastructures in the municipality of Garoua	PO_R1 Cameroon	1 100 840	50% identified - PIDACC	3	2	62%	38%	0%
Improvement and dissemination of crop calendars	NAPA Chad	1 000 000	Identification on-going	3	2	62%	38%	0%
Programme for the development of irrigation in the Bani and Sankarani basin	NC PNSFN Mali	205 346 539	Identification on-going	3	2	58%	42%	0%
Rural, Pastoral and Transhumance Infrastructure project.	PO_R1 Chad	17 616 807	0% identified - PIDACC	3	2	54%	46%	0%
Development of the waterhole in Dori	PO_R1 Burkina Faso	86 301 389	0% identified -	3	2	51%	49%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
			PIDACC					
Development of integrated farming which is resilient to the effects of climate change	PNACC Cameroon	8 880 000	Identification on-going	3	2	51%	49%	0%
Development of the waterhole at Torrock for crops and to provide drinking water for cattle	PO_R1 Chad	1 048 739	30% identified - PIDACC	3	2	50%	50%	0%
Mobilisation of surface water in order to adapt to climate change in the most vulnerable municipalities of the departments in the Centre and the North	NAPA Benin	2 875 000	Identification on-going	3	2	49%	39%	12%
Rehabilitation of the Kiemna dam	PO_R1 Burkina Faso	334 454	40% identified - PIDACC	3	4	47%	53%	0%
Rehabilitation of the Bani dam	PO_R1 Burkina Faso	768 252	20% identified - PIDACC	3	5	46%	54%	0%
Creation of 241 ha of irrigated land at the SIRBA dam (Gnagna, East)	PO_R1 Burkina Faso	3 448 739	Identification on-going	3	5	42%	58%	0%
Rehabilitation of the Boudieri dam	PO_R1 Burkina Faso	1 351 261	40% identified - PIDACC	3	5	42%	58%	0%
Rehabilitation of the Touro dam	PO_R1 Burkina Faso	1 568 067	40% identified - PIDACC	3	5	41%	59%	0%
Construction of multi-purpose mini-dams	NAPA Guinea	600 000	Identification on-going	3	2	40%	60%	0%
Construction of hillside reservoirs	NAPA Guinea	180 000	Identification on-going	3	2	40%	60%	0%
Hydro-agricultural development at Fianga. 5,000 ha	PO_R1 Chad	2 823 529	Identification on-going	3	4	36%	64%	0%
Djarao, Domo and Léo hydro-agricultural development. 10,000 ha	PO_R1 Chad	169 371 429	Identification on-going	3	4	36%	64%	0%
Programme for the development of agriculture which is resilient to climate change.	NC Fast start Mali	94 000 000	40% identified -	3	2	35%	35%	30%
Hydro-agricultural development at Ghétahlé -Tréné. 5,000 ha	PO_R1 Chad	1 164 706	Identification on-going	3	4	34%	66%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Safeguarding of cereal production by the promotion of supplementary irrigation in the provinces of Oudalan and Nammemtenga.	NAPA Burkina Faso	408 660	Identification on-going	3	2	33%	66%	0%
Mobilisation of surface water for agriculture and to supply cattle.	NAPA Chad	1 800 000	Identification on-going	3	2	31%	67%	2%
Construction of a new reservoir dam at Aboka	PO_R1 Niger	1 194 958	60% identified - PIDACC	3	3	27%	73%	0%
Irrigation development in Tada Shonga (Kwara State)	PO_R1 Nigeria	1 845 378	Identification on-going	3	2	27%	73%	0%
Programme for harvesting and storing rainwater	NC Fast start Mali	62 800 000	50% identified -	3	2	26%	74%	0%
Development of the rice-growing area of Voli (Gounou Gaya). 1,020 ha	PO_R1 Chad	15 630 252	10% identified - PIDACC	3	5	26%	74%	0%
Rehabilitation of the dam and creation of 11 ha of irrigated utilised agricultural land and preparation of 100 ha of horticultural land at Tanga (Kouritenga, Centre-East) equipped with 50 wells	PO_R1 Burkina Faso	1 885 714	40% identified - PIDACC	3	5	24%	76%	0%
Diversification and intensification of crop production in the Sudanian and Sahelian areas of Chad	NAPA Chad	1 200 000	Identification on-going	3	2	24%	50%	26%
Development of an area for floodplain crop production in the region of Mayo Kebbi Est (at Tikem). 600 ha	PO_R1 Chad	741 176	Identification on-going	3	2	20%	80%	0%
Project for the construction of a dam and hydroagricultural development at KOUBAN 80ha	PO_R1 Ivory Coast	2 952 941	100% identified - PIDACC 55%, BOAD 30%, Etat 15%	3	2	18%	82%	0%
Project for the construction of a dam and hydroagricultural development at Katiendé 22ha	PO_R1 Ivory Coast	3 524 370	70% identified - PIDACC 55%, Etat 15%	3	2	18%	82%	0%
Project for the construction of a dam and hydroagricultural development at Dimbasso. 182 ha	PO_R1 Ivory Coast	5 835 294	70% identified - PIDACC 55%, Etat 15%	3	2	18%	82%	0%
Rehabilitation of the irrigated area of Galmi 250 ha	PO_R1 Niger	2 823 529	60% identified -	3	2	17%	83%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
			PIDACC					
Rehabilitation of Kainji dam (Including Units 7, 8, 9, 10 et 11)	PO_R1 Nigeria	136 800 000	Identification on-going	3	2	15%	48%	37%
Construction of two (2) weirs for floodplain crop production (Gorouol, DolBel, Terra)	PO_R1 Niger	2 605 042	60% identified - PIDACC	3	2	9%	64%	27%
Development of water points for cattle and development of transhumance pathways	PO_R1 Nigeria	5 092 437	10% identified - PIDACC	3	2	8%	79%	13%
Rehabilitation and equipping of village irrigation areas in the region of Gao	PO_R1 Mali	5 588 235	60% identified - PIDACC	3	2	7%	93%	0%
Construction of hydro-agricultural dams, development and utilisation of the Garoua area upstream (Bocklé, Garoua III, Bénoué department)	PO_R1 Cameroon	2 813 445	10% identified - PIDACC	3	2	5%	95%	0%
Development and utilisation of the Lagdo II area	PO_R1 Cameroon	74 386 555	Identification on-going	3	4	5%	95%	0%
Development and utilisation of the Faro-Bénoué confluence area	PO_R1 Cameroon	21 581 513	Identification on-going	3	4	5%	95%	0%
Development of the west Garoua area	PO_R1 Cameroon	13 361 345	Identification on-going	3	4	5%	95%	0%
Development of small individual areas	PO_R1 Cameroon	7 517 647	10% identified - PIDACC	3	4	5%	95%	0%
Rehabilitation and agricultural diversification of twenty agro-pastoral reservoirs in Benin	PO_R1 Benin	7 515 966	10% identified - PIDACC	3	2	5%	72%	23%
Rehabilitation and diversification of 5 small dams at Gamagou, Gah, Guessou, Sombi, Kérékou, Wara and Zougou Pantrossi in Superior Alibori region	PO_R1_Benin	1 500 000	56% identified PIDACC	3	4	5%	72%	23%
Low-cost development of 10,000 ha of plains in Kabadougou and Folon (north-west)	PO_R1 Ivory Coast	3 215 126	60% identified - PIDACC	3	2	5%	58%	37%
Development of smallholders irrigation schemes	PO_R1 Cameroon	62 512 605	Identification on-going	3	4	5%	57%	38%
Project to support the development of agriculture in the	PO_R1 Mali	14 159 664	60% identified -	3	4	4%	96%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Douentza area			PIDACC					
Construction of multipurpose dams, irrigation schemes and support measures to adapt to climate change	PO_R1 Nigeria	243 858 824	0% identified - PIDACC	3	2	3%	33%	64%
Construction of ten (10) multi-purpose dams	PO_R1 Benin	35 647 059	10% identified - PIDACC	3	2	3%	29%	68%
National Horticultural Support Project	PO_R1 Mali	6 105 882	Identification on-going	3	4	2%	71%	27%
Construction of multipurpose dams	PO_R1 Cameroon	4 872 269	20% identified - PIDACC	3	2	2%	69%	29%
Rehabilitation of 84 reservoirs in the region of Bagoue and Kabadougou	PO_R1 Ivory Coast	56 003 361	Identification on-going	3	2	2%	59%	39%
Low-cost development of 20,000 ha of Bagoué floodplains	PO_R1 Ivory Coast	106 198 319	90% identified - 3 bailleurs à 30% chacun + Etat 10%	3	2	2%	59%	39%
Fomi safeguard policies elaboration	PO_R1 Guinea	2 000 000	50% identified -	3	3	2%	39%	59%
Rehabilitation of the irrigated area of Tara 101 ha	PO_R1 Niger	1 278 992	Identification on-going	3	2	0%	83%	17%
Support for the production of seeds of agricultural origin	PO_R1 Mali	2 974 790	Identification on-going	2	2	0%	50%	50%
Rehabilitation of dams and construction of reservoirs for irrigation and fish farming at Kankan, Kouroussa, Mandiana, Faranah, Dinguiraye, Kérouané and Kissidougou.	PO_R1 Guinea	9 132 773	60% identified - PIDACC	3	4	0%	27%	73%
Construction of the Kaoura Abdou hydroagricultural dam at Badaguichiri	PO_R1 Niger	17 442 017	Identification on-going	3	5	0%	0%	100%
Creation of an irrigated area and rehabilitation of the dyke at Gatawani Dolé	PO_R1 Niger	12 774 790	Identification on-going	3	2	0%	0%	100%
<b>5 – Measures targeting vulnerability to flooding</b>								
Construction of structures to fight flooding in the region	PO_R2 Mali	2 124 370	60% identified -	3	2	100%	0%	0%





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
of Gao			PIDACC					
Flood management Project	PO_R2 Nigeria	4 954 622	10% identified - PIDACC	3	2	76%	24%	0%
Flood protection	PO_R2 Ivory Coast	1 307 563	Identification on-going	3	2	42%	58%	0%
Feasibility study for the reshaping of the Niger River in the towns of Mopti and Bamako	NC PNSFN Mali	1 692 184	Identification on-going	1	2	31%	69%	0%
Construction of flood-protection dykes	PO_R2 Benin	50 732 773	0% identified - PIDACC	3	2	16%	84%	0%
The project for the development and recovery of the banks of the Niger River in the District of Bamako	NC PNSFN Mali	846 092	20% identified -	2	2	13%	87%	0%
Construction of flood protection dikes around Niamey irrigation scheme and other related infrastructure	PO_R1 Niger	1 793 277	60% identified - PIDACC	3	2	9%	91%	0%
<b>6 – Measures targeting vulnerability to soil degradation</b>								
Reforestation of 300 ha on the banks of waterholes	PO_R2 Guinea	354 622	60% identified - PIDACC	3	2	100%	0%	0%
36- Topographical and photographic survey by LIDAR laser procedure of dam reservoirs (Sélingué, Markala, Talo, Djenné)	NC PNSFN Mali	473 812	Identification on-going	1	2	97%	3%	0%
Restoration of the banks and development of agroforestry	PO_R2 Guinea	1 368 067	60% identified - PIDACC	3	2	63%	37%	0%
Stabilisation of dunes in the regions of Tillabéry and Dosso (Kandadji area, Dallol, Maouri and Foga area, Ouallam area) (3,000 ha)	PO_R2 Niger	1 026 891	60% identified - PIDACC	3	2	63%	37%	0%
Soil and water conservation in the regions of Tillabéry, Dosso and Tahoua; Kandadji, Maouri, Foga areas; Ouallam, Kollo, Konni, Madaoua and Bouza area (15,000 ha)	PO_R2 Niger	1 285 714	60% identified - PIDACC	3	2	63%	37%	0%
Fight against the impacts of gold-mining on the environment and health	PO_R2 Ivory Coast	349 580	Identification on-going	3	2	54%	46%	0%





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Restore degraded land through the promotion of agroforestry and community reforestation	NC - AGIR Ivory Coast	8 577 681	Identification on-going	3	2	52%	48%	0%
Protection of spring heads and banks (sub-watersheds of the Niandan, Tinkisso, Milo)	PO_R2 Guinea	695 798	60% identified - PIDACC	3	2	47%	53%	0%
Restoration and protection of the tributaries of the Niger River by reforestation campaigns and anti-erosion and anti-silting measures	PO_R2 Ivory Coast	1 297 479	60% identified - PIDACC	3	2	46%	54%	0%
Construction of defensive structures and restoration of land for the development of agricultural activities	NAPA Chad	1 300 000	Identification on-going	3	2	40%	60%	0%
Protection of the basin (Departments of Odienné, Boundiali, Madinani, Minignan and Tengréla) / Treatment of degraded land for the protection of the banks	PO_R2 Ivory Coast	1 931 092	Identification on-going	3	2	39%	61%	0%
Stabilisation of 2,500 ha of dunes in the provinces of Oudalan, Séno and Yagha	PO_R2 Burkina Faso	2 831 933	Identification on-going	3	2	38%	62%	0%
Restoration of land and anti-erosion measures	PO_R2 Burkina Faso	7 078 992	50% identified - PIDACC	3	2	36%	64%	0%
Anti-erosion and anti-silting measures, and sustainable forest management	PO_R2 Mali	9 981 513	60% identified - PIDACC	3	2	36%	64%	0%
Biological and mechanical treatment of koris in Tillabery and Tahoua region (15 000m3)	PO_R2 Niger	2 594 958	60% identified - PIDACC	3	2	36%	64%	0%
Erosion, flood and siltation control in Nigeria.	PO_R2 Nigeria	20 292 437	Identification on-going	3	2	36%	64%	0%
Recovery of 6,191 ha of degraded land in Séno and Oudalan (restoration of land (Restoration of land, studies)	PO_R2 Burkina Faso	3 828 571	10% identified - UEMOA	3	2	33%	67%	0%
Development and planting of village forests in the Tillabéry regions, Téra, Say, Torodi and Makalondi municipalities (20,000 ha)	PO_R2 Niger	1 344 538	60% identified - PIDACC	3	2	33%	67%	0%
Restoration of fallow land and promotion of agroforestry (10,000 ha)	PO_R2 Niger	1 680 672	60% identified - PIDACC	3	2	33%	67%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Rehabilitation of degraded agricultural land	PO_R2 Nigeria	1 253 782	Identification on-going	3	2	33%	67%	0%
Anti-erosion and anti-silting measures, continued	PO_R2 Benin	7 075 630	0% identified - PIDACC	3	2	30%	70%	0%
Improve water resource protection against siltation and invasive species	CN PAGIRE Burkina Faso	16 837 232	Identification on-going	3	2	21%	44%	35%
Conservation and participatory management of sub-watersheds (support for protection, studies and enhancement of capacities)	PO_R2 Cameroon	12 169 748	Identification on-going	3	2	7%	93%	0%
Development of the Mayo–Louti catchment area (restoration of land, studies)	PO_R2 Cameroon	3 257 143	Identification on-going	3	5	7%	93%	0%
Protection of banks by planting and transplanting bourgou, and measures against invasive plants	PO_R2 Mali	8 258 824	60% identified - PIDACC	3	2	4%	96%	0%
Promotion and development of reforestation in the North of the country (wood energy)	PO_R2 Ivory Coast	1 495 798	10% identified - PIDACC	3	2	0%	100%	0%
"Green Wall" experimental project	PO_R2 Mali	9 910 924	Identification on-going	3	2	0%	100%	0%
Development of agroforestry and sustainable management of soil fertility	PO_R2 Niger	34 584 689	100% identified -	3	4	0%	100%	0%
Support for the improvement of soil fertility, restoration of degraded land	PO_R2 Niger	37 417 575	100% identified -	3	4	0%	100%	0%
Integrated project to stabilise the dunes and combat poverty (Namaro)	PO_R2 Niger	472 269	Identification on-going	3	2	0%	100%	0%
<b>7 - Measures targeting vulnerability to degradation of the grazing land</b>								
Forage production and stockpiling of emergency supplies for cattle in the Burkina Faso area of the Sahel	NAPA Burkina Faso	330 000	Identification on-going	3	2	100%	0%	0%
Safeguarding pastoral areas in the regions of the Sahel and the East.	NAPA Burkina Faso	300 000	Identification on-going	3	2	94%	6%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Reduction of the vulnerability of the livestock sector to the effects of climate change (REVEECC)	PNACC Cameroon	5 550 000	Identification on-going	3	2	65%	35%	0%
Support for management of the pastoral area and prevention of conflicts in the northern area	PO_R1 Ivory Coast	1 863 866	60% identified - PIDACC	3	2	43%	57%	0%
Programme of pastoral development resilient to climate change;	NC Fast start Mali	109 900 000	50% identified -	3	2	36%	35%	29%
Improvement of intercommunity grazing areas	NAPA Chad	1 500 000	Identification on-going	3	2	35%	52%	13%
Support for vulnerable groups for cattle and sheep fattening in the regions of Gao, Timbuktu	PO_R1 Mali	3 915 966	60% identified - PIDACC	3	2	28%	36%	36%
Bukina Faso National Observatory on Pastoralism (ONPB)	Bukina Faso Climate Investment Projects	3 294 682	Identification on-going	3	2	N/A	N/A	100%
<b>8 - Measures targeting vulnerability to degradation of the ecosystems</b>								
Creation of a fish farm in Minignan	PO_R1 Ivory Coast	206 723	60% identified - PIDACC	2	4	100%	0%	0%
Creation of cane rat ranches in order to reduce bushfires and improve living conditions for rural populations	NAPA Guinea	300 000	Identification on-going	3	2	100%	0%	0%
Promotion of the use of solar energy to dry fish with the aim of reducing the use of wood for smoking	NAPA Guinea	300 000	Identification on-going	3	2	100%	0%	0%
Delimitating the zones for the conservation (forests, protected zones) / Identification of sites	PO_R2 Nigeria	593 277	Identification on-going	3	2	100%	0%	0%
Fight against bush fire	PO_R2 Nigeria	176 471	Identification on-going	3	2	100%	0%	0%
Support for fish-farming and training of fishermen	PO_R1 Niger	5 280 672	100% identified -	2	2	100%	0%	0%
Development of 300 ha of ponds overrun with <i>Typha australis</i> (Dosso region)	PO_R1 Niger	1 136 134	100% identified -	3	2	100%	0%	0%
Development and adaptation of fisheries to climate change	PO_R1 Niger	13 021 357	100% identified -	2	2	100%	0%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Performance of work to restore the forests in the rural sector	NC - DCDF Ivory Coast	1 300 000	Identification on-going	3	2	90%	10%	0%
Restoration project for degraded forests in the rural sector	NC - PND Ivory Coast	1 086 213	Identification on-going	3	2	90%	10%	0%
Support for the implementation of community forest management plans	NAPA Guinea	600 000	Identification on-going	3	2	84%	16%	0%
Project to support communities in the savannah area for protection against desertification and the loss of the means of subsistence of the local communities.	NC - Management of community forests Ivory Coast	1 710 327	Identification on-going	3	2	83%	17%	0%
Conservation measures of Forest galleries on secondary rivers	PO_R2 Nigeria	1 297 479	Identification on-going	3	2	83%	17%	0%
Project to plant useful forest trees in the communities of the regions of Poro, Tchologo and Bagoué	NC - PND Ivory Coast	1 297 905	Identification on-going	3	2	78%	22%	0%
Promotion of energy-saving equipment (improved stoves, M'Bora stew pot) and renewable energy technologies (pressure cooker, water heater and solar dryers, etc.)	NAPA Burkina Faso	1 230 000	Identification on-going	3	2	68%	32%	0%
Reduction of the vulnerability of forests to climate change in Cameroon	PNACC Cameroon	8 880 000	Identification on-going	3	2	65%	35%	0%
Development of fisheries infrastructure Aménagement des infrastructures de pêche	PO_R1 Ivory Coast	1 030 252	60% identified - PIDACC	2	2	62%	38%	0%
Implementation of the Kankan wildlife reserve management plan	PO_R2 Guinea	2 100 840	60% identified - PIDACC	2	2	56%	44%	0%
Support the fight against bushfires	NC - AGIR Ivory Coast	3 578 969	Identification on-going	3	2	55%	45%	0%
Promotion of fire management and prohibited access	NAPA Guinea	300 000	Identification on-going	3	2	55%	45%	0%
Forest development in the provinces of Oudalan and Séno	PO_R2 Burkina Faso	1 712 605	10% identified - UEMOA	3	2	54%	46%	0%
Construction of nursery ponds to rear fry	PO_R1 Guinea	282 353	60% identified - PIDACC	2	3	54%	46%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Construction of fish ponds in Guinea	PO_R1 Guinea	759 664	60% identified - PIDACC	2	3	54%	46%	0%
Capitalization of the fight against the water hyacinth and the proliferation of sida cordifolia	PO_R2 Nigeria	1 258 824	Identification on-going	3	2	54%	46%	0%
Development, rational management of natural training and use of non-wood forest products (NWFP) in the East region of Burkina Faso	NAPA Burkina Faso	700 000	Identification on-going	3	2	52%	48%	0%
Preservation of the ecosystems and conservation of biodiversity (Ramsar -Niger, Niandan –Milo, Niger-Mafou,)	PO_R2 Guinea	932 773	60% identified - PIDACC	3	2	47%	53%	0%
Rehabilitation of the classified forest of Guesselbodi (2,000 ha)	PO_R2 Niger	11 023 691	60% identified - PIDACC	3	4	47%	53%	0%
Conservation and management of the middle of Niger area	PO_R2 Nigeria	566 387	Identification on-going	3	2	47%	53%	0%
Socio-economic utilisation of invasive aquatic plant species	PO_R2 Nigeria	151 490 756	Identification on-going	3	2	47%	53%	0%
Adaptation of households to climate change by the promotion of renewable energies and efficient economical hearths and pressure cookers in areas vulnerable to climate change and where the land is severely degraded	NAPA Benin	2 106 600	Identification on-going	3	2	43%	57%	0%
Support for the development of fishing activities around dams (Boundiali, Minignan and Odienné)	PO_R1 Ivory Coast	2 942 857	60% identified - PIDACC	2	3	43%	57%	0%
Develop some protected zones	PO_R2 Nigeria	2 598 319	Identification on-going	3	2	33%	67%	0%
Project to develop fish farming in floating cages and in ponds	PO_R1 Mali	3 073 950	60% identified - PIDACC	2	5	32%	68%	0%
The Economic and Environmental Rehabilitation project for the Niger River	NC PNSFN Mali	60 918 627	90% identified -	3	2	32%	41%	27%
Rehabilitation of a nursery pond in Moli and construction of a nursery pond in Madarounfa	PO_R1 Niger	1 003 361	60% identified - PIDACC	2	2	27%	73%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
Support to fisheries development	PO_R1 Nigeria	2 171 429	10% identified - PIDACC	2	2	27%	73%	0%
Intensive reforestation programme to rebuild the forest ecosystems in Mali	NC Fast start Mali	188 800 000	30% identified -	3	2	27%	42%	31%
Promotion of wildlife and habitat management by local communities in the region of Mouhoun	NAPA Burkina Faso	810 000	Identification on-going	2	2	24%	76%	0%
Support for fishermen and fish-farmers around the Lagdo dam	PO_R1 Cameroon	4 752 941	20% identified - PIDACC	2	5	21%	79%	0%
Provision for the fight against aquatic invasive species in Cameroon, Ivory Coast and Nigeria (30 000 ha + 5000 ha + 2500 m3)	PO_R1 Cameroun	4 192 347	60% identified - PIDACC	3	2	7%	56%	37%
Firewood production project and installation of a wood market in the region of Gao and Timbuktu	PO_R2 Mali	810 000	Identification on-going	3	2	0%	100%	0%
Project for development, management of natural resources and promotion of Moringa oleifera (Tajaé, Malbaza and Tsernaoua)	PO_R2 Niger	6 052 101	Identification on-going	3	2	0%	100%	0%
Sustainable management of the forest resources and promotion of alternative energy sources	PO_R2 Niger	126 242 017	30% identified -	3	4	0%	100%	0%
Support for the development of the fishing and fish-farming sector	PO_R1 Niger	9 425 210	20% identified -	2	2	0%	0%	100%
Development and use of the valley of Goroubi (Tamou and Torodi)	PO_R1 Niger	3 040 336	Identification on-going	3	2	0%	0%	100%
Rehabilitation of the classified forest of BOUNDIALI in the north of Ivory Coast with the participation of the neighbouring populations (as for PO_R22208_CI_15)	NC - SODEFOR Ivory Coast	1 718 098	Identification on-going	3	2	N/A	N/A	100%
Rehabilitation of the classified forest of FENGOLO - PALE in the north of Ivory Coast with the participation of the neighbouring populations (as for PO_R22208_CI_15)	NC - SODEFOR Ivory Coast	1 065 560	Identification on-going	3	2	N/A	N/A	100%
<b>9 - Measures targeting vulnerability to deterioration of the water quality and health</b>								
Protection of children under 5 and pregnant women	NAPA Benin	1 112 500	Identification	3	2	100%	0%	0%



Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
against malaria in the areas most vulnerable to climate change			on-going					
Pollution warning station on the Niger River	NC PNSFN Mali	177 679	Identification on-going	2	2	100%	0%	0%
Global study of pollution of the waters of the Niger River in Upper Niger in Mali	NC PNSFN Mali	255 520	Identification on-going	2	2	100%	0%	0%
Mark out and display protection areas around the main water resources	NC - PND Ivory Coast	1 015 310	Identification on-going	3	2	91%	9%	0%
Rendering surface water drinkable using Hydropur®	NAPA Guinea	320 000	Identification on-going	3	2	78%	22%	0%
<b>10 – Measures targeting vulnerability linked to the rising sea-level</b>								
Conservation and management of the coastal delta zone of the Niger river	PO_R2 Nigeria	1 090 756	Identification on-going	3	2	54%	46%	0%
<b>11 – Measures strengthening resilience (e.g. generation of jobs, revenues, etc.)</b>								
Support to the development of community and private Anacard tree planting	NAPA Guinea	600 000	Identification on-going	3	2	76%	24%	0%
Development of improved wood carbonisation techniques and promotion of economical stoves in order to reduce deforestation	National communication on climate change Benin	4 061 242	Identification on-going	1	2	65%	35%	0%
Reduction of the effects of climate change on the fisheries sector	PNACC Cameroun	3 330 000	Identification on-going	3	2	65%	35%	0%
Fish-farming development programme	NC Fast start Mali	31 000 000	60% identified -	3	2	56%	44%	0%
Enhance the resilience of vulnerable populations by restoring degraded land (agroforestry and community reforestation)	NC - PND Ivory Coast	8 579 373	Identification on-going	3	2	52%	48%	0%
Development of Resilience of the population and the Ecosystem in the Basin (Conservation of biodiversity/Forest management; Preservation of biodiversity / Management of the fauna reserve)	PO_R2 Nigeria	4 139 496	60% identified - PIDACC	3	2	46%	54%	0%
Rehabilitation of 300 km between Labezanga and Dolé	PO_R1 Niger	1 085 714	60% identified -	1	2	4%	96%	0%





Action title	Reference document and beneficiary country	Overall action cost (USD)	Funding sources	Prioritization options		Financial scheduling and Implementation		
				Contribution to resilience	Preparation stage	PO-PT1 2016-18	PO-PT2 2019-21	PO-PT3 2022-24
(Gaya)			PIDACC					
Construction of 30 landing stages between Labezanga and Dolé (Labezanga, Ayorou, Tillabéry, Gothuey, Niamey, Kollo, Gaya, Dolé), et Konni, Madarounfa, Abalak	PO_R1 Niger	1 302 521	60% identified - PIDACC	1	2	4%	96%	0%
Integrated national project for development and adaptation to climate changes in the Niger Basin	CN PNIDAC	72 000 000	10% identified -	3	5	26%	40%	34%
Integrated Management of Natural Resources Programme	CN PNSFN Mali	1 951 500	100% identified -	3	2	23%	77%	0%
Support for the potato sector in Mali	PO_R1 Mali	344 538	Identification on-going	2	4	2%	71%	27%
Economic promotion of agricultural and forest products in Mali	PO_R1 Mali	2 579 832	Identification on-going	1	2	2%	71%	27%
Diversification of the energy offer in a context of climate change	PNACC Cameroun	22 200 000	Identification on-going	3	2	17%	45%	38%
Promotion of market gardening	NAPA Guinea	250 000	Identification on-going	3	2	100%	0%	0%
Creation of a palm grove covering 100 ha along the Gourouol in the province of Oudalan	PO_R1 Burkina Faso	1 741 176	Identification on-going	1	5	0%	44%	56%
Climate insurance project for farmers (PACE)	Projets d'investissements Climat Burkina Faso	22 438 361	Identification on-going	3	2	N/A	N/A	100%
Project to set up three areas for the intensification of animal production (ZIPA)	Projets d'investissements Climat Burkina Faso	41 143 764	Identification on-going	3	2	N/A	N/A	100%

AGIR : Global Alliance for Resilience

CIWA: Cooperation in International Waters in Africa

NC: National Contribution

DCDF: Land Registry and Forestry Development Department (Côte d'Ivoire)

DIN: Inner Delta of the Niger

ONCC: National Observatory for Climate Change

NAPA: National Adaptation Programmes of Action

PIDACC: Programme for Integrated Development and Adaptation to Climate Change in the Niger Basin





## Appendix I : **Adaptation and Resilience funding sources identified**



Various sources of funding and initiatives have been set up by multilateral development banks and the United Nations Framework Convention on Climate Change (UNFCCC) for the purposes of financing needs with respect to climate change adaptation. The main initiatives as have been identified are as follows:

- ▶ **The Green Climate Fund (GCF, UNFCCC):** the Green Climate Fund, which was officially recorded during the 2010 Cancún conference, will help contribute to reaching the final goal of the United Nations Framework Convention on Climate Change (UNFCCC). Within the context of sustainable development, the Green Climate Fund encourages energy transition and climate-resilient development by contributing financial support to developing countries to adapt to and mitigate the effects of climate change, all the while taking into account the needs of these countries, which are particularly vulnerable to the negative effects of climate change (GCF, 2015). The Green Climate Fund should have accrued upwards of 100 thousand million dollars per year by 2020, with half of this amount being allocated to adaptation projects. It was recently decided that half of this amount being allocated for adaptation would be dedicated to more vulnerable countries.

The selection process is based on 6 compulsory criteria broken down into subcriteria, of which one at the very least should be met (1- The potential of the expected results and impact of the action, 2- The potential of the action to catalyse a large-scale paradigm shift, 3- The potential for sustainable development and co-benefits, 4- Financing needs and the vulnerability of the recipient country, 5- Country ownership, 6- The efficiency and economic effectiveness of the action). Priorities with respect to action categories and geographical regions have been set and have been included in the table below.

**Table 1: Potential investment priorities and expected results of the Fund**

Potential investment priority	Expected results area	Geographical region targeted
1: Climate-compatible cities	Transport (M) Buildings, cities, industries and appliances (M) Livelihoods of people and communities (A) Infrastructure and built environment (A)	Africa, Asia, Latin America, Eastern Europe
2: Sustainable climate-smart agriculture	Forestry and land use (M) Livelihoods of people and communities (A) Food and water security and health (A) Ecosystems and ecosystem services (A)	Africa, Asia, with an emphasis on LDCs
3: Scaling up finance for forests and climate change	Forestry and land use (M) Food, water and health (A) Ecosystems and ecosystem services (A)	Africa, Asia, Latin America
4: Enhancing resilience in SIDS	Livelihoods of people and communities (A) Food, water and health (A) Infrastructure and built environment (A) Ecosystems and ecosystem services (A)	SIDS
5: Transforming energy generation and access	Energy generation and access (M)	Africa, Asia, with a special focus on energy access in LDCs

Abbreviations: A= adaptation. M = mitigation. LDCs = least developed countries. SIDS = small island developing states.

Source: GCF, *Analysis of the expected role and impact*

- ▶ **Climate Investment Funds (CIF)** (BM, BAfD, BAfD, BERD, BID): These were created in 2008 as a rapid climate change financial instrument for the world, receiving US\$8.1 thousand million. CIFs provide developing countries with grants, concessional loans, risk mitigation instruments and share acquisition to catalyse major financing in the private sector, multilateral development banks (MDBs) and other similar players. There are actually two funds: the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF):
  - The Clean Technology Fund (CTF) has an annual amount of US\$ 5.3 thousand million and provides financial support to middle-income countries to mitigate the effects of climate change. It encourages the reduction of greenhouse gas emissions via the implementation of low-carbon technology in the areas of renewable energy, energy efficiency and sustainable transport.



- **The Strategic Climate Fund (SCF)** acts as a general framework to support three targeted programmes with dedicated financing for new approaches with the potential for scale increases as well as transformative actions with the goal of dealing with a specific challenge related to climate change or providing sector-specific solutions.
  - ✓ The goal of the Forest Investment Programme (FIP) is to support actions in countries who are keen to reduce GHG emissions as a result of deforestation and forest degradation (to the tune of US\$785 million). This programme is aimed at actions targeting the management, development and restoration of forest areas as included in the CIP (270,000 ha and 25 actions in question).
  - ✓ **The Pilot Programme for Climate Resilience (PPCR)** is the SCF's first operational programme which began in 2008, with US\$1.2 million. The purpose of this programme is piloting and demonstrating various ways of incorporating climate risk and resilience within development planning as a complement to other activities currently under way. It consists of four components: (i) the development and dissemination of good agricultural and food safety practices, (ii) strengthening the resilience of supply infrastructures for potable water and sanitation, (iii) the collection, analysis and use of meteorological and hydrological data and (iv) feasibility studies with respect to strengthening the resilience of coastal region habitats. **This programme would appear to be best suited to CIP action financing needs.**
  - ✓ The aim of the Programme for Scaling Up Renewable Energy in Low Income Countries (SREP) is to show the economic, social and environmental viability of low-carbon development for the energy sector (US\$796 million).
- ▶ **Adaptation Fund:** This fund is wholly dedicated to projects and programmes aimed at combating the negative effects of climate change in developing countries. That means that only costs related to the implementation of a specific adaptation action would be funded. The Adaptation Fund will only finance projects and programmes whose main, explicit objective is climate change adaptation and improving resilience (Adaptation Fund, 2014).
- ▶ **'Traditional' development backers:** the whole of bilateral and multilateral donors (World Bank, EU, UNDP, ADB, AfDB, BEI, JICA, AFD, KfW, USAID, etc.) who actively participate in financing adaptation measures in developing countries. The aforementioned funds normally finance projects led by development backers.
- ▶ **Regional financial institutions:** Both the CEMAC/ECCAS and UEMOA/ECOWAS have public policies on climate change adaptation and have developed financing and adaptation tools such as the FEVAC during the COP 21 conference. These funds may be accessed to support the implementation of CIPs.

Sources:

Operational policies and guidelines for parties to access resources from the adaptation fund, 2014.

BRLi, Guidelines for climate adaptation mainstreaming in water infrastructure development. 2012.

BRLi, Defining climate-compatible actions for the world of water, a tangible contribution to COP21, PFE/AFD, August 2015.

GCF, Analysis of the Expected Role and Impact of the Green Climate Fund, February 2015



## Appendix J : **Implementation strategy**



## 1. INTRODUCTION.

Essentially (65%) coming from of the 2016-2024 NBA Operational Plan, the actions of CRIP will be implemented according to the strategy defined in the OP and adopted in a regional workshop of NBA member countries on 12 September 2015 in Cotonou. This chapter reminds of the methods of intervention and cooperation of the ES/NBA, and with the partners involved in the CRIP that are: countries, Technical and Financial Partners.

## 2. General aspects on the implementation of CRIP actions

In the chronology of the implementation of CRIP actions, those of the (Knowledge and Institutions)<sup>4</sup> Package will be primarily implemented to support the implementation of the actions of the sectoral actions package that contribute to strengthen the resilience of people and ecosystems of the basin to the climate change impacts<sup>5</sup>.

To finance country-investments of the CRIP, member countries are expected to provide a national contribution to the financing of each action. For the entire OP, a financial contribution of at least 10% is requested from member countries to mark their commitment to the implementation of adaptation and resilience actions to climate change.

Following the evaluation of the implementation of the 1st three-year plan of the CRIP, priority actions of the 2nd and 3rd year plans will be a rolling update<sup>6</sup> to reflect the status of implementation of the actions of the previous three-year plan.

## 3. IMPLEMENTATION OF ACTIONS OF THE “KNOWLEDGE AND INSTITUTIONS” PACKAGE

### 3.1. Objectives and results

Managing the variability and hydro-climatic uncertainties requires an improving knowledge of the climate and its impacts on natural resources, development of modeling tools for decision support. Also, the Package of actions No.1: “Knowledge and Institutions” aims to strengthen the capacity of national and regional institutions that support people to practice resilience actions.

Among the institutions implementing the CRIP, will be supported:

- ▶ The NBA Executive Secretariat;
- ▶ National Focal Structures;
- ▶ Non-state organizations working on the ground in the area of climate change.

### 3.2. Support to ES/NBA

In charge of promoting cooperation between member countries and contributing to improving the living conditions of the people of the basin through the sustainable management of water resources and associated ecosystems in accordance with the term of the mandate assigned to it by the revised Convention of N'djamena establishing the Niger Basin Authority and signed by the Heads of State and Government of the nine (9) NBA member countries on 29 October 1987, the ES/NBA and NFS will benefit from the Investment actions of the No.1 “Knowledge-Institutions” Package of the CRIP.

<sup>4</sup> These actions correspond to the actions assigned to axes 5, 4 and 3 of the NBA Operational Plan.

<sup>5</sup> These actions correspond to the actions assigned to axes 5, 4 and 3 of the NBA Operational Plan.

<sup>6</sup> The relevant actions that have not been implemented or not entirely implemented in one 3-year plan are extend in the next 3-year plan.



### **Support to the ES/NBA in its basic functions**

Basic functions of the ES/NBA will be strengthened:

- ▶ in terms of environmental monitoring of the basin's resources through the development of the Niger Basin Observatory.
- ▶ as regards the hydrological and hydro-geological monitoring of the River Niger Basin and its tributaries by supporting the intensification of the monitoring network of hydrological flows and water quality.
- ▶ as regards the development of hydrological forecasting and the development of its early warning system.
- ▶ regarding the identification and implementation of sustainable funding for the operation and technical investments of ES/NBA.
- ▶ regarding managing and improving its performance by increasing its human resources, improving working conditions.

Technically, individual and collective skills of the ES/NBA and NFS executives will be strengthened through the implementation of the training plan which is being developed. This training plan will be enriched with themes related to Climate Change (CC), to climate change impacts and adaptation and mitigation measures.

### **Support to the setting up of a monitoring-evaluation system**

Planning, monitoring & evaluation of the CRIP will follow the logic being defined for the implementation of the Operational Plan of which the CRIP is a part. The M&E system will be aimed at conducting a timely collection, processing and dissemination of appropriate information on the implementation process of planned activities, the physical and financial achievements and results achieved<sup>7</sup> in order to enable stakeholders to implement and policy makers to make decisions that will enable the speeding up and maximizing of expected results.

This M&E system will be based on four (4) components or interdependent pillars which are:

- ▶ Planning: It will first be for three years then broken down in detail for each year through Annual Work Plans and Budget (AWPB),
- ▶ Monitoring of activities and supervision of implementation: This activity will measure progress and performance achieved following the logic of transformation of activities and results of resources made available to the stakeholders;
- ▶ Monitoring of results: It helps measure progress recorded in achieving the intermediate and strategic outcomes. To do this, a performance measurement framework of the CRIP will be established as early as the 1st year of implementation;
- ▶ Audits and evaluations: They will be conducted by independent consultancy firms to ensure that the financial resources made available to the ES/NBA, NFS or supported institutions use resources for their goals.

Supervisory and audit operations will be conducted each year. The evaluations will be scheduled as follows:

- ▶ Annual reviews (annual reports);
- ▶ A mid-term evaluation of the first three-year plan of the CRIP or OP;
- ▶ A mid-term evaluation of the Strategic Plan during the 2nd year of the three-year plan. A final evaluation of the Strategic Plan.

<sup>7</sup> See the expected results of the CRIP at the end of the Appendix



The organizational system of planning, monitoring and periodic evaluation of CRIP results will extend to the Executive Secretariat and to the countries (NFS and NCU). This offshoot of the system will enable greater ownership of the planning system (including the work plans), increased accountability and a more concerted management between the regional and national levels.

***Support to the establishment of an effective internal and external communication of the CRIP/NBA among stakeholders***

In the implementation of the CRIP, an effective communication mechanism with each of the stakeholders involved in the implementation of the CRIP will be developed.

Objective:

The CRIP/NBA communication plan that will be developed will be aimed to inform and convince all along the implementation of CRIP, the Political and Administrative Authorities of NBA member countries, the TFPs community, local Communities, Civil Society and the people of the basin on the reality of CC so that they can accept to invest in the plan to strengthen the people's resilience to climate change in the River Niger Basin. This CRIP/NBA Communication Plan in its implementation is divided into 2 parts. They are:

- ▶ • Communication for COP21;
- ▶ • Communication after COP21.

*Communication for COP21*

This communication aims to bring together the political leaders of the nine (9) NBA member countries so that they can lend their group support to the CRIP/NBA to submit to the community of donors and technical partners present at the COP 21, the initiative of the resilience plan of the people of the River Niger Basin as regards CC.

This communication will be organized around:

- ▶ the participation at the COP21 of an ES/NBA technical team of 9 NFS Coordinators of each member country and two representatives of civil society (1 user and 1 user of RNB).
- ▶ the organization of an NBA resilience day with a panel team to present the CRIP/NBA, deliver the advocacy necessary for the TFPs to finance the CRIP/NBA.
- ▶ the animation of an NBA stand at the Africa Pavilion.

*Communication after COP21*

Communication after COP 21 will (1) continue, through international meetings, the dynamics of the mobilization of Technical and Financial Partners; (2) promote the CRIP within the countries.

Promotion of the CRIP/NBA within the countries aims to:

- ▶ Raise awareness among policy makers such as the members of the Finance Commission and Environment Commission of National Assemblies. The aim of this communication is that finance laws that are voted at the meetings should be made available to national projects on the strengthening of population resilience, resources to fund national counterparts of actions registered in the CRIP/NBA document.
- ▶ Support organizations and technical ministries in the organization of the CC event. These Climate change events is intended to (i) inform the producer groups of the reality on CC (ii) disseminate good practice in terms of sustainable natural resources management (iii) build national alliances (support organization for producers, producer organizations – University - Research Institute) to promote, disseminate good practices for resilience.

Communication on CRIP after COP21 will be intense in 2016.



The above-mentioned concerns are developed in the implementation strategy of the programmes of the Operational Plans through:

- Programme 3: Sustainable funding
- Programme 4: Cooperation with institutions
- Programme 5: Organizational performance management

### **3.3. At the level of Countries and state organizations.**

The strengthening needs of state and non-state structures such as defined in the CRIP will be met as far as possible. These structures will be identified at the pace of actions to be implemented on the ground. Under these structures, we have the strengthening of NFS, NCU/RCU.

## **4. IMPLEMENTATION OF ACTIONS OF THE SECTORAL PACKAGE ENHANCING POPULATION RESILIENCE, ECOSYSTEMS, INFRASTRUCTURES**

The actions of the sectoral package aims to contribute to the strengthening of resilience of populations and ecosystems of the basin to climate change through the reduction of exposure and/or reduction of the sensitivity of the people or their livelihoods to CC sectoral impacts identified in the RNB.

### **4.1. Implementation of actions of the sectoral Package enhancing population resilience, ecosystems, infrastructures**

#### Objective

Sectoral actions of the CRIP are exclusively investment activities in member countries. These actions of this package aim to:

- ▶ reduce the vulnerability of populations and or their livelihood situations such as:
  - water stress;
  - floods;
  - degradation of water quality;
  - soil degradation;
  - degradation of pasture;
  - degradation of ecosystems;
  - rise in sea level.
- ▶ enhance the adaptive capacity of people through the implementation of socio-economic activities.

#### Implementation

- ▶ implementation of sectoral actions should be planned and implemented in synergy with all the stakeholders whose roles and means of action have been previously defined;
- ▶ The cooperation topics for the appraisal of actions, the process of research and engagement of funding, programming and implementation of activities in countries are described for each action with various groups of national and regional stakeholders<sup>8</sup> in charge of the planned actions;
- ▶ The monitoring and evaluation mechanism for the implementation of actions in countries and the monitoring processes will be identified for each country action with the various groups of national and regional stakeholders;

<sup>8</sup> ES/NBA, NFS, national technical services, civil society organisations, NGO, firms





- ▶ For each action, the risk of implementation and measures for their mitigation will be identified and monitored by the NFS, Climate change focal points and the NCU in order to prevent delays in the technical, financial and even decision-making implementation;
- ▶ Countries' responsiveness to requests from NBA, the TFPs for their projects, as well as their recording among national priority projects, will be decisive in the appraisal, the search for funding and the conduct of NBA projects;

For every country action, the MSDS will be developed. This MSDS should include among others:

- ▶ general aspects on the project: reference and/or coding, origin (SP, OP, SDAP, etc.), the location, main recipient countries from the action, duration, cost (overall and OP1), funding source;
- ▶ the objectives, outcomes and indicators, project management and the implementation conditions, potential funding sources;
- ▶ the addresses of the project holders/country at the national level and at the Executive Secretariat;
- ▶ milestones and major activities in progress for maturity (feasibility, evaluation) and for funding;
- ▶ The risks of implementation for each action.

#### **4.2. Stakeholders and actors of cooperation/partners for the implementation of CRIP/NBA actions**

The implementation of the CRIP such as actions of the sectoral Package actions will require:

- ▶ soliciting, among others, a multitude of experts and specialists of technical services of the administration, NGOs, consultancy firms, both in the Executive Secretariat, at the level of member countries for the implementation and close monitoring of technical and environmental studies, conduct of actions and capacity building;
- ▶ strengthening of cooperation/consultation frameworks with donors, national governments, civil society organizations and the beneficiaries of investments;
- ▶ a strong will of member countries to make national legislation in line with the Water Charter.

Therefore, NBA will use different technical partners to support the implementation of the OP or CRIP at national and regional levels. This will require for NBA:

- ▶ the ability to establish, with national stakeholders of the ToR, contracts/specific cooperation agreement, capacity to control and supervise, the establishment of an effective communication mechanism with each partner;
- ▶ to define areas of cooperation (with NGOs, civil society, regional basin organizations), in connection with the expected results of SP, OP and CRIP;
- ▶ the completion of the drafting of the annexes to the Water Charter, their dissemination and consensus among member countries on monitoring and decision support tools;
- ▶ operationalization of the water management bodies such as the Permanent Technical Committee, sub-basins Commissions, Panel of Experts, Regional Advisory Group, the Niger Basin Observatory (NBO) and NFS.

#### **4.3. Gender equality**

As in all countries, regional and international development organizations, through its interventions, NBA will contribute to reducing Gender inequalities for gender equality in all sectors of economic and social life of the beneficiaries of projects and programmes.



The adverse effects of climate change are very heavy on the female population in terms of water stress, food shortages, etc. Thus, all the actions of capacity building, communication, project and programme formulation, conduct of studies and monitoring and evaluation will be integrated where possible, differentiated and specific aspects that make visible the actions of NBA projects/programmes contributing to reducing gender disparities.

As part of the implementation of coherent actions, the development of an NBA gender policy, already started will be finalized and action measures will be identified with countries for their implementation.

## **5. INSTITUTIONAL SET UP OF THE IMPLEMENTATION OF THE CRIP/NBA**

### **5.1. NBA Governing Bodies**

The implementation of the CRIP will be based on NBA policy making, steering and execution bodies which are:

- ▶ The Summit of Heads of State and Government: the supreme policy-making and decision-making body. It meets every two (02) years in an Ordinary Session;
- ▶ The Council of Ministers: the Authority's control body. It is responsible for monitoring the activities of the Executive Secretariat and reports to the Summit of Heads of State and Government. It meets once a year in an Ordinary Session;
- ▶ The Technical Committee of Experts: It has a mandate to prepare the sessions of the Council of Ministers to which it submits reports and recommendations;
- ▶ The NBA Executive Secretariat<sup>9</sup>: It is the coordinating and implementation body of the Authority and is managed by an Executive Secretary.

These statutory bodies are supplemented by:

- ▶ The Advisory Committee of Partners and Financial Officers (ACPFO): It studies the possibilities of assistance, defines the nature and volume, recalls the implementing rules and monitors the implementation of projects and programmes This body meets once a year on the sidelines of the Council of Ministers meeting.
- ▶ The Regional Steering Committee (RSC) of projects and programmes: Control and decision-making body, reporting to the Council of Ministers through the Executive Secretariat. It meets once (1) a year.

As part of the implementation of the CRIP, these aforementioned bodies are completed by the following:

- ▶ Within the ES/NBA: the Steering and Arbitration Committee (SAC) retained in the implementation strategy of the SP. The SAC is responsible for: (i) the strategic direction and oversight of all NBA interventions; (ii) validation and adoption of the annual activity plans; (iii) review of progress made and provide recommendations on corrective measures. This committee meets quarterly.
- ▶ In the member countries:
  - The National Focal Structures (NFS/NBA), inter-ministerial technical services, NFS are responsible for coordinating and monitoring NBA activities in each member country by involving all stakeholders at the national level such as focal points in charge of national projects recorded in the CRIP. Capacity building of institutions and bodies will be extended to NFS. The support needs of the latter will involve:
    - the operation of NFS and participation of their representatives in national and/or regional decision-making workshops;

<sup>9</sup> Pending the conclusions of the institutional and organizational audit, the CRIP actions will be implemented by a provisional organization of ES/NBA whose composition has been described in the Operational Plan, following the regional workshop held on September 12, 2015 in Cotonou (Benin).



- the monitoring of CRIP actions in the field;
  - requests for support from national or regional coordinating units of users;
  - the organization of awareness events on “Climate Change” and its impacts.
- The National Coordinating Units of Users (NCU) of the Niger Basin’s natural resources and their gathering, the Regional Coordinating Units of Users (RCU), composed of elected representatives from user associations are responsible for (i) promoting and organizing cooperation between users; (ii) contributing to the management of national resources. The RCU represents the users in the NBA statutory body and in venues for discussions and negotiations on the future of the basin. Capacity building of institutions and bodies will be extended to NCU/RCU. The need for support of the latter will concern:
    - the operation of NCU and participation of their representatives in national and/or regional decision-making workshops;
    - the monitoring of CRIP actions in the field;
    - requests for support from users;
    - the organization of awareness events on “Climate Change” and its impacts.
- ▶ With Technical and Financial Partners

The implementation of the CRIP, as with the OP, will be monitored through the current ACPFO that will expand its powers for this purpose.

## 5.2. Intergovernmental and Regional Organizations

In order to widen its thinking and create conditions for the achievement of its strategic results, NBA will cooperate on issues of population resilience to climate change with:

- ▶ basin organizations and networks of basin organizations (VBA, OMVS, CICOS, ZRA (Zambezi River Authority), INBO, ANBO, etc.) for technical exchanges and sharing of experiences;
- ▶ regional organizations for integration and socio-economic development (AU, ECOWAS, ECCAS, WAEMU, CEMAC) for a convergence of their actions for the benefit of the people of the basin.

Cooperation Agreements between NBA and these organizations will be established in connection with the results of the Operational Plan and the CRIP. Every two years, cooperation activities will be assessed by stakeholders to assess progress and plan future actions.

## 5.3. NGOs and development organizations

As part of the implementation of sectoral actions, diversified expertise of NGOs and national or international associations will be sought at the regional and national level to ensure support and proximity control of the implementation of actions. The following activities will be particularly targeted:

- ▶ Information and capacity building of users;
- ▶ accompanying, monitoring and evaluation of field projects on behalf of NBA;
- ▶ control of compliance with environmental standards in the execution of works;
- ▶ support to the ownership of techniques and achievements by local people.

Gender promotion associations, among others, will be involved in communication with users and the promotion of gender.

## 5.4. Project management of CRIP/NBA investments

SP actions can be divided into two (2) categories:

- ▶ regional and national actions with trans-boundary impact;
- ▶ national actions with non-trans-boundary impact.



i) Regional actions and national actions with trans-boundary impacts are actions that have impacts (positive or negative) for at least two member countries. They are financed by loans, donations, grants and legacies or own funds of the member countries or the NBA Executive Secretariat.

The project management of the technical, environmental and social studies, the search for funding as well as the monitoring and evaluation of these actions is provided by the NBA Executive Secretariat in accordance with Decision No.1 of the 9th Summit of Heads of State and Government, held on 16 September 2010 in Abuja.

Project management of work, such as that of major infrastructure and facilities is currently provided by member countries and could be delegated to the NBA Executive Secretariat.

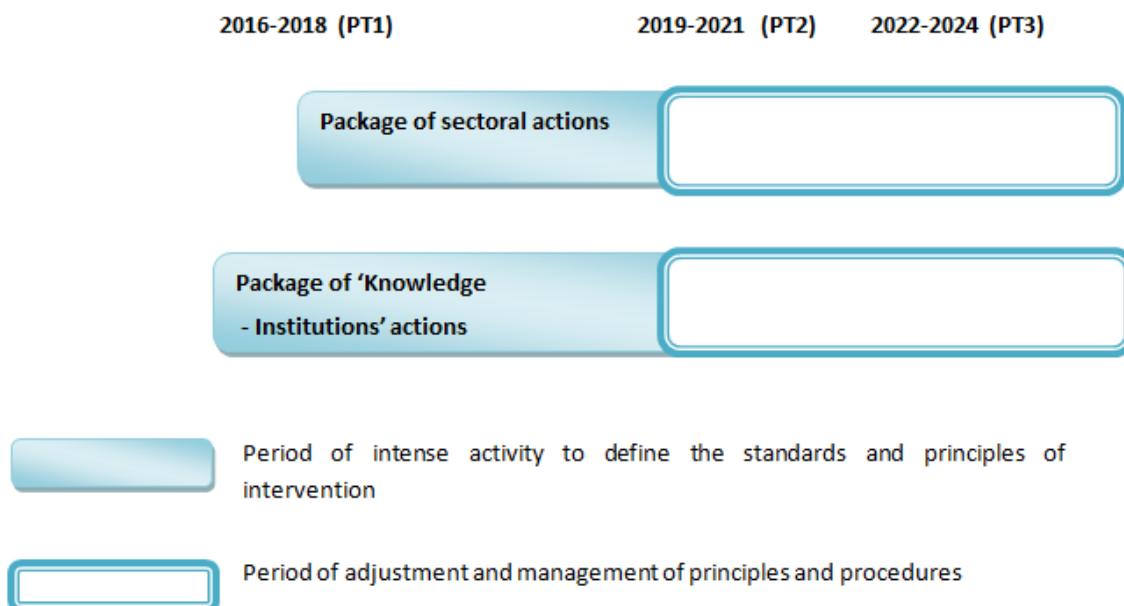
ii) National actions with non-trans-boundary impact:

When funding is also provided by owner member countries from their own funds or from loans from donors, the project management of studies and work is under the responsibility of each owner member country, in accordance with national legislation.

However, when the financing of these actions is mobilized through the NBA Executive Secretariat within the context of regional projects/programmes, project management of studies and works is provided by the NBA Executive Secretariat. This is the case of projects/programmes such as: (i) the Reversing Land and Water Degradation Trends Project in the Niger basin (2005-2011); (ii) the Silting Control Programme in the Niger Basin (2004-2015); and (iii) the Water Resources Development and Sustainable Ecosystems Management Programme in Niger Basin (2007-2015).

## 6. SCHEDULE OF THE IMPLEMENTATION OF CRIP ACTIONS

In view of the links between the two packages of CRIP actions and the need to ensure a successful implementation of this plan, the sequencing of the execution of actions of the packages will be as follows:





## PROPOSAL OF A RESULT CHAIN FOR CRIP

**Ultimate result: The resilience of the populations of the Niger River Basin to the impacts of climate change has been strengthened.**

Strategic results	Intermediate results	Immediate results
The management of Climate change impacts at the level of the basin's national and regional institutions is improved	The knowledge and management of climate change impacts have been improved at the institutional level.	Climate change knowledge management is improved within national and regional institutions. Forecast and decision-making support tools have improved.
	Populations are informed and trained in adaptation to climate change.	The basin's women and men are sensitized on Climate change and its impacts. Mechanisms for communication and training on the adaptation to climate change have been developed.
	Adaptation to climate change is integrated in the basin's national and regional institutions bodies and instruments.	The management of climate hazards is taken into account in formulating public policies, plans and development schemes. Communities' adaptive capacities to climate change and the concerted management of natural resources have been strengthened in public policies.
The adaptive capacity of populations and their production systems to climate change impacts have been identified and improved.	Exposure of the NRB's populations and their livelihood means to the harmful impacts of climate change is reduced	Populations' adaptive capacity to floods and to the increase in the sea water level has improved. Sandy or degraded soils have been reclaimed. The degradation of the water quality is reduced La dégradation de la qualité de l'eau est réduite.
		The negative influence of climate change on populations' sensitivity and their production systems is lessened.



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## Appendix L : **Acronyms and abbreviation**



AFD: Agence Française de Développement (French Development Agency)  
 AfDB: African Development Bank  
 AGIR: Alliance Globale pour la Résilience (Global Alliance for Resilience)  
 AU: African Union  
 AWPB: Annual Work Plan and Budget  
 BOAD : West African Development Bank  
 CC : Climate Change  
 CCTP : Consultative Committee of Technical Partners  
 CEMAC: Communauté Economique et Monétaire de l'Afrique Centrale (Economic and Monetary Community of Central African States)  
 CILSS: Comité permanent Inter-états de Lutte contre la Sécheresse au Sahel (Permanent Interstate Committee for Drought Control in the Sahel)  
 CIP: Climate Investment Programme  
 CIWA: Cooperation in International Waters in Africa  
 CoP21: UNFCCC Conference of Parties to be held in Paris in December 2015  
 DCDF: Direction du Cadastre et Développement Forestier (Land Registry and Forest Development Directorate - Ivory Coast)  
 DREDGE: Development Projects In Water Resources Management and Sustainable Ecosystems of the Niger River Basin  
 ECCAS: Economic Community of Central African States  
 ECOWAS: Economic Community of West African States  
 EU: European Union  
 FEVAC: Fonds pour l'Economie Verte en Afrique Centrale (Central African Green Economy Fund)  
 GHG : GreenHouse Gas  
 GIZ : Gesellschaft für Internationale Zusammenarbeit  
 INDC: Intended Nationally Determined Contributions  
 IP: SDAP Investment Programme  
 IPCC: Intergovernmental Panel on Climate Change  
 LCBC : Lake Chad Basin Commission  
 M&E : Monitoring and Evaluation  
 NAP: National Adaptation Plan  
 NAPA: National Adaptation Programmes of Action  
 NBA/ES: NBA Executive Secretariat  
 NBA: Niger Basin Authority  
 NBO: Niger Basin Observatory  
 NC: National contribution  
 NCCAP: National Climate Change Adaptation Plan  
 NCU : National Coordination of Users  
 NDP: National Development Plan  
 NFS: National Focal Structure  
 NGO: Non Gouvernemental Organization  
 NID: Niger Inner Delta  
 NNRSP: National Niger River Safeguarding Programme  
 NRB: Niger River Basin  
 OMVS: Senegal river development organization  
 ONCC: Observatoire National sur les Changements Climatiques (National Climate Change Monitoring Centre)  
 OP: NBA Operational Plan  
 P-GIRE2: Projet de Gestion Intégrée des Ressources en Eau (Integrated Water Resources Management [IWRM] Project)  
 PIDACC: Programme Intégré de Développement agricole et d'Adaptation au Changement Climatique dans le Bassin du Niger (Integrated Niger River Basin Agricultural and Adaptation to Climate Change Programme)  
 PQP : Priority Quinquenal Plan  
 SAP: NBA Strategic Action Plan  
 SC: Steering Committee  
 RSC: Regional Steering Committee  
 RCU: Regional Coordination of the Users  
 SDAP: Sustainable Development Action Programme



SIE: Système d'Information sur l'Eau (Water Information System)

SODEFOR Forest Development Corporation (Ivory Coast)

TFP: Technical and Financial Partners

UEMOA: Union Economique et Monétaire d'Afrique de l'Ouest (West African Economic and Monetary Union)

UNFCCC: United Nations Framework Convention on Climate Change

USAID: United States Agency for International Development

VBA: Volta Basin Authority

WB: World Bank

