ADAPTATION FUND

REGIONAL PROJECT PROPOSAL

I. PART I: PROJECT/PROGRAMME INFORMATION

Title of Project:	Integration of climate change adaptation measures in the concerted management of the WAP transboundary complex: ADAPT-WAP
Countries:	Benin, Burkina Faso and Niger
Thematic Focal Area[1]:	Disaster Risk Reduction and Early Warning Systems
Type of Implementing Entity:	Regional Implementing Entity (RIE)
Implementing Entity:	Sahara and Sahel Observatory (OSS)
Executing Entities:	**Regional Management Unit (RMU)** hosted by the OSS
Regional Coordination:	**National Management Units (NMUs):** Benin: National Center of Management of Fauna Reserves (CENAGREF) Burkina Faso: General Directorate of Water and Forests (DGEF) Niger: General Directorate of Water and Forests (DGEF)
Amount of Financing Requested:	US$ 11,536, 200

1 Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACP	African, Caribbean, and Pacific Group of States
APTB	Arly-Pendjari Transboundary Biosphere reserve
AWP	Annual Work Plan
BMZ	Federal Ministry for Economic Cooperation and Development (Germany)
CC	Climate Change
CENAGREF	National Center for the Management of Wildlife Reserves (Benin)
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
CNSEE	National Centre for Ecological and Environmental Monitoring (Niger)
COP	Conference of Parties
DGEF	General Directorate of Water Resources and Forests (Burkina Faso)
DGEF	General Directorate of Water and Forests (Niger)
ECOPAS	Project on Protected Ecosystems in Sahelian Africa
ECOWAS	Economic Community of West African States
EEC	European Economic Community
EFC	Ethics and Finance Committee
ERP	Emergency Response Plan
ESMP	Environmental and Social Management Plan
EU	European Union
GEF	Global Environment Facility
GIS	Geographic Information System
GPS	Global Positioning System
GTZ	German Technical Cooperation
IBRD	International Bank for Reconstruction and Development
IPCC	Intergovernmental Panel on Climate Change
IPSR	Interim Poverty Reduction Strategy (Benin)
IUCN	International Union for Conservation of Nature
LPDSE	Letter for the Development of the Energy Sector (Niger)
M&E	Monitoring and Evaluation
MAB	Man and Biosphere
MDGs	Millennium Development Goals
MEHU	Ministry of Environment, Housing and Urban Development (Benin)
MHMREWS	Multi-Hazard Early Warning System
MREWS	Multi-Risk Early Warning System
NAPA	National Adaptation Programme of Action (Benin)
NBA	Niger Basin Authority
NDCs	Nationally Determined Contributions
NGO	Non-Governmental Organization
NPMU	National Project Management Unit
NTFPs	Non-Timber Forest Products
NWFP	Non-Wood Forest Products
OSS	Sahara and Sahel Observatory
PAGAP	Support Programme to the Management of Protected Areas
PAGIRE	Action Plan for Integrated Natural Resources Management (Niger)
PAN/LCD	National Action Programme for Combatting Desertification (Niger)
PANA	National Action Programme for Climate Change Adaptation (Niger)
PANEDD	National Environmental Education Action Plan for Sustainable Development (Niger)
PAPE	Support Programme to the W Park
PAPISE	Action Plan and Investment Programme for the Livestock Sector (Niger)
PBR	Pendjari Biosphere Reserve
PEDD	Environmental Plan for Sustainable Development (Niger)
PNE	National Environmental Policy (Niger)
PNEDD	National Environmental Plan for Sustainable Development (Niger)
PNF	National Forest Policy (Niger)
PNG	National Gender Policy (Niger)
PNP	National Population Policy (Niger)
ProCGRN	Programme for the Protection and Management of Natural Resources
PRS	Poverty Reduction Strategy (Niger)
QWP	Quarterly Work Plan
RIE	Regional Implementation Entity
RPMU	Regional Project Management Unit
SDGs	Sustainable Development Goals
SNDD	National Sustainable Development Strategy (Benin)
SNEE	National Environmental Education Strategy (Niger)
TBPA	Transboundary Protected Areas
TBR	Transboundary Biosphere Reserve
TFP	Technical and Financial Partners
UEMOA	West African Economic and Monetary Union
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention for Combatting Desertification
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
USD	United States Dollar
WAP	W-Arly-Pendjari
WAPO Complex	W, Arly, Pendjari, Oti-Mondouri
WB	World Bank
WTBR	W Transboundary Biosphere Reserve

1. Project Background and Context

1.1. Introduction

1. The W-Arly-Pendjari (WAP) Complex is one of Africa's most important compositions of terrestrial transboundary ecosystems. It is considered as the largest and most important continuum of unharmed ecosystems in the West African savannah belt. Shared by Benin, Burkina and Niger, this network of protected areas consists of a number of areas with different status and protection regimes. In addition to the W Transboundary Biosphere Reserve (WTBR), shared by the three countries, the WAP complex covers the Arly National Park in Burkina Faso and the Pendjari National Park in Benin. Including the riparian zones, the WAP Complex extends over a total area of around 50,000 km² (43% in Benin, 36% in Burkina Faso and 21% in Niger). It displays considerable biological diversity that contributes to the economic and social development of the sub-region. In peripheral areas of the complex and at a distance of about 40 km from its protected areas, there are more than 500 towns and villages totalling 1 million inhabitants (about 700 000 in Benin, 200 000 in Burkina Faso and 100 000 in Niger).

2. The natural resources of the WAP Complex represent a major asset for the local populations whose livelihoods are mainly based on agriculture, livestock breeding, fishery, forest resources (wood and non-wood products), and tourism.

3. However, the WAP Complex is subject to multiple pressures and threats, mainly conflicts of use, poaching, overgrazing, agricultural lands expansion, transhumance, bushfires, surface water pollution, climate change and variability, unsustainable fishery and use of wood and non-wood products. Added to this, the WAP Complex is located in an agro-pastoral region characterized by high inter-annual variability exacerbated by climate change which makes it more vulnerable.

4. As a response to this situation, the proposed project aims to implement concrete actions in order to increase the resilience of population and ecosystems and mitigate the impacts of climate change in the WAP Complex. More precisely, the project will focus on the following issues:

   - Droughts leading to uncontrolled movement of pastoralists,
   - Floods threatening the safety of populations and plains by the loss of crops,
   - Uncontrolled bushfires leading to the shrinking of forest areas and caused by both human and natural factors,
   - Expansion of agricultural lands increasing pressure on natural resources and inducing loss of ecosystem services as carbon sequestration.

5. The West African Economic and Monetary Union (WAEMU) is a sub-regional area composed of 8 countries, including Benin, Burkina Faso, and Niger. They have areas of 112,622 km^2, 270,764 km² and 1, 267, 000 km² respectively with a population that comes to 10 million inhabitants in Benin (RGHP 3, 2012), 19,632,147 inhabitants in Burkina Faso and 20,751,801 inhabitants in Niger. The population growth rate varies from 3,16% to 3,9% per year. However, according to 2017 statistics, the population density varied from 16,38 inhabitants/km² (Niger) to 82 inhabitants/km² (Benin) with a growth rate ranging between 2,28 and 3,5% per year. The majority of the population in each of these countries resides in the centre and the south regions, where different national capitals are located. National economy in Benin, Burkina Faso, and Niger is based mainly on export and transit trade with Nigeria and neighboring countries such as crops, cotton, groundnuts, livestock products, oil and gold mining. In 2016, the Gross domestic product reached US$2,170, US$1,680 and US$970 respectively according to the World Bank data (World Bank, 2017, IBRD, 2016). Besides, basing on the Human Development Index in 2016, Benin occupied the 167th place, Burkina Faso the 185th place whereas Niger took the 187th one. Due to these indicators, these three countries have low human development levels.

6. With all these human pressures on the WAP Complex's natural resources combined to the adverse effects of climate change, the vulnerability of populations and ecosystems is more likely to increase. *De facto,* the introduction of urgent adaptation and mitigation measures has become mandatory to increase the resilience of populations and ecosystems.

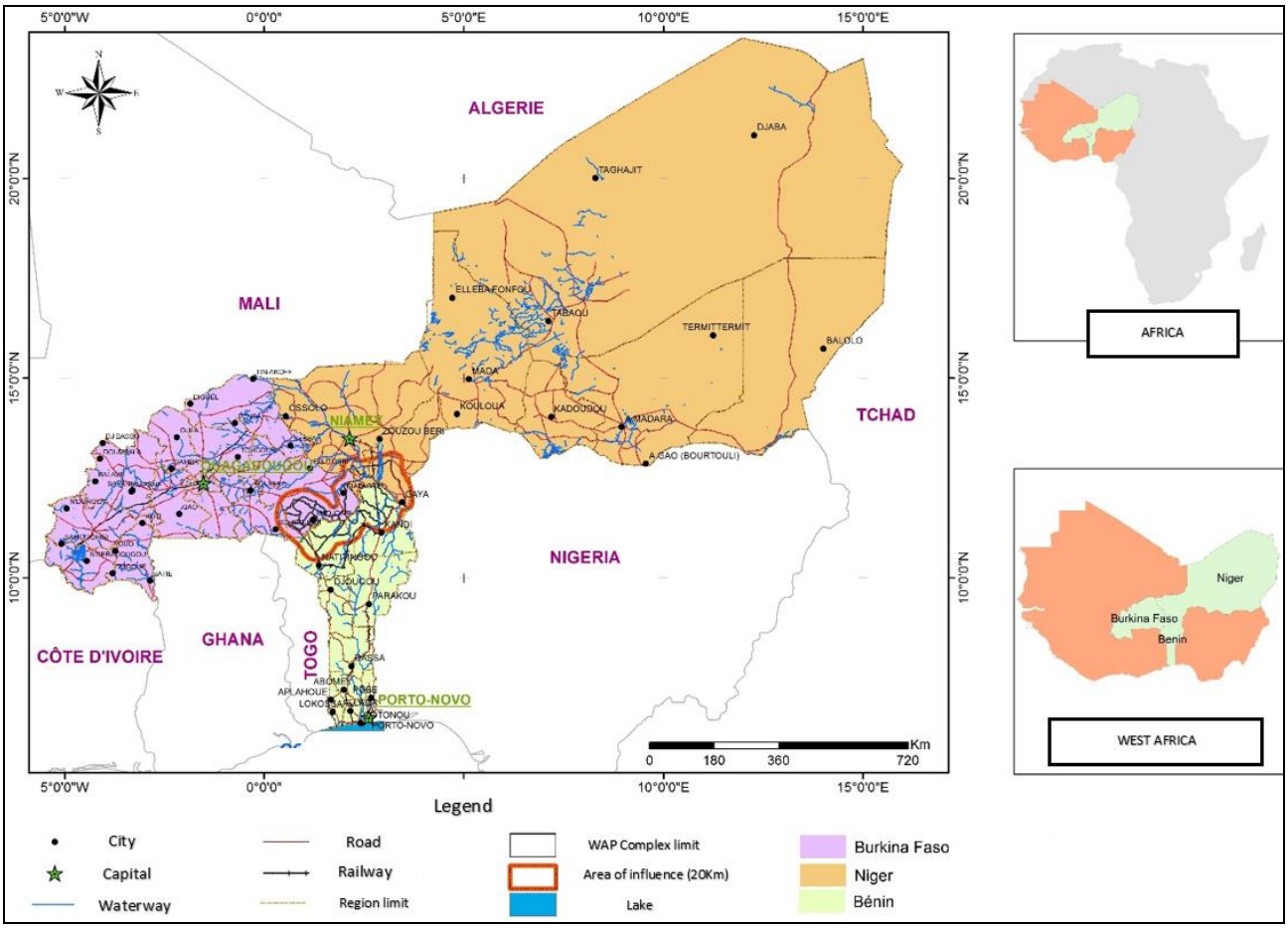


Figure 1: Geographical localization of WAP Complex countries

1.2. Profile of the project area

1.2.1. Physical characteristics

A. Location and physiography

7. Located at the junction of the three countries, Benin, Burkina Faso and Niger, the WAP parks complex, including its five National Parks (Pendjari, Arly, W/Benin, W/Burkina Faso, W/Niger) represents the northernmost part of the vast Sudano-Sahelian Savannah covering the entire eco-climatic space interspersed between three eco-climatic zones which give it a particular and complex dynamic. These eco-climatic zones with their rainfall data are Sahelian Savannah whose precipitation (is less than 600 mm/year), Sudanese Savannah (600-1200 mm/year) and Guinean Savannah (>1200 mm/year).

8. The WAP Complex is considered as the largest and most important continuum of flawless ecosystems in the West African Savannah belt. It is home to the largest population of antelopes, elephants, buffaloes and generally, the large emblematic terrestrial mammals characterizing the continent. Lions (Panthera Leo) are around 500, this is the last viable population for the species in West Africa. All in all, nearly 100 mammal species and 378 bird species live in this complex that's why it is commonly known to be the refuge for wildlife species that have disappeared elsewhere in West Africa.

9. Thanks to its biodiversity and ecosystem productivity, following the 41st session of the World Heritage Committee, held on July 7th, 2017 in Krakow in Poland, the UNESCO World Heritage Committee has registered the W-Arly-Pendjari (WAP) Natural Complex, on the World Heritage List. However, despite this obvious patrimonial value, the WAP Protected Areas Complex and its Savannah ecosystems have been facing, over two decades, threats and challenges, particularly due to the imbalance between exploitation, which is often illegal, and the availability of natural resources, in addition to the adverse effects of desertification and irregularity of climatic conditions, mainly due fluctuation in rainfall and drought.

10. To halt the process, a proactive and effective policy to strengthen monitoring, as well as the implementation of appropriate management practices (creation of trails, tourist infrastructure building, etc.), have been implemented and enabled first the Pendjari Park in the 1980s, then Arly Park in the 1990s and finally the W Park starting from 2001, to decrease anthropic pressure.

11. Besides, a support program to the concerted countries and WAP Complex should be implemented taking into account climate change issues through the development and the setting up of a regional adaptation strategy and capacity building plan to protect and improve the Complex's adjacent populations and ecosystems given the importance of the urgent issues being at stake. This regional adaptation strategy and adaptation capacity building plan will enable the sub-regional countries to provide a promising example to influence the global conservation policy and supply a set of protected areas able to reflect their will to conserve and enhance the essential modern biodiversity, such as the major parks and ecological systems for East and South Africa.

12. The W-Arly-Pendjari Complex is a major expanse of intact Sudano-Sahelian savannah, with vegetation types including grasslands, shrub lands, wooded savannah and extensive gallery forests. It includes the largest and most important continuum of terrestrial, semi-aquatic and aquatic ecosystems in the West African savannah belt. The WAP complex is composed of two units:

- The W Transboundary Biosphere Reserve (WTBR) shared by the three countries (Benin, Burkina Faso, and Niger).
- The Arly-Pendjari Transboundary Biosphere reserve (APTB) including the Arly Park in Burkina Faso and the Pendjari Biosphere Reserve in Benin.

13. The WTBR covers an area of 10 300 km². It consists of the Transboundary Biosphere Reserves W of Benin, Burkina Faso, and Niger. It is located between latitudes 11° and 12°35 northern latitude and longitudes 2° and 3°50 east longitudes in West Africa. As given in the Figure below, the W-Arly-Pendjari Complex is bounded:

- to the North by the W Niger National Park, the hunting areas of Tapoa Djerma, Kourtiagou, Koakrana, Pagou-Tandougou, Ouamou and Diapaga, Tansarga, Logobou, and Tambaga townships;
- to the South by the hunting areas of Pendjari and Atacora (Konkombri and Mékrou), the Atacora rangeland Banikoara township;
- to the East by the hunting area of Djona and Karimama and Malanville townships;
- to the West by the hunting areas of Singou Septentrional, center/north of Pama, Konkombouri, southern Pama, and Madjoari township.

14. However, the W Transboundary Biosphere Reserve lying in Benin (TBR/Benin) was created on December 3rd, 1952 by Order N°7640 S.E./F of the High Commissioner of the Republic and the Governor General of West Africa classifying thereby the total reserve of the W of Niger (Kandi Circle). This decree concerned classified national forests and a total wildlife reserve as known as the "W of Niger's total wildlife reserve" covering an area of 525,400 hectares. The TBR/Benin is located at the extreme north-west of Benin, between latitudes 11°20' and 12°23' N and longitude 02°04' and 03°05' E. It is bordered in the north by the Karimama, in the south by the Banikoara, in the east by the Alibori River and Kandi and Malanville, and finally in the west by the Mekrou River. It includes:

- the W National Park (563,280 ha);
- the hunting zone of Djona (115 200 ha), and;
- the eastern part of the Atacora hunting zone, known as the Mekrou hunting area (83 958 ha).

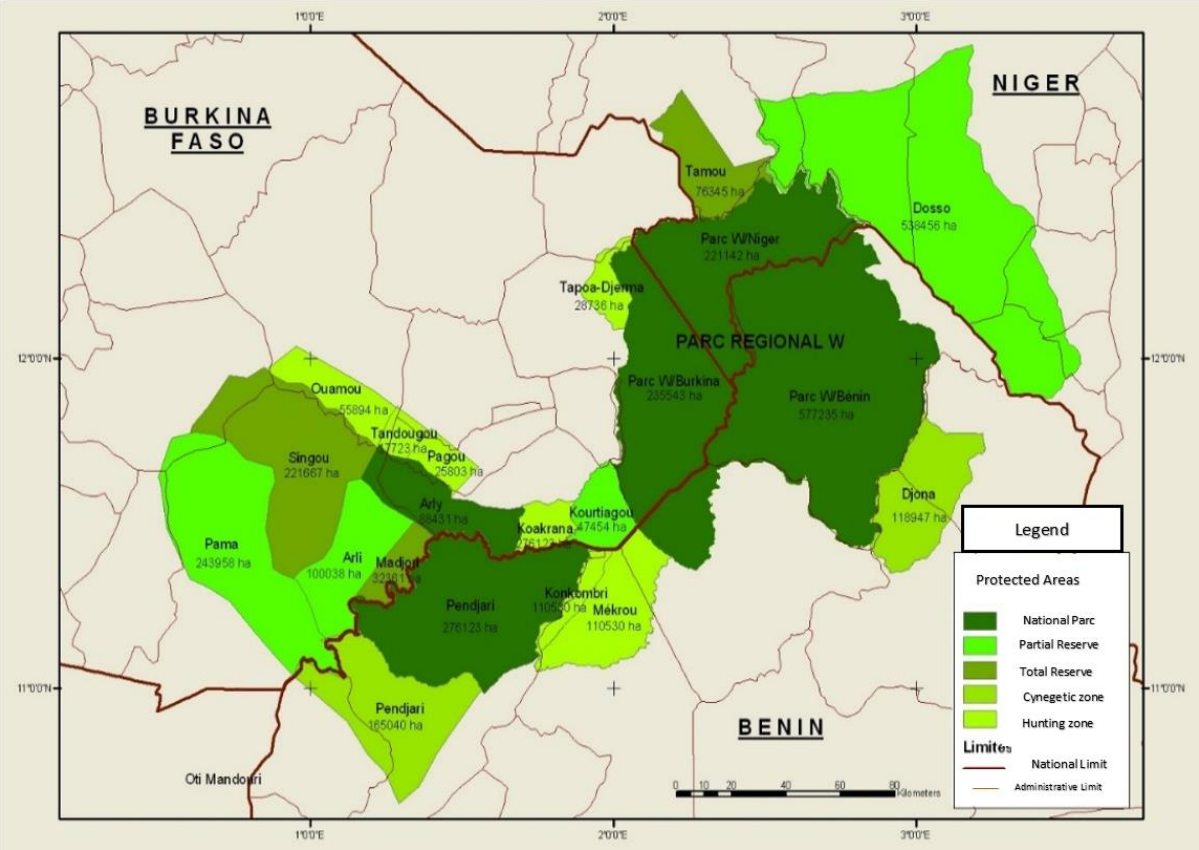


Figure 2: Localization of the WAP Complex

15. Moreover, the Burkina Faso's W Transboundary Biosphere Reserve (WTBR/BF) was created on 14 April 1953 by Order N°2606 S.E./F of the High Commissioner of the Republic and the Governor General of West Africa classifying thus the total reserve of "W of Niger", (Fada N'Gourma Circle). This decree represents a classified national forest and a total wildlife reserve known as the "Total Wildlife Reserve of the W of Niger" with an area of 350,000 hectares. The WTBR/BF is located in the province of Tapoa, located in the eastern part of the country and extending between parallels 11°24.728' and 12°22.435' N, meridians 1°50.446' and 2°22.320' E. The WTBR/BF includes:

- a central area consisting of the W National Park (2 350 km²);
- a buffer zone which includes the Kourtiagou partial wildlife reserve (510 km²) and the Tapoa Djerma sport hunting area (300 km²) and an area of 810 km².

16. Villages of hunting interest on the periphery of the sport hunting concessions are an integral part of this transition area, which is the most anthropized zones (agriculture, livestock) extending from the outer limit of the buffer zone covering a radius of several tens of kilometers. This hence concerns the rest of the municipalities of Logobou, Tambaga, Tansarga, and Diapaga.

17. Finally, the Transboundary Biosphere Reserve W lying in Niger (WTBRTBR/Niger) was created on 25 June 1953 by Order N°4676 S.E/F of the High Commissioner of the Republic and the Governor General of West Africa classifying like so the total reserve of the "W of Niger", (Cercle de Fada N'Gourma). The decree represents classified national forests and a total wildlife reserve as known as the "Total Wildlife Reserve of the W of Niger" with an area of 330,000 hectares. The WTBRTBR/Niger is located in the extreme south-west of Niger (Tillabéri Department, Say District) between latitudes 11°54' and 12°35' North and longitudes 02°04' and 02°50' East. It covers an area of 220 000 hectares, representing 0.2% of the total area of the Republic of Niger.

18. In addition, the Arly-Pendjari Transboundary Block (APTB), one of the components of the WAP complex, forms the western part of the WAP Complex (W-Arly-Pendjari). This block belongs to the largest Sudano-Sahelian Savannah ecosystem in West Africa. It consists of the Arly National Park in Burkina Faso and the Pendjari National Park and its adjacent hunting areas in Benin.

19. The Arly National Park (ANP) is located in southeast Burkina Faso in the eastern region, between longitudes 1°10'27'' and 1°43'48'' East and latitudes 11°14'51'' and 11°42'36'' North (OFINAP, 2015). It covers an area of 217,930 hectares and is bounded:

- to the North by the hunting areas of Pagou-Tandougou and Wamou;
- to the South by the Pama-Sud hunting zone and the Pendjari National Park (Benin);
- to the East by the Koakrana hunting zone;
- to the West by the hunting zones of North Singou, North Pama, North-Central Pama, and Konkombouri.

20. Pendjari National Park (PNP) and its adjacent hunting areas (Konkombri, Porga, and Batia) are located in the extreme north-west of Benin in Tanguiéta and Matéri communes. It is located in the department of Atacora between latitudes 10°30' and 11°30' North, and longitudes 0°50' and 2°00' East. The Pendjari National Park is bordered:

- to the north by the Madjori Total Reserve, the Arly Total Reserve and the Koakrana Partial Reserve (in Burkina Faso);
- the south by the hunting zone of the Pendjari;
- the eastern and western limits are respectively the hunting zone of Atacora and the partial reserve of Arly.

B. Climate and rainfall

21. The WAP Complex region is subject to a tropical climate. However, there are differences between the three countries as explained below.

BENIN

22. The WTBR /Benin region is characterized by a Sudano-Sahelian climate. Over the period from 1970 to 2014, the rainfall annual average at Kandi is about 969, 11 mm, with an average temperature of 28.47°C. Referring to the ombrothermic diagram (Figure 3), two seasons characterize the W TBR /Benin region:

- a dry season (from March to mid-May) corresponding to a warm period with an average monthly temperature oscillating between 30 and 34°C and peaks reaching 40°C; a cool period from October to February with average monthly temperatures around 25°C and minima coming to 12°C. This is the harmattan period;
- a rainy season (from mid-May to October) with an average monthly temperature of around 26°C.

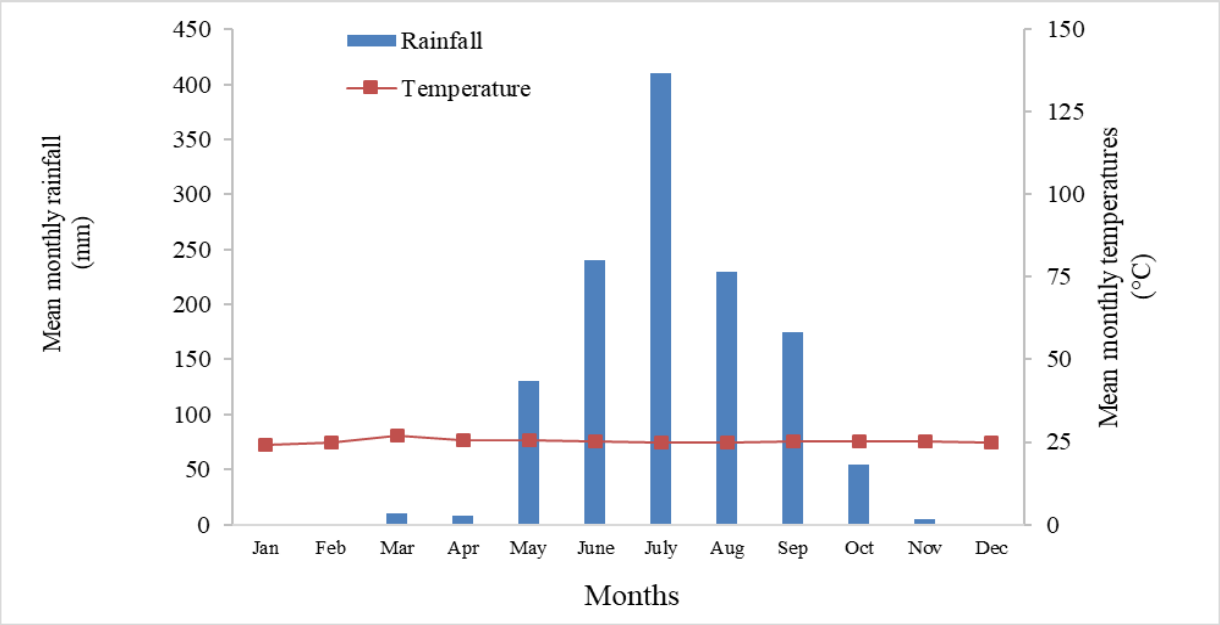


Figure 3: Kandi's ombrothermic graph (ASECNA, 2014)

23. The average daily duration of sunshine is 8,19 hours. This sunstroke is the highest in November and the lowest in August. The sunniest period goes from October to May and the less sunny from June to September.

24. Whereas relative humidity is the highest from April to November and the lowest from May to October. Monthly averages vary from 26% in February to 80% in August. From December to April, the average relative humidity is less than 50%.

25. Furthermore, the Pendjari Biosphere Reserve (PBR) belongs to the Sudano climate region, with a unimodal rainfall regime from mid-March to mid-September as given in Figure 4 below. Annual rainfall ranges between 900 and 1200 mm (ASECNA, 2015) and the average monthly humidity is below 10% during the dry season and exceeds 90% during the rainy season. The average temperature is around 25°C. The high temperatures are recorded between January and March and a decline is observed from July to December (low sunshine, high soil moisture). During the dry season, temperature differences between night and day are more pronounced. The minimum and maximum temperatures are around 21 °C and 40 °C respectively. During the cool dry season (Harmattan[2]), average monthly temperatures vary between 25°C and 28°C. The minimum temperatures can reach 15°C or even 7°C locally near rivers, waterways, and streams from mid-January to mid-February during the night.

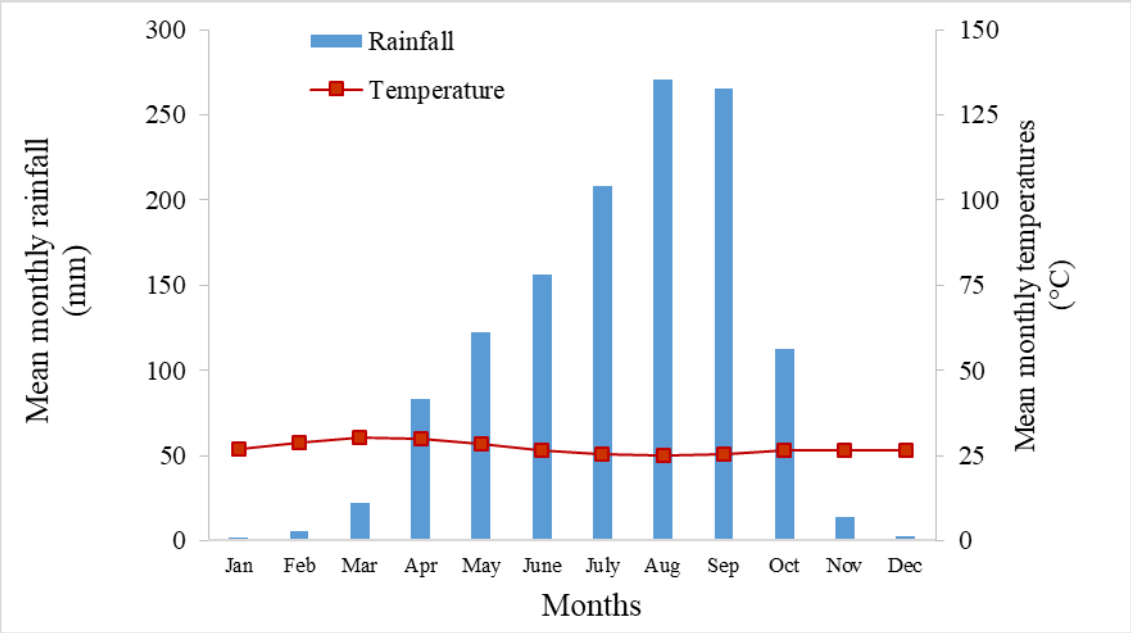


Figure 4: Natitingou ombrothermic graph, Tanguiéta (ASECNA, 2017)

26. Furthermore, the analysis of data from the Natitingou synoptic station covering the Pendjari National Park area reveals an upward trend in maximum and minimum temperatures. This increase is evaluated to an average of 0.6ºC for peak temperatures and 0.8ºC for minimum temperatures.

BURKINA FASO

27. The WAP Complex sector in Burkina Faso is of Sudanian climate, characterized by a rainy season (from June to October) and a dry one (from November to April) as they can be distinguished in Figure 5 below: (1) a rainy season (from June to October) with the maximum rainfall recorded in July and August. A relatively more arid climatic variant characterizes the northern part of the park while the extreme south tends to be a little wetter. The current average annual rainfall recorded at Diapaga station is about 760 mm. Thus, the peripheral zone of Park W can be classified in the northern Sudanian climate zone with rainfall varying between 750 mm and 950 mm (Fontès and Guinko, 1995), (2) a dry season (from November to April) characterized by a scarcity of rainfall with an average temperature of up to 33°C.

28. With reference to the climatic data recorded at Diapaga station, the average minimum temperature is around 14.9°C in January, whereas in March, April, May, and June, average maximum temperatures are around 35°C, with peaks sometimes reaching 40°C.

2 A dry, dusty easterly or northeasterly wind on the West African coast, occurring from December to February. The temperature is cold in most places, but can also be hot in certain places, depending on local circumstances. The Harmattan blows during the dry season, which occurs during the lowest-sun months. On its passage over the Sahara, the harmattan picks up fine dust and sand particles (between 0.5 and 10 microns).

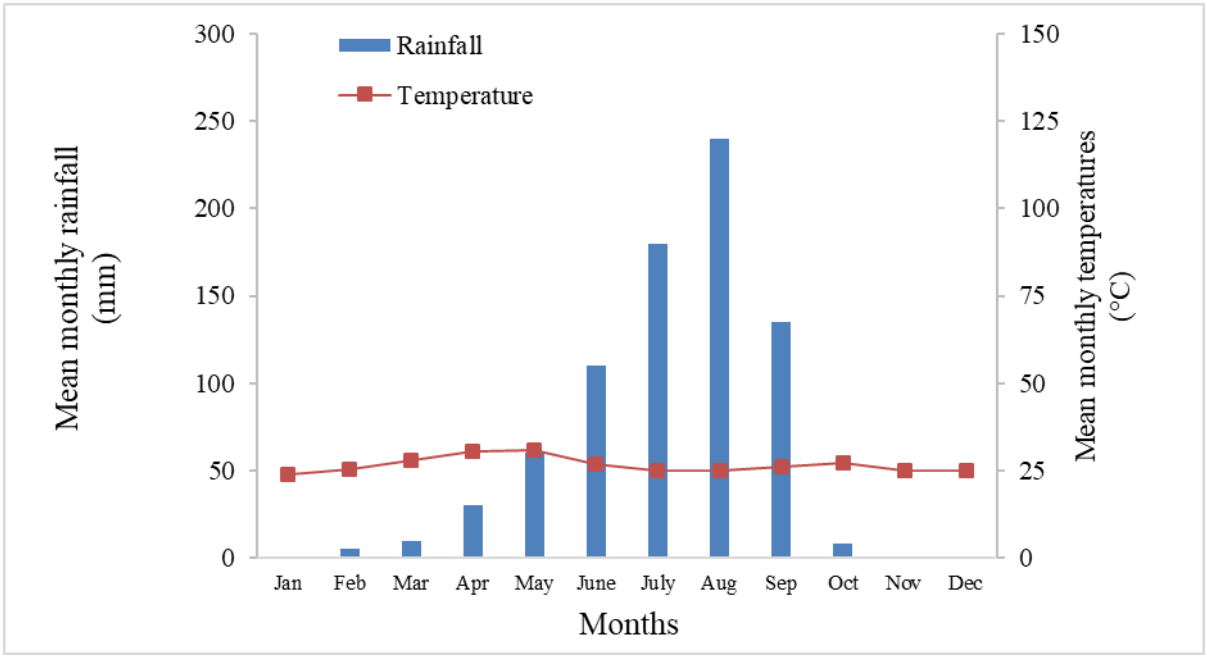


Figure 5: Diapaga ombrothermic diagram (ASECNA, 2014)

29. Sunstroke varies between 7-8 h/day on average, while air humidity is sometimes average, sometimes low (Kuela, 2000). Relative humidity is low in the cool season, with a minimum of 20.5% in February and a maximum of 81% in August according to Doussa (2006).

NIGER

30. The WAP/Niger Complex region is characterized by a Sahelo-Sudanian climate in the north (Niamey, Torodiand Say) where rainfall ranges between 450 and 600 mm (Figure 6). This climate includes: (1) a wet season (from May to September) with an optimum rainfall in July/August, (2) a dry season (from October to April) with a cold variant from November to February (24°C for the average temperature of the coldest month of January) and another hot season from March to June accompanied by the harmattan (35°C for the average temperature of the hottest month of May).

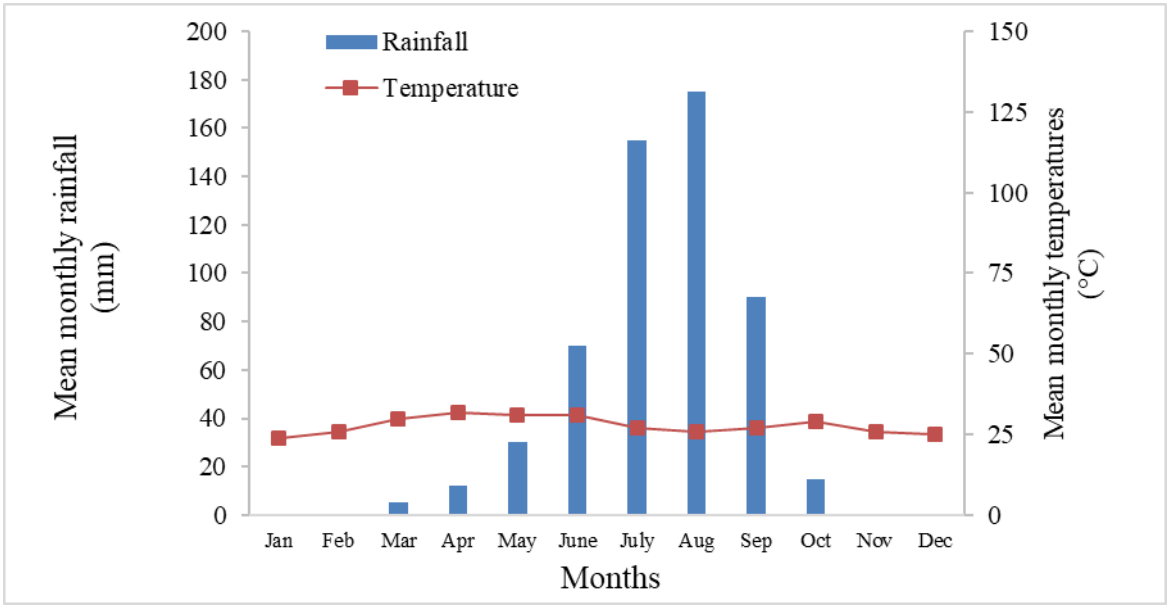


Figure 6: Umbrothermic diagram of Say region (Niger)

Source: http://fr.climatedata.org/location/766865/

31. Maximum Temperatures are registered in April and May (above 40°C) and minimum ones are noticed between December and January (20°C). The prevailing winds are the north-south harmattan, from November to March,

and the south-west and north-east monsoon, from April to October. The average wind speed is about 3,5 m/s. The annual sunshine is around 2000 hours. Besides, January is the driest month, with 0 mm of precipitation. Record rainfall was recorded in August with an average value of 171 mm.

C. Hydrography and irrigation systems

32. The hydrography of the W-Arly-Pendjari Complex straddles the catchment basin of the Volta and Niger (Vitchoékè, 2009), with the main rivers being the Niger River, Pendjari, Mekrou, and Alibori (Houssou, 1998). These rivers represent the main water sources of the W-Arly-Pendjari Complex. They are also supplemented by temporary streams including Tapoa, Arly, Singou, etc. There are furthermore many natural, permanent and/or temporary pools, to which are added artificial water points (UNDP, 2004).

33. The WTBR region is crossed by rivers, namely Niger and three of its tributaries which are the Tapoa in the north, the Mekrou (410 km) in the West and the Alibori (338 km) in the East. To these three important rivers are added other tributaries which are presented in figure 7 below.

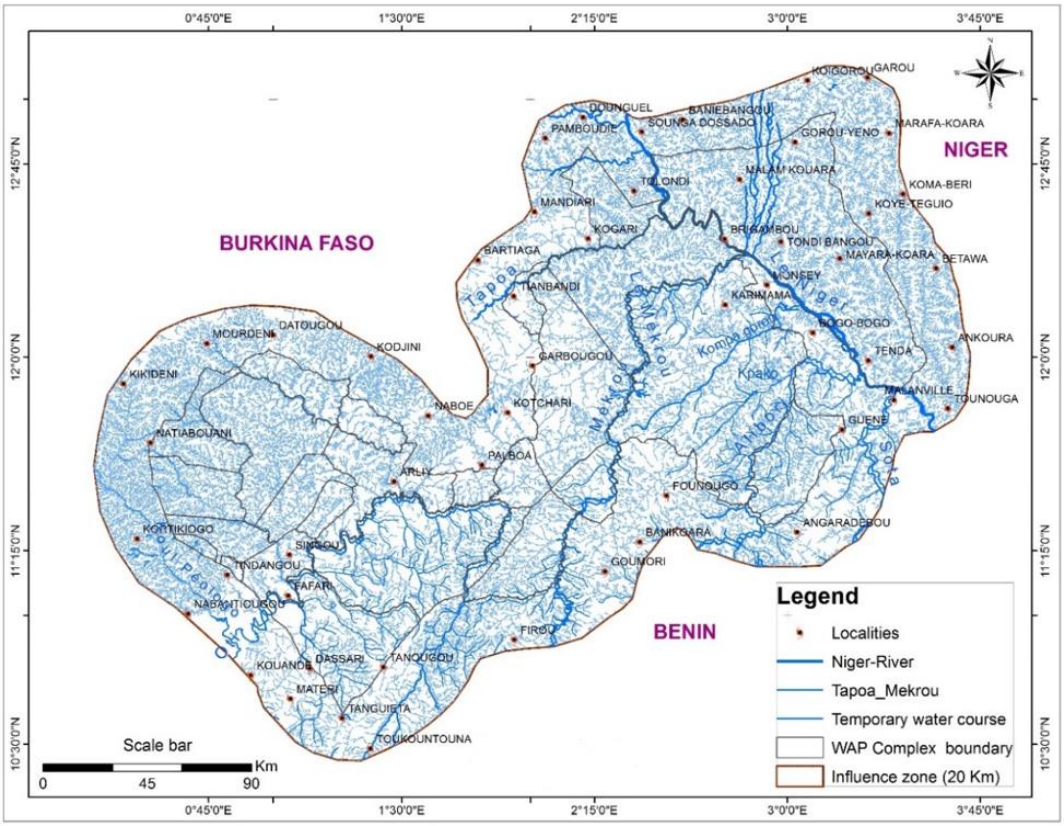


Figure 7: WAP Complex water system

34. The Alibori and Mekrou rivers, which drain the entire WTBR/Benin, are the main sources of water available intermittently in some areas during the dry season. To these two important rivers are added tributaries. The main ones are Kpako, Kompagarou, Bedarou, Djiga, and Konékoga, all of them are intermittent. We can also notice the absence of ponds. This situation of water shortage in the dry season in the WTBR/Benin for a long period causes induced displacements of wildlife which expose them to poaching pressure.

35. Whereas the WTBR/Burkina Faso is irrigated by two main catchment basins: (i) the Niger River Basin in the North whose waters are drained by rivers and their tributaries: Diamangou, Tapoa, Goulbi, Mekrou and Tvénétiegal and (ii) the Volta basin across the Pendjari river to the south which includes the Bokouongou, Doubodo, Kourtiagou and Arly rivers. There are permanent natural water points in years of good rainfall (water sources at the foot of the Atacora, the pool of Sourloumbou, lion's ponds, Gwarambou, contiguous Hippo ponds, etc.) and water points equipped with boreholes with a solar or motorized drainage system (PK27's ponds, PK57, huts of elephants, ponds of Soanda, Tamalé, Bounga, etc.).

36. Moreover, in the WTBR/Niger, five semi-permanent rivers (Sirba, Goroubi, Diamangou, Mékrou, Tapoa) are distinguished. To these watercourses are added 11 permanent ponds, 16 semi-permanent ponds, and 553

temporary ponds. Despite the availability of water in the Burkinabe and Nigerien parts of the WTBR, the water problem remains a permanent concern at the end of the dry season (April-May) since most of the ponds dry up completely.

37. Finally, the situation in the Pendjari and Arly Biosphere Reserve arises to a lesser extent. The BTAP drainage system is based on the Volta River basin. The Pendjari and Arly rivers gave their names to the parks. The Pendjari River is permanent all year long and extends over a length of 380 km, 200 km in the Pendjari National Park and 122 km in the Arly National Park (OFINAP, 2015; CENAGREF, 2016). The Arly River flows only a certain time of the year and crosses the Arly Park for about eighteen (18) km in the North-South direction. This network is reinforced by the presence of numerous natural ponds, particularly along the Pendjari.

D. Geology, relief, and pedology

W Transboundary Biosphere Reserve (WTBR)

38. The geomorphology of the WTBR area includes a vast collection of peneplains dotted with granitic inselbergs and hills. The relief is characterized on the one hand by the Cliffs of Gobnangou in Burkina Faso and on the other hand by the Atakora range along the southern boundary of Pendjari Park and further from the southwest of the park. The geology is largely dominated by Precambrian and Cambrian rocks of plutonic or volcanic origin, most of which have been strongly altered and reworked. However, specificities relating to each component are observed and explained below.

39. **Benin:** The relief in the WTBR/Benin includes the terminal extension of the Atacora range, which originates from the Akwapin Range in Ghana and extends to Benin. The chain ends in the Niger valley with some hills, from which one has a panoramic view of the river. On both sides of the plain lie flat regions: the plain of Borgou in the East and that of Gourma in the West. The geological formations of the WTBR/Benin are arranged in long NNE-SSO directional bands which mainly group the series of Buem, Atacorien, and Dahomey. The types of soils that can be encountered are (i) brown clay soils with calcareous nodules. They are poorly evolved, hydromorphic soils, which are intergraded towards eutrophic brown soils, (ii) tropical ferruginous soils (slightly leached in clay, indurated on kaolin or granito-gneiss, hydromorphic), (iii) soils on alluvio-colluvial material which are hydromorphic, mineral or slightly humus soils with deep gley, (vi) poorly evolved lithic soils on quartzites and micaschists; and finally (v) leached tropical ferruginous soils, concreted on Continental Terminal sandstone, indurated on kaolinic material derived from sandy-clay sediment.

40. **Burkina Faso:** In the WTBR/BF, the relief is dominated by a glacis, armored buttes and sandstone hills, the highest of which is the Gobnangou range (344m). The crystalline structure represented by sedimentary rocks is composed of granitic basement, voltaic sandstone, quartzite and iron armor (ORSTOM, 1969). Soils are little evolved. The main ones are: (i) soils with crude minerals (lithosols of various rocks and armour), (ii) ferruginous tropical soils leached on sandy and sandy-clayey materials, (ii) hydromorphic soils, browned on the volcanic meta that have undergone pedogenesis; (vi) eutrophic brown soils on clayey materials and (v) soils with little erosion on gravel materials.

41. **Niger**: In the WTBR/Niger, the relief is in the form of a generally undulating extent, suggesting two characteristic subsets: a relatively flat area ranging in altitude from 220 to 250 m (Moyenga, 1995) and some facies dominated by glacis, breastplates, sandstone hills, and cliffs (Kuela, 2000) to the south. In general, six soil units can be distinguished. They include (i) raw mineral soils, (ii) undeveloped soils, (iii) vertisols, (vi) sesquioxide soils, (v) mull soils from tropical countries; and (iv) hydromorphic soils. Geographically, these units are generally grouped into three major groups, namely sesquioxide soils, mainly of leached tropical ferruginous types that dominate the eastern and northern parts of the region. These soils have poor fertility and a rather pastoral vocation; poorly developed soils dominate the northwest, central and western parts of the region. In the south, there are sesquioxide soils, soils of crude minerals, and hydromorphic soils of average fertility suitable for cultivation.

Arly National Park (ANP)

42. The Arly National Park (ANP) is largely underlain by a granito-gneissic base, only disturbed by a few multiform intrusions, the Pendjari valley being sedimentary. Moreover, it is located in an old peneplain and therefore has few altitudinal variations that are between 150 and 225 meters. In its southern part, on the cliffs of Gobnangou, the altitude reaches 350 m.The main soil types according to OFINAP, 2015 are:

- poorly developed soils divided into classes such as lithosols, laterite eroded soils, alluvio-colloidal soils, poorly developed eroded soils, etc...;
- tropical ferruginous soils including lightly leached ferruginous soils, thin-to-thick tropical ferruginous soils, and impoverished leached-ferruginous soils.

Pendjari Biosphere Reserve (PBR)

43. The Pendjari Biosphere Reserve (PBR) is established on a flat relief peneplain whose altitude varies from 105 to 200 m. This peneplain is based on three major geological substrates: i) schist in voltaic platelets which are originally impermeable clay soils, ii) Buem quartzite and jasper sandstone and iii) intrusive Dahomean granite. The plain is bordered to the south by the Atacora mountain range formed by quartzites and whose altitude varies from 400 to 513 m. Its northern and eastern borders are occupied by the Pendjari River. A second chain, the Buem, smaller and parallel to the first, is located within the park itself. Overall, the soils of this peneplain are fine-structure-hydromorphic soils (CENAGREF, 2016).

1.2.2. Flora and Fauna

A. Flora

44. According to the White phytogeographic subdivision (1983), the WAP complex is located in the Sudanian sector which is the alternating pattern of open forest and Savannah formations. Its flora includes more than 800 plant species divided into 428 species and 103 families (Assédé et al., 2016). The map below illustrates the different plants distribution within the WAP complex.

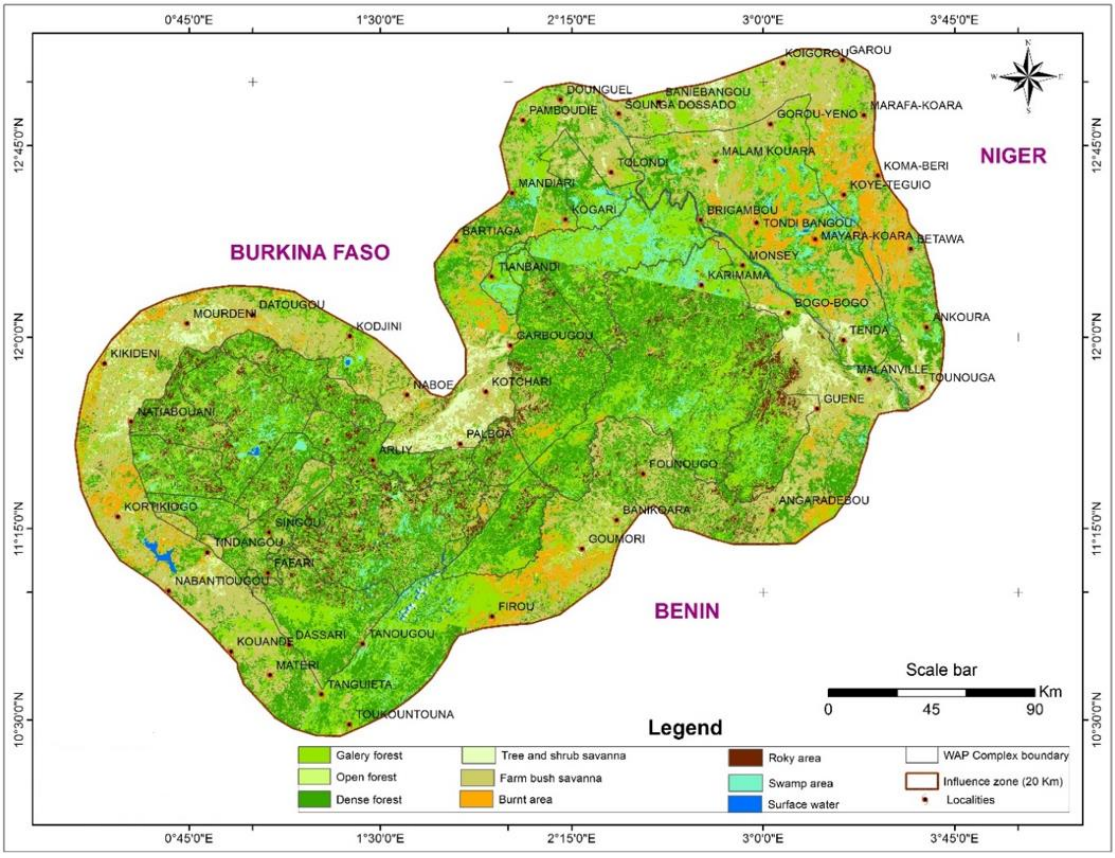


Figure 8: Plants map of the WAP Complex and its zone of influence (buffer 20km)

45. The vegetation in the W-Arly-Pendjari Complex is characteristic of the Sudanian zone with a mosaic of grassy, shrubby, wooded and wooded Savannahs, as well as open forests sheltering herbaceous stratum dominated by grasses (Oumorou, 1998). The main plants types are:

- Wooded Savannah: it covers respectively 19%, 30% and 55% of the area of the W, Arly and Pendjari subsets, and represents an average of 28% of the whole W-Arly-Pendjari Complex;
- Shrub Savannah: it has an average coverage rate of 24% of the WAP Complex with 17% in Pendjari, 34% in W and 64% in Arly;
- Tree Savannah: it has an average coverage rate of 5% of the W-Arly-Pendjari Complex;
- Herbaceous or grassy Savannah;
- Spotted bush (4%);
- Forests galleries;
- Saxon Savannah and altitude vegetation (1%); and
- Riparian vegetation.

46. The floristic procession of the W-Arly-Pendjari Complex, therefore, includes a large proportion of herbaceous but also of true woody plants, which, depending on their density, constitute shrub Savannahs or even wooded Savannahs (Oumorou, 2003). There is a gradient from north to south, ranging from herbaceous Savannahs including *Loudetia togoensis*, *Andropogon pseudapricus*, *Pennisetum pedicellatum*, to shrubby Savannahs with *Combretum spp*., *Terminalia spp*, *Acacia spp*., *Anogeissus leiocarpa*, *Balanites aegyptiaca, Ziziphus mauritiana*, and finally the wooded Savannahs with *Terminalia spp*., *Isoberlinia doka, Daniellia oliveri* and *Burkea africana*.

47. In addition, there are also more closed plants species, made up of dry forests and forest galleries at the edge of rivers (Adomou et al., 2006). Moreover, Sahelian affinities in the North allow species belonging to the neighboring Sahelian domain to go into the zone, while in the South, species specific to the humid flora of the Guinean domain ascend, thanks to more favorable ecological situations.

48. The plant species that can be observed in the W-Arly-Pendjari Complex, therefore, belong mainly to these three domains and, depending on whether we consider the northernmost or southernmost parts of the complex, we will find processions more or less rich in elements from these two neighboring domains (Adomou, 2005). Sokpon (2001) distinguishes the following plants species:

- Swampy Savannah (Terminalia macroptera);
- Wooded Savannah (Daniellia oliveri and Pterocarpus erinaceus);
- Savannah tree (Combretum spp);
- Shrub soap (Acacia gourmaensis and Crossopteryx febrifuga);
- Swampy Savannah (Mitragyna inermis and Acacia sieberiana);
- Saxon Savannah (Detarium microcarpum and Burkea africana);
- Forest gallery (Khaya senegalensis);
- Forest gallery (Cola laurifolia);
- Dry dense forest (Anogeissus leiocarpa);
- Forest riparian (Parinari congensis and Pterocarpus Santalinoides);
- Open forest (Anogeissus leiocarpa);

49. In addition, particular species such as rôneraies and bowé complete the mosaic of the vegetation cover with an infinity of transitions allowing an impressive variability of the Savannah (Akoegninou et al., 2006). The W-Arly-Pendjari Complex belongs to the Sudanian Savannah ecoregion, characterized by a low rate of endemism of plant species. Nevertheless, three endemic plant species (*Thunbergia atacorensis, Ipomoea beninensis, and Cissus kouandeensis*) find favorable conditions for their development (Akoegninou et al., 2006, Bouyer et al., 2007).

B. Fauna

Mammals

50. The W-Arly-Pendjari Complex harbors an average of 259,300 individuals of large mammals, an average density of 19 individuals per km², with a reasonable coefficient of variation of 7% as detailed in Table 1 below. There are 10 different species of antelopes which are the Buffon's cob (Kobus kob), the cob Defassa (*Kobus ellipsiprymnus defassa*), the Grimm's duiker (*Sylvicapra Grimmia*), the cob Redunca (*Redunca redunca*), the bushbuck (*Tragelaphus scriptus*), Red-footed duiker (*Cephalophus rufilatus*), Orebia (*Ourebia ourebi*), hippotrague (*Hippotragus equinus*), hartebeest (*Alcelaphus bucelaphus*), and damalisque (*Damaliscus korrigum*) (Bouché et al., 2012).

51. Three of the "big five" can easily be observed, namely the lion (*Panthera leo*), the elephant (*Loxodonta africana*) and the buffalo (*Syncerus caffer brachyceros*). This strongly enhances the reputation of the W-Arly-Pendjari Complex as one of the most important conservation sites in Africa, and in the world in general (Bastel, 2012). Whereas, the fourth of the "big five", is the leopard (*Panthera pardus*) although stills difficult to be observed. An increase of the space distribution for the leopard is also being recorded, where first traces observation (Henschel, 2014), and trap camera images are taken in the W Benin and Pendjari National Park.

52. There are also endangered or threatened species in much of Africa such as the cheetah (*Acynonix jubatus*), wild dog (*Lycaon pictus*), the damalisque (*Damaliscus korrigum*) and the manatee (*Trichechus senegalensis*) (Bouché et al., 2003).

53. In addition to large mammals appreciated for tourism, the W-Arly-Pendjari Complex is also rich of small mammal species. The presence of jackal (*Canis aureus*), serval (*Felix serval*), ratel (*Mellivora* capensis), civet (*Viverra civetta*), common genet, mongoose ichneumon, swamp mongoose (*Atilax paludinosus*)), white-tailed mongoose (*Ichneumia albicauda*), red mongoose (*Herpestes sanguineus*), African wildcat (*Felis sylvestris*), rock hyrax (*Procavia capensis*), spotted necked otter (*Lutra maculicollis*)), white-headed otter (*Aonyx capensis*), jackal (*Canis adustus*), dwarf jackal (*Lepus europaeus*), thirteen species of rodents including the grasscutter (*Tryonomys swinderianus*), the porcupine (*Hystrix cristata*) and finally nine species of bats (Rouamba et al., 2002, Sinsin et al., 2008, Bouché et al., 2012).

54. The fauna is distributed throughout the W-Arly-Pendjari complex, but the highest densities have been recorded mainly along the rivers. If 55% of the density is for elephant, buffalo, and large antelopes, small size antelopes contribute with 20% to the average density on one hand. On the other hand, elephants accounting for 32% of the biomass / km² compared with 46% for the Buffaloes and 18% for the large antelopes (PAPE, total faunal count of the W-Arly-Pendjari Complex, 2013).

Table 1: Average mammal density (N/km²) and biomass per km²

(Source: W-Arly-Pendjari Complex total wildlife count, 2014)

Species	Estimation	Density	Density	Weight (kg)	Biomass	Biomass
	Average	Total	%	Average	kg/km²	Average %
Buffalo	4.73	64346	25%	359.0	1699.2	45.7%
Hippotragus	2.05	30570	11%	217.0	444.0	12.0%
Bubalus	0.61	8294	3%	142.0	86.6	2.3%
Waterbuck	0.15	2011	1%	132.0	19.5	0.5%
Damaliscus			0%		0.0	0.0%
Buffon's Cobe	2.30	31227	12%	48.0	110.3	3.0%
Redunca	1.38	18706	7%	23.5	32.3	0.9%
Guib Harnaché	0.55	7453	3%	33.3	18.3	0.5%
Warthog	1.30	17693	7%	45.0	58.6	1.6%
Red-fronted Gazelle			0%		0.0	0.0%
Ourébi	1.46	19906	8%	12.4	18.2	0.5%

Grimm's Cephalophus	1.02	13875	5%	13.1	13.4	0.4%
Rufous-sided Cephalophe			0%		0.0	0.0%
Total ungulate	**15.55**	**214081**	**82%**		**2500.4**	**67.3%**
Elephant	0.58	7945	3%	2,000.0	1168.9	31.5%
Total ungulates + elephant	**16.13**	**222026**			**3669.2**	**98.8%**
Baboon	1.17	15903	6%	25	29.3	0.8%
Patas	1.41	19154	7%	10	14.1	0.4%
Total monkey	**2.58**	**35057**	**14%**		**43.4**	**1.2%**
Striped-sided Jackal	0.16	2207	1%	15	2.4	0.1%
Total carnivorous	**0.16**	**2207**			**2.4**	**0.1%**
Global total	**18.87**	**259290**	**100%**		**3715.0**	**100.0%**

Birds

55. The W-Arly-Pendjari complex has 460 bird species (Grell et al. 2002) including 101 aquatic species, 120 forest species, 162 species living in open country and 3 species living in rocks and mountains. 163 species are migratory, 63 of which are Palearctic. The diversity of raptors is particularly great with 37 species identified (Bousquet, 1992). The W-Arly-Pendjari Complex is an important area for bird conservation (Adjakpa, 2004). It is home to 21 of the 32 waterbird species in the Sudano-Guinean Savannah biome. The main species recorded are Poicephalus senegalus, *Coracias cyanogaster, Merops bulocki, Lybius dubius, Corvinella corvina, Ptilosto musafer, Anthoscopus parvulus, Hirundo leucosoma* (BirdLife International, 2008).

56. However, no endemic species have yet been enumerated, but threatened species are listed. They are the vulture (*Trigonoceps occipitalis*), the Great Horned Owl (*Bubo africanus*), the Roller (*Coracias garrulus*), the Snake (*Sagittarius serpentarius*) and the Hobereau (*Falco cuvieri*) (Grell et al. 2002). The most frequent water birds are the kingfisher (*Cerylerudis*), the eagle (*Concuma vocifer*), the crowned crane (*Balearica pavonina*), the grey heron (*Ardea cinerea*), the egret (*Egretta alba*), the armed duck (*Plectropterus gambensis*) and the widowed dendrocygne (*Dendrocygna viduata*) (Adjakpa, 2003 b). 37 species of birds of prey have been identified, including the eagle vocifer (*Haliaeetusvocifer*), the African gyps (*Gyps africanus*), the Rüppel gyps (*Gypsrueppellii*), Brown Percnoptera (*Neophron percnopterus*), Crested Vulture (*Aegypius occipitalis*), Martial Eagle (*Polemaetus bellicosus*), Snake Messenger (*Sagittarius serpentarius*) and Bateleur (*Terathopiuse caudatus*).

Ichthyological fauna

57. Fishery resources have been studied by several authors (Moritz et al. 2008; Ahouansou Montcho, 2009). Approximately 100 fish species have been recorded in WAP streams. The W-Arly-Pendjari Complex straddles the Volta Basin and the Niger River Basin (ECOPAS, 2005). The Volta basin is characterized by the endemism of nine fish species (*Steatocranus irvinei, Synodontis arnoulti, Synodontis macrophthalmus, Synodontis velifer, Brycinus luteus, Micralestes pabrensis, Barbus bawkuensis, Barbus guildi and Barbus parablabes*) (Ahouansou, 2010). Seven of them are found in the Pendjari River. With this wealth, the W-Arly-Pendjari Complex hosts 77% of the endemic fish species recorded in the Volta basin (Leveque et al. 2004, Ahouansou Montcho, 2009).

Reptiles

58. The W-Arly-Pendjari Complex is hosting six rare snake species, some of which are clearly forested. These are *Bitis arietans, Charina reinhardtii, Naja melanoleuca, Naja nigricollis, Python regius and Python sebae* (Mensah, 2009). The Nile crocodile, the most interesting reptile for tourism, is one of the fauna of the W- Arly-Pendjari Complex. Tree agamas and turtles are widespread. There are 80 species (Cury & al., 2008). There are also the sand snake (*Psammophis*), the common agame (*Agama agama*), the bush lizard (*Nucrus*), the scinque (*Mabuya megalura*), the soft turtle (*Cyclanorbis*), the Nile crocodile (*Crocodilus niloticus suchus*) and the Nile varan (*Varanus niloticus*) (Mensah, 2009).

Entomofauna

59. The entomofauna of the W-Arly-Pendjari Complex has an important specific and biological richness (Tchibozo, 2009). For grasshoppers, butterflies, and dragonflies, Grell's first studies in 2002 and 2004 found considerable

diversity. They are of great interest to specialists and scientists. Rhopalocerans, which represent the vast majority of diurnal Lepidoptera, are increasingly used as bio-indicators in ecological or biogeographic studies concerning the protection of natural environments (Bobo et al., 2006; Boggs et al., 2003). Indeed, their large size, their visibility in the environment, the simplicity of their identification and the fairly advanced knowledge of their biology make Rhopalocera useful bio-indicators taxa (Tchibozo et al., 2008). Following the various exploration missions in the W-Arly-Pendjari Complex, 38 species have been captured, 37 of which are well identified and confirmed by the world specialist Torben Larsen (Tchibozo, 2009).

Bats

60. In the W-Arly-Pendjari Complex, 50 bat species have been recorded. They are divided into 8 families and 21 genera. Compared to the work of (Green, 1983) and Haquart and Rombaut (1995), there is a 6,4% increase in species richness increasing the number of species from 47 to 50. Fruit bats are divided into 8 genera, and insectivores are divided into 14 genera (Djossa, 2007). The species *Hypsignathus monstrosus*, *Lissonycteris angolensis,* and *Rousettus aegyptiacus* have been recorded in the Complex whereas the species *Eidolon helvum* has only been recorded in village areas. Among insect-eating bats, *Coleura afra*, *Taphozous mauritianus* and *Rhinolophus darlingi* have been recorded in village areas, while *Glauconycteris variegata* and *Myotis bocagii* have only been recorded in the W-Arly-Pendjari Complex (Djossa, 2007).

1.2.3. Demographic and socio-economic characteristics

A. Population Size and structure

61. It should be noted that the population of the area is considered as local population and not indigenous population. This has been confirmed by the literature and bibliography and also through the public consultations that took place throughout the process of the project formulation.

62. With regards to the communities' distribution, there is no private ownership of land and no inhabitants inside the W-Arly-Pendjari Complex. Although, in the peripheral areas and at less than 40 km from the Complex, there are about 350 towns and villages with a total population of about one million people. Populations are divided into several communities likened for ethnic groups, four of which are considered the most important (Gourmantché, Djerma, Dendi and Fulani/Peulh communities). In fact, these ethnic groups are tightly related to socio-professional stratums as follows: (i) "Gourmantché" known as farmers and fishermen, (ii) "Djerma" representing the Fishermen groups, (iii) "Dendi" practicing farming and small-scale trade and (iv) "Fulani" /"Peulh" who are mainly transhumant pastoralists and breeders. These socio-professional groups plurality on the outskirts of the complex facilitates the transboundary cooperation and offers a notable cultural, archaeological diversity, as well as economic asset, opening perspectives for the development of eco-cultural tourism. These surrounding populations are largely dependent on natural resources, particularly found in the complex, from which they derive nearly 80% of their livelihoods.

63. Population characteristics around the WAP complex are presented by components.

- In WTBR/Benin: population in the riverside towns (Kandi, Karimama, Malanville, Banikoara, Kérou) is over 759 300 inhabitants based on fourth RGPH estimations from (General Census of Population and Housing (INSAE, 2013).
- In WTBR/Burkina Faso: population in the riverside towns (Botou, Diapaga, Logobou, Thansarga) in 2012, according to the National Institute of Statistics and Demography (INSD-BF), reaches 109,980 inhabitants.
- In WTBR/Niger: population according to the 2012 General Population and Housing Census (RGPH) comes to 204,590 inhabitants.
- In the Arly-Pendjari Transboundary Block (APTB), particularly the Pendjari Biosphere Reserve (PBR), population estimations and projections within four riverside towns of Toucountouna, kouandé, Matéri and Tanguiéta, get to 336,737 inhabitants basing on the fourth General Population and Housing Census results (INSAE, 2013). In Arly National Park (ANP), the projected population in 2012 presented by the National Institute of Statistics and Demography (INSD), within five riverside towns (Madjoari, Patiaga, Namounou, Pama, Tambarga) has been estimated to 97,834 inhabitants (ACDD, 2018).

B. Infrastructure, amenities, and services

64. The W-Arly-Pendjari Complex has two thousand two hundred kilometers of trails, twenty-five water points, and twelve watchtowers to facilitate safe wildlife observation; nineteen boreholes to supply water points; ten life bases for managers and eleven advanced control posts for surveillance officers and patrols.

65. However, the W-Arly-Pendjari Complex has two mid-standard hotels, two lodges (Koudou Falls and Pendjari Lodge) and a research complex (laboratory, rooms, meeting room, and restaurant) at the triple point, and finally an Ecological Interpretation Center in the Pendjari National Park. The tourist visits are organized at different levels. At the entrance of each park, reception services are set up to organize visits according to available tourist offers. Additionally, guiding services and security guards are offered to visitors upon request. Besides, in order to facilitate visitors' traffic in the W-Arly-Pendjari Complex, the trails are named and a detailed signaling system is installed along the roads.

66. However, radio communication is the most important channel in the communication strategy and security of the anti-poaching teams. Currently, the WAP complex radio communication system has failed affecting thus the effectiveness and coordination of surveillance teams dispersed in the field. Added to this, there is an inadequacy of the drinking water supply structure at the existing monitoring stations. With regards to the mobility of patrols, the mobile means have decreased over time especially patrol vehicles. These infrastructures differ in number, type, and country. In WTBR, roads over the last six years strongly need restoration and reopening. The serious lack of water points in WTBR/ Benin is even more worrying.

C. Economic Activities

67. The socio-economic context of the WAP complex region has practically similar characteristics from one country to another with predominant issues related to the management of natural resources (land, pastures, water, etc.). According to ASA (2015), Sawadogo (1996), RGA (2008) Zouri (2013) and Mounkaila *et al*. (2013), agriculture and livestock are the main economic activities of the riparian populations of the protected areas of the WAP complex. Farmers in Benin localities represent around 65% as heads of the household while 20% are in livestock. Most farmers and pastoralists associate farming with livestock just like the Peulh breeders.

68. In Burkina Faso, in the southern part of the WTBR, the agricultural potential is significant thanks to the fact that climatic conditions and soils are favorable for agriculture and livestock. Whereas in Niger, agriculture is practiced by the entire population. Livestock is an activity of almost the entire population of Peulh.

69. Other economic activities can be noticed such as forestry, fishing, handicrafts, trading, beekeeping, tourism, and gathering. They provide livelihoods for local people. Nevertheless, agriculture and livestock generate significant negative impacts on the natural resources of the WAP complex. The expansion of agricultural land and grazing areas has always been to the detriment of forest ecosystems. The population growth and the high flows of transhumant pastoralists are the factors explaining the continued pressure on the natural resources of the WAP complex. This situation destabilizes the ecological balance, leads to the degradation of ecosystems and the insecurity of wildlife. The extensive nature of agricultural activities needs to be reviewed with a view to reducing pressure while improving the living conditions of the local population.

D. Basic community infrastructure of the adjoining localities of the WAP Complex

70. Nineteen localities are bordering the WAP complex when considering the three countries where various infrastructures are located such as hospitals, health centers, schools and colleges, local administration, markets, large diameter wells, and boreholes. Nevertheless, access to drinking water seems still to be an enormous challenge for the population. Just less than 10% of households in these localities have access to fossil electricity and renewable energy is scarce but it can be potentiality valued.

71. With regards to education services, almost all villages and city districts are provided with primary schools whereas secondary high schools are not present plenty. However, these schools are deprived of electricity just like social and community infrastructures that do not always meet the basic needs of the populations.

E. Focus on women, youth, and vulnerable groups in the neighboring communities of the WAP Complex

72. In the WAP Complex, social roles and responsibilities of men, women, and youth are determined by tradition and religious beliefs that are used to explain and legitimize inequalities and disparities between these social categories printed by men domination. The socio-cultural inequalities noted mainly concern among others: (i) inequalities and disparities in labor giving more work to women than men, trigging damaging impacts on their health, productivity, leisure time and reinvestment in human capital, (ii) continuation of social exclusion processes or self-exclusion and particularly of women and young people (girls and boys) from decision-making spheres.

In Burkina Faso

73. Production systems are dominated and dictated by a predominant patriarchal system where women and youth are simply considered as productive assets or simply unpaid labor that do not participate in decision-making. In the villages bordering the Arly National Park (ANP), women hold a second-place position. In general, a woman must respect and obey her husband and his entire family. The land is the family patrimony and is controlled by the clan chief who is the leader of the lineage and women's access to land in a greedy society is codified by customary laws.

74. Besides, women have access to land through their husbands and are said to provide more than 75% of subsistence production with low access to productive assets, human capital and financial and extension services. 96% of households headed by women and practicing market gardening use traditional equipment, hoes, daba, etc., while 21.5% of households headed by men practicing the same speculation use plows. The issue of accessing to credit, with the required conditions, is especially a disadvantage of women and young people (boys and girls) by the fact that they still have difficulty to provide guarantees.

75. Women represent more than 50.8% of the population in the project area and manage about 11.5% of households. They diversify their economic activities (agriculture, breeding, weaving, non-timber forest products, etc.), and also join solidarity and mutual aid networks (tontines, cooperatives). In the past, women's participation in meetings was limited, but with awareness-raising and training activities, they are increasingly invited to meetings at the village level next to men. They are increasingly taking the floor at these meetings and no longer hesitate to give their point of view on community development issues and their interests.

In Benin

76. Practices and customs laws are based on cultural determinants that grant gender-differentiated status and roles. Despite the progressive weakening of these norms, this traditional differentiation of social and economic roles undermines the prospects for gender equality and women's economic empowerment in light of the many inequalities that still exist in gender relations. The Mo Ibrahim 2011 Gender Index for Benin is below the African average and ranks 28th out of 53 countries. The differentiating factors of the poverty level between men and women are multiple and variable and are strongly linked to the inequality of access to resources and basic social services: education (literacy, education/training), access to production factors including land, access to financial and health services, and access to employment.

77. In rural areas, unemployment and underemployment of youth are leading to an intensification of migration flows to the cities and an increasingly "early" rural exodus to the capital and inland cities. The phenomenon is increasing over years, a clear sign of a chronic lack of productive employment in rural areas. Rural youth (15-24 years) and young adults (25-35 years) without land are the most affected by this phenomenon. For these young people, their labor force is their only factor of production. They are uneducated or poorly educated. They work in family farms that they do not own with no bright prospects given the modest income they earn from their work. Hence, all these factors are aggravating the phenomenon of rural exodus in Benin.

78. Although poverty generally affects women more than men, the incidence of poverty is lower among poor female-headed households (27,6 versus 38,32% for poor male-headed households). This apparent advantage could be explained, among other reasons, by the fact that women heads of household are generally characterized by their economic autonomy, which is partly the result of their marital status, the size, and composition of the household, the nature of their economic activities and their access to finance. While poverty declines sharply with education, women remain less educated than men. Many of them fail to achieve high levels of education. 52,2% of women have no level of education compared to 33,6% of men (INSAE 2012).

79. The statistics, differentiated by gender published in the National Gender Promotion Policy in Benin, show that of all the plots acquired by secure means (inheritance, customary allocation, and purchase) only 13% belong to women. Moreover, the average size of women's plots is generally smaller than that of men: (0,90 ha for women versus 1,26 ha for men). Additionally, women have much more access to land through purchase, inheritance, covenant, and donation.

In Niger

80. In general, women are present in all sectors of economic activities in both rural and urban areas. Their participation, however, is handicapped by the sexual division of labor which confines them to certain types of activities and by the limited time-budget available for them to invest effectively in profitable and well-paid production activities. Whether it is rainfed or irrigated agriculture, access to land through succession is the dominant mode and is generally reserved for men. But access to land ownership is possible for both men and women through acquisition for consideration. Access to finance is also unequal because of the eligibility criteria required (yields, productivity, and contribution). In general, the credits allocated to women are small amounts from informal networks and are most often invested in areas other than production on one hand. On the other hand, men often benefit from more substantial loans for the acquisition of production equipment and marketing.

81. However, livestock farming is placed second contributing-activity to the Niger economy and, like agriculture, it concerns the populations in all living environments and in all lifestyles (sedentary and nomadic). Men and women participate in all these forms of breeding but in different ways. In terms of livestock ownership, both women and men have access to livestock: (51%) for men and (37%) for women heads of household. Women often own more sheep (51,2%)[3] than men (31,7%).

82. Besides, the fishing industry records the participation of men and women. Men dominate the production process (fisheries capture) and own the most efficient means of production (canoe, net, etc.) while women are involved in fish processing and marketing. When the activity is family, women contribute with the labor force. Even if the problem of access in the sector, between men and women, does not arise, the problem of control of production and revenues from the marketing of products is manifested for women.

83. This situation is explained by either the sector family management, the weak organization in the process of transformation and commercialization or the inadequacy of the professionalization of the men and women who practice the activity. Moreover, trade is an activity practiced by both men and women but unfortunately, gender-disaggregated statistics on the formal sector are not available.

84. According to data from the Niger Chamber of Commerce, Agriculture, Industry, and Handicrafts in 2007, only 3579 companies were registered in the consular file. From that file, 184 are run by women or 5.14%. They are distributed as follows: Industry and construction (19), Trade and services (150) and Craft industry (15).

85. The sector's sources of funding come from own funds, credits, and subsidies. In general, men are involved in larger activities requiring significant financial support, while women are involved in smaller activities requiring very little financial investment (small trade, exploitation of natural resources). A few women reach the status of great traders. Those women multiply their activities and manage to gain some financial autonomy and ownership by means of production (land, livestock).

86. The handicraft sector employs about 23% of the population. The proportion of women artisans represents more than 52%. The distribution of handicrafts is guided by traditional culture: Men work as blacksmiths, shoemakers, weavers or braid ropes in the dry season, while women are engaged in braiding mats, basketry, weaving, pottery, leather goods, processing, etc. While male craftsmen very often obey cast logic, female craftsmen are found in all the communities.

1.3. Climate change, global threats and regional stability challenges

87. The components of the WAP complex are increasingly affected by climate change presents as climate variability including the frequency and the periodicity of climatic hazards and natural disasters raise. Natural resources and ecosystems are threatened by the negative effects of climate change in addition to various factors

3 Survey QUIBB 2005

including the anthropogenic pressure due to the continuous increase of the population in the riparian zones of the WAP complex. These anthropogenic factors include also uncontrolled land clearing, agricultural and rangeland expansion, poaching, bushfires, mining exploitation, climate migration, unsustainable harvesting of non-timber forest products, and soil and water pollution.

88. In addition, there are other structural obstacles related to a weak synergy between different WAP complex countries legislations, supervisory administrations, management strategies as well as variable financial support. Hence, there is an urgent need for an inter-regional and cross-border approach. Below is a more detailed description of the different weaknesses related to the WAP complex.

A. Unsettled Current Climate Situation

89. Rainfall and temperature data used to analyze climate variability are collected from four main stations near the WAP complex: Benin (Kandi and Natitingou), Burkina Faso (Diapaga) and Niger (Say and Dosso). According to these climatic data, two sub-periods can be distinguished: (i) 1st one ranging from 1970 to 1993 and characterized by a downwards tendency in rainfall amounts, and (ii) 2nd one from 1994 to 2017 characterized by an upward trend in rainfall amounts where twelve years are deficit ones and twelve years of excess are noticed.

90. The analysis also reveals that with regards to minimum temperatures, two sub-periods can be identified: 1970-1989 and 1990-2017. During the first one, the trend is clearly characterized by low minimum temperatures where all years are cold. Whereas in the second sub-period, 81% of the years are warm. However, in the Pendjari Park region over the 1950-2015 period, two sub-periods can be undertaken: 1950-1980 and 1981-2015. The first sub-period (1950-1980) is generally characterized by an upward trend in rainfall amounts while the second (1981-2015) is characterized by inter-annual variability in rainfall amounts where twenty years are deficit ones and fifteen years of excess. The minimum temperature includes two sub-periods (1960-1998 and 1999-2015). A first one characterized by low minimum temperatures and a second one where a total of 84,6% of the years are cold. The analysis of the data thus shows the current trend of global warming in the WAP complex

B. Major Environmental issues

91. The natural resources in the periphery and more often inside the WAP Complex are permanently coveted and sought by migrants and most of the population are involved either in agriculture or in transhumance. Agriculture is extremely dependent on rainfall. Rainfed farming is based essentially on cereal crops with a trend towards cash crops, particularly cotton. Forests soils are currently under great pressure and agricultural practices are essentially based on family farming and traditional techniques with low productivity. Current agricultural practices, dominated by slash-and-burn agriculture, low integration of livestock and use of pesticides and chemical fertilizers, are the major sources of pollution by runoff (especially from cotton fields), erosion and land degradation with a direct impact on biodiversity, especially aquatic flora and fauna. Besides, there is a reduction in the extent and duration of fallows, which dangerously affects the ecological balance of forest ecosystems.

92. Finally, population growth and the continuous use of traditional farming methods puts strong pressure on Protected Areas. Moreover, livestock in the complex is considered as a source of threats to ecosystems and wildlife species due to competition for food resources and risks of diseases transmission. However, inconsistencies of policies and procedures between the WAP complex three countries, inadequate monitoring capacity, lack of flock's grazing, as well as lack of adequate pastoral infrastructure along official transhumance routes are among the factors that attract transhumant pastoralists to protected areas. Gallery forests and dense forests are declining significantly in favor of open forests. Similarly, wooded and shrubby Savannahs have given way to grassy Savannahs, burnt surfaces, and rocky outcrops.

93. In conclusion, the compatibility between production methods and the environment, in particular, the conservation of the biodiversity of the WAP ecosystem, becomes a major issue in a variable and uncertain climate context to which solutions must be found.

C. Faulty agricultural practices

94. Erosion and land degradation related to agriculture have direct effects on WAP biodiversity. By causing a drop in agricultural productivity, populations go to seek out and clear new land more fertile for cultivation. The land deficit is also due to high levels of natural population growth (2-3%) and regular flows of immigrants who are allowed by local communities to exploit peripheral areas. All these factors lead to lower availability of arable land per capita.

95. The land degradation in peripheral areas has caused agricultural encroachment of the WAP Complex. According to Houessou L. et al (2015), in the Benin part of the WTBR, mosaics of fields and fallow have increased by 29.77% over the first ten kilometers inside the PA at the expense of primary natural formations. This situation is the result of a political choice by the Beninese government after 2006 directed towards the intensification of cotton cultivation with certain incentive measures (agricultural credit, repayment of debts to cotton producers, increased price per kilo of cotton). Most of the peripheral areas are affected by land degradation and deforestation. Poor itinerant management practices and lack of effective land planning degrade soils and ecosystems. This situation has a major impact on livelihoods by causing a scarcity of suitable land for agriculture, pushing people to seek new fallow lands.

D. Uncontrolled Transhumance

96. The basic feed for the cattle herds comes mainly from the exploitation of the natural rangelands and remains dependent on rainfall, except for the natural bourgoutières and some rare perimeters arranged for fodder production. The increase in livestock gradually leads to constraints on access to fodder and therefore increased competition between livestock farmers on one hand and farmers and livestock breeders on the other hand. To ensure the feeding of their cattle, the breeders practice transhumance. Two types of transhumance can be distinguished: the small rainy season transhumance corresponding to the growing season and the large transhumance on the dry season. The availability of water and fodder within the Reserve is attractive for transhumant pastoralists in the dry season. The great transhumance concerns the national pastoralists, but the vast majority of them come from Niger and Nigeria as shown on the map below (Figure 9):

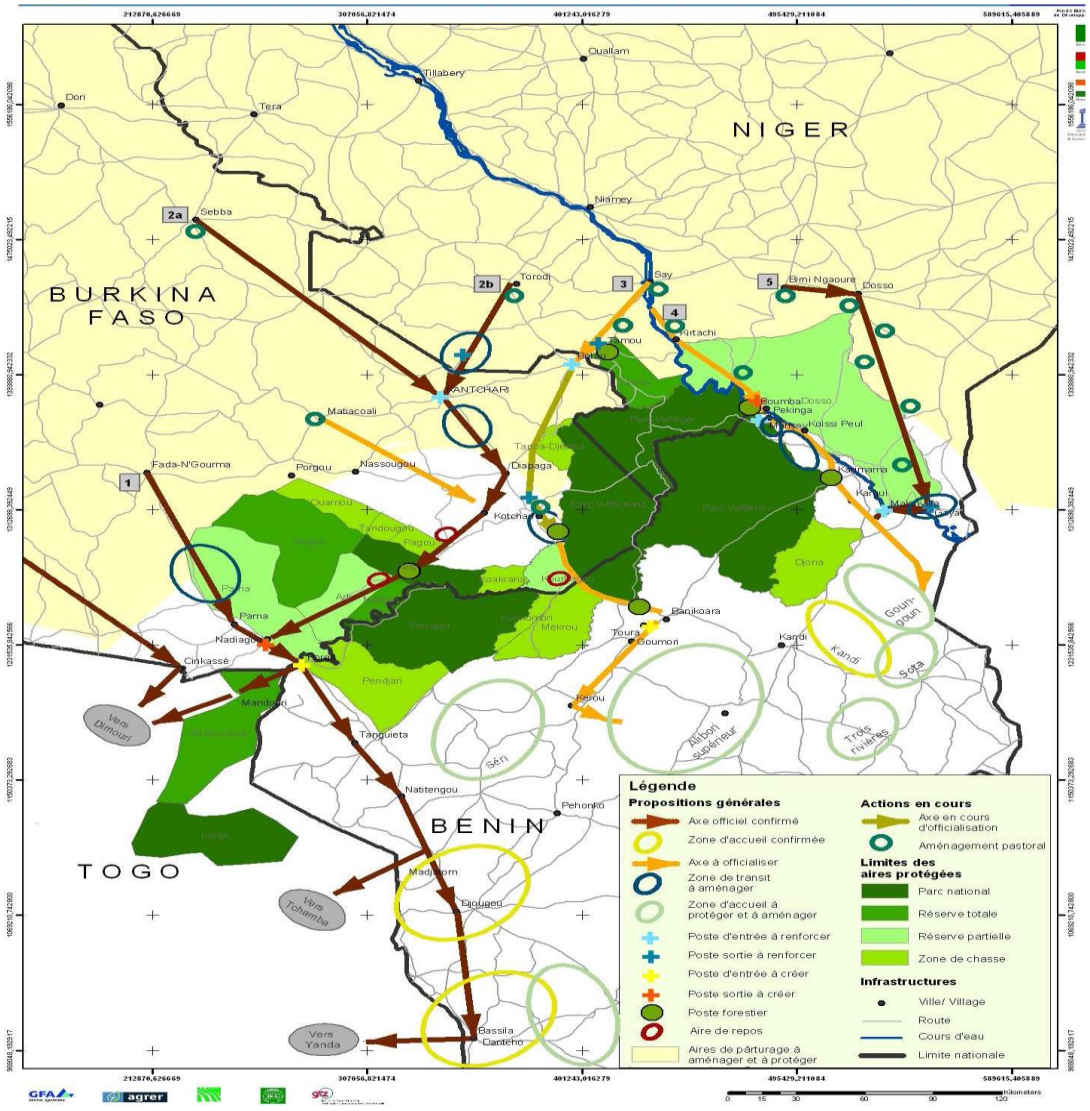


Figure 9: Transhumance corridors in the WAP complex

97. An aerial survey conducted out in 2003 on the entire WAPO complex (W, Arly, Pendjari, Oti-Mondouri) estimated the cattle herds at about 65,000 heads. The presence of livestock in the WAP complex is a source of threats for ecosystems and species due to disturbance of fauna and flora, competition between wildlife and livestock for food resources, risks of transmission of epizootic diseases to wildlife, risks of poisoning large carnivores' breeders, poaching, etc. To find a solution to "uncontrolled transhumance", the option was made to provide alternative routes for transhumance, checkpoints, grazing areas, and water points as well as destination sites for transhumant livestock.

E. Poaching

98. Poaching is one of the main causes of wildlife pressure and ecosystem degradation. It is stimulated by several factors such as easy access to firearms, high demand of bushmeat, low living standards of the local population, legal and regulatory provisions for repression and weak coordination between states (it is necessary to raise the important element of border crossings in poaching). Tripartite agreements on combating poaching were adopted, such as the one between Burkina Faso and Benin in 1984 and the one between the three countries in 1987.

F. Uncontrolled Bushfires

99. Bushfires represent another serious obstacle to biotope and species management. These fires stem from the lack of awareness of the issues among the inhabitants of the peripheral areas and the global warming threat. Different types of wildfires have been reported in the area:

- Agricultural compensation fires: this type of fire is related to traditional cutting and burning. Farmers perceive the combustion of the necessary biomass. However, this unsustainable practice reduces soil fertility in the long run. The compensation fires occurred during the dry season until the beginning of the rainy season, many of these fires are uncontrolled and intensified by climate drought.
- Hunting or honey collect fires: villagers light a fire in order to hunt small game (in particular rodents and snakes). During the dry season, fires are lit during the day and become out of control at night. They destroy the vegetation and got spread the following days, fed by the dry wind. For honey harvesting, the traditional practice is to burn the surrounding vegetation, to empty bees and collect honey safely.
- Grazing fires (fires to renew pastures): local transhumant and local breeders ignite dry vegetation just before their passage. This practice stimulates the natural regeneration of fresh grass. These pastoral fires generally remain uncontrolled and sometimes causes conflict with local farmers.
- Protective fires: These are generally early fires that are practiced since the beginning of the dry season. They are used to burn biomass that can become combustible for accidental fires.
- Accidental fires: This occurs where fires are used to illuminate driving or road maintenance. Accidental fires are uncontrolled and are often associated with poaching.
- Savannah ecosystems have always adapted to fires. Unfortunately, this resilience is being challenged as fires are increasingly linked to weather conditions caused by climate change.

G. Siltation and Surface water pollution

100. The outskirts of the WAP complex is a space of concentration of human activities: agriculture, livestock, fishing, etc. Crop productions are based on traditional techniques with low productivity and low livestock integration. Its practices through inappropriate techniques and approaches contribute to a strong degradation of resources. This degradation is reflected, on the one hand, in a decline in soil fertility caused by land leaching, deforestation, water, and wind erosion, and, on the other hand, in a deterioration of water quality due to the increasing and uncontrolled use of chemicals. Wrong natural resource exploitation practices are the main cause of desertification and progressive siltation of streams, and major rivers such as the Niger River.

H. Forest resources: Use and over-exploitation

101. Overgrazing, illegal hunting, and unsustainable food and non-wood products harvesting in and around protected areas threaten the integrity of their ecosystems. These practices are justified by people's short-term needs for food, resources, and income. These communities lack secure access, user rights and the capacity to manage land and resources in a sustainable manner. They lack simply basic resource knowledge and capacity to establish, manage and monitor sustainable harvesting regimes. The need for earnings and the lack of sustainable alternative income generating opportunities induces illegal and destructive activities such as charcoal production and honey harvesting, fruits collect and processing.

102. Wild honey is harvested clandestinely in the parks by men from outlying villages by using flares to ignite the hives or by falling trees which is dangerous for the environment. Besides, many endemic species in the WAP area are currently endangered or vulnerable due to uncontrolled use of resources for food, pharmaceutical, pastoral and artisanal uses purposes. It is therefore important to protect vulnerable species and to highlight the existing resources that can create employment and enhance the value of the products (honey, shea butter, etc.) by setting-up forests management strategies and action plans.

103. As far as women are concerned, their major activities consist of collecting the néré and shea fruits in the peripheral areas of the reserve, as well as medicinal plants, and firewood. The major problems they face are mainly linked to low yieldings, traditional processing practices and difficulties in access to market difficulties. They should be encouraged by training, collecting and transforming NTFPs, facilitating access to processing equipment and then supporting the marketing processes.

I. Deforestation

104. Due to its forest potential, the WAP Complex and its area of influence are almost permanently subject to wood harvesting and charcoal production activities although tree felling are normally regulated at the national level in each of three countries of the WAP Complex. Valuable timber over cutting leads inevitably to

the progressive degradation and loss of natural habitats, as well to wildlife number and distribution disruption. Forest service forestry control and management are weak or at least they are unable to organize them in a sustainable manner in the peripheral WAP area despite success in other regions.

J. Illegal fishing

105. Climate change, particularly the rise in temperature and the noticeable decrease in rainfall, has contributed to the reduction of waterways (ponds, rivers, etc.) at the level of the complex and the riparian zones. Additionally, the proliferation of fishermen and illegal logging around these watercourses, although fishing is one of the prohibited activities inside the WAP complex, lead to the disruption of aquatic ecosystems. Thus, fish and other aquatic species are at serious risk of extinction in many streams within the WAP Complex. However, the workshop held in Ouagadougou in October 2013 identified the main aspects threating fishing and allows to identify among others the soil erosion, the use of chemicals leading to non-selective fishing and high mortality rates and, in terms of water resources, the reduction of rainfall.

K. Pastoral pressure

106. In the Sahelian countries, transhumant livestock farming is essential for the balance between pasture productivity and herd needs. The obstacles to the development of livestock farming and transhumance, in particular, are the lack of control over livestock numbers, the heavy dependence on climatic conditions and the water scarcity. In the Sahel, the overall decline in rainfall and its poor monthly distribution over several years have led to sharp declines in pasture productivity and water scarcity. To cope with drought and pastures deterioration, transboundary transhumance has been generated. Thus, the migration extent constitutes a source of degradation and destruction of flora, economic and social conflicts. However, illegal transhumance in the WAP complex has been adopted as an alternative solution by the majority of the breeders. It is highlighted by the increasing numbers of cattle moving from different transhumance axes that connect the periphery and the core of the Park. Thus, out of 1933 cattle available to the 33 breeders, 1765 or 91.3% go on transhumance.

107. Actually, the total Tamou wildlife reserve includes two transhumance routes that continue to Burkina Faso, passing through Kaleyenou and Zoumboukoli respectively. The neighboring municipality of Torodi, in Niger, has four major transhumance routes that all lead to Burkina Faso following four gateways (Chellol Ballol, N'gnaro, Kerta, and Tampéna Bakano). The left bank of the Niger River (Dosso partial wildlife reserve) has eight transhumance trails distributed in the communal territories of Kirtachi and Falmey, which all lead to the Park on the Benin side (SOULEY K., 2004). To remedy this situation, official corridors for the passage of transhumant herds have been defined through various bilateral or sub-regional agreements. Unfortunately, most of these transhumance corridors are not equipped with pastoral infrastructures.

1.4. Ecosystem and livelihood vulnerability to climate change in the WAP Complex

1.4.1. Demographics and future weather Data trends

108. In view of their environmental and socio-economic specificities, the ecosystems, including the biodiversity of the WAP complex, are highly coveted by local populations, regardless of their socio-professional affiliation. In 2012, the population of the WAP Complex totalized about 1,454,753 inhabitants. This population is projected to reach 3,055,746 in 2030 (ACDD, 2018). Whereas, projections of climate parameters to 2032 and 2050 horizon for the WAP Complex region reveal an increase of around +2°C to +2.5°C respectively for annual temperatures and a decrease of around -9% for annual precipitation. The alternation of seasons which determines the active growing season does not exceed four months in the WAP Complex area.

109. The analysis of figure 10 shows that there will be pluviometric pejorations starting from 2030, 2050, 2070 and 2080 in most of the WAP complex. The water deficits are more pronounced in the north-eastern part, i.e. at the level of the W park than in the south-western part of the complex where Pendjari and Arly parks are located compared to the parameter values over the reference period, and this is true for all the scenario.

110. Similarly, projected temperature deviations (Figure 11) indicate positive temperature changes of 0.6 to 5.08°C under CPR scenario 4.5 and 1.5 to 6.08°C under CPR scenario 8.5. These results confirm a downward trend in precipitation and an increase in temperature despite their high spatial variability.

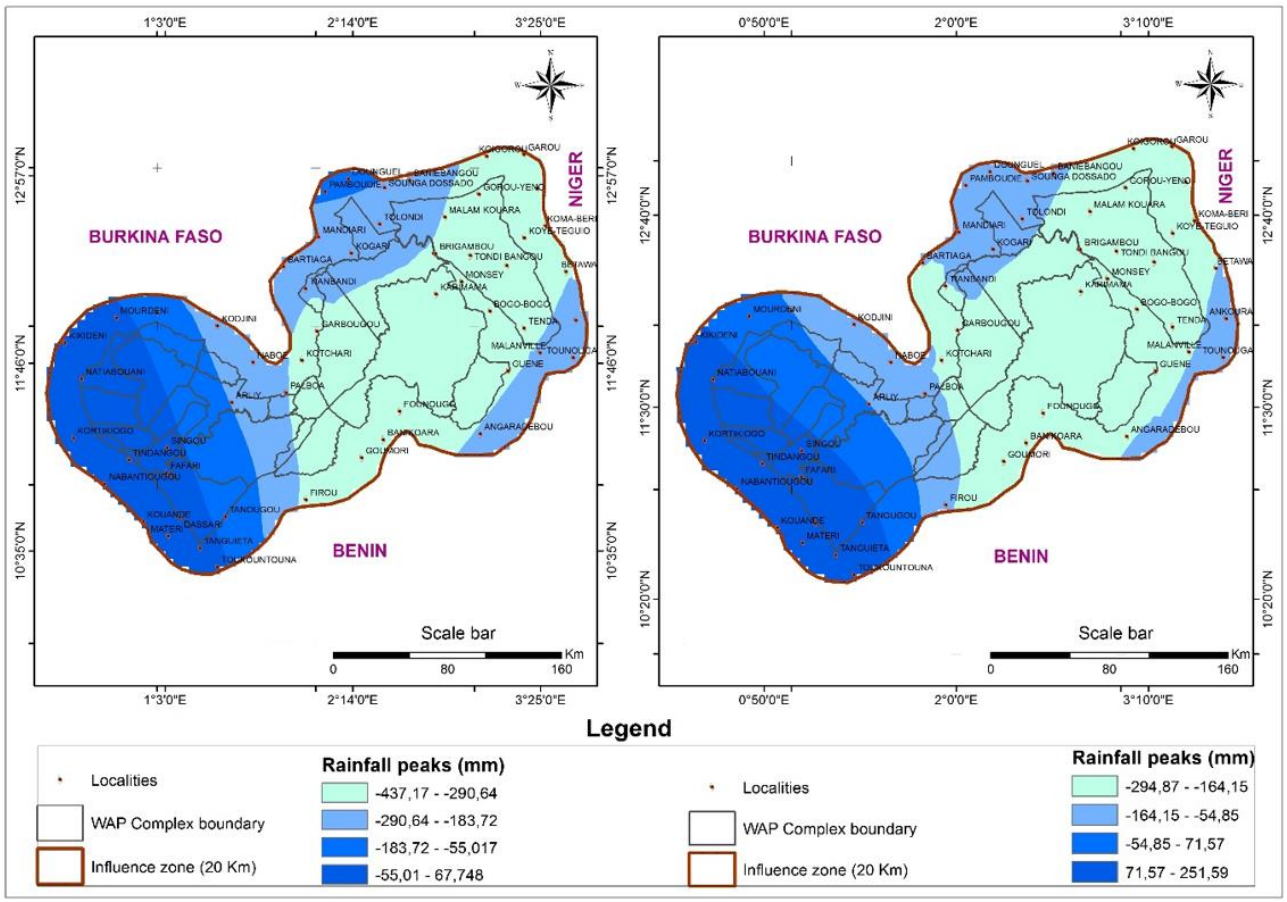


Figure 10: Rainfall peaks according to RCP 4.5 and RCP 8.5 scenarios

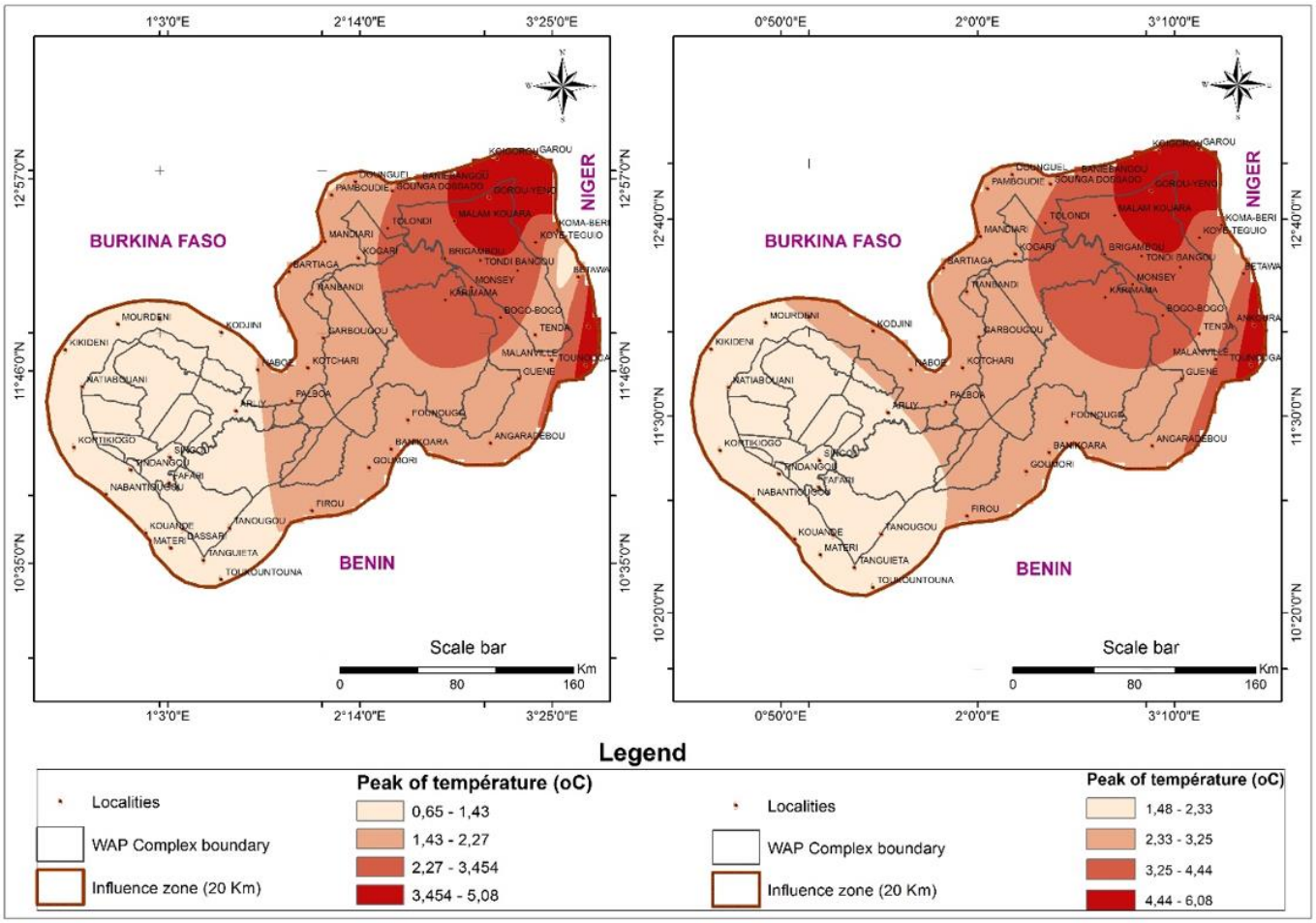


Figure 11: Thermometric peaks according to RCP 4.5 and RCP 8.5 scenarios.

1.4.2. Assessing climate change impacts on livelihoods and ecosystems in the WAP Complex

111. The adverse effects of climate change are being felt both on the natural ecosystems and on the livelihoods of communities along the WAP complex.

A. Climate change impacts on the WAP complex riparian communities: observations, assessment, and projections

112. As a result of exchanges with representatives of the WAP Complex riparian communities during national workshops (Benin, Niger and Burkina Faso), the major phenomenon that increases their vulnerability to climate change is floods and drought. Flood vulnerability affects all sectors where the intrinsic characteristics of the environment are likely to favor flooding. Figure 12 shows four areas where flood vulnerability varies from low to very high.

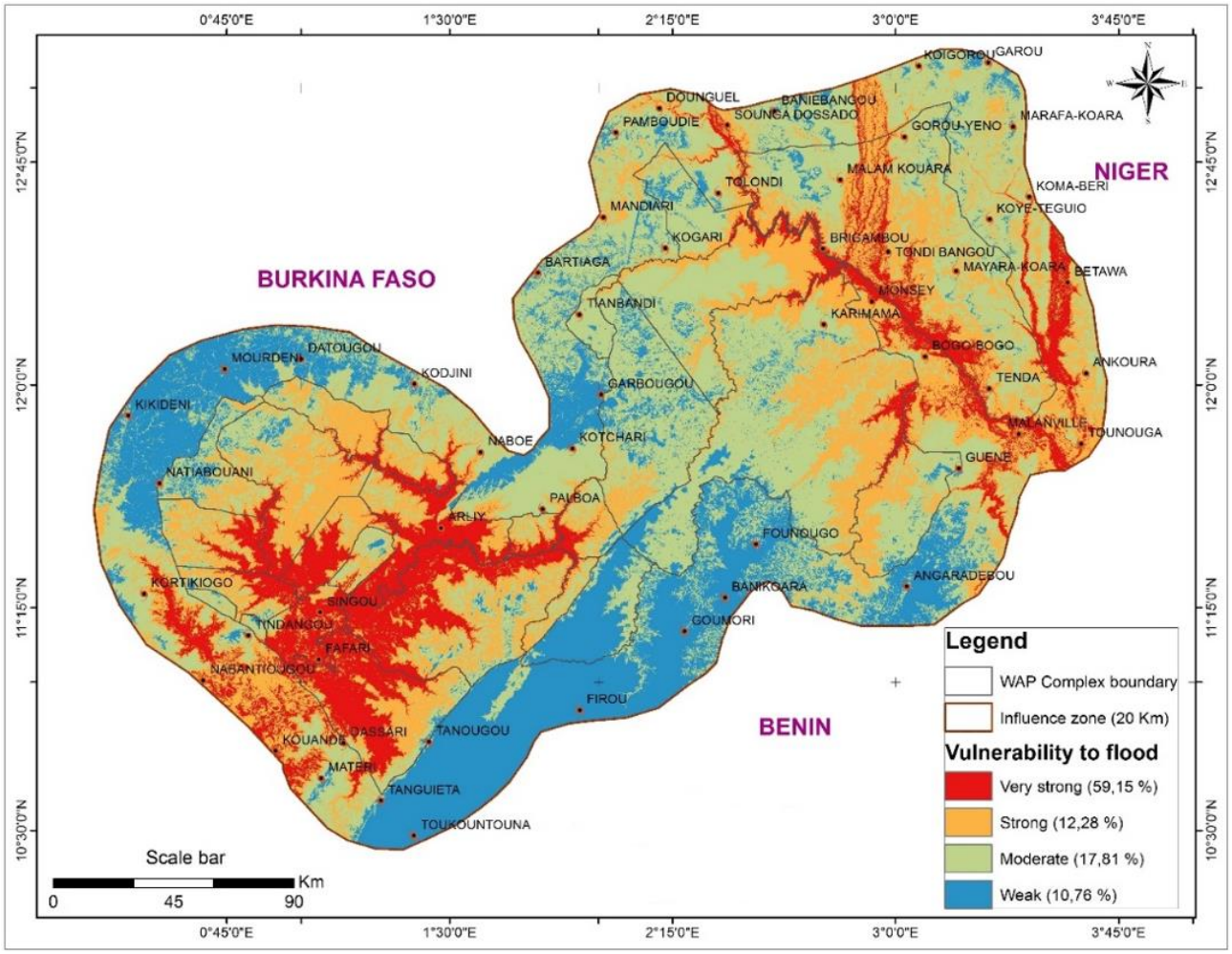


Figure 12: Flood vulnerability of the WAP complex

113. With regard to drought, figure 13 shows that the area of the WAP complex and the strip of land within the 20km radius are mainly vulnerable to drought. Areas with high and very high vulnerability to drought occupy respectively 6.52% and 50.42% of the studied territory. On the other hand, areas with low vulnerability to drought (32.2%) are scattered mainly in the WAP complex. Areas moderately vulnerable to drought (10.86%) are scattered throughout the study area. In total, the adverse effects of drought hazards on livestock production concern:

- degradation of pastures and corridors;
- accentuation of transhumance and conflicts between farmers and breeders;
- worsening livestock water stress;
- decrease in milk and meat production;
- social change.

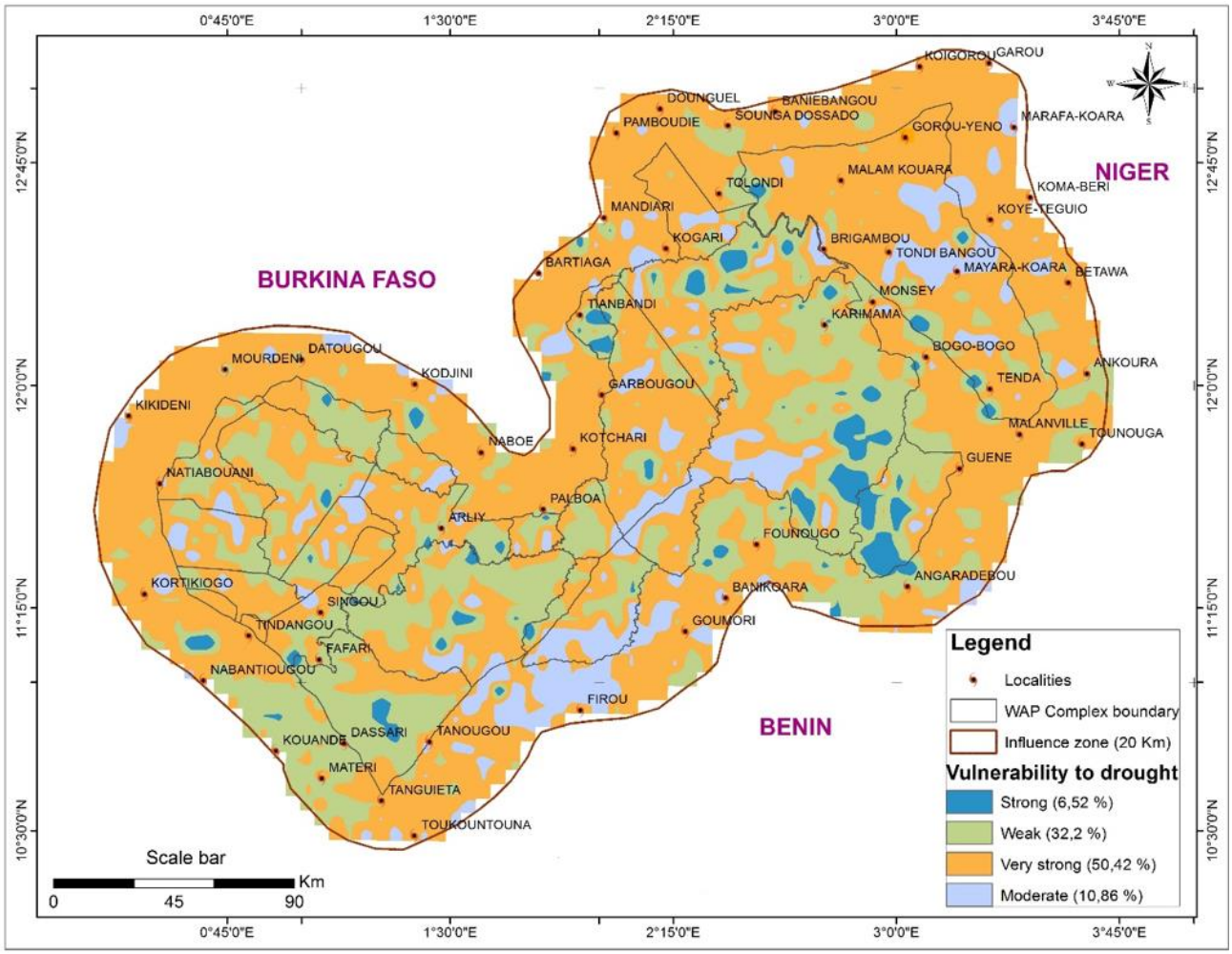


Figure 13: Drought vulnerability of the WAP complex

114. However, rural communities in general, and those living around the WAP Complex rely primarily on natural resources for their livelihoods. The traditional industries of agriculture, livestock, hunting, and fishing are closely linked to the availability of certain categories of natural resources (natural capital). Future climate trends show an increase in temperature and a decrease in rainfall amounts both under scenario RPC8.5 and RPC4.5. Climate change could induce sudden changes in the composition and vitality of the vegetation cover, an increase in the mortality of perennial vegetation, woody, and herbaceous perennials, a drop-in groundwater levels, the appearance of new epizootic diseases that are major constraints to the development of animal production.

115. Ultimately, climate variability will affect agriculture, livestock, fisheries, water, forestry, and soils. This constitutes a risk for the populations of the WAP Complex that require the identification and implementation of urgent adaptation measures for the benefit of riparian communities.

B. Potential impacts of climate change on the WAP complex ecosystems

116. At the WAP Complex level, a sustained drought will affect all the vegetation cover in a similar way, only riparian vegetation will be relatively less touched. The climatic worsening increase will lead to in floristic composition changes of the vegetation structure and sustained drought will result in a regressive evolution of the vegetation, with confinement of the original formations in the most favorable biotopes. Then it will be pointed out the rarity of species adaptable to very favorable climatic conditions and the appearance of species with better resistance to drought. Species such as *Pterocarpus erinaceus*, *Vitellaria paradoxa*, *Sclerocarya birrea*, *Prosopis africana* will tend to disappear in favor of *Combretum glutinosum*, *Guiera senegalensis,* and *Boscia senegalensis*. This situation will affect other elements of biodiversity that have a close relationship with plants species.

117. In general, the impact of climate change could result in the migration of some species of fauna and flora and the emergence of others. The high vulnerability of pastures stems from the fact that the lengthening of the dry period and the narrowing of the vegetative period lead to the non-closure of the growing cycle of these annual grasses. This results in a decline in the quality and quantity of available biomass. The pastures of *Andropogon gayanus* represent the dominant component of the occupation units of the WAP Complex, especially in its regions lying in Benin and Burkina Faso. Whereas in the WAP territory lying in Niger, the rangelands are dominated by Therophytes (arundinaceae). These pastures provide most of the food for ungulates (wild herbivores and domestic livestock) resulting in a profound change in the reproductive biology of animal populations.

118. Finally, due to climatic hazards, water points in the WAP Complex are and will potentially be affected by prolonged droughts and reduced rainfall, which most certainly threatens wildlife survival. Moreover, since migration is often linked to food availability, projected extreme climate events (drought, flooding) can also lead to changes in animal migration periods. In addition, since all elements in an ecosystem interact with each other, increasing the vulnerability to climate change of a single element could impact the entire system (fauna-flora-human). As a result, there is a need to quantify the level of vulnerability to climate change of each ecosystem component in order to plan and implement adaptation actions.

1.4.3. Access of socio-professional groups to basic resources

119. The vulnerability of the different socio-professional groups bordering the complex results from their differential accessibility to various livelihood assets.

120. It appears that for the targeted socio-professional groups, vulnerability is essentially related to:

Farmers	- Insufficiency of physical capital (equipment and means of production) - Insufficient human capital - Natural capital deficiency
Breeders	- Insufficient physical capital (equipment and means of production) - Natural capital (pastures, water points, etc.)
Fishers	- Insufficient physical capital (equipment and means of production) - Insufficient financial capital - Insufficient human capital
Hunters	- Insufficient physical capital (equipment and means of production) - Insufficient human capital - Insufficient financial capital

121. The different socio-professional groups of the WAP Complex are vulnerable to the identified climate risks. However, the vulnerability factors are not the same. This vulnerability can be seen in the group's inability to meet basic living needs.

122. Nowadays, the adverse effects of climate variability are related to food security, which is the major concern for most of the communities bordering the WAP Complex. Rainfed agriculture is facing several constraints such as the degradation of productive potential, the impoverishment of agricultural land, the high vulnerability to climatic hazards (droughts, floods), the rudimentary of farming techniques and tools, the demographic and land pressure, the low farming inputs access and use (fertilizers and improved seeds), the pest pressure and the low level of farmers' technical supervision.

123. In other words, in addition to the recorded anthropogenic pressures, WAP is also subject to climate variability, the likely effects are the loss of ecological values, habitat fragmentation, and wildlife decline. As a result, the traditional socio-ecological balance of the WAP Complex is threatened.

1.5. Institutional framework for protected area management

1.5.1. Regional Institutional Context

124. The area covering WAP complex, due to its location and its importance in terms of biodiversity conservation, is drawing more interests of rulers and authorities who are still striving to ensure its conservation and safeguard. It represents the largest and most important continuum of terrestrial, semi-aquatic and aquatic ecosystems in the West African savannah belt. The richness of its biodiversity has led to its worldwide recognition. Indeed, the UNESCO World Heritage Committee meeting in Krakow for the 41st session, on 2 July 2017, registered the W-Arly-Pendjari (WAP) natural complex on the World Heritage List, at the joint request of Benin, Burkina Faso, and Niger.

125. In the process of supporting the management and conservation of such World Heritage, various projects and financial partners have taken turns. The most recent and promising one since the 2000s is the ECOPAS Project whose assets have been capitalized and strengthened later by the PAPE Project. All these projects have been jointly managed by the TBR, an institutional viability now gained, composed as follows:

- The Council of Ministers (CM);
- The Technical Monitoring Committee (TMC);
- The Protected Area Consultation Framework (PACF);
- The Scientific Council (SC);
- The Permanent Secretariat (PS).

Council of Ministers (CM)

126. The Council of Ministers is composed of the ministers in charge of protected areas in the signatory States. It meets once a year in ordinary session and whenever necessary in extraordinary session. It is responsible for the decision-making, management, and control and takes its decisions by a simple majority of votes. The Presidency of the Council of Ministers shall be held alternately for a period of one year by each of the signatory States, in alphabetical order.

127. The Council of Ministers has the following powers:

- direct the strategic vision of the WAP complex;
- evaluate and approve the actions, management tools and budgets adopted by the TMC;
- approve the rules of procedure of the TMC and the organization chart of the Permanent Secretariat; and;
- ensure overall responsibility for the implementation of the agreement at national and regional level.

Technical Monitoring Committee (TMC)

128. The Technical Monitoring Committee (TMC) is composed of the General Directors of the institutions in charge of protected areas of the ministries in charge of protected areas, representatives of the WAP complex's decentralized administrations, representatives of local communities, grassroots community organizations, private operators, technical and financial partners, projects and other stakeholders involved in the management and financing of the WAP Complex. The TMC oversees the implementation of the Council of Ministers' guidelines and has the following responsibilities:

- analyze and approve the annual planning of the Permanent Secretariat (SP), the master development plan and the management and development plans proposed by the Permanent Secretariat;
- analyze and approve the financing plans of the WAP complex and the operating budget of the secretariat proposed by the Permanent Secretariat;
- monitor the proper application of the master development plan and the development and management plan;
- determine the scientific guidelines for the protection of biodiversity and in economic, social, archaeological and any other relevant matters in collaboration with the Scientific Committee.

129. The Technical monitoring committee is organized around special meetings and plenary sessions. It takes its decisions in sessions, on the basis of the activity report and the proposed decisions prepared by the Permanent Secretariat and on the basis of the opinions of the Scientific Council.

The Protected areas governance and management institution

130. It is responsible for the development of the Protected Area at local, national and international level by carrying out activities in partnership with all the local structures involved. This management institution shall also be responsible for achieving the objectives set out in this Agreement in accordance with the principles set out in Article 2. The development, monitoring, and revision of management tools and revision of the Management and Development Plan in relation to all stakeholders.

Scientific Council (SC)

131. The Scientific Council (SC) is composed of nine scientists involved in the scientific concerns of the WAP complex and from the States Parties, representatives of national, regional and international research institutions. The Scientific Council is in charge of providing programming assistance, as well as monitoring and evaluation of the research activities within the WAP complex. The sessions of the Council of Ministers are preceded by the meetings of the SC to give opinions on any dossier submitted for its assessment. In this capacity, its tasks are:

- promote research and training activities within the WAP complex;
- advise the Technical Monitoring Committee and the technical and scientific management bodies of the WAP complex;
- ensure the preparation of the Technical Monitoring Committee and the Council of Ministers;
- participate in the dissemination of knowledge resulting from research carried out WAP complex;
- issue opinions on research initiatives and projects in the WAP complex;
- plan and evaluate research activities in the WAP complex.

132. The sessions of the Council of Ministers are preceded by meetings of the SC to give opinions on any dossier submitted for its assessment.

133. The SC is also the key contact for structures, institutions, and organizations likely to form scientific partnerships with the WAP complex.

Permanent Secretariat (PS)

134. The Permanent Secretariat (PS) of the WAP complex is the administrative institution of the WAP complex, in charge of preparing the sessions of the Council of Ministers and implementing the decisions of the Council of Ministers, the Technical Monitoring Committee, and the Scientific Council.

135. The monitoring and implementation of the guidelines of the master plan and the joint cooperation and harmonization activities of the States Parties.

136. The Permanent Secretariat is the governing institution of the WAP Agreement. It is responsible for:

- preparing the sessions of the Council of Ministers;
- implementing the decisions of the Council of Ministers, the Technical Monitoring Committee, and the Scientific Council;
- ensuring the monitoring and implementation of the guidelines of the master development plan;
- monitoring the implementation of cooperation, harmonization and joint actions of States Parties;
- ensuring the preparation of the meetings of the Technical Monitoring Committee and the Scientific Committee and making available the draft documents and related tools;
- monitoring the day-to-day implementation of the agreement and, if necessary, alerting States Parties to aspects of implementation that are of relevance to them;
- ensuring the day-to-day implementation by the stakeholders involved in the master development plan and the development and management plans for the WAP complex;

- ensuring the management of its human, financial and material resources;
- contributing to the mobilization of adequate financial resources for the management of the WAP complex;
- ensuring concerted planning and management between the different protected areas of the WAP complex;
- ensuring the functionality of the agreement bodies responsible for the supervision, control, and guidance of the WAP Complex.

137. The Permanent Secretariat is composed of professionals from the States Parties, under the general coordination of a Secretary-General. It is funded by contributions in kind and in cash from States Parties.

138. The Permanent Secretariat's organization chart is decided by the decision of the CM.

1.5.2. National Institutional Context

139. At the institutional level, Wildlife Reserves are placed under the supervision of Ministries in charge of the Environment in all three countries. However, each country has a supervisory administration with a different structure and functioning.

- **In Benin**: the management institution of the WTBR is the Direction of the W National Park (DPNW) which is under the supervision of the National Center for the Management of Wildlife Reserves (CENAGREF). CENAGREF is a state office of scientific, cultural and social nature, under the supervision of the Ministry of the Living Environment and Sustainable Development. To accomplish its mission, CENAGREF is administered by a Board of Directors (BoD) invested with the widest powers to act in all circumstances. Its actions are carried out within the limits of the mission assigned to the Centre.
- **In Burkina Faso**: protected areas are under the authority of the Ministry of the Environment. The technical departments with competence in the management of Protected Areas are the General Directorate of Water and Forests (DGEF) and the National Office of Protected Areas (OFINAP), an autonomous public institution. According to actions plans of the WAP complex, the WTBR lying in Burkina Faso is placed under the supervision of the DGEF, while the Arly National Park is under the authority of OFINAP.
- **In Niger**: The Ministry of the Environment and Sustainable Development, and more particularly the General Secretariat, is the public authority responsible for the management of protected areas, through the General Directorate of Water and Forests. The W Niger Park Directorate reports administratively to the Protected Areas Division, itself under the supervision of the Directorate, Wildlife, Hunting and Parks and Reserves.

1.5.3. Regional and transboundary approach

140. The approaches and management methods of the different areas of the WAP complex have evolved since their creation by the French colonial administration.

141. After 1960, this centralized management is replaced by the national sectoral management. In each country, policy, legislation, regulation, and management of protected areas have been defined and applied without concertation or at least in a purely national perspective. On July 12, 1984, an anti-poaching agreement was signed between Benin and Burkina Faso, to which Niger will adhere in 1986.

142. In 1987, aware of the existing gaps in regional cooperation, Benin, Burkina Faso, and Niger, supported by several partners, agreed on the development and implementation of a common regional conservation strategy through several regional projects and programs (Ledant and al., 2010)

143. The upsurge in elephant poaching and pressure from the agricultural front (Clerici 2007, Bouché 2015), the strong presence of domestic livestock in protected areas (Bouché et al., 2004, 2015) are revealing of the need for concerted conservation efforts across the WAP complex. In addition, there are some structural obstacles, so the problem of incoherences is related to the management method, protected area status and non-harmonized legislation (Granier, 2013, PAPE, 2014b) between countries.

2. Project Objectives

144. The ADAPT-WAP aims to strengthen the resilience of ecosystems and improve populations' livelihoods within the WAP Complex in relation with the climate change issue through the establishment of a Multi-Risk Early Warning System and the implementation of concrete adaptation measures. This project will also consolidate the synergy between the three beneficiary countries by strengthening the sustainable and participatory management of the Complex and natural resources and by contributing to the resolution of CC induced conflicts between different users.

145. The project specific objectives are:

- Improve Strategic reference documents, i.e. development and management plans, by integrating the climate change issues.
- Increase the resilience of populations through an Early Warning System and providing relevant and timely information on the occurrence of extreme weather events in the WAP Complex and its adjacent areas.
- Improve the resilience of ecosystems (fauna and flora) and populations' livelihoods through the development of infrastructure, (transhumance corridors, drinking troughs, and anti-flood structures…),
- Ensure the sustainability of adaptation measures through mobilization and sensitization of beneficiaries and partners to master the tools developed and to execute the planned activities.

3. Project Components and Financing

146. To achieve the objectives of ADAPT-WAP Project, and on the basis of ecosystems and populations vulnerability analysis and the related threats burdensome identified, the intervention has been organized into four components.

147. Each component will adopt an integrated and participatory approach encompassing institutional, social, economic and environmental aspects in order to ensure the improvement of the livelihoods of the riparian populations to the complex WAP and the increase of natural ecosystems resilience, currently located under the threat of climate change and natural disasters.

148. **Component 1** will deal with the integration of climate change and Emergency Plan (MREWS) in the management tools of the WAP complex. This result will provide the institutional and legal required to implement the interventions of the project aimed at achieving different studies, concordant, leading to the development/updating of Master Development plan and to the action plan for the adaptation measures implementation.

149. **Component 2** will establish the structure of a functioning, reliable and efficient early warning system at the WAP complex. The implementation of such an early warning system will help to minimize the negative impacts of natural disasters and with the development and implementation of a detailed contingency or emergency response plan. This plan will be made available to the various users and stakeholders in the WAP complex management.

150. **Component 3** will undertake adaptation measures and actions aimed at maintaining the ecological equilibrium of the WAP complex and improving the resilience capacity of the local population. The main themes on which activities will focus on, are natural resources and ecosystems (water, soil, forest, and pastoral ecosystems) as well as common social practices such as transhumance, overgrazing, illegal logging... Indeed, the measures will focus on improving infrastructures for farmers, fishermen, and pastoralists through silvopastoral and aquaculture management, the promotion of renewable energies, the establishment of a revolving fund.

151. **Component 4** will be dedicated to information, communication and stakeholder's capacity building on key aspects of the project: climate change and EWS. To this end, it will be designed and implemented the information/awareness tools through well-identified information channels. This component is also focused on the design and implementation of capacity building tools for actors and visibility of Project actions. This component will have a transversal aspect that will embrace the major issues and problems and will concern the different target groups.

Table 2: ADAPT-WAP project components and financing

Project Components	Outcome	Outputs attendus	Countries involved	Budget in (US$)
Component 1: Integration of Climate Change Aspects (MREWS) into the management of WAP Complex	Outcome 1.1 The climate dimension and its risks are integrated into the Master Development Plan as well as the management plans of the complex.	Output 1.1.1 The regional adaptation action plan and the methodolgical guide for CC incorporation are developed	WAP Complex (Benin, Burkina et Niger)	190 000
		Output 1.1.2 The technical annexes integrating the CC into Master Development Plan (MDP), the Development and Management Plans (DMPs) of the WAP Complex and the communal development plans (CDPs) of the communes bordering the WAP are elaborated	WAP Complex (Benin, Burkina et Niger)	170 000
Sub-Total 1				360 000
Component 2: Design and implementation of a multi-risk early warning system (drought, floods, and fires)	Outcome 2.1 The multi-risk early warning system system is used by beneficiaries to manage emergencies	Output 2.1.1 The MREWS is designed and validated	Identified area of the selected WAP complex and locality	220000
		Output 2.1.2 MREWS is functional and deployed	Parks Management Agency by Country and Selected Localities	1210 000
		Output 2.1.3 Emergency plans for disasters are put in place	Parks directorates, management agencies and communes	870000
Sub-total 2				2 300 000
Component 3: Improving Resilience of ecosystems and the livelihoods of population and users through the implementation of concrete adaptation actions	Outcome 3.1 The resilience of populations and ecosystems is improved through concrete adaptation measures	Output 3.1.1 Transhumance corridors for livestock are developed and rest areas created with the involvement of the local labor force	Corridors bordering the Parks	1020000
		Output 3.1.2 Water points are developed/rehabilitated in the complex with the involvement of the local workforce	WAP complex and selected water points	620000
		Output 3.1.3 Tracks of the WAP complex are maintained with the involvement of the local population and the structures of joint management by HIL	WAP Complex (Benin, Burkina et Niger)	470000
		Output 3.1.4 Agroforestry and small irrigation techniques are applied	Localities by riparian commune	570000
		Output 3.1.5 Activities for sustainable fisheries for the benefit of the riparian villages	Localities by riparian commune	470000
		Output 3.1.6 Wooded and pastoral areas are improved and reforested	WAP Complex (Benin, Burkina et Niger)	1200 000

	Outcome 3.2 The population livelihoods are diversified and improved	Output 3.2.1 Revolving funds put in place to diversify sources of income	Localities by riparian commune	90000
		Output 3.2.2 Income-generating activities are supported	Localities by riparian commune	1710000
Sub-total 3				**6 150 000**
Component 4: Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex	Outcome 4.1 The actors involved are mobilized and sensitized through appropriate communication and capacity building	Output 4.1.1 Practitioners, technicians, and decision-makers on the technical aspects of the project are sensitized and trained on environmental issues	WAP Complex (Benin, Burkina et Niger)	420000
		Output 4.1.2 Populations are informed and sensitized	Localities by riparian commune	480000
Sub-Total 4				900 000
		Total Components (1,2,3 et 4)		9 710 000
Project execution and monitoring				
Execution costs				922450
Implementation costs				903750
	Projet Total			**11 536 200**

4. Projected Calendar

Milestones	Expected Dates
Start of Project/Programme Implementation	July-2019
Mid-term Review (if planned)	December-2021
Project/Programme Closing	July-2023
Terminal Evaluation	September-2023

II. PART II: PROJECT JUSTIFICATION

A. Project components

152. The ADAPT-WAP project aims at strengthening the resilience of ecosystems against climate change and improving the living conditions of the populations bordering the WAP complex through the establishment of a multi-risk Early Warning System (EWS) and the implementation of concrete adaptation measures. The project will also consolidate the synergy between the three beneficiary countries by improving the sustainable and participatory management of the complex and natural resources helping to resolve conflicts between different users. The project is structured into components, results, outputs, and activities.

Component 1:
Integration of Climate Change aspects in the management of the WAP Complex

153. The WAP complex is of particular interest to the West African ecoregion because of its ecological importance and because it offers habitat for a diverse fauna and flora. Despite the threats related to the impacts of climate change and the increasing pressure of the riparian populations on natural resources, the WAP complex remains one of the main well conserved Sudanese ecosystems.

154. National initiatives and regional projects/programs have been implemented to provide managers of the WAP complex with common management tools (Master Development Plan) and specific protected areas management tools (Development and Management Plans). Despite the extent of its risks to ecosystems and neighboring population's lives, climate change is not sufficiently taken into account in the management tools of the WAP complex. To this end, the project aims to support national and local stakeholders through a regional approach that integrates environmental and climate change concerns and identifies measures aimed at protecting, safeguarding and managing climate change.

155. Within the project various studies intended to integrate concrete adaptation measures into the available WAP complex plans will be carried out (Master Development Plan - MDP, the Development & Management Plans - DMPs and the Communal Development Plans-CDP).

Outcome 1.1: The climate dimension and its risks, are integrated into the Master Development Plan as well as the management plans of the complex.

156. The process of integrating the climate dimension and its risks into the different management plans of the WAP complex (MDP, DMPs and CDPs) and the development of an adaptation action plan require preliminary studies. These studies will help to define a consensual approach to the integration of the climate change dimension and the development of a methodological guide, explaining how the Climate Change dimension should be considered. The available data and information related to the different ecosystems and entities of the WAP complex will be used to identify adaptation actions that will be organized to develop the regional adaptation action plan and to harmonize the management tools and improve the Geographical Information System (GIS).

Output 1.1.1: The regional adaptation action plan and the methodological guide for CC incorporation are developed

157. Although the WAP complex has all required management and development documents, they do not deal with climate change issues in a clear and straightforward way. Given the needs expressed by the three countries to give importance to the effects of CC on the WAP Complex and the results of the first vulnerability study to CC conducted in the framework of this project, it is important to develop a specific Regional Adaptation Action Plan.

158. To elaborate the Adaptation Action Plan the project will focus on identifying vulnerable sites based on the climate change vulnerability report. The vulnerable sites to climate risks may cover communities, ecosystems (forest area, river, pond, water point, and pasture area), protected area (eg W / Benin Park, Arly) or geographical area (common). The most vulnerable sites identified will be validated by the involved stakeholders. With this regard the project will support the organization of a stakeholder workshop to prioritize and select the different sites that will benefit from adaptation actions. Following the prioritization and selection of the most vulnerable sites, a regional workshop bringing together all the stakeholders will be organized to validate the Regional Action Plan integrating climate-friendly adaptation measures (Adaptation Action Plan).

159. To implement and integrate climate change adaptation actions into the local development policies, it is required that the communities bordering the WAP complex, have the required capacities to develop tools or methods to take into account CC aspects. To do so, the project will support the communities through the development of technical annexes to facilitate the consideration and integration of climate change issues in the communal development plans, in order to meet the complex challenges, they are facing. These technical annexes will be presented in a simplified methodological guide that will be adapted to the various management documents in order to take into account the specificities of each site and each institutional entity responsible for applying the recommendations, actions and activities defined by the management document. This process must involve communities from the outset, so that concerned stakeholders take ownership of the proposed actions.

160. The project will also set up an operational stakeholder platform to facilitate dialogue between decision-makers from different sectors and countries around the integration of climate change adaptation into the management measures of the WAP complex. The Climate Change Adaptation Action Plan (PA / ACC / WAP) will serve as a Practical guidance tool for the stakeholder platform. Countries should take the ownership of this stakeholder platform and ensure its sustainability.

161. The experiences and lessons learnt from the development of these tools should be used to produce a training module on integrating climate risks into the management and conservation of protected areas sector. The activities of this output are as follows:

- Activity 1.1.1.1: Develop a climate change adaptation plan for the WAP complex;
- Activity 1.1.1.2: Organize a regional workshop to validate the CC adaptation plan of the WAP complex;
- Activity 1.1.1.3: Develop the methodology for integrating the climate change adaptation issue in the Master Development Plan (MDP) and the Development and Management Plans (DMPs) of the WAP Complex Protected Areas (Methodological Guide);
- Activity 1.1.1.4: Organize a workshop to validate the methodological guide;
- Activity 1.1.1.5: Setting up an operational stakeholder platform to facilitate dialogue between decision-makers on climate change adaptation integration into the management measures of the WAP complex;
- Activity 1.1.1.6: Organize a workshop to validate the operational stakeholder platform;

Output 1.1.2: The technical annexes integrating the CC into Master Development Plan (MDP), the Development and Management Plans (DMPs) of the WAP Complex and the communal development plans (CDPs) of the communes bordering the WAP are elaborated

162. The Master Development Plan (MDP) of the WAP Complex is a consensual tool for guiding sustainable management of the complex to the benefits of local populations and sub-regional integration. The importance of integrating climate change into the MDP is that it provides strategic directions for planning and sustainable management in response to key issues and challenges of the WAP complex governance. While the development and management plans of the WAP components are the result of a consensus between the various actors involved in the management of the WAP complex, it is also a tool to pool at the regional level the efforts of the development partners, local populations, forest administration, non-governmental organizations, private operators and local communities. To achieve these objectives, it will be necessary to integrate climate change adaptation issue into the MDP, the DMP of the WAP complex Protected Areas (PAs) and the CDP by applying the methodological guide that will provide local managers with the required tools and methods. Those

documents (appendices/addendum) will be validated during a workshop, bringing together the decision-makers and actors involved by the WAP complex management.

163. In addition to the update of the complex management documents, the project aims to improve the Geographic Information System of the WAP complex that will require updating the thematic maps: land use maps, wildfire map at the global complex scale and incorporating it in the management tools of the WAP complex. To achieve this, the project will use high-level consultancy and experts to update the information on these different themes and propose a long-term strategy of integrating climate change into the MDP and the DMPs of the Arly-Pendjari and W blocks. Under this output, the main activities planned are:

- Activity 1.1.2.1: Develop a technical annex integrating climate change into the (MDP) Master Development Plan of the WAP complex;
- Activity 1.1.2.2: Develop a technical annex integrating climate change into the (DMP) Development and Management Plans of the WAP complex;
- Activity 1.1.2.3: Organize two regional workshops to validate the technical annex of the MDP and the technical annexes of the DMP of the blocks Arly-Pendjari and W;
- Activity 1.1.2.4: Develop technical annexes integrating climate change into the communal development plans of the communes bordering the WAP complex;
- Activity 1.1.2.5: Organize national workshops to validate the climate change adaptation technical annexes of the development plans of the communes bordering the WAP complex.
- Activity 1.1.2.6: Update the Geographic Information System of the WAP complex;
- Activity 1.1.2.7: Organize a workshop to validate the updated GIS of the WAP complex.

Component 2:
Design and implementation of a Multi-Risks Early Warning System (MREWS) (Drought, Floods, and related risks)

164. Natural disasters are one of the most serious threats affecting the integrity of ecosystems and the security of the riparian populations of the WAP Complex. The establishment of an operational, reliable and efficient Early Warning System in the WAP Complex is one of the major objectives of this project. The setting up of a detailed contingency plan is of capital importance to reduce the negative impacts of hazards due to climate change. This plan will be made available to different users and stakeholders. In order to establish an effective and sustainable EWS it is important to involve the local community in the identification and dissemination of risks. The methodology to be applied in the WAP area is the combination of the traditional SAP technique, a community-based SAP and different risk management methods.

Outcome 2.1: Early Warning System (EWS) is used by beneficiaries to manage disasters, risks, and emergencies

165. The EWS is a tool for elaborating and providing information for the WAP Complex's different users, including the populations and the users and managers of forest, pastoral and agricultural areas. The EWS will be adapted to the local context (municipalities) and the socio-ecological specificities of the WAP complex for a better preparedness to manage natural disasters and extreme climate events. The proposed activities and actions in this outcome are as follow.

Output 2.1.1: The EWS is designed and validated

166. The Early Warning System is one of the key components of this project. The Early warning system is a mean by which people receive relevant and timely information in a systematic way prior to a disaster in order to make informed decisions and take action. To be effective, early warning systems need to actively involve the communities at risk, facilitate public education and awareness of risks, effectively disseminate alerts, and

warnings and ensure there is constant state of preparedness. The EWS to be developed under the ADAPT-WAP project is a complete and effective system that supports four main functions: i) risk analysis, ii) monitoring and warning, iii) dissemination and communication, and iv) a response capability that will be formalized within a contingency plan.

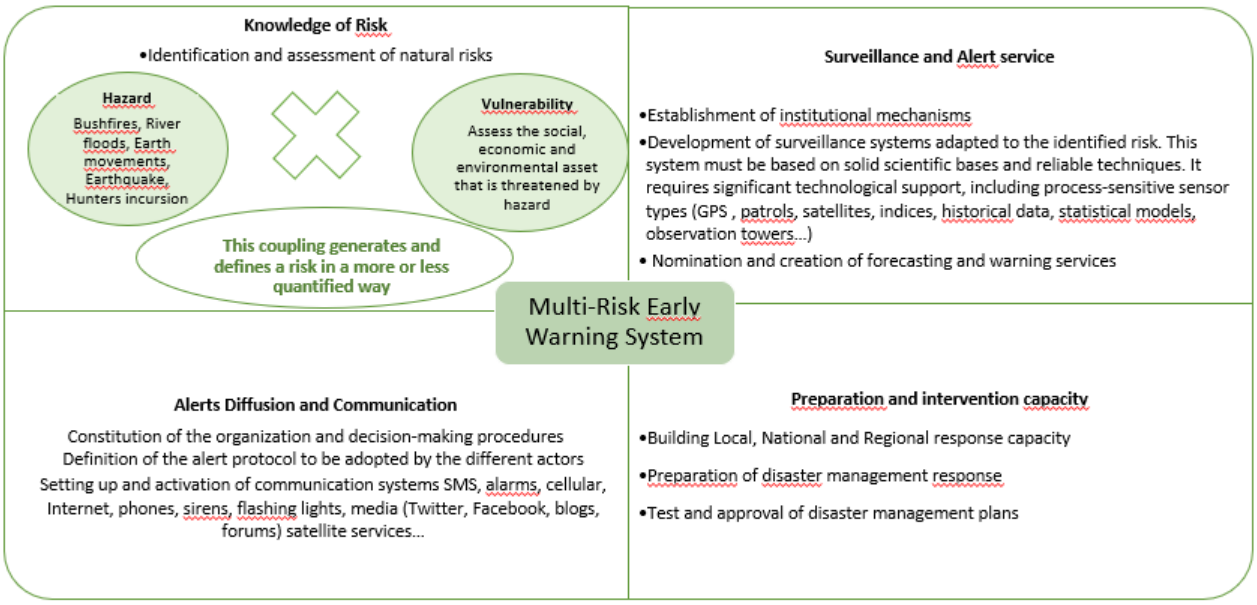


Figure 14 : Integrated components of MREWS

167. With regards to this, and after the preparatory studies developed during project preparation phase it is necessary to develop additional studies in order to establish an efficient and reliable system. These studies will deal with different items, as:

- The detailed assessment, validation and analysis of the climate risks to identify the most vulnerable areas within the project sites (already identified in a participatory manner).
- The design of the hydro meteorological monitoring network. It will be carried out at the beginning of the project. It aims to identify, the number, the model, the geographical position, the settings of measurement and remote transmission of the hydrological and meteorological stations, as well as the characteristics of the computer server in respect to the quantity of data to be managed and the flow of treatment to be operated.
- The development and adoption of a forecasting model for flood and drought and related risk. These technical studies that will be based on the scientific prediction of the data in order to define for each measured and collected data (quantity of rain at a station, temperature, wind, water level at a station, etc.), the treatment modalities. These studies will on the one hand define the methods for calculating and predicting the guide variables develop the validation and quality control procedures and on the other hand, this will define thresholds and alert levels for each of the identified risk (flood, drought and related risks).
- The development of a Standard Operating Procedure (SOP) for communication and warning dissemination. For a quick dissemination of the information to the populations at risk or to the authorities in charge of the risk management in the WAP Complex, Standard Operating Procedure for communication and dissemination of alerts in case of disaster will be developed. It will give the alert to the exposed population in time as soon as the information is confirmed by a Forecasting and Warning Cell set up for this purpose. The development of the communication tool and its periodicity will also be determined.

168. Following the EWS development studies a technical and institutional prototype will be designed and validated at the same time with the studies within regional workshops bringing together all the actors involved in risk and disaster management at the WAP Complex level. This output will be structured according to these activities:

- Activity 2.1.1.1: Carry out preliminary studies for EWS implementation (from hazard identification and risk assessment to EWS design leading to alerts);
- Activity 2.1.1.2: Design an EWS prototype at technical and institutional levels;
- Activity 2.1.1.3: Organize two regional workshops to validate the studies and the EWS prototype.

Output 2.1.2: EWS is functional and deployed

169. The material and equipment requirements for the implementation of the EWS in the WAP complex has been specified and validated for all steps of the system establishment, namely the real-time data collection, data analysis and treatment and the warning and broadcasting forecasts. During project preparatory studies assessment of sites of installation of equipment, actors concerned by risk management and hazards to be addressed (flood, drought, and bushfires) has been conducted. In addition, this assessment allowed the identification of the existing equipment for observation, hardware, and tools necessary for the dissemination of different types of information. The project will acquire the necessary equipment for a complete and functional EWS. It is also planned to rehabilitate the existing buildings shared by the 3 countries within the complex and establish new ones that will serve as premises to host a number of materials as servers and antennas.

170. The project activities will then focus on the launch of the EWS, its functioning (the principles and rules for triggering the alert and its dissemination mechanism) and the formalization and strengthening of the technical capacities of the regional and national management units of the EWS. These activities will be executed during training workshops on the use of the EWS and exchange and sharing meetings between national management units and. The planned activities for this output are the following:

- Activity 2.1.2.1: Acquire and install observation equipment (weather stations, limnigraphs, remote hydrological stations, sensors, piezometers, GPS...);
- Activity 2.1.2.2: Acquire IT equipment (servers, processing units, software…);
- Activity 2.1.2.3: Acquire tools and materials to broadcast the warning messages to the population (beacons, flags, sirens, signaling, speakers, telephone, local radio ...);
- Activity 2.1.2.4: Rehabilitate /build offices for the management units;
- Activity 2.1.2.5: Formalize the national & regional EWS management units at the three countries level;
- Activity 2.1.2.6: Organize the EWS National Management Units meetings;
- Activity 2.1.2.7: Organize regional and national training sessions on the EWS (about the use, the data processing, indicators set-up, including the community-relays set up...);
- Activity 2.1.2.8: Product and disseminate the warning messages (bulletin, maps, radio message synthesis, SMS, digital media).

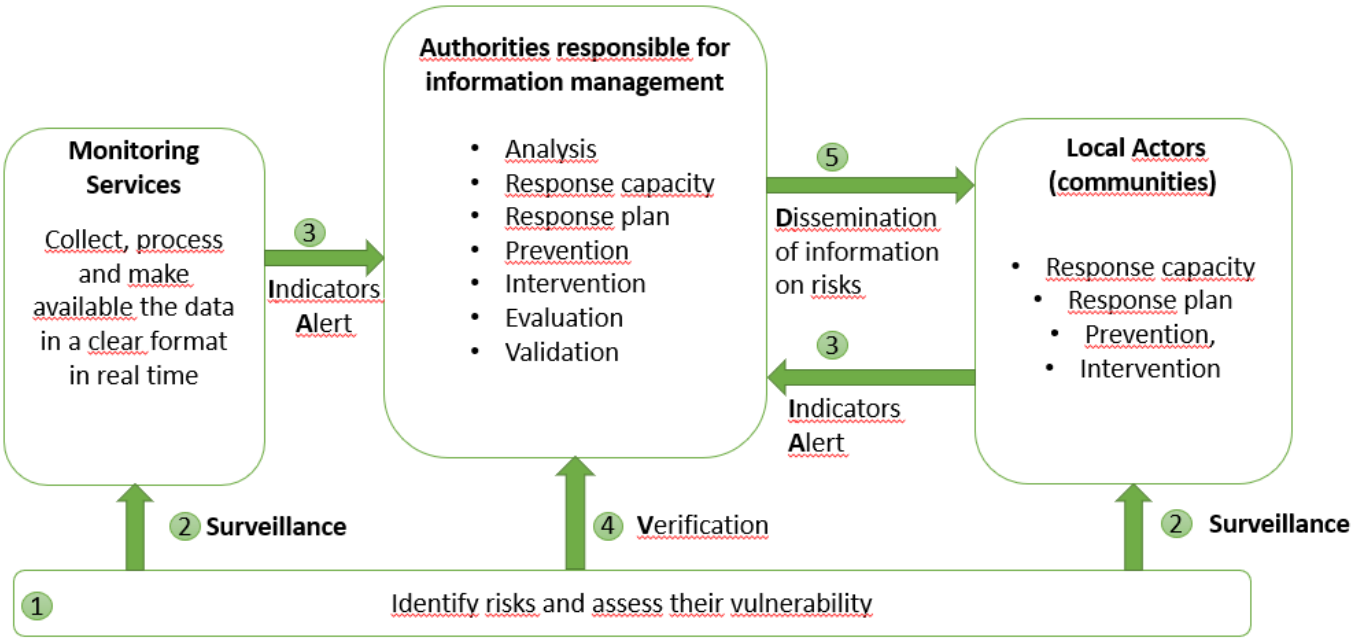


Figure 15 : Dissemination of information in a EWS

Output 2.1.3: Emergency plans for disasters are put in place

171. One of the priorities of the ADAPT-WAP project and stakeholders is to improve the capacity to respond to local and regional hazards in order to enhance their responses toward natural disasters (flood, drought…). To reduce negative impacts of natural disasters on ecosystems and on the local population, the project will support the establishment of a backup device to prevent people from disasters or major events or risks.

172. As part of an EWS and following the launch of an alert a contingency plan is deployed. For the ADAPT-WAP project a contingency plan consists of an operational manual to manage disaster impacts at the level of the three countries. This plan, as a major adaptation activity, will be shared with the various users (management units, tripartite unit, and representatives of the population ...) who will benefit from the training and equipment necessary for its optimal use. One of the priorities of the ADAPT-WAP project and involved actors is to improve the capability of local and regional disaster response in order to intensify their intervention with vulnerable communities in several areas (health, risk reduction, disasters). Contingency plan must integrate national and regional systems and define the general procedure for managing disasters and emergencies and dealing with victims in order to limit the damage. In addition, and as already mentioned this EWS will be a community based where local population will play a role of paramount importance.

173. It is of a high importance for the population to understand the risks to which it is exposed, to listen to the alert service and to know how to respond to warnings. Awareness and preparedness programs play a crucial role in this respect. In addition, it is important that disaster management plans include well tested and proven evacuation strategies. The public must be well informed about how to behave in order to reduce risks and protect their health, know the available evacuation routes and safe areas and know the most effective measures to avoid damage and material loss. With this regard it is planned under activity 2.1.3.4 to implement three blank operations and to organize sensitization and information sessions for the benefit of local populations in the 19 neighboring communes (activity 4.1.2.2).

174. For contingency plan deployment needs, it is important to make available the required equipment at for the intervention teams in the different parts of the complex (vehicles, fire engines, bicycles, motorcycles, canoes, and inflatable boats).

175. The planned activities are:

- Activity 2.1.3.1: Develop an emergency plan for CC disasters at each country level;
- Activity 2.1.3.2: Organize training sessions on the emergency plan for the various actors involved in the three countries;

- Activity 2.1.3.3: Acquire disaster management equipment (3 pickup vehicles, motorcycles, canoes, inflatable boats and specific accessories ...);
- Activity 2.1.3.4: Implement three blank operations (disaster management simulation exercises).

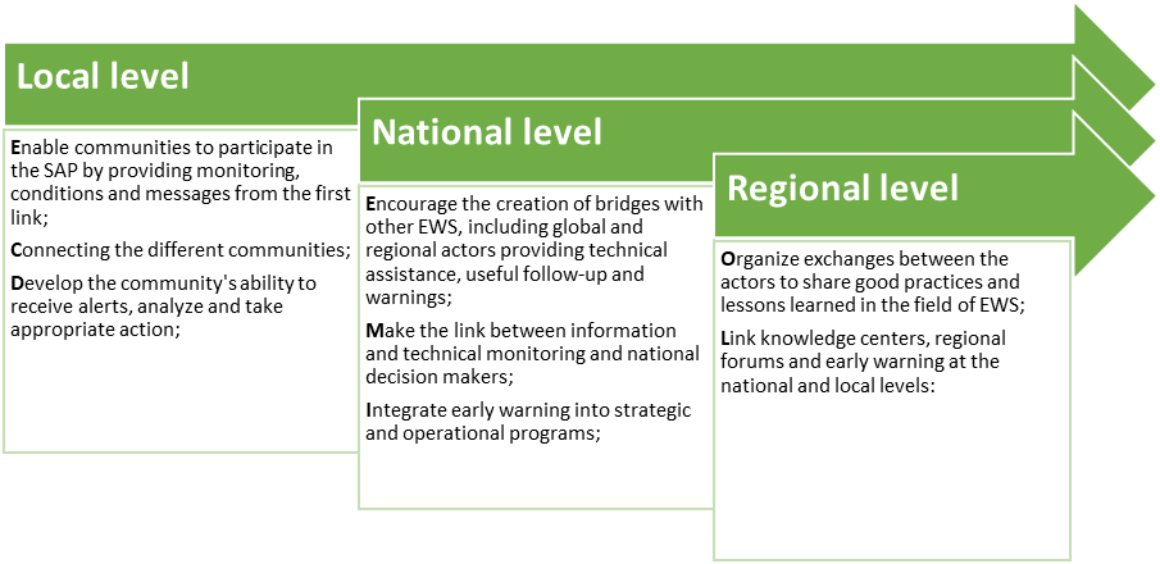


Figure 16 : Roles of institutes of different levels in an SAP

Component 3:
Improving the resilience of ecosystems and populations and users' livelihoods through the implementation of concrete adaptation measures

176. The impact of climate change on natural resources and populations livelihoods is a fact in the WAP Complex. The activities of this third component will focus on concrete adaptation measures to be implemented in the bordering localities of the WAP complex in order to reduce the vulnerability of communities to climate change. Part of the allocated resources will be used to develop and implement infrastructure and equipment of the contingency plans to mitigate the impacts of climate risks on populations. Actions aimed at diversifying livelihoods and setting up resource mobilization and preservation structures will also be developed in the most vulnerable areas. These adaptation measures and actions to be undertaken by the Project will help maintain the ecological balance of the WAP complex and improve the adaptive and resilience capacity of the local population. The key themes on which the work will focus are natural ecosystems (water, soil, forest and pastoral ecosystems) as well as current social practices such as transhumance, overgrazing, illegal logging and other ecosystems degradation-inducing practices. Measures to improve infrastructure for farmers and fishermen and pastoralists, silvopastoral developments and a revolving system will also be supported.

Outcome 3.1: The resilience of populations and ecosystems is improved through concrete adaptation measures.

177. The project will ensure the implementation of several activities aimed at reducing the impact of climate change on the integrity and balance of natural resources, particularly on natural ecosystems, in order to maintain and support their ecosystem services. It will also improve the populations and ecosystems' adaptive capacity to climatic hazards and natural disasters through concrete adaptation measures: specific infrastructure developments (water points, transhumance corridors...) or through measures allowing the development of other sectors such as agroforestry, small irrigation.

Output 3.1.1: Transhumance corridors for livestock are developed and rest areas created with the involvement of the local labor force

178. Transhumance is one of the major anthropic practices threatening the integrity of the various components of the WAP complex.

179. The ADAPT-WAP project will focus on this theme by organizing consultation meetings (inter-communal organization and customary bodies in Benin, organization of Tapoa breeders and local authorities in Burkina Faso, management committee for space and food, pastoral infrastructure in Niger, including overall socio-professional organizations representatives in order to involve local population in the maintenance of the secondary corridors and the ECOWAS corridor. Studies will be carried out to define in consultation with the local actors, the techniques and models for the materialization and marking of transhumance corridors. During the several consultation workshops and in the framework of the preparatory studies transhumance corridors has been identified (36 km on RN19 PNA, 70 km on ECOWAS corridor 3 at W / BF, 110 km of local corridors in W / Benin and 110 km on ECOWAS Corridor No. 4 in Niger). The work on the corridors selected in the DMP, as well as the construction of water points and pastures at existing water points will be carried out by prioritizing the local workforce.

180. The activities of this output are structured as follows.

- Activity 3.1.1.1: Organize meetings for consultation and validation of the transhumance corridors selected in the localities/villages crossed;
- Activity 3.1.1.2: Carry out transhumance corridors development studies;
- Activity 3.1.1.3: Carry out work of materialization and marking of the transhumance corridors in and around the APs of the WAP complex;
- Activity 3.1.1.4: Construct watering places and pasture areas at previously completed water points.

Output 3.1.2: Water points are developed/rehabilitated in the complex with the involvement of the local workforce

181. The water points are of multiple use: for the watering of animals and livestock, for fighting fires, for the population, the local managers...

182. The availability of water positively influences the diversification of pastures, especially during the critical and dry season. In this context, one of the necessary adaptation actions is to create or develop water points in the WAP complex. To this end, the project will enhance the results of the studies of available water points specialization in order to jointly retain stakeholder's development priorities and equipment that will be subject to technical studies prior to their development. The establishment of these water points will be ensured by the local workforce with prioritization of the socio-professional categories matching as much as possible the activities to be undertaken.

183. The planned activities are:

- Activity 3.1.2.1: Organize consultation workshops to validate the locations of priority water points (21 water points);
- Activity 3.1.2.2: Conduct technical studies for water point development;
- Activity 3.1.2.3: Carry out the development and equipment work (pumps, solar panels, ponds, etc.).

Output 3.1.3: Tracks of the WAP complex are maintained with the involvement of the local population and the structures of joint management by HIL

184. One of the key conservation factors of the WAP complex is the control of wildfires or bushfires. The project will assist the WAP complex managers to better monitor and control the parks through an interlinked network of tracks. The objectives of providing protected areas with tracks are to facilitate timely access to wildlife monitoring areas and to serve as appropriate firebreaks for habitat protection against uncontrolled fires. In this context, the project will support the maintenance of existing tracks (W / Benin 800 km, W / Burkina 825 km W / Niger: 825 km of runway) and the opening of new tracks by involving the local workforce. The capacity building of the identified actors will allow the maintenance work using the HIL method to be carried out at the indicated periods by relying on sketches of devices implemented within the WAP complex.

185. The selected activities are:

- Activity 3.1.3.1: Organize a regional technical workshop for the validation of the tracks to be maintained in the complex;
- Activity 3.1.3.2: Identify and train actors on the tracking rehabilitation;
- Activity 3.1.3.3: Rehabilitate tracks using the HIL method

Output 3.1.4: Agroforestry and small irrigation techniques are applied

186. The benefits of adaptation measures to be implemented in the riparian localities of the WAP Complex will include improving economic productivity and contributing to the enhancement of people's livelihoods. With this regard the project intends to support the actors (small farmers, young women, socio-professional groups and those the most marginalized and vulnerable) in the implementation of measures allowing the development of other sectors such as botanical gardens, the production of medicinal plants for marketing, agroforestry and small irrigation. The capacity of the concerned parties (men/women) will be developed to set up individual or collective plantations or with the aim of producing wood and small-scale irrigation and climate-resilient crops.

- Activity 3.1.4.1: Implement training sessions for farmers from riparian villages of the WAP complex on agroforestry techniques and small irrigation;
- Activity 3.1.4.2: Acquire agro-forestry plants and make them available to volunteer farmers;
- Activity 3.1.4.3: Acquire and grant small irrigation equipment to market gardening groups.

Output 3.1.5: Activities for sustainable fisheries for the benefit of the riparian villages

187. In order to support the sustainable exploitation of the fisheries resources in the watercourses of the WAP complex, the ADAPT-WAP project plans to reinforce the capacity of the actors (Protected Areas Management Agency, the association of national and regional fishermen) to work for the implementation of the fisheries management strategy adopted by the WAPO Council of Ministers. The project will identify the key beneficiary socio-professional group (fishermen, women fishmongers) in order to strengthen their technical capacities (training and recycling sessions) and material (conservation equipment) for fishermen in the priority localities.

188. Through these actions, the project will contribute to reducing pressure on the water resources of the WAP Complex, which already faces several Climate and Human pressure that considerably affect the sustainability of its assets and its production capacity. These actions will also help improving the resilience of the Complex' fishermen population to the adverse effects of climate change, notably, watercourses degradation both in terms of quality and quantity (rivers and ponds pollution, depletion, and silting, etc.). In fact, the representatives of fishermen who took part in the different consultation workshops have expressed the need for training on aquaculture technique in order to compensate the decrease of fishing resources in the authorized areas. In addition, the involvement of the riverside communities in the production of adapted equipment and management of ponds will facilitate the ownership of good fishing practices in sustainable perspective. The specific hydraulic installations /development will contribute to increasing the fishing capacity of the local communities while promoting the conservation of the fishery resources of the Park's central areas. Accordingly, and in order to reinforce the fishing value chain in the WAP complex, the project plans to identify landing sites and construct docking structures for fishermen.

189. Finally, the proposed activities will contribute to the integration of fishery management models in the Complex's water plans as recommended in the report "In-depth Diagnosis of fishery and watercourses management in the wildlife reserves", "the WAP management plan" and the "Strategy for a sustainable fishery in the WAPO Complex."

- Activity 3.1.5.1: Identify and train women fishmongers and fish processors on the use of new tools produced by the population;
- Activity 3.1.5.2: Equip women fishmongers and processors with fisheries material and tools (produced by the population);
- Activity 3.1.5.3: Identify and train members of fishermen's groups on improving fishing and fish breeding techniques;

- Activity 3.1.5.4: Conduct technical studies for the management of fish breeding sites and;
- Activity 3.1.5.5: Implement fish pond development works and docks.

Output 3.1.6: Wooded and pastoral areas are improved and reforested

190. The main problems of livestock farming in the bordering areas of the WAP complex are overgrazing, pastoral-farmer conflicts and the effects of climate change on pastoral resources. The project will work to support village stakeholders in management options and development of pastoral areas through activities of concerted delimitation and development of grazing areas and capacity building of stakeholders in the concerned localities. This output will this output will help reducing the conflicts between farmers and pastoralists through capacity building on the improvement of rangelands and forests through reforestation techniques and restoration, including natural regeneration. Thus, the following activities have to be undertaken:

- Activity 3.1.6.1: Organize national validation workshops of areas to be reforested and grazing areas to be delimited and restored;
- Activity 3.1.6.2: Conduct development studies of grazing areas;
- Activity 3.1.6.3: Implement delimitation and development of grazing areas;
- Activity 3.1.6.4: Organize training sessions on reforestation and assisted natural regeneration;
- Activity 3.1.6.5: Implement reforestation and assisted natural regeneration activities for riparian villages.

Outcome 3.2: The livelihoods of populations is strengthened through income generating activities

191. The involvement of the population and the improvement of their livelihoods is one of the main conditions to achieve the project objectives. In this context, it is proposed to strengthen the resilience of the local population through the establishment of a micro-financing mechanism to accelerate the diversification of income-generating activities for beneficiaries. The priority will be given to the most vulnerable communities and people for Income Generating Activities and for the access to the leverage funds the project aims to develop. In fact, communities in the identified project areas (19 communes) will be targeted considering the following generic selection criteria:

Criterion 1: Land use and land ownership

192. The people and/or communities living on sites or lands where the project actions are planned to be developed and works to be implemented by will have priority. Indeed, the impacts of these interventions could affect temporarily their properties and their sources of income, also in terms of compensation and as provided by the ESMP these people must be given a priority of access to the IGA and will be involved in all consultative meetings and workshops to consider their opinion and priorities.

Criterion 2: Resource users

193. Populations using natural resources and deriving their income from will have priority in accessing to project activities and IGAs. Their knowledge of resources and their dynamics is a major asset for conservation, rehabilitation and restoration actions of habitats

Criterion 3: Project Impacts

194. Communities that will be most affected by the project interventions e.g. delimitation and development of grazing and rest areas, water points, reforestation etc. will be targeted. They should get “some soft landing” and be prioritized for implementation of IGAs.

Criterion 4: Vulnerability

195. The most vulnerable groups are those who rely heavily on natural resources for their livelihoods and are most exposed to hazards risks. In addition, women, young people and the poor are also considered vulnerable.

Criterion 5: Socio-professional groups

196. Socio-professional groups taken for ethnic groups will be involved in the development of the IGAs and prioritization will be made according to the activity nature. In other words, priority in activities access will be given to socio-professional groups practicing the target activity.

Criterion 6: Gender

197. Deliberate effort will be made to ensure that at least 40% of the target beneficiaries are women. This will be done in consultation with local leaders and representatives of women's group. Some of the planned activities will be mainly dedicated to women groups as for women fishmongers, access to the cooking stoves, multifunction platforms, etc.

Criterion 7: Education

198. Encouraging unemployed young graduates to develop micro-project under the revolving fund will be an advantage to avoid rural exodus and to ensure project's results sustainability.

199. Following the brief description of these criteria it is important to note, that the selection criteria could be later modified or refined during project activities execution in order to be addressed in a participatory manner according to the various items and issues.

Output 3.2.1: Leverage funds put in place to diversify sources of income

200. The establishment and piloting of a leveraged fund mechanism to support the diversification of income sources contribute to the reduction of local poverty. It is for this reason that a part of the project's resources will support, among other things, the modalities of creation, the elaboration of rules and regulations establishing eligible diversification activities, the value chain to promote, the conditions of access to leverage funds, the domiciliation of the fund, the search for approval required by the competent authorities for its establishment and the mobilization of additional resources from other partners in order to further support the offer of leverage or renewable funds.

- Activity 3.2.1.1: Elaborate the mechanisms and procedures for accessing leveraged funds for the diversification of IGAs;
- Activity 3.2.1.2: Organize training/information workshops revolving funds for young people, women, and men;
- Activity 3.2.1.3: Develop an Operational Manual for IGAs.

Output 3.2.2: Income-generating activities are supported

201. Alternative and resilient income generating activities (IGA) such as beekeeping, production of essential oils, valorization of NTFPs (shea butter, baobab, moringa, néré, tamarind, balanites, gums), production and processing maintenance of improved economic stoves. The project plans the construction of "nature shops" to display and sell local products made by craftsmen that will be promoted in an agricultural value chain development format. Beneficiaries are local socio-professional organizations, local civil society organizations, professional women's groups, young promoters with the assistance of non-governmental organizations (NGOs) and project service providers. The institutional capacity developed will enable vulnerable communities to benefit not only from the project but also potentially from other sources of funding. To achieve these goals, the project will have to strengthen the technical capacity in agricultural value chain promotion and the financial management of micro-enterprises. The project will also support in each community, the development of business plans of promoters or groups of promoters willing to engage in these activities. By supporting alternative Income Generating Activities, the project seeks to reduce pressure on ecosystems and improve people's living standards.

202. When implemented, these activities should be based on the following actions:

- Organize an information campaign to launch the project, explain its objectives and the financing mechanisms of IGAs. Partner structures (such as NGOs) can be involved according to an empowering and a cooperation agreement;

- Identify promoters of IGAs and develop and implement a training and organizational and material support plan;
- Support the development of a financing plan and implementation of funding.

203. Several business plan models exist and can thus be discussed and implemented, depending on the specificities of the communities. Some will be based on microcredits, while others will be based on subsidies. The development of business models must be done in order to sustain the activity beyond the project closure.

- Activity 3.2.2.1: Identify and train the beneficiaries on the different IGAs (agriculture, organic farming, breeding, apiculture, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic supports, etc.);
- Activity 3.2.2.2: Manufacture and disseminate wood saving equipment and techniques (improved salt production stoves, processing of fish products and attic holders for the preservation of food products, etc.);
- Activity 3.2.2.3: Acquire and grant vulnerable women nucleus of small ruminants (goat, sheep, etc.) and poultry;
- Activity 3.2.2.4: Support groups of women processors through multifunctional platforms for the processing of non-timber forest products (NTFP: Shea, Baobab, Moringa, Nere, Tamarind, Balanites, Gum Arabic etc.);
- Activity 3.2.2.5: Identify and equip beekeepers in the installation of beekeeping sites in the riparian villages;
- Activity 3.2.2.6: Support women's and youth groups for the development of the pharmacopeia and the extraction of oils from aromatic and medicinal plants;
- Activity 3.2.2.7: Equip fishermen and fish breeders in the localities bordering the WAP;
- Activity 3.2.2.8: Build "nature shops" for the exhibition and sale of local and craftsman-made products at the park entrances.

Component 4:

Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex

204. The achievement and sustainability of the project objectives and activities are conditioned by the improvement of the actors' behavior and beneficiaries and their assimilation, of stakes and problems related to climate change. As such, this component of the ADAPT-WAP project is dedicated to sensitization, communication and capacity building of actors. This component will include cross-cutting activities that will cover a wide range of themes and will support several activities in order to ensure a good mastery and appropriation of the project's inputs and results. Apart from the traditional capacity building plans, a part of activities under this component are oriented towards the development of knowledge management strategy and a multi-stakeholder communication and awareness plan that will be used like tools by the managers and project management instances.

Outcome 4.1: "The actors involved are mobilized and sensitized through appropriate communication and capacity building".

205. All target groups (policy-makers, youth, schoolchildren, socio-professional groups and women ...) and direct and indirect beneficiaries of project activities will have their capacity strengthened with the help of environmental education tools and materials to convey messages and concepts related to the themes of the project. The affordable themes are Climate change and its impacts on the WAP Complex ecosystems, natural disasters, natural resources, biodiversity, etc. Channels, tools and communication and awareness materials will be identified taking into account the environment and the available means (radios, SMS, WEB, environment clubs ...).

206. This result will be implemented through the following outputs and activities:

Output 4.1.1: Practitioners, technicians, and decision-makers on the technical aspects of the project are sensitized and trained on environmental issues

207. This output aims at raising awareness and building the capacity of policymakers, practitioners, and technicians in terms of Climate Change Adaptation (CCA). Sensitization and technical capacity-building activities will contribute to the creation of a robust information framework that integrates climate change adaptation aspects and is vital for the implementation of the ADAPT-WAP project. Thus, a first part of the project's resources will be used to assess targets group's needs in terms of capacity building in order to develop a training plan and curricula adapted to identified needs.

208. The second part of this output is to ensure dissemination, the popularization of information in a manner that meets the needs of end users and will support informed decision-making.

- Activity 4.1.1.1: Develop training modules specific to CC and EWS adaptation;
- Activity 4.1.1.2: Organize thematic training sessions for practitioners, technicians and agricultural extension workers;
- Activity 4.1.1.3: Organize targeted outreach and information sessions for decision-makers in all three countries (simplified training modules);
- Activity 4.1.1.4: Organize three field/exchange visits, capacity building for park management units on adaptation and EWS.

Output 4.1.2: Populations are informed and sensitized

209. To achieve project's objectives, it is mandatory to ensure the implementation of these activities based on a participatory and multi-stakeholder process that can guarantee the full support of the various stakeholders. That's why, the project plans to have a strategy for Information, Education, and Communication of the population on climate change and the conservation and sustainable management of the WAP complex. This second output is organized in two parts: a first one that addresses the process of developing an information, education and communication strategy and action plan for behavior change through a consultant's service and a second one which is the implementation of multi-stakeholder tools and supports at the heart of the communication strategy. Finally, it will involve transferring adaptation measures, options and technologies to vulnerable communities in selected regions using information tools and a participatory approach.

- Activity 4.1.2.1: Design of a communication strategy and action plan and development of public awareness materials (leaflets, posters, flyers, summaries, documentary, local radio spots, telephony application ...);
- Activity 4.1.2.2: Organize sensitization and information days for the population on adaptation to the CC and the EWS at the level of the 19 neighboring municipalities;
- Activity 4.1.2.3: Design education modules on climate change, adaptation and risks management and disasters to schoolchildren
- Activity 4.1.2.4: Organize education sessions on climate change, adaptation, and management of risks and disasters inherent to it, for the benefit of schoolchildren, in the 19 neighboring municipalities.

210. The following tables define the training plan as well as the different topics to be undertaken under the framework of capacity building process:

Table 3: Trainings plan

Component	Specific Training theme/activity	Stakeholders	Training Methods	Timeline			
				Year 1	Year 2	Year 3	Year 4
Component 2: Design and implementation of a multi-hazard early warning system (drought, floods, and fires)	*Activity 2.1.2.7:* Organize regional and national training sessions on the MREWS (concerning the use of the MREWS, data processing, elaboration of indicator, MON, including setting up of community relays ...)	• Actors involved in the MREWS	• Training Workshops, presentations and discussions • Practical demonstrations				
	Activity 2.1.3.2. Organize training sessions on the use of the contingency plan for the benefit of the different actors involved in the three countries	• Different actors involved in the three countries on the use of the contingency plan	• Training workshops presentations and discussions • Practical demonstrations				
	Activity 2.1.3.4: Implement three (3) blank operations	• Different actors involved in the three countries on the use of the contingency plan	• Field case studies				
Component 3: improving Resilience of ecosystems and the livelihoods of population and users through the implementation of concrete adaptation actions	*Activity 3.1.3.2:* Identify and train actors on the tracks rehabilitation	• Local population	• Practical demonstrations				
	*Activity 3.1.*4.1: Implement training sessions for farmers from WAP complex surrounding villages on agroforestry techniques	• Farmers of WAP complex	• Training Workshops, • Practical demonstrations • Field case studies				
	Activity 3.1.5.1: Identify and train women fishmongers and fish processors in the use of new tools produced by the population	• Fisherwomen	• Workshop presentations • Practical demonstrations				
	Activity 3.1.5.3: Identify and train fishermen group members in improving fishing and fish farming techniques	• Fishermen	• Workshops presentations, • Practical demonstrations				
	Activity 3.1.6.4: Organize training sessions on reforestation and assisted natural regeneration	• Local communities	• Training Workshops, • Practical demonstrations • Field case studies				
	Activity 3.2.1.2: Select and train beneficiaries on the AGR operations manual	• Local communities	• Workshops presentations and discussions				
	Activity 3.2.2.1: Identify and train the beneficiaries on the	• Local communities	• Training Workshops,				

	different IGAs (agriculture, organic farming, breeding, beekeeping, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic holders etc.)		• presentations and discussions • Practical demonstrations • Field case studies				
Component 4: Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex	*Activity 4.1.1.2:* Organize thematic training sessions for practitioners, technicians and agricultural extension workers	• Practitioners, technicians and decision makers	• Training Workshops, • Practical demonstrations				
	Activity 4.1.2.4: Organize educational sessions on climate change, adaptation and risks management and disasters inherent to it, for schoolchildren in the 19 neighboring communes	• Schoolchildren	• Workshops, presentations and discussions • Role games				

Table 4: Topics of trainings

Topic of the TOT and modules	Number of trainings	Persons to be trained to become a trainer	Objective
1. Multi-hazard Early Warning System (MREWS) • Collection of Data and Risk analysis • Analysis and treatment of data • Implementation of the early warning system	3 national trainings 1 regional training	Different actors involved on the MREWS (MREWS units, Ministry, Park mangers)	4 sessions will be organized to inform all stakeholders on hardware and equipment requirements for the implementation of MREWS in WAP, real-time data collection, analysis and data processing, as well as the warning and dissemination of alerts.
2. Emergency plans for disasters including blank operations • Crisis management • Regional Coordination • Field case studies	9 national trainings	Different actors involved in the three countries on the use of the contingency plan	9 sessions will be organized to increase the capacity of the involved actors and to improve disaster response capacity at local and regional levels, to scale up their interventions with vulnerable communities in a number of areas (health, risk reduction, disaster). The trainings will also aim to increase regional coordination between the three countries
3. Tracks rehabilitation	12 national trainings	Local population	These trainings will aim to prepare the population on sustainable techniques to rehabilitate the tracks
4. Agroforestry and small irrigation techniques • Restoration and natural regeneration methods • Small irrigation methods	9 national trainings	Farmers neighboring the WAP	9 sessions will be organized to disseminate methods of restoration and regeneration. It will also aim to train farmers on good practices in small irrigation
5. Sustainable fishing for women • Fish processing techniques • Fishing value chain	5 national trainings	Female fishmongers	5 sessions will be undertaken to strengthen their technical capacities and material for fisherwomen in the priority localities.
6. Sustainable fishing for men • Aquaculture technique	5 national trainings	Fishermen	5 sessions will be undertaken with the objective to strengthen their technical capacities and material for fishermen in

• Management of basins			the priority localities.
7. Revolving funds • Objectives and financing mechanisms of IGAs	3 national trainings	Local communities (young people, women, and men)	3 sessions will be organized to inform young people, women and men about the modalities of creation, the elaboration of rules and regulations establishing eligible diversification activities, the value chain to promote and the conditions of access to leverage funds.
• Income-Generating Activities • Organic farming • Breeding • Beekeeping • Distillation • Collection of NTFPS • Manufacture of improved stoves and attic holders	12 national trainings	Local communities (young people, women, and men) NGOs	12 sessions will be organized to launch the revolving fund, explain its objectives and the financing mechanisms of IGAs.
8. Thematic training • Climate Change Adaptation • MREWS • SLM	12 national trainings	Practitioners, technicians and decision makers	12 sessions will be organized to create a robust information framework that integrates climate change adaptation aspects for the implementation of the ADAPT-WAP project.
9. Educational sessions on climate change, adaptation and risks management and disasters	38 sessions	Schoolchildren	These sessions are aimed at informing schoolchildren about climate change, MREWS, eco-citizenship in order to enhance their resilience to CC.

B. Promotion of new and innovative solutions to climate change adaptation

211. The project will develop a new mechanism to address the climate change adaptation dimension by fostering the establishment and operation of a stakeholder platform for dialogue among decision-makers from different country settings around the integration of climate change adaptation into WAP complex management tools. This regional innovation in the management of the WAP complex will be backed up by the establishment of a coordinated planning and implementation exercise for adaptation actions. The multi-actor platform's management by the project will call for an adjustment of the regulations in force in order to give legitimacy to the framework resulting from the consultation made to integrate the adaptation dimension to climate change. The second level of innovation brought by the WAP Adapt project is the control of the occurrence of climate risks through the introduction of a new technology, the early warning system on three risks (flood, drought, bushfires) including two climate risks on the WAP complex. This tool is necessary for ecological and health monitoring of the ecosystems of the WAP complex and for reducing the vulnerability of the riverside population. For the first time, the stakeholders involved in the management of the WAP complex will be organized in a system of implementation of emergency actions. Reducing the vulnerability of the WAP complex also means leading the project to develop an early warning system for bushfires.

212. On the other hand, the WAP complex and its area of influence, because of its forestry potential, are almost permanently subject to population activities (timber gathering, non-timber forest products harvesting, grazing, and agriculture). The park management departments seem unable to control it or to organize in a sustainable way the development of the peripheral area of the WAP complex. Timber harvesting and non-timber forest product harvesting activities go unpunished.

213. The project will innovate by supporting stakeholders in promoting the timber saving in local households on the basis of a job creation model. This innovative strategy will make it possible to create private jobs in the localities by emphasizing on the identification and design of adapted models, the capacity building of key actors (craftsmen and women's groups) and the dissemination at the scale of the other riverside villages of new models that have proved their worth. The project's approach will focus on the most vulnerable and wood-consuming localities along the river (presence of fish trade, natron production, processing) and the development of the models selected by country according to the actual situation, the training of core trainers

and craftsmen, and the development and implementation of a dissemination strategy for the models developed.

214. Another innovation of the project is to encourage park managers to create wildlife aggregation areas around water points to be installed by the project, in order to contribute to wildlife safety and especially to the reduction of long routes that expose wildlife to poaching during critical periods (dry season).

215. Fishing is prohibited in WAP watercourses. However, riparian actors fraudulently use unregulated fishing equipment exposing fishery resources to serious risk of extinction. In order to reduce this pressure related to halieutic resources, the project will support the fishermen by providing some sustainable fishing equipment and promote modern fishing techniques.

216. With regard to the sustainable management of riparian agricultural lands, the project enables local farmers to recreate better production conditions by popularizing simple agricultural techniques and technologies, at lower cost, adapted to agricultural conditions such as shea grafting, the assisted regeneration of woody species with multiple values and plants with rapid growth and multiple purposes. Similarly, techniques for restoring and reclaiming degraded land in riverside localities in order to increase land availability at the local level, reduce pressure on PA lands and improve community food security.

217. The discrepancies in policies and strategies between the three countries, inadequate monitoring capacity, lack of livestock reception areas and corridors, and lack of adequate pastoral infrastructure along official transhumance routes are among the factors that attract transhumants to protected areas. Once in the life of the WAP complex, communities involved in this activity agree that the ADAPT-WAP project should support the marking-out of the ECOWAS corridors (N° 3 and 4) and local corridors in the village territories bordering Benin and Burkina Faso. The innovation introduced by the Project is now to create regional or national corridors that will limit the penetration of the WAP complex, alongside water points (equipped boreholes) and developed transit areas.

218. Finally, to strengthen people's resilience to climate change and improve their standard of living, the ADAPT-WAP project will develop the capacity of beneficiaries to develop income-generating microprojects (IGAs) and implement them through easy access to leveraged funds. The establishment of a leveraged fund for the diversification of income-generating activities is an innovation that will improve the living conditions of the populations and create jobs for the most vulnerable riverside populations, namely young people and women from the localities bordering the WAP complex. Most importantly, this proposed innovative mechanism for direct access to financing at the local level will bring economic, social and environmental benefits to vulnerable communities in the project's target intervention area. The project will carry out a feasibility study of IGAs in an agricultural value chain development format per country in order to retain the most profitable, socially appropriate and adapted to local conditions to be promoted. This study will result in a manual to support and implement IGAs as part of adaptation and vulnerability reduction actions for riverside communities.

C. Project Economic, environmental and social benefits and gender integration

219. Because of its geographical location, the WAP complex is identified as of the most vulnerable ecoregions to climate variability and change in West Africa. Therefore, it is necessary to provide benefits at the local level to vulnerable communities through the development and implementation of climate change adaptation activities.

220. The ADAPT-WAP project will enable beneficiaries to develop income-generating micro-projects (IGAs) and access leveraged funds to implement them to generate benefits at the local level. These recipients are local professional organizations, local civil society organizations, professional women's groups assisted by non-governmental organizations (NGOs) partners in the project. The institutional capacity developed will enable vulnerable communities to benefit not only from the project but also potentially from other sources of funding.

221. This will result in a potential multiplier effect of local economic, social and environmental benefits during and after the four-year implementation period. As well, the additional benefits resulting from capacity building provided by the WAP Adapt project will include: i) social cohesion and community building; ii) linkages between and integration of climate change adaptation into existing and planned government and donor

development initiatives; iii) coordination of funding and responses for climate change adaptation; iv) effective sharing of relevant information; and vi) the development of a national strategy for climate change adaptation.

222. At the local level, the proposed innovative mechanism for direct access to climate change adaptation financing will bring economic, social and environmental benefits to vulnerable communities in the project's target intervention area. The expected economic, social and environmental benefits of the ADAPT-WAP project are described below.

Economic benefits

223. Employment in the form of agricultural and non-agricultural micro-businesses with a developed local supply chain and access to financing for their diversification will be created during the implementation of the project. A livelihoods-focused portfolio of activities will be developed to mitigate risks and reduce community dependence on protected area ecosystems. Restoring forest cover and biodiversity will help improve the quality of the services that the protected area ecosystem would provide to riparian populations. The protective function provided by transhumance corridors, grazing areas and wooded areas, including protection against natural hazards, carbon sinks and prevention of soil erosion and degradation, will have important economic benefits. The project will help farmers improve their farming techniques, promote optimal water use and ensure increased agricultural productivity. The project will build the entrepreneurial capacity of the local community by building strong linkages between business and financial. Average daily returns from adapted livelihoods will be about 70-100% higher than traditional activities, based on previous project experience.

Environmental benefits

224. Environmental benefits would include an increased sense of sensitivity and ownership in protected area ecosystem management among community members thereby reducing unsustainable dependence on forest resources for their livelihoods. The project Contribution to climate regulation through the promotion of agroforestry plants made available to identified beneficiaries and the implementation of assisted natural regeneration works for the benefit of riparian populations, the delimitation, and development of grazing areas and the selected wooded areas. It contributes to the reduction of carbon emissions in the air through the activities of promoting wood saving equipment and techniques (supports for the storage of food products, salt production, processing of fish products and activities to maintain biodiversity through the delimitation and management of grazing areas and selected wooded areas. Promoting organic farming, assisted regeneration and improving agricultural production techniques will reduce soil degradation, increase crop yields and improve climate regulation. Increased awareness of the importance of biodiversity conservation will result in sustainable extraction of non-renewable forest products, the creation of governance for sustainable resource harvesting and better management of biodiversity. The floral and wildlife diversity of the WAP complex's protected areas will also improve. Rare and endangered species (*Prosopis africana* as granary fork in Niger; *Tamarindus indica* as structural timber) will no longer be subjected to abuse. Visible habitat enhancement in forest ecosystems will capture more carbon and act as a carbon sink, helping to prevent the increase of CO2 in the atmosphere.

225. Indeed, the project will contribute to the maintenance and sustainability of these last two species of multiple uses, through several activities and planned measures such as:

- Pastoral improvement activities that will reduce their use for livestock;
- Both species will be recommended for reforestation/afforestation and agroforestry activities;
- The development of water points and corridors for transhumant people will also avoid overexploitation of these two species;
- The activities of the assisted regeneration which will be practiced in the limitrophes zones and villages will focus on the rare and menaced species including *Prosopis africana* and *Tamarindus indica*.

226. On the other hand, the project foresees the implementation of sensibilization and communication activities in relation with the environmental issues of the zone of which the conservation and the durable use of rare and threatened species (information sessions, supports of sensitization...).

Social benefits

227. The involvement of women's, youth and men's thematic and gender-balanced organizations at the local level to plan, implement and monitor project activities is one of the main benefits of the project. Leaders and members of specialized community organizations will receive training and workshops organized to resolve problems, including intra-group conflicts equitably, thereby benefiting the community in the project villages over the long term. Through the micro-projects initiated by the project, local populations will be empowered and motivated to participate in community employment creation processes that will help develop a sense of ownership of their own livelihood enterprises. These platforms would also be used to increase community awareness of their rights and establish strong business linkages for their livelihood basket. Many women headed by households find themselves in situations where men in the family have migrated to neighboring cities to work. As a result, they are left very vulnerable and not equipped to manage the household while working for less than subsistence wages to feed their families. Migration exposes the problem more because it leaves women socially vulnerable to stigma, discrimination and health hazards. Raising awareness of gender issues among leaders and members of community organizations will help to integrate gender into the development process at the village level. Village members will also be empowered to collectively protect WAP complex protected area ecosystems and undertake proposed livelihood interventions to build a cohesive relationship between people and protected area ecosystems.

Gender Integration

228. Gender mainstreaming is a prerequisite for assessing the vulnerability of populations concerning the implementation of measures in the field of communication, training, education, awareness, and more concrete, for income generating activities to be undertaken as part of the project development.

229. In the area of the WAP Complex and outlying villages, the social roles and responsibilities of men and women are set by traditional culture and by certain religious beliefs that are used to explain and legitimize inequalities and disparities between men and women, qualified sometimes of normal, natural or even divine essence.

230. In addition, inequalities in the sociocultural and religious context mainly concern the persistence of the boy's precedence over the girl in the choice of births, the right of succession and the right of ownership. Inequalities and disparities of labor give women more workload compared to men, to girls compared to boys, with damaging impacts on their health, access to education, productivity, their leisure and their reinvestment in human capital. Furthermore, there are inequalities of access, or the continuation of social exclusion or self-exclusion, particularly of women and young people, girls, and boys, to decision-making processes.

231. In general, women are present in all sectors of economic activities of the WAP Complex, both in rural and urban areas. Their participation is, however, handicapped by the sexual division of labor which confines them to certain types of activities and by the limited, available time-budget to invest effectively in profitable and well-paid production activities.

232. Whether it is rain-fed or irrigated agriculture, getting access to land through succession is the dominant mode and is generally reserved for men. But access to land ownership is possible for both, men and women, through acquisition for a fee. Access to finance is also unequal because of the eligibility criteria (yields, productivity, and contribution) that accompany it and which women can hardly meet. In general, the credits allocated to women are small amounts from informal networks and are most often invested in areas other than production. Men, on the other hand, often benefit from more substantial loans for the acquisition of production equipment and marketing.

233. The declination of the project document and a detailed action plan, the definition, and programming of activities will take into account the gender dimension at the different levels of project implementation. The approach that will be adopted will place gender at the center of the concerns, both in terms of definition and implementation, and monitoring and evaluation of the actions to be carried out.

234. Indeed, the mainstreaming of the gender dimension in the foreseen activities of the project aims:

- To improve the knowledge and practice of women's human rights, both by women themselves and by other actors;

- To increase women's access opportunities not only to project-supported activities (lowland development, market gardening, non-timber forest products, etc.) but also to all opportunities and responsibilities within the aboriginal riparian communities and their dismemberment at the local and regional level;
- To enable a harmonious and equitable evolution of gender relations and division of tasks or responsibilities within households and communities, and;
- To contribute to the attachment of young men to their households.

235. Women are involved in most of the planned activities of the project. The added value of specific measures, dedicated to women, will improve with regard, among others, to the improvement of production equipment or infrastructure, and access to credit facilities to increase financial capital.

D. Project Cost-effectiveness analysis

General Overview: Project Cost and Individual Direct Cost

236. The total cost of the project is developed to be executed over four years. At the final stage of the project proposal preparation, a revised budget amount is fixed to US$ 11.536,200 divided by component in the table below:

Table 5 : Project Cost

Components	Cost ($)	Cost (CFA franc)
Component 1	360,000	208, 800, 000
Component 2	2.300,000	1,334,000,000
Component 3	6,150,000	3,567,000,000
Component 4	900,000	522,000,000
Management Fees	1,826,200	1,059,196,000
Total	11.536,200	6,690,996,000

237. However, according to OFINAP, 2015, the population is estimated at 1, 087,309 inhabitants divided into 759,300 inhabitants in the WTBR/Benin and 328,009 inhabitants in the Arly-Pendjari zone. So, considering the population grouth, in the project framework, the target population is estimated at 1 090 000 inhabitants.

238. Besides, the average household size is 6 persons. So, taking into account the total number of inhabitants, the number of households can be estimated at 181, 667.

239. According to the logical framework data, the target population whose living conditions will be improved by the project can be estimated at 60%. Thus, a total of 654,000 inhabitants will be directly affected.

240. Consequently, the cost of the project is estimated at 17.5 $ per beneficiary. Finally, the analysis of the financial profitability is carried out basing on the project cash flow forecasts in order to calculate appropriate rates of return, in particular:

- the (internal) financial rate of return (IRR);
- the (internal) financial rate of return calculated on the investment cost (IRR/C) and the (internal) financial rate of return calculated on the own funds (IRR/K);
- the corresponding net financial present value (NPV).

Financial analysis

241. The financial analysis is made basing on the operating accounts established in the income generating activities report. It ensures the relevance of the activities in terms of profitability and direct benefits for the target groups.

242. The main activities which have been the subject of this analysis are agriculture such as maize, millet, coton and sorghum production, use of forest resources (timber and non-timber products).

243. In other words, the monetary evaluation of the avoided effects thanks to the adaptation strategies can be summarized in two stages: (1) the physical quantification of the impacts and (2) the transposition of the

impacts into monetary terms, which amounts to multiplication of the number of units affected by their monetary value.

- **Discount Rate:** The discount rate also called the hurdle rate or cost of capital is the expected rate of return for an investment. In other words, this is the interest percentage that an investor anticipates receiving over the life of an investment. So, it will take into consideration (i) the market interest rate for a comparable period; (ii) the inflation rate and (iii) the risk premium. For the ADAPT-WAP project, the discount rate used is 8%. This rate takes into consideration, among others, the inflation rate.
- **Project costs by component estimation**: The main costs necessary for the implementation of the project are related to studies, trainings, investments (infrastructure, IT equipment, etc...). These costs by component are estimated from the costs of the activities planned for the implementaion of the project ;
- **Project benefits and revenues Estimation:** The project benefits estimation are mainly based on the added value generated by the promoted activities;
- **Project Residual value estimation:** Equipment, infrastructure and other equipment acquired under the project spanning several years. Given that the duration of the project is 4 years, these investments will have a residual value that will be taken into account at the end of the project as a benefit.
- Project Cash Flows estimation: annually over 4 years;
- Project Net Present Value (NPV): is the sum of the cash flows;
- **Project Internal Rate Return**: is the rate that leads to an NPV nil value. For this project, the rate that makes it possible to bring back the NPV to zero is 26.7%.

244. The project financial analysis over several years of financial data is given in the table below.

Table 6 : Project Financial Analysis

SECTION	Year 1	Year 2	Year 3	Year 4
A- Cost components				
Project accounting cost				
Component 1 costs	360 000			
Component 2 costs	1 425 000	685 000	105 000	85 000
Component 3 costs	1 675 000	1 895 000	1 545 000	1 035 000
Component 4 costs	285 000	225 000	215 000	175 000
Implementation costs (management unit)	335 000	215 000	215 000	157 450
Implementation costs (implementation unit)	213 438	203 438	203 437	283 437
Total costs	4 293 438	3 223 438	2 283 437	1 735 887
B) Financial Benefits				
Benefit to the agricultural community	363 000	381 000	419 100	461 000
Benefit to the livestock community	255 000	268 000	295 000	325 000
Benefit to the fishing community	11 000	12 000	14 000	16 000
Benefit to the business community	1 125 000	1 182 000	1 301 000	1 431 000
Benefit to the craft community	311 000	327 000	360 000	396 000
Benefit to the community from wildlife harvesting	373 000	392 000	431 200	475 000
Benefit to the community from the exploitation of forest resources	207 000	218 000	240 000	264 000
Residual value				1 446 000
Total financial benefits	2 645 000	2 780 000	3 060 301	4 814000
C- CASH FLOWS (B-A)	- 1 648 438	- 443 438	776 864	3 078 112
D- CASH FLOWS ACTUALISE (C*(1+i[4])^-n)	- 1 526 331	- 380 177	616 700	2 262 504
NPV	972696			
IRR	26,7%			

4 i=8%

245. This table shows that the financial benefits of the project outweigh the costs incurred. The project benefits were physically quantified and then translated into monetary terms. Thus, the financial advantages are obtained at the individual level basing on the effects that the project will be able to generate in each activity.

246. The number of stakeholders affected and the benefits are estimated. Net financial flows become positive from the third year onwards. The Net Present Value (NPV) is estimated at $972,696 whereas the financial rate of return is 26, 7%. ***Thus, from the financial point of view, $ 100 invested in this project is expected to generate a profit of around $ 27.***

Sensitivity of financial profitability

247. The two main factors taken into account in the analysis of the sensitivity of financial profitability are the increase in the project costs and the decrease in the expected benefits.

- **Hypothesis 1: Increase in project costs**

248. Due to the exchange rates variability, there is a risk related to the increase of the project costs which is an uncontrollable and important factor that must be highlighted.

Table 7 : Financial profitability: Increase in project costs according to the hypothesis 1

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
NPV ($)	874 421	776 145	677 869	579 593	481 317	383 042	284 766	186 490	88 214	-125 830
IRR	24,5%	22,4%	20,3%	18,4%	16,5%	14,6%	12,8%	11,1%	9,5%	7,8%

249. The analysis shows that with a 1% to 10% increase in project costs, the NPV goes from $874,421 to a negative value of -$-125,830. Thus, we note that starting from an increase of 10%, the NPV takes negative values which reflects the breakeven point of the project.

250. From the financial point of view, the IRR of the project goes from 24.5 to 7.8% which indicates that the project is profitable but this profitability can be offset by a significant variation of costs during the project implementation. Hence, it is needed to respect the planned costs during the implementation phase of the project, or to maintain their variation within a maximum of 10%.

- **Hypothesis 2: Decrease in benefits during the implementation**

Table 8 : Financial profitability: Decrease in benefits during project implementation according to the hypothesis 2

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
NPV ($)	864694	756691	648688	540685	432683	324680	216677	108674	67200	-207930
IRR	24,5%	22,3%	20,1%	18,0%	16,0%	13,9%	11,9%	10,0%	8,0%	6,1%

251. The NPV has a nil value from a 9 to 10% decrease in the benefits generated by the project and an increase in the IRR from 8% to 6%. This restricted the expected decrease in benefits. Consequently, even with a decrease in benefits from 1 to 9%, the project remains profitable.

- **Hypothesis 3: Increasing Costs and Decreasing Benefits**

Table 9 : Financial profitability: Increasing costs and decreasing benefits according to the hypothesis 3

	1%	2%	3%	4%	5%
NPV ($)	766418	560139	353861	147582	-58696
IRR	22,3%	18,2%	14,3%	10,6%	7,0%

252. The cross-effects of increased costs and decreased benefits results in an NPV with nil value between 4 and 5%. This indicates that the project can tolerate costs increase combined with a reduction in benefits until a value ranging between 1 and 4%.

Economic analysis

253. The economic analysis follows financial evaluation to the extent that it uses the same flows. It provides additional criteria by introducing an economic perspective.

254. The economic evaluation of a project, unlike the financial evaluation, allows the project to be focused on the community level. It is then considered as a tool for regional economic development and a focal point for the collective well-being spreading.

255. So, economic profitability is not defined basing on its ability to generate a residual income for the investor, but rather basing on its effects on macroeconomic parameters (natural investment, economic growth, employment, inflation, etc.). It is therefore related to the interactions between the project and its physical and social environment within the region.

256. Considering the strong social and environmental context of the project, the analysis of economic profitability was limited to the following criteria: (i) Capital; (ii) Labor; and (iii) Cost-Benefit.

257. In the project area where productive resources are scarce and unskilled laborforce are abundant, the capital-labor ratio is taken into account in the project assessment. Also, the net updated value for the entire program and the overall economic rate of return (EIRR) are considered.

258. The other types of benefits that will be associated with the project activities are: (i) the job creation with a strong use of the local workforce, (ii) the income related to the IGAs, (iii) the construction of "nature shops" for the exhibition and the sale of local and handicrafts products at the park entrances; (iv) the construction of water points, (v) the development of transhumance corridors for livestock; (vi) the maintenance and rehabilitation of existing WAP ways; (vii) the development of small livestock for the women (goat / sheep, pigs and poultry); (viii) the development of beekeeping production; and (ix) the valorization of NTFPs (shea butter, baobab, moringa, néré, tamarind, balanites, gums).

Table 10 : Project Economic Analysis

SECTIONS	Year 1	Year 2	Year 3	Year 4
A- Cost components				
Project accounting cost				
Component 1 costs	360 000			
Component 2 costs	1 425 000	685 000	105 000	85 000
Component 3 costs	1 675 000	1 895 000	1 545 000	1 035 000
Component 4 costs	285 000	225 000	215 000	175 000
Implementation costs (management unit)	335 000	215 000	215 000	157 450
Implementation costs (implementation unit)	213 438	203 438	203 437	283 437
Total costs	**4 293 438**	**3 223 438**	**2 283 437**	**1 735 887**
B- Economic benefits				
Job creation for the community	**381 000**	**762 000**	**1 142 000**	**1 523 000**
Improvement of living conditions				
Improvement of women's living conditions	163 000	326 000	489 000	163 000
Improvement of men's living conditions	48 000	97 000	146 000	195 000
Improvement of children's living conditions	1 000	1 000	2 000	2 000
The valuation of NTFPs	11 000	21 000	33 000	44 000
Improvement in tax revenues due to increased activities	1 242 000	1 366 000	1 490 000	1 614 000
Other economic benefits for the community	198 000	397 000	595 000	794 000
Total economic benefits	**2 044 001**	**2 970 000**	**3 897 000**	**4 334 999**
C- NET ECONOMIC FLOWS (B-A)	**- 2 249 437**	**- 253 438**	**1 613 563**	**2 599 112**
D- CASH FLOWN (C*(1+i5)^-n)	**- 2 082 812**	**- 217 282**	**1 280 899**	**1 910 425**
Current Net Economic Value	**891 230**			
Internal Economic Rate of Return (IERR)	**23,2%**			
profit/cost ratio	**14,8%**			

5 i=8%

259. Benefit of the project were made on the basis of the activities mentioned above. The project internal economic rate of return (IERR) is estimated at 23.2 %, while the Current Net Economic Value reaches 891 230 US$. So, the profit/cost ratio is 14.8%.

Sensitivity of economic profitability

- **Hypothesis 1: Increase in project costs**

260. The exchange rates variability increases the project costs. By considering an increase of the costs in a margin of 1 to 10%, we obtain the following results:

Table 11 : Financial profitability: Increase in project costs according to the hypothesis 1

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
NPV ($)	792 954	694 678	596 402	498 127	399 851	301 575	203 299	105 023	6748	-213 707
IRR	21,3%	19,5%	17,7%	16,0%	14,4%	12,7%	11,1%	9,6%	8,1%	6,6%

261. The analysis of the simulation shows that with an increase going from 1 to 10% of the project costs, the NPV goes from 792 954$ to a negative value of -213 707$. Which means an exit from the threshold of the economic viability of the project. The IRR of the project from the financial point of view goes from 21.3 to 6.6%.

262. It shows that the ADAPT-WAP project is profitable but that attention needs to be paid to avoid an increase in costs beyond 9%. Project management in the implementation phase will, therefore, have to ensure compliance with projected costs and even try to reduce them to reduce sensitivity and increase profitability.

- **Hypothesis 2: Decrease in projected benefits during the implementation**

263. By reducing the benefits of the project from 1 to 9 % the economic NPV is zero for an 8 to 9 percent decrease in expected benefits across the project and the IRR increases from 8.6 to 6.8%.

Table 12 : Financial profitability: Decrease in projected benefits during project implementation according to the hypothesis 2

	1%	2%	3%	4%	5%	6%	7%	8%	9%
NPV ($)	784042	676853	569665	462477	355289	248101	140913	33725	-73463
IRR	21,3%	19,4%	17,6%	15,7%	13,9%	12,1%	10,3%	8,6%	6,8%

It can be concluded that with a decrease in benefits within 1 to 8%, the ADAPT-WAP project remains profitable for the beneficiary communities.

- **Hypothesis 3: Increasing Costs and Decreasing benefits**

264. Simultaneous variation of costs and benefits leads to the following table:

Table 13 : Financial profitability: Increasing costs and decreasing benefits according to the hypothesis 3

	1%	2%	3%	4%	5%
NPV ($)	685766	480302	274838	69374	-136090
IRR	19,5%	15,9%	12,4%	9,1%	5,9%

265. The combined effects of simultaneous cost increases and decreases in benefits translate into a cancellation of the economic NPV between 4% and 5%. This indicates that the ADAPT-WAP project can stand up to increased costs combined with a reduction in benefits to an extreme limit of 1 to 4%. The probability of occurrence of these variations is, however, very low because many other benefits related to the implementation mechanism and to avoid climatic disasters (early warning system in particular) are not taken into account in the current simulation. From the analysis, it appears that the ADAPT-WAP project is economically and financially profitable.

E. Consistency of the project with development strategies

266. The Transboundary Block W Planning and Management Plan (2017-2026) is a strategic planning document for operational planning. The vision as identified at the level of this plan is: "By 2032, the

conservation of biodiversity in the W Park transboundary biosphere reserve is a successful sub-regional and environmental governance model". The general objective is "to consolidate the achievements of the cross-border management of the Park W we contributing to the sustainable development of the riparian populations".

267. The ADAPT-WAP project is in perfect harmony with this vision and objective. It will contribute to their achievement through activities and program measures. Moreover, the 10 management priorities in the PAG are clearly complementary to the outcomes and outputs of this project. These include the conservation of biodiversity, monitoring, ecological monitoring, infrastructure strengthening, communication, awareness, communication etc …

268. The implementation of the ADAPT-WAP project will be closely monitored by the managers and custodians of protected areas of the WAP complex. The latter will also be the direct managers of the implementation of the provisions of the PAG and this can ensure the complementarity and the harmonization with the components and activities of the project.

269. However, the WAP Adapt project is strongly aligned with a number of national and regional policies, plans and priorities for sustainable development and adaptation to climate change. The project will be implemented in accordance with international and national standards of the three countries in relation to national adaptation strategies and action plans, biodiversity management, combating land degradation, land, environmental, water and ecosystem management and poverty alleviation.

270. Each of the three States, taken individually, has defined and attempts to implement policies aimed at the protection and rational exploitation of natural resources and the preservation and sustainable management of the environment with a view to ensuring their citizens sustainable, balanced and harmonious development that respects the environment. The following table 12 presents a summary analysis of all these policies and strategies applicable to the implementation of this project.

Table 14: Summary of policies and strategies applicable to the implementation of this project

Sectors covered	Country	Established policy and strategic framework
▪ Town and country planning; ▪ Environmental Management; ▪ Fight against climate change and desertification; ▪ Natural resources management; ▪ Poverty Reduction and Sustainable Development.	Benin	▪ Declaration of National Spatial Planning Policy (DEPONAT) Adopted in November 2002; ▪ National Sustainable Development Strategy (NSDS); ▪ National Environmental Management Policy in Benin revised in 2007 and divided into 7 programs; ▪ Strategic Vision of Benin to Horizon 2025 from National Long-Term Perspective Studies, Benin 2025 Alafia; ▪ Growth Strategy for Poverty Reduction (CPRS 2011-2015, developed in 2010); ▪ National Water Policy elaborated in October 2008 with the Strategy for Integrated Water Resources Management (IWRM); ▪ National strategy to combat climate change; ▪ National Action Plan to Combat Desertification (PANLCD); ▪ National Action Plan for Adaptation to Climate Change (PANA 1 in 2008); ▪ National Strategy to Combat Air Pollution; ▪ National Pollution Control Plan (PNLPo) ; ▪ National Wetland Management Strategy; ▪ National Biodiversity Management Strategy and Action Plan.
▪ Territorial development; ▪ Environmental Management; ▪ Combating climate change and desertification; ▪ Natural resources management; ▪ Poverty Reduction and Sustainable Development.	Burkina Faso	▪ Accelerated Growth and Sustainable Development Strategy; ▪ National Policy on the Environment, adopted by the Government in January 2007; ▪ National Land Use Policy, adopted by the Government by Decree No. 2006-362/PRES/PM/MEDEV/MATD/MFD/MAHRH/MID/MECV;
▪ Territorial development; ▪ Environmental Management;	Niger	▪ Combating desertification which dates back to 1984; ▪ National Environment Plan for Sustainable Development (PNEDD),

▪ Combating climate change and desertification; ▪ Natural resources management; ▪ Poverty Reduction and Sustainable Development.		which serves as National Agenda 21; ▪ Strategy for Sustainable Development and Inclusive Growth-Niger 2035; ▪ Land use and development policy; ▪ 3N Initiative "Nigeriens Feed Nigeriens" starting in 2012.

In Benin

271. As part of the implementation of National Agenda 21, the Beninese Government has developed a National Sustainable Development Strategy (NSDS). This document was approved in September 2005 by stakeholders and adopted by the Government of Benin in March 2006. The NSDS is accompanied by objectively verifiable indicators and mechanisms for the efficient implementation of National Agenda 21.

272. It provides a reference framework for the development of a dynamic between all the actors involved in the implementation of Agenda 21 and the integration of the sustainable development dimension in any development activities at both local and national level.

273. The NSDS, divided into 8 chapters, presents two strategic areas of development, namely:

- Strategic sectoral areas (forestry, agriculture, livestock, fisheries, biodiversity, tourism, health, pollution, water resource protection);
- Cross-sectoral strategic areas (legislative and regulatory framework, macroeconomic framework, education, training and research, democracy and * good governance, gender and sustainable development, ICT, poverty reduction, credit system and international cooperation).

274. Since 1999, Benin has been engaged in the development and implementation of poverty reduction strategies. After the Interim Poverty Reduction Strategy (IPRS), drafted in 2000, Benin developed three (3) other poverty reduction strategy papers. Strategies are as follows:

- The Poverty Reduction Strategy (PRS 1) for the period 2003-2005, which served as a strategic framework for reference and dialogue with Technical and Financial Partners (TFPs);
- The Growth Strategy for Poverty Reduction over the 2007-2009 triennium (CPRS 2);
- The Growth Strategy for Poverty Reduction (GPRS 2011-2015). It is the result of a broad participatory process that has closely involved the public administration, economic operators and civil society at every stage. Overall, the SCRP is inspired by the long-term vision described in the "Etudes Nationales de Perspectives à Long Terme (ENPLT), "Benin-Alafia 2025" and is based on the Strategic Development Orientations (OSD) defined by the Government in 2006. It will contribute to the achievement of the Millennium Development Goals (MDGs) and a mechanism for resource mobilization and coordination.

275. To secure land ownership, the actions undertaken by the Government include:

- The development of a national land policy;
- The outcome of the rural land law and the elaboration of rural land plans;
- The development of cadastres in urban centres;
- Improving the mapping and topography capacities of institutions in charge of land;
- Formalization of land ownership rights at a lower cost;
- Information, education, and communication for the population;
- The improvement of land registration and information management services and the conversion of traffickers in dangerous products into other fields of activity.

276. This project meets the orientations and objectives of Benin's National Action Plan for Adaptation to Climate Change (NAPA) developed in 2008 in accordance with the requirements of the United Nations Framework Convention on Climate Change.

277. This NAPA provides for several priority adaptation measures and activities, including among others:

- Urgent adaptation measures in all sectors including agriculture, forestry, and rangeland;

- Establishment of a climate risk prevention and early warning system for food security;
- Adaptation of households to climate change through the promotion of renewable energy and energy-efficient pressure cooker households;
- Mobilization of surface water for adaptation to climate change in municipalities.

278. Finally, the project responds to UNDAF outcome 6 (United Nations Development Assistance Framework) of Benin "By the end of 2018, the institutions and populations of the municipalities of intervention ensure better management of the environment, natural and energy resources, living environment, as well as the consequences of climate change, crises, and natural disasters".

In Burkina Faso

279. Burkina Faso's sustainable development has achieved remarkable environmental, socio-economic and cultural results. On the environmental level, many achievements have been made in the field of research in water and soil conservation (drip irrigation, impluvium, etc.), grafting techniques for several wild fruit trees (shea, néré, balanitès, etc.), and in the field of water and soil conservation (drip irrigation, impluvium, etc.).), the introduction of species or varieties of forest and agricultural species with high economic value and productivity, the development of energy-saving technologies (improved stoves, pressure cookers).

280. In addition, new and renewable energy technologies are being implemented (individual or collective indirect or direct solar dryers, solar water heaters, biogas installations for methane gas production, biodigesters), sustainable management of natural resources (delimitation and securing of managed areas, implementation of sustainable management plans for natural forests, pastoral or silvopastoral areas) and the development of new energy sources. Despite the progress made, significant constraints remain. To address this situation, Burkina Faso has put in place policies and strategies to promote the environment and natural resources[6] such as:

- Poverty Reduction Strategy Paper 2000-2010 (PRSP);
- Rural Development Strategy 2015 (2003);
- Energy Sector Development Policy Letter (ESDP, 2000);
- Action Plan for Integrated Water Resources Management (IWRM) (2003);
- Action Plan and Investment Program for the Livestock Sector (APIPLS/*PAPISE*) (2009);
- National Strategy for Environmental Education (NSEE/*SNEE*) (2001);
- National Action Plan for Environmental Education for Sustainable Development (EESD/*PANEDD*);
- National Population Policy (PNP, 2010);
- National Gender Policy (PNG, 2009);
- National Action Program to Combat Desertification (PAN/LCD) (1994);
- National Strategy and Action Plan on Biological Diversity;
- National Strategy (also called National Communication) on Climate Change (2000);
- National Program of Action for Adaptation to Climate Variability and Change (NAPA, 2006);
- National Forest Policy (PNF, 1996);
- National Environmental Policy (PNE, 2006);
- Environment Plan for Sustainable Development (PEDD, 2006).

281. In terms of adaptation to climate change, Burkina Faso has had a NAPA implemented since 2007 which has enabled a complete diagnosis of the vulnerability of the various sectors and subsequently an inventory and prioritization of activities, measures, and projects. Moreover, the activities that were considered priorities in Burkina Faso's NAPA were as follows:

- Early Warning Systems;
- Promotion of irrigation;

6 Source: National SD Policy in Burkina Faso, October 2013

- Development, Management of water bodies;
- Fodder production;
- Development of natural formations;
- Fight against silting;
- Optimization of Irrigation;
- Securing pastoral areas;
- Promotion CES/DRS;
- Wildlife and Habitat Management;
- Protection of water against pollution;
- Promotion and improvement of homes.

282. It should be noted that the ADAPT-WAP project is in line with many of the activities listed above and will, therefore, support the implementation of some priorities such as EWS and wildlife and habitat conservation throughout the project area. Finally, the project responds to UNDAF Burkina Faso outcome 1 "accelerated economic growth is sustainable and pro-poor".

In Niger

283. In Niger, the National Environment Plan for Sustainable Development (PNEDD)[7] is considered the National Agenda 21. It was drawn up in 1998 with the aim of broadening development options and ensuring their sustainability for future generations. Its aim is to create favorable conditions for improving food security, solving the domestic energy crisis, improving health conditions and economic development of the population. To do so, the NESDP pursues four (04) complementary sub-objectives:

- Ensure a more rational management of natural resources in the framework of the fight against desertification by promoting a more global (systemic) approach to the issue;
- Integrate environmental concerns into the definition of policies, programs, and projects implemented in each of the main development sectors;
- Encourage the involvement, empowerment, and participation of populations in the management of resources and their living space, and thus contribute to the preservation and improvement of their living environment;
- Promote the development of an effective partnership between stakeholders interested in the issue of the environment and sustainable development in Niger.

284. The NESDP includes six priorities programs that are:

- The National Action Program to Combat Desertification and Natural Resources Management;
- The Biological Diversity Management Program;
- The Climate Change and Variability Program;
- The Water and Sustainable Development Program;
- The Urban Environment and Living Environment Program;
- The Energy and Sustainable Development Program.

285. Niger's National Adaptation Action Plan (NAPA), developed in 2006, identified several priority activities related to several sectors. This project will contribute, while remaining in line with its objectives and scope, to implement some activities. Finally, the project responds to UNDAF Niger outcome 1 "By 2018, vulnerable households and targeted communities increase their resilience in terms of food and nutrition security, environment, disasters and socio-economic inclusion".

F. Project alignment with national technical standards

286. The project has been examined by OSS for environmental and social risks. The limited adverse impacts that could emanate are mostly related to Component 3 of the project which will concern the implementation

7 source CHM, Niger

of concrete adaptation actions in the project sites. The project falls within the Category B rating of the Environmental and Social Policy of the Adaptation Fund. The project will be implemented in accordance with the international and national standards of the three countries in relation with national adaptation strategies and action plans, biodiversity management, combating land degradation, land-use, environmental, water and ecosystem management, and poverty alleviation, as mentioned and described above.

287. During the project implementation process, OSS and the project local executing entity, as well as the regional and national partners, will ensure that the project in its four components complies with the procedures described by the Adaptation Fund's Environmental and Social Policy. The project implementation units of the three beneficiary countries will also ensure that all relevant national technical standards, laws and bylaws for construction and infrastructure, biodiversity and forest conservation, health (fauna/men), are respected. To this end, all project activities will be implemented in close collaboration with the technical departments of the Ministries of Environment, Water, so as to ensure compliance with the relevant standards and technical guidelines in each of the three countries. Overall, the project has been designed to comply with all relevant national and international laws, regulations and technical standards related to improving the resilience capacity of the local population in the project target areas. Labor laws related to HILF will also be fully considered in line with international standards. The table below presents the relevant national standards of the three concerned countries.

288. The national and international standards related to weather and climate information will also be respected so as to ensure quality outputs in this regard. With reference to the quadripartite WAP agreement signed, any project implemented on the WAP complex is required to monitor and comply with regional and national technical standards and relevant policies and legislation. The ADAPT-WAP project is collaboratively selected for submission to the AF through a national and regional consultation process in order to take into account local and regional realities. This process allowed the project to be designed with a clear focus on agreed decisions.

289. The project implementation will be carried out under the supervision of the Technical Monitoring Committee (TMC) consisting of the Directors General in charge of Protected Areas of the Ministries in charge of Protected Areas, representatives of the local decentralized administrations of the WAP Complex, representatives of local communities, grassroots community organizations, private operators, technical and financial partners, projects and other stakeholders who contribute to the management and financing of the WAP Complex.

290. The implementation of the WAP Adapt project will be governed by the institutional management and guidance of the WAPO agreement, the Technical Monitoring Committee (TMC) will serve as the Regional Steering Committee in consultation with local beneficiaries and stakeholders. This process will ensure that the ADAPT-WAP project always reflects local circumstances, aspirations and builds on national and regional actions and capacities. The Technical Monitoring Committee will organize annual special meetings and will ensure that the principles, as well as national and regional technical standards for the management of protected areas, are respected during the project duration, as well as all the guarantees are given specifically to the AF for the project-funding.

291. The ADAPT-WAP project respects all the environmental and social policies of the AF, including the necessary safeguards integrated into the project through environmental and social assessments and implementation through mitigation monitoring and evaluation. The project will also comply with the relevant regional community and international standards and conventions. A project grievance mechanism will be introduced in all target communities so that to ensure the existence of a mechanism for stakeholders to communicate and receive feedback on any problems regarding the project implementation, including problems related to environmental and social standards.

Table 15 : National Environmental laws and standards

Countries	Relevant Standards
BENIN	• Act No. 90-32 of 11 December 1990 establishing the Constitution of the Republic of Benin lays down certain principles relating to the environment and the living conditions of citizens. • Article 22: Everyone has the right to property. No one may be deprived of his property except in the public interest and against fair and prior compensation. Article 27 stipulates that everyone has the right to a healthy, satisfactory and sustainable environment and the duty to defend it. The State shall ensure the protection of the environment. Article 74: The State President will be accused of high treason for a number of acts, including an act that violates the maintenance of a healthy, satisfactory, sustainable and development-friendly environment. And article 98: establishing the field of the law which determines, inter alia, the fundamental principles of the protection of the environment and the conservation of natural resources. • Framework Law on the Environment, its implementing decrees. The general principles governing environmental impact assessment are laid down by Act No. 98-030 of 12 February 1999 on the framework law on the environment. • Decree No. 2017 - 332 of 06 July 2017, on the organization of environmental assessment procedures in the Republic of Benin. This decree lays down the procedures under which environmental studies are carried out and the procedure by which the Ministry in charge of the Environment can ensure compliance with environmental standards, require corrective measures and take sanctions in the event of deliberate non-compliance or repeat offenses. • Decree No. 2001-096 of 4 April 2001 on the structure, organization, and operation of the environmental policy and bylaws. The Environmental Police, placed under the authority of the Minister in charge of the Environment, has the essential task of preventing, investigating, detecting and punishing infringements of environmental legislation, including, inter alia, water pollution, and soil pollution, in collaboration with the relevant authorities. • Decree N ° 2001-2035 of 12 July 2001 on the organization of environmental impact assessment procedure • Decree No. 2001-190 of 19 June 2001 on the organization of the Public Hearing process in Benin • Law on management of land and federal code (*Loi N° 2013-01 of 14 August 2013 on tenure and land code in the Republic of Benin*) • Law on Prevention and Repression of Violence against Women (*Loi N°2011- 26 of 9 January 2012 portant prévention et répression des violences faites aux femmes*) • Labor Code (Code du travail Loi n°98-004 du 27 janvier 1998) • Law No. 2002-016 of 18 October 2004 on the regime of wildlife in Benin • Law No. 87-013 of 21 September 1987 regulating the grazing vain, for the care of pets and transhumance, with Order No. 12 of 165/MDRAC/DGM/DAFA/SAA (June 1989) and two inter-ministerial orders (1994) • Law No. 2010-44 of 21 October 2010 concerning water management in the Republic of Benin • Law No 87-015 Act of 21 September 1987 on the Code of Public Health of the Republic of Benin • Law 93-009 of 2 July 1993 governing forests in the Republic of Benin (*Loi n° 93-009 of 2 July 1993 portant régime des forêts en République du Benin*)
BURKINA FASO	• Law on Environmental Code (Loi n°006-2013/AN *portant Code de l'Environnement du Burkina Faso)* • Decree No. 2001-342/PRES/PM/MEE of 17 July 2001, on the scope, content, and procedure of the environmental impact study and notice (Ministry of the Environment and the Environment, 2007). The administrative procedure for the environmental impact assessment is based on this decree. It classifies projects and programmes into three categories: (1) Category A: Activities subject to Environmental Impact Assessment (EIA); (2) Category B: Activities subject to Environmental Impact Statement (EIS); (3) Category C: Activities not subject to EIA or EIS. • Decree No. 2001-185/PRES/PM/MEE of 7 May 2001, setting standards for the release of pollutants into the air, water, and land. Articles 6, 10 and 11 of the Regulation respectively lay down standards for discharges of emissions from fixed installations, standards for discharging wastewater into the surface water and standards for discharging wastewater into sewers. • Orientation Law on Water Management (*Loi nº 002/2001/AN portant loi d'orientation relative à la gestion de l'eau*) • Law No. 034-2002 / AN of 14 November 2002 on the framework law on pastoralism in Burkina Faso.

	• Law N° 006/97 / ADP of 31 January 1997 on the Forestry Code in Burkina Faso • Law on Agrarian and Land Reorganization (*Loi portant Réorganisation Agraire et Foncière (RAF) 034-2012/AN)* • Law No. 23/94 / ADP of 19 May 1994 on Public Health Code in Burkina Faso • Law on Cultural Patrimony protection (*Loi n° 024-2007/AN portant protection du patrimoine culturel au Burkina Faso)*
NIGER	• Act No. 98-56 of 29 December 1998 on the Framework Law on Environmental Management. Article 31 of the Act stipulates: "Development activities, projects, and programs which, because of their scale or their impact on the natural and human environment, may affect the latter shall be subject to prior authorization by the Minister in charge of the environment...» • Ordinance No. 93-013 of 2 March 1993 instituting a public health code in Niger. Article 4 of the Public Health Code prohibits any person from producing or holding waste in conditions likely to create harmful effects on the soil, flora, and fauna, to damage the landscape in general, to harm human health, domestic animals and the environment, and is required to ensure its disposal or recycling. • Ordinance No. 97-001 of 10 January 1997 on the institutionalization of Environmental Impact Assessments. Article 4 of the Ordinance stipulates: "Development activities, projects or programs which, because of their scale or their impact on the natural and human environment, may adversely affect the latter shall be subject to prior authorization by the Minister in charge of the Environment. This authorization is granted on the basis of an assessment of the consequences of the activities, project or program updated by an EIA prepared by the Promoter". • Decree No. 2011-057 amending and supplementing Decree No. 2000-272/PRN/PM of 4 August 2000 of 27 January 2011, specifies in its Article 3 that: "The CNEDD is the coordinating and monitoring body for activities relating to post-Rio conventions [...]. As such, it is the national political focal point for the follow-up of the implementation of these conventions. • Decree No. 2000-397/PRN/ME/LCD of 20 October 2000 on the administrative procedure for environmental impact assessment and review. This decree specifies the administrative approach to be followed for the integration of environmental concerns into the planning of socio-economic development programs, projects, and activities. • Decree n° 2000-398/PRN/ME/LCD establishing the list of activities, works and planning documents subject to environmental impact studies of 20 October 2000. This decree specifies the list of Activities, Works and Planning Documents subject to EIA. • Order N° 96-067 of 9 November 1996 covering rural cooperatives • Order No. 93-15 March 2, 1993, on the principles of Orientation of the Rural Code • Order No. 2010-09 of 1 April 2010 Water Code in Niger • Law 2004 - 040, June 8, 2004, covering the Forestier in Niger • Law N° 98-007 29 April 1998 laying down the rules of hunting and the Protection of wildlife

G. Complementarily with other projects

292. The W-Arly-Pendjari transboundary reserve has benefited substantial technical and financial support from several previous projects and programs, and is still subject of interest of current ongoing initiatives focused on the management of biodiversity and natural ecosystems. For now, while environmental issues are more considered in the various sectorial policies, parks and protected areas are islands of biodiversity represent areas of high economic interest to be preserved and valued absolutely.

293. On one hand***, the W-ECOPAS Conservation Programme (2001-2008) funded by the European Union*** whose objective was to reverse the processes of the natural resources degradation by preserving the biodiversity of this transnational reserve for the benefit of the surrounding populations and its zones of influence. This programme has achieved important results in terms of: (i) maintaining and strengthening the protected area, (i) recovering space against illegal uses, (iii) increasing wildlife numbers and extending their distribution to the whole area of the reserve, (iv) promoting tourism, (vi) improving scientific knowledge and (vii) integrating scientific research in the management process and reinforcing of a regional approach to conservation.

294. On the other hand, the ECOPAS program has generated various and mixed results in terms of synergy of interventions involving other stakeholders, but this didn't lead to the establishment of strong

relational mechanisms that can ensure institutional and financial sustainability of the complex at the end of the Program. The lessons learned from such interventions has led to the following recommendations:

- (1) to ensure that future projects devoted to protected areas management support the national and regional institutions in charge of these protected areas, without this assistance being a substitute for their roles;
- (2) to support the logic of intervention based on a thorough analysis of causality between the problems to solve before designing, generating and sending a coherent logical framework which is a real working tool for the managers in charge of executing the activities.

295. ***The regional project "Enhancing efficiency and catalyzing the sustainability of the W-Arly-Pendjari Protected Area System (WAP)":*** officially launched in 2010 with partly GEF funding, the WAP regional project is part of initiatives including biodiversity conservation activities and prioritizing the strategy on perimeter approaches to protected areas, to secure the core centers dedicated to conservation. The WAP project was set up at a pivotal moment, marked by the end of the ECOPAS regional project. WAP project was mostly focused on the periphery and has expanded its area of intervention to a much larger area.

296. ***The Protected Areas Management Support Program (SPMPA / PAGAP), launched in October 2011,*** focused on the protection of biodiversity of the savanna ecosystems in northern Benin through conservation measures and the reduction of human pressure on natural resources. To achieve this objective, the SPMPA has been split into three components dealing respectively with:

297. The strengthening the capacity of the National Wildlife Reserve Management Centre (CENAGREF) in northern Benin and its decentralized departments (DPNP and DPNW) in savanna's ecosystems management.

298. The implementation of income-generating activities in order to reduce human pressure on wild fauna and flora; and finally

299. The establishment of a sustainable funding mechanism for biodiversity conservation by finalizing documents and tools about the implementation of the Savannah Foundation from West Africa.

300. *The "**Programme d'Appui aux Parcs de l'Entente (PAPE)"** implemented from October 2011 to September 2016* was the direct continuation of the ECOPAS project (2001-2008) and was concerning the national parks located inside the W-Arly-Pendjari (WAP complex) as well as the neighboring protected areas and their adjacent peripheral areas in Benin, Burkina Faso and Niger. The objective was to sustainably strengthen the efficient conservation of the WAP complex ecosystems in a regional perspective with an optimization of the benefits for the local population. The PAPE made it possible to learn many interesting lessons dealing with the conservation of the WAP complex ecosystems. However, like many other projects and program having the same nature and similar structure (such as ECOFAC 1 to 5), the operating time was too short (5 years). The two phases that composed the project was also too short and did not correspond to the possible rhythms of execution by national partners and local service providers who faced different constraints. The PAPE ended up too early in such a way that issues about capacity of States and their technical supervisory boards to manage PAs in a sustainable and effective way in the absence of project's structure continues to be raised, due to the low level of functional achievements which are useful for conservation.

301. *The "Integrated Management of the W-Arly-Pendjari Trans-boundary Complex (GIC-WAP)"* project (2018-2023) is a kind of extension of "Programme d'Appui aux Parcs de l'Entente (PAPE)" and contributing in strengthening the Transboundary Biosphere Reserve Program of the region W-Arly- Pendjari (RBT-WAP). The GIC-WAP project mainly operates in the five national parks of the W-Arly- Pendjari Complex and its contiguous areas. The overall objective of the action is to promote endogenous, sustainable and inclusive economic development that responds to climate change challenges, while the specific objective is to contribute to strengthening the conservation and sustainable management of national parks and fragile ecosystems of the W-Arly- Pendjari cross-border complex.

302. Such succession of projects probably refers to the "theory of change" model, which aims to model what the different projects consist of and how project resources will lead to a real change in natural resource management habits in the region, taking into account climatic risk factors, and indicating, in addition, the main risk factors to be taken into account. After years of donor support on the WAP complex, the gains are still

fragile as the anthropogenic factors threatening the ecosystems and the biodiversity are aggravated today with the increasing of climate variability and hazards. Most of the projects described above have not addressed in a precise and operational way the issue of climate change and its impacts on the natural resources of the WAP complex. With this in mind, the GIC-WAP Project, which can be appreciated as an extension of the PAPE project, has just been elaborated and will have to run during the period 2018-2023, just like the ADAPT-WAP project if it was to be funded. The ADAPT-WAP project, for its part, will not only rely on the various achievements of upstream projects, but will seek synergies and complementarities with the GIC Project currently being implemented in the field.

303. Indeed, from the analysis of the objectives and activities of the two projects carried out on the same sites, it appears that these two projects complement widely each other. In fact, the GIC-WAP project can be considered as a co-funding of the ADAP-WAP project. Unlike the GIC-WAP project, the ADAPT-WAP project will focus on all possible synergies and consolidation of achievements for the sustainable management of the WAP complex, which is now part of World Heritage. The effects of the GIC-WAP project will only be sustainable if some accompanying measures are taken to enhance resilience of populations and ecosystems to climate change, Early Warning Mechanisms and related systems, problems of severe environmental degradation and intense competition of access to the natural resources in the periphery.

304. The ADAPT-WAP project is currently the first integrated approach that will make possible the implementation of a very located early warning system that comes as a prevention and protection device of the surrounding populations and ecosystems against the effects of climate change, in the project area in Niger, Benin and Burkina Faso. The experiences, specificities and operability in this area (SAP) are very limited and only combined at the regional level. The ADAPT-WAP project will also undertake adaptation measures and actions whose results are aimed at maintaining the ecological equilibrium of the WAP complex and improving the resilience capacities of the local population.

305. The project "Integrated Management of the W-Arly- Pendjari Cross-Border Complex (GIC-WAP), whose implementation phase began in 2018, will be implemented in the same administrative regions as the current regional ADAPT-WAP project, but with the following priorities such as ecological monitoring, anti-poaching, strengthening consultation frameworks, monitoring the preservation and maintenance of statuses / labels, valuing non-timber forest products, securing and diversifying household income. As such, the two initiatives do not overlap but rather offer complementary approaches to reduce climate risks, strengthening community and behavioral change, and a concerted sustainable management of this world heritage.

306. The project will avoid the construction of parallel structures and the implementation of similar activities in the same localities and for the benefit of the same stakeholders. This will involve setting up a formal consultation, planning and monitoring unit between the two projects. The following table presents the activities with which this project can develop synergy and / or complementarity with WAP-GIC.

Table 16: Complementarity with GIC-WAP

Overall objective of the GIC-WAP	GIC-WAP Outputs	GIC-WAP Activities	ADAPT-WAP project activities that may have synergy and / or complementarity with the GIC-WAP project	Comment or process to be undertaken to achieve the possible synergies between the two projects
The GIC-WAP Project aims to promote endogenous, sustainable and inclusive economic development that responds to the challenges of climate change.	Output 1 : The management of the WAP complex is participatory (cross-border structures, …)	Facilitating national and regional exchange platforms between municipalities, organized populations, and park management.		
		Identification of the needs of specific plans	Activity 1.1.1.5: related to the updating of the Geographic Information System dedicated to the WAP complex.	Updating of the GIS/Remote Sensing will help better identification of needs and draw specific plans. Establish regular consultation meetings based on by-laws between the two projects for planning and synergies perspectives. Valorization of monitoring and

Overall objective of the GIC-WAP	GIC-WAP Outputs	GIC-WAP Activities	ADAPT-WAP project activities that may have synergy and / or complementarity with the GIC-WAP project	Comment or process to be undertaken to achieve the possible synergies between the two projects
				evaluation reports
		Support for the development and formalization of the Co-management Agreements		
	Output 2: Protected area management in the WAP region is in line with international standards.	Organization of planning and evaluation system for the management effectiveness of WAP PAs	Activity 1.1.1.5: related to the updating of the Geographic Information System dedicated to the WAP complex.	GIS and Remote Sensing can help monitoring and evaluation by providing based maps for WAP and protected areas
		Development of an effective and sustainable anti-poaching system at the WAP level.		
		Support for the implementation of existing local development strategies in the PAGs and PAs of the 5 NPs.	Activity 1.1.1.3: Develop a technical annex integrating climate change into the MDP and the development and management plans of the WAP complex.	Existing strategies should take into account impact of CC for sustainability. This will be done by ADAPT as requirements.
		Support for the maintenance of international statutes / labels		
		Implementation of measures to improve connectivity between WAP and OKM complexes.		
	Output 3: The surronding population of W-Arly- Pendjari complex contributes to the preservation of natural resources.	Implementation of the Value-Added Chain (CVA) approach for Non-Timber Forest Products (NTFPs) and other selected products	Activity 3.2.2.1: Identify and train the beneficiaries on the different IGAs (agriculture, organic farming, breeding, apiculture, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic supports, etc.)	Training before implementing sound good. This activity 3.2.2.1 of the Adapt-Wap comes upstream and and will strengthen the activity of the GIC projet in terms of synergy.
			Activity 3.2.2.4: Support groups of women processors through multifunctional platforms for the processing of non-timber forest products (NTFP: Shea, Baobab, Moringa, Nere, Tamarind, Balanites, Gum Arabic etc.)	Here Adapt-WAP will provide more support in terms of material for the benefit of this vulnerable group of beneficiaries
		Promotion of organic production and nutrition improvement	Activity 3.2.2.1: Identify and train the beneficiaries on the different IGAs (agriculture, organic farming, breeding, apiculture, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic supports, etc.)	These activities are complementary. While GIC concentrates on the promotion of organic production, ADAPT-WAP will focus on the practical aspects of different IGAs.
		Implementation of an environmental education program.	Activity 4.1.2.4: Organize education sessions on climate change, adaptation, and management of risks and disasters inherent to it, for the benefit of schoolchildren, in the 19 neighboring municipalities.	While GIC concentrates mostly on the thematic related to biodiversity and sustainable management, ADAPT-WAP will focus on promotion of organic production, Adapt will focus on the practical aspects of different IGAs.
		Support for the management of community conservation areas and the application of local management conventions		

Overall objective of the GIC-WAP	GIC-WAP Outputs	GIC-WAP Activities	ADAPT-WAP project activities that may have synergy and / or complementarity with the GIC-WAP project	Comment or process to be undertaken to achieve the possible synergies between the two projects
		Implementation of assisted natural regeneration (ANR) approaches and land rehabilitation.	Activity 3.2.1.2: Implement reforestation works in villages bordering the WAP complex	Reforestation is part of technological packages for soil rehabilitation. It is not taken into account by the GIC-project, and comes here in addition to the activities of IGAs.
			Activity 3.2.1.5: Implement assisted natural regeneration activities for riparian villages	This is to benefit other sites and beneficiaries of almost similar activities. To this end, setting up a monitoring unit for both projects is fundamental to ensure synergies.

H. Learning and knowledge management strategies of the project

307. A series of activities will be supported during the implementation period of ADAPT-WAP project to ensure the generation of knowledge and the development of recommendations to support the scaling and replication of the project approach.

308. As a first step, the important processes and lessons learned from the project implementation will be well documented and shared among stakeholders and at the level of the entire region. These activities will be an integral part of the existing monitoring-evaluation systems or will be designed and used to adjust the future implementation of the project. This activity will also facilitate joint learning and sharing of experiences among various stakeholders. In addition, this participatory and cross-border management experience of the WAP complex will serve as a pilot to replicate in other areas of the region and elsewhere. The following table provides information on existing constraints/baseline situation and proposed activities/orientations as part of the project knowledge management strategy.

Table 17 : Project knowledge management strategy

Constraints /Basic situation	Proposed activities
Absence or lack of best practices and approaches in the region in: Preventive Natural Disaster Management and Early Warning Systems (EWS) around the EWS complex, Consideration of CC adaptation measures in the WAP complex management, Community management of crises and emergencies, Monitoring of income-generating activities for the benefit of the local population, Link between scientific knowledge and local know-how Coordination and partnership of stakeholders for joint action and implementation at local and regional level.	Conduct 6 preliminary studies for EWS implementation (from hazard identification and risk assessment to EWS design leading to alerts) EWS prototype design at the technical and institutional level, EWS implementation related to EWS ECOWAS, EWS Burkina, EWS UEMOA• Identification and implementation of adaptation measures, Establishment of a community management mechanism involving the population Facilitating the learning and exchange of successful experiences of this project as well as lessons learned, Documentation of response strategies to assist the future design and extension of project interventions, and influence policies/practices

309. In the second phase of knowledge management activity during the implementation of the project, workshops will be organized to collect input from stakeholders for the creation of a knowledge management strategy. On this basis, a knowledge management plan will then be created and, as a result, the implementation of the component will be initiated.

310. The project is expected to create and develop knowledge material, both printable and audiovisual, and disseminate it through a series of workshops at local and regional levels for the identified stakeholders. Output

4.1.1 is used to focus and disseminate knowledge material on themes in order to strengthen their capacity for greater resilience.

311. Workshops and education campaigns of awareness and communication, the creation, and animation of environmental clubs for the riparian community, will focus on the creation and dissemination of knowledge material that will help the community to strengthen its resilience by changing behavior. Knowledge materials such as a module for school staff and students, short films, brochures and pamphlets containing the best practices for the villagers/farmers in the local language will be available, designed to be disseminated. These campaigns are also proposed in order to encourage the local leaders who decide about the different conservation measures at the local level.

312. On the other hand, workshops at the regional level should be organized to disseminate learning, models, and processes that strengthen the resilience of communities against the climate change and can be replicated in similar contexts at the international scale. The lessons learned from the project will be brought to the attention of policymakers and managers of protected areas of States, through a planned dialog on the occasion of the regional workshops. In addition, possibilities for dissemination through regional and international conferences, publications in journals and books, or Web content will be explored. In order to create a platform for communication, it is planned the creation and animation of a web radio to reach the general public in terms of knowledge management. The Web radio will host all the information collected and created in the framework of the project.

I. Consultation process during project preparation

313. The idea of submitting a project request on the WAP complex to the Adaptation Fund was expressed through discussion meetings with the major stakeholders in Benin, Burkina-Faso, and Niger. These exchanges and discussions with the different stakeholders in the three countries: Benin (National Centre of Management of Fauna Reserves (CENAGREF), Niger (the General Directorate of Water and Forests (DGEF) and the National Center for Environmental Monitoring and ecological (CNSEE)-(National Level PMUs)) and Burkina Faso (the Directorate General of Forests and Water-DGEF) have led to the elaboration of the ADAPT-WAP project request.

314. In the second half course of 2016 and following several discussions with the Adaptation Fund (AF), Sahara and Sahel Observatory (OSS) proceeded with the submission of the project concept note and then the full proposal formulation. The project formulation has been based on the participatory approach particularly during the consultative process. Meetings and workshops involved different stakeholders such as three countries representatives, management units' teams and local communities (men, women, youths, elders, ethnic groups taken for socio-professional groups and those the most vulnerable). These communities have an important role in the project formulation, components and activities identification and decision making. In fact, these socio-professional groups are already involved in the activities linked to natural resources management in the WAP Complex and its outskirts. They are organized in collective peasant or rural organisations that can be of farmers, breeders, beekeepers, pastoralists, fishermen or other socio-professional activity.

315. In the first regional consultation meeting organized by OSS from 3 to 5 February 2017 in Tapoa (within the W-Niger Park), many stakeholders took an active part such as the park Managers (Directors General), policy-makers, WAP complex managers (including the 3 W parks) at the national and local levels, riparian populations, customary authorities and farmers associations in the three countries.

316. The workshop aimed at:

- Informing partners and beneficiary populations about the project scope and objectives;
- Listening to participants' expectations and needs to take them into consideration in the project activities design.

317. Indeed, the recommendations and suggestions of the participants have been integrated into this document. Besides, the list of the stakeholders consulted during the project document development process is presented below:

Table 18 : Stakeholders consulted during the project preparation

No	Organizations
National level	
1	Benin : Le centre national de gestion des réserves de faune (CENAGREF)
2	Burkina Faso : la Direction Générale des Eaux et Forêts (DGEF)
3	Niger : * La Direction Générale des Eaux et Forêts (DGEF) *Le centre National de Suivi Environnemental et Ecologique (CNSEE)
Local level	
1	The conservationists of the W Parks
2	Representatives of the W Parks

Figure 17 : The first regional meeting, 3 to 5 February 2017, Tapoa/W-Niger Park

318. The consultation workshops were structured around the following points:

- Involvement and improvement of the local populations' living conditions;
- Key stakeholders, their roles, responsibilities, and contribution during the project implementation;
- Strengthening the project management structures;
- Reinforcement of awareness and communication activities among the various stakeholders;
- Role of women and young people in the project implementation;
- Complementarity and synergy with other existing projects.

Figure 18 : Consultative meetings in Cotonou: 26 October 2017

319. However, OSS organized a second regional consultation meeting on the project in Cotonou on 26 October 2017. In line with the recommendations of this regional consultation workshop, a regional engineering office was contracted by OSS to support the elaboration of the ADAPT-WAP project full document. The ACDD Design Office, after meeting on Saturday 6th January, 2018 set up the conceptual framework of the mission taking into consideration the available data on the project zone as well as the methodological approach to collect and analyse data for the development of the Full Proposal document. Participants are presented in the table below.

320. During the regional consultation held in Cotonou on 26 October 2017, the project managers and participants agreed to organize 3 other national workshops and a regional one devoted to the discussion and exchange of views between the different stakeholders. In accordance with its policy, OSS focuses on the involvement of the local population and beneficiaries in all stages of its projects/programs design and implementation.

321. The consultation workshops were held respectively in Diapaga (Burkina Faso) on February 28, 2018, in Kandi (Benin) on March 2nd, 2018, and on March 4th, 2018, in Tapoa (Niger). These sessions let different stakeholders including beneficiaries from the three countries meet and discuss the project activities and current preoccupations in the localities bordering the WAP complex *(The workshop minutes are annexed to the ESIA document attached to the full document).*

Figure 19 : Consultation meetings respectively in Burkina Faso, Benin, and Niger: 28 February to March 4th, 2018

322. The main purpose of these public consultation sessions was to seek the beneficiaries' points of view and to collect information for a better design of the project with a focus on involving vulnerable groups, farmers, fishermen, women, and youth. This participatory approach aimed at (i) the project appropriation by the beneficiaries during preparation and planning stage; (ii) learning about the concerns of all stakeholders, including vulnerable groups (women, youth, children, heads of localities etc.) in the design and implementation of the project; and (iii) exchanging views on the financing and sustainability of the project.

323. Women's presence at the consultation workshops helped to enrich the debate about income-generating activities. In the climate change context, the role of women and other vulnerable groups in natural resources management is not sufficiently valued. This is mainly due to the socio-cultural constraints, which hinder the full participation of women and vulnerable groups in adaptation and mitigation measures. However, women's participation in meetings was limited, but thanks to the awareness-raising and training activities, women were being able bit by bit to take part in the project consultation workshops.

324. In the TORs of the ADAPT-WAP consultation workshops particularly in the section "representatives of the populations", a specific recommendation for the participation of women was included. Indeed, they constitute a vulnerable group and there is a need to provide equitable opportunities to them just like men to contribute to the economic and social development. Thus, a minimum total of 15 representatives of the populations (village chiefs, women, youth, farmers, breeders, and fishermen ...etc.) took part in the national workshops out of the thirty invited participants per workshop.

Figure 20 : The highlight of women participation during the different consultation workshops

325. The main results of the national workshops were:

- Better understanding of the project purposes, its components, and activities;
- Proposals for the reformulation and addition of certain activities;
- Identification of the project intervention sites;
- Identification and quantification of infrastructure to be implemented by the project;
- Potential income-generating activities to be adopted by the project;
- Potential adaptation activities to be conducted taking into account the socio-professional conditions of the countries.

326. The group discussion was a qualitative data collect method during which the different stakeholders met to discuss the project implementation. Exchange views with the potential beneficiaries of the project were sometimes made in local dialects.

Table 19 : Main actors and beneficiaries met during the project preparation

Date	Participants and Purpose	Place	Attendance list
26-Oct-17	Stakeholders regional consultation meeting	Cotonou	Attendance list in the Annex
12-Jan-18	The recruitment of the ACDD consulting firm to support the formulation of the full proposal		N/A
24 – Jan. 18	Data and information collection meeting with members of the Pendjari Park Directorate and 10 AVIGREF members to analyze difficulties and propose solutions	Tanguiéta	N/A
26-Jan-18	Meeting with the Arly park staff	Arly	N/A
27-Jan-18	Debriefing meeting with the conservationist of the W/BF and the representatives of, the riparian populations	Diapaga	Attendance list (Annex)
28-Jan-18	Debriefing meeting with the conservationists of the W/Niger and representatives of the riparian populations	Tapoa	Attendance list (Annex)
01 to 02 Feb. 18	Debriefing meeting with the conservationists of W/Benin and representatives of the riparian populations AVIGREF	Alfakoara	Attendance list (Annex)

327. The consultation workshops planification at the stage of the project implementation will rely on the same approach adopted during the project formulation stage. In order to ensure its applicability, the process used to monitor the involvement of the socio-professional groups during the public consultations program and the activities implementation will be based on a key strategic control. The key strategic control will take into consideration two main aspects:

- **Time and seasonality**: the consultative process will involve all the project beneficiaries including men, women, youths, the socio-professional groups (taken for ethnic groups) and those the most marginalized and vulnerable including the transhumant pastoralists, availability of target groups should be considered. In fact, transhumant' movement vary greatly in distance and in time. This mobility of animal and their herders is mainly motivated by the search for pasture and water. This is also the case for hunters, breeders and fishermen who may move according to their activity needs and periods/seasons. Consequently, workshops planification will take into account the timing as well as the seasonality of the activities undertaken by the population to make sure that all the socio professional groups participate even though if it will take to duplicate, postpone or bring forward sessions.
- **Control reporting**: to ensure the achievement of the expected goals related to the participation of the local communities in the consultative process during the project implementation, a specific report will be established and shared with the executing and implementing entities in order to adjust the approach through learned lessons.

328. Along the design process of the ADAPT-WAP project, various stakeholders provided support and commitment as per the endorsement by focal points of the adaptation fund involving Ministries in charge of the Environment. In addition, following consultations at the local level, local and customary authorities have expressed interest in the project through letters of consent sent to the OSS and notifying the commitment from populations/head of villages surrounding the targeted areas in order to ensure the execution of project activities upon its approval by funding resource. (All letters are appended to the project document).

J. Full cost of adaptation reasoning

329. The increased recurrence and virulence of climatic hazards and natural disasters have created visible impacts and consequences. Due to its socio-economic fragility and its wealth of natural resources, Africa is one of the most affected continents by these disastrous phenomena. Building effective adaptive capacity for communities requires an approach that can bring diverse and conflicting stakeholders together on a common platform. The communities living around the WAP complex are the main stakeholders and, while improving their adaptive capacity, the project strives to create a supportive ecosystem that also encourages the responsible participation of other important stakeholders:

Component 1: Integration of Climate Change Aspects and contingency plan into the management of WAP Complex

330. Reference scenario: The WAP complex shows a particular interest in the West African Ecoregion because it offers gite and habitat to a flora and fauna diversity that are important in ecology. Despite the threats related to the impacts of climate risks and the increasing pressure of the riparian populations on natural resources, the WAP complex remains the main Sudanese ecosystem space in a good state of conservation. National initiatives, regional projects/programs were implemented and enabled the WAP complex to be equipped with common management tools (Master Development Plan) and by component (Management and Development Plan of W Park and Arly - Pendjari). However, climate change, despite the magnitude of its risks to ecosystems and the neighboring population's lives, is not sufficiently taken into consideration in the management tools of the WAP complex.

331. In this context of low access to the production technical means, the social and economic vulnerability to natural resources degradation and harmful effects of climate change are remarkable. Rural communities are locked in a vicious cycle of being overexploited with the natural resources they depend on. This is aggravated by population growth as well as the new migratory phenomenon that makes the area a welcoming region for people seeking a generous source of supply, inducing continued pressure on forests, lands, and waters.

332. Alternative adaptation: Adaptation Fund funding will support regional, national and local actors in an operational approach to integrate environmental concerns, climate change into situational analyzes, and defining environmental issues and the taking of measures and actions aimed at protecting, safeguarding and sustainably managing the natural resources of the WAP complex taking into account quantitative and qualitative variability aspects. A consensual process of integrating the climate dimension and its risks into the master development plan, the development and management plans of the complex, together with the development of an adaptation action plan, can lead to improving the ecosystems' resilience of the WAP complex and its surrounding populations. Thus, the project should support the creation and operation of a stakeholder platform to facilitate dialogue between decision-makers in different country sectors around the integration of climate change adaptation into the WAP complex management measures.

333. A climate change adaptation action plan (PA / ACC / WAP) to be developed on the WAP complex will serve as a compass for the stakeholder platform. Countries should thus strengthen the institutional legitimacy of the stakeholder platform and sustain it once the project is completed.

Component 2: Design and implementation of a multi-risk early warning system (drought, floods, and fires)

334. Reference scenario: Natural disasters are one of the most serious threats to the WAP complex ecosystems integrity and the local population's security. Recurrent climate shocks negatively affect the region's livelihoods and very sensitive economies and weaken communities' ability to fully recover, making them even more fragile and vulnerable to future natural disasters. The nature and characteristics of these climatic phenomena are changing: they become unpredictable, more frequent, and increase in intensity and magnitude due to climate change. The region vulnerability is aggravated by the combined effects of socio-economic factors such as extreme poverty, the growing insecurity as well as the growth and demographic trends (notably the migration intra-regional and the increasing urbanization).

335. However, at the country level, there is a deficit in terms of organizational and human capacity to treat the information and respond to emergencies. At the same time, the concerned countries do not have enough data collection infrastructure. The preparation for emergencies by strengthening the capacity of the actors at various levels to prepare and to sustainably manage the coming unexpectedly of climate risks by the establishment of Early Warning Systems is beneficial.

336. Alternative of adaptation: The ADAPT-WAP project, to better get ready the actors, this component will establish the structure of an operational, reliable, effective early warning system of the complex WAP. The implementation of such an early warning system will help to reduce the negative impacts of natural disasters and with the development and implementation of a detailed contingency plan or emergency response. The financing of the Adaptation Found will improve the collection, analysis, and dissemination of data and information which will update the EWS (alert messages and deployment of the emergency plan), thereby strengthening the resilience of vulnerable populations to extreme events. The Early Warning System (EWS) is at the core of the measures which allow limiting the loss of lives and livelihoods due to hazards and disasters. AF funding is the means by which the project will allow communities empowerment through multisectoral approaches and multi-levels, integrating as an essential component of the emergency plan and leading to an improvement of the food and nutritional security. This plan will be made available to the different users and stakeholders in the management of the complex WAP including women, the young and the marginalized groups.

Component 3: Improving the resilience of ecosystems and livelihoods of population and users through the implementation of concrete adaptation actions

337. Reference scenario: The climate change impact is strong until the point the riparian communities' farms of the WAP complex undergo mutations which are reflected by (1) the degradation of fertility, (2) the deforestation and erosion of biodiversity, (3)) the integration into the market economy and liberalization, with its competitiveness requirements, (4) the disadvantaged position for access to resources (water, land in particular) and funding problems as well. This impact has an influence on the most vulnerable groups (women, young people, and marginalized group) rather than the capital of farms and their results, but also on collective dynamics, all contribute to increase the vulnerability of the poorest. Processing and storage infrastructure for better diversification of local activities and sources of revenue are not sufficiently developed to cope with climate change effects.

338. Adaptation alternative: The ADAPT-WAP project addresses this need by establishing a mechanism that provides the capacity building support required for community representatives to identify, develop and implement their own climate change adaptation measures. Activities that strengthen the populations resilience by reducing their vulnerability will be implemented through the training of young women and others on specific themes (agriculture, organic farming, breeding nuclei breeders of small ruminants (goat, sheep, etc.).) and poultry, beekeeping, distillation, collection of NTFPs as well as the manufacture of improved stoves and attic supports etc.), the promotion and dissemination of wood saving equipment and techniques with the infrastructure development for vulnerable women and groups of women processors through multifunctional platforms for the processing of non-timber forest products (NTFP: Shea, Baobab, Moringa, Nere, Tamarind, Balanites, Gum Arabic etc.). Actions aimed at diversifying livelihoods and setting up resource mobilization and preservation structures will also be developed in the most vulnerable localities. These measures and actions to be undertaken by the Project in the context of adaptation, will maintain the ecological equilibrium of the WAP complex and improve the riparian population resilience.

Component 4: Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex.

339. The success and sustainability of the project activities are conditioned by the improvement of the change in actors' behaviour and beneficiaries and the objectives assimilation, the stakes and the problems of the climatic changes. As such, this component of the ADAPT-WAP project is dedicated to sensitization, communication and capacity building of actors. This component will have transversal activities oriented on the major issues and problems addressed and will concern the different target groups of the project. Apart from the traditional capacity building plans, a part of activities under this component are oriented towards the

development of knowledge management strategy and a multi-stakeholder communication and awareness plan that will be used like tools by the managers and project management instances.

340. Funding from the Adaptation Fund will improve the awareness and capacity of policymakers, practitioners, and technicians in the domain of Climate Change Adaptation (CCA). These activities on awareness and technical capacity-building will contribute to the creation of a robust information framework that integrates climate change adaptation aspects and vital for the ADAPT-WAP project implementation. As well, a part of the resources of the project will be used to identify the information, knowledge management and capacity building needs of the targets in order to develop a plan for capacity building and curricula tailored to the needs identified.

K. Project sustainability

341. The project, with its objective to strengthen the resilience of ecosystems and to improve the livelihoods of the populations of the WAP complex in relation with climate change, integrates elements of sustainability such as (i) the establishment of a Multi-Hazard Early Warning System (EWS) and (ii) the implementation of concrete adaptation actions. The project will also strengthen, in the long term, the synergy between the three beneficiary countries to improve the sustainable and participatory management of the Complex's natural resources and to resolve conflicts between the different users.

342. The sustainability of the project results could be achieved by ensuring the integration of interventions and actions into existing institutions and systems at both the national and regional levels. The ADAPT-WAP project has insisted on the involvement of the main institutions concerned by the proposed actions during the project development process. These are essentially the technical services and institutions of the ministries in charge of the environment in the three beneficiary countries. The actions and activities of these services/institutions will be improved and supported within the framework of the project so that will be able to take over at the end of the project.

343. The sustainability of the project interventions has received particular attention during its development. Another element of sustainability is related to the population and ecosystem-based approach adopted by the project to strengthen their resilience. In this framework, the activities related to the development and implementation of adaptation action plans in collaboration with stakeholders and beneficiaries at the commune level will form the basis of sustainability in the implementation of project interventions.

344. The EWS, a key element of this project, will be carefully designed and executed to ensure the long-term sustainability of ongoing information production which will help reduce the negative impacts of natural disasters at the WAP complex level. Institutional sustainability will be ensured by integrating the EWS into existing and highly recognized governmental institutions and services as the CNSEE in Niger, SP / CONEDD or DGM in Burkina Faso and ABE in Benin and by strengthening the information sharing and circulation system for a better communication and valuation of data and information via dedicated networks. Given the importance of the EWS, the project investments will be integrated into the usual activities of the local and government institutions of all the countries involved through public funding.

345. These structures include a sufficient number of qualified personnel capable of supporting equipment, transmission/storage / data processing, and dissemination. Capacities will be strengthened at decentralized levels to facilitate the implementation of a standard alert use procedure. In addition, TORs will be elaborated to maintain the national EWS staff at their posts for five years to ensure knowledge transfer.

346. At the regional level, the project will work with regional institutions that are carried out similar activities as the AGRHYMET Regional Center, the ECOWAS, etc. These institutions will play an important role in the project implementation and will ensure the continuity of actions after the project end each according to its mandate at the regional level.

347. The project has been designed based on a bottom-up approach in which beneficiaries are expected to lead and adopt the project activities and interventions during and after project implementation. In order to strengthen the capacity of the communities and beneficiaries to do so, the third component of the project envisages the organization of training and capacity building sessions and study trips. Government should motivate and enable direct beneficiaries to participate in activities such as land protection through assisted

regeneration and reforestation, corridor and pasture development, and promotion of income-generating activities. The economic viability of these activities, particularly those aimed at the population, is highly dependent on their compatibility with the local systems and practices and the availability of resources. In addition, the creation of revolving funds for the management of micro-projects (a revolving system) will also contribute to the anchoring and sustainability of the project approaches.

348. The project sustainability will also be based on its institutional anchoring and its implementation arrangement, which aims to strengthen ownership of the project by the protected areas' management authorities selected by the three countries. The project will ensure the mobilization of financial resources for the implementation of all of the project components as well as those related to the three development and management plans mentioned above, which will contribute to the continuity of the process even after the project end, especially with the expected active participation of NGOs, the population and the actors.

L. Overview of the environmental and social impacts and risks identified as being relevant to the project

349. Like any project that involves activities with strong interactions with ecosystems and the population, ADAPT-WAP project could have environmental and social impacts. It is important to identify at this stage, the possible negative impacts in order to foresee the necessary mitigating measures. The table below sums up the impacts/risks evaluation against the AF Environmental and social principles.

350. Appropriate mitigation measures for each identified impact / risk are detailed in section C part III.

Table 20: Adaptation Fund E&S checklist

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		X (*compliance with the national laws is supported by the delivery of conformity certificates by the three national authorities in charge of environmental and social issues*)
Access and Equity		x
Marginalized and Vulnerable Groups		X *(Gender Analysis study has been conducted during the preparation of the Full Proposal)*
Human Rights	X	
Gender Equity and Women's Empowerment		X *(Gender Analysis study has been conducted during the preparation of the Full Proposal)*
Core Labour Rights		X
Indigenous Peoples	X	
Involuntary Resettlement		X
Protection of Natural Habitats		X
Conservation of Biological Diversity		X
Climate Change		X *(Climate Change vulnerability study has been conducted during the preparation of the Full Proposal)*
Pollution Prevention and Resource Efficiency		X
Public Health		X
Physical and Cultural Heritage		X
Lands and Soil Conservation		X

P1- Conformity with the law

351. The project proposal has been developed in alignment with a number of national and regional priorities, policies, plans, and national technical standards for sustainable development and adaptation to climate change. It will also take into account the international and national standards related to biodiversity, land conservation, water resources, ecosystem management and poverty alleviation.

352. As regards to the Environmental and Social Assessment, and following discussions conducted during the several consultations workshops, the national executing entities have submitted the ESIA to their national authorities for review and approval. This process has led to the delivery of conformity certificates by the three national authorities in charge of environmental and social issues.

353. At this stage of full proposal development, some activities/ sub-projects are still unidentified and so are their impacts such as the component 3 Income-Generating Activities (IGAs), therefore they may require EIA depending on the size and the location of their implementation. The risk screening procedure that will be applied should take into consideration the conformity of these activities with the law. In fact, this Unidentified Sub-Project will need to undergo a detailed screening, a consultation process, a safeguard measures development and a strict approval method developed.

354. The risk screening procedure that will be applied should take into account the conformity of these activities with the law. In fact, these unidentified activities / sub-projects will need to be subject to an in-depth review of impacts and risks, a public consultation process, the development of safeguarding measures in order to obtain certificates of conformity.

P2- Access and Equity

355. In general, the project will provide fair and equitable access to benefits for all beneficiaries including the most marginalized and vulnerable groups through the provision of clean water, sustainable livelihoods, solar energy, revolving fund, updated and accurate alert messages and effective knowledge.

356. Although each household or individual in the project area has equal opportunities/access to the project interventions, priority setting will be made by the communes and according to the adaptation and development action plans. In addition, the several activities to be implemented will be conducted in an inclusive and participatory manner. This will provide fair and equitable access to project benefits for all participants, including marginalized and vulnerable groups, who meet the eligibility criteria.

357. Under Component 3 and during the implementation of socioeconomic activities to enhance communities' livelihoods, local authorities at each of the project sites and in the beneficiary, communes will ensure that sub-project activities will be equitable.

358. Nevertheless, project beneficiaries will be in general rural people (pastoralists and smallholder farmers) who have difficulties to access to the decision-making process, this may limit their opportunities to benefit from projects outcomes. Additionally, there is a risk that all members of the beneficiary groups or community are not involved in the preparation and the implementation of their subprojects.

359. Consequently, sensitization sessions on the approach of prioritizing project support to the most vulnerable groups will be ensured. Prioritization criteria will be put in place and validated through dialogue workshops which will mitigate any inter-community conflicts that might arise as a result of focusing on the most vulnerable areas.

360. In addition, OSS, as a regional implementing entity and in accordance with its practices, makes available to all direct and indirect beneficiaries of the project a grievance mechanism that will inform about conflict situations and will ensure access and equity.

P3- Marginalized and vulnerable groups

361. The project will provide opportunities for strengthening the resilience of the local population. However, marginalized and vulnerable groups that could be impacted by the project activities have been assessed and

precisely defined. A gender study has been established as well for a better understanding of the social construction.

362. Besides, according to the project components, marginalized and vulnerable groups will be encouraged to participate in the decision-making processes at the local and communal level. In fact, during the several consultation workshops, representatives from the several target groups were invited to take part in some activities design. Additionally, as detailed in the component 2, 3 and 4, they will be supported to improve their livelihoods through the establishment of a micro-financing mechanism, the involvement of local labor force in some of the projected activities and the enhancement of their IGAs such as developing sustainable fisheries, agroforestry and production of essential oils so impacts on these groups will be positive particularly women and youth.

363. During the first steps of project implementation, additional assessment (gender, land right, etc.) will be carried out, to avoid exclusion of marginalized groups and to minimize potential impacts related to the project activities.

364. Nevertheless, although the project will have no negative impact on the marginalized and vulnerable groups, some risks can be identified related to the insufficient knowledge and access/use of technological devices such as mobile phones or lack of good cellular connectivity specially required in component 2 on Early Warning System (drought, floods and fires) design and implementation. In order to avoid the exclusion of these communities and to broadcast the warning messages, local radio stations and traditional practices such as criers, maps and sirens will be put in place to reach them.

365. In addition, the component 3 will focus on, among others, improving livelihoods for farmers, fishermen and pastoralists contributing to improve the resilience of WAP ecosystems. Nevertheless, the transhumance corridors and some activities can affect the livelihoods of certain groups. To offset this difficulty, the project will involve the local workforce in the implementation of some activities and will develop, under the component 3, IGAs such as the extraction of essential oils, production of medicinal plants and finally the setting up of a micro-financing mechanism to develop entrepreneurship.

366. Finally, the possibility of aggravating the vulnerability of marginalized and vulnerable groups by the project exists in case the transhumance corridors to delimit and develop for the benefit of pastoralists are not previously validated by local communities or are not the official corridors of CEDEAO.Thus, this criterion for choosing the patterns will be established, dialogue workshops will be held as well as the grievance mechanism.

P4- Human rights

367. No further assessment is required. No activities are identified whose execution does not respect international human rights. The project objectives aim at promoting fundamental human rights for equitable access to services, water for irrigated agriculture, capacity building, and information.

368. The project will respect the human rights of all actors and local population in accordance with its objectives and scope. Indeed, the project activities are community based and a key strategic control is adopted to monitor the involvement of all beneficiaries in the project implementation.

369. Moreover, and particularly for this project, the regional approach will provide an adequate framework to ensure respect for human rights at the level of each country. The proposed project will promote the basic human rights of access to food, water, and information.

P5- Gender Equity and Women's empowerment

370. During project design, a gender assessment study has been conducted as a preparatory step to elaborate the project proposal. In fact, gender mainstreaming in project activities aims at analyzing gender (male/female) and youth (boys and girls) relationships as well as advocating the full development of all women and men. Therefore, gender equity is a prerequisite in the implementation of concrete adaptation actions and is the baseline for communication, training, and awareness raising activities to be undertaken within the framework of the project.

371. Indeed, project activities aim at promoting fair and equal development between men and women and particularly women empowerment by increasing their participation in the different management plans such as master development plan (MDP) and communal development plan (CDP) as well as the Operational Manual for income generating activities (IGAs) implementation through a participatory approach as detailed in the component 1 and 3. So, women will be involved in the design and the decision making processes. In addition, they will be considered in the livelihood improvement activities (e.g. development of botanical gardens and medicinal plants, small ruminant farming, processing of fish products and handcraft) as well as the capacity building and information just like men. Thus, women will ensure their income, living conditions and the sustainability of the promoted activities.

372. Nevertheless, the cultural and social norms of the project area encourage women to question the dominance of men and claim their role in decision-making. There is therefore a risk that women may not benefit equitably from proposed adaptation measures, capacity building interventions and gender equality in employment due to male domination.

373. Thus, it is planned (i) to carry out Communication and sensitization of populations on the gender issue to ensure gender equity in income-generating activities, (ii) to ensure the representation of women and youths in the various consultation workshops, and (iii) make available a grievance mechanism.

P6- Core Labor Rights

374. As a global framework related to the fundamental rights of work, the three project's beneficiary countries have ratified the eight ILO Conventions. Additionally, during the project design stage were national and regional stakeholders have been involved, the core labor rights have been highlighted. So, the project will be implemented and managed in compliance with the international and the countries designated labor laws. As a result, compliance with fundamental labor rights will be ensured in all the proposed project activities and especially the community-based ones. In fact, the component 3 that encompasses the adaptation actions implementation where communities will provide the local labor force, core labor rights compliance will be mandatory.

375. Concretely, it is intended to establish contacts with representatives of the local communities responsible for carrying out some activities, where their mandate and their rights will be clearly explained. Besides, during activities execution, the national executing agencies will be in charge of the follow-up and monitoring of the worksites including activities progress and the respect of the labor and safety rights of workers. Nevertheless, it is likely that accidents or traffic disruption during the project preparation or implementation could occur. In addition, there is a risk of late or unpaid salaries or remuneration non-compliant with the countries labor legislations and laws. Finally, children's labor will be forbidden as well as remuneration inequity between men and women.

376. Consequently, awareness sessions for workers and populations on the risks related to the activities will be held and the application of safety standards by companies (equipment, signs, training, etc.) will be ensured.

377. Finally, there will be a close follow-up and monitoring of the worksites by the national executing entities including schedules, activities progress, respect of the labor and safety rights of workers and conformity with national labor codes.

P7- Indigenous People

378. As previously mentioned with regards to the project beneficiary population, according to the UN definition or convention on indigenous people, a preliminary assessment has been done and has allowed to conclude that we do not deal with indigenous people in the WAP Complex but with local population or communities. The latter are organized in socio-professional groups referring to ethnic groups. Consequently, this pricniple is not applicable in this case (*C.f. Paragraph Population Size and structure*).

P8- Involuntary resettlement

379. The project will not have any activity related to carrying out or removing local populations or even losing their land use rights. It will not include community resettlement activities. Their protection and conservation will rather be promoted by the project.

380. However, the management of additional rest areas for transhumants will occupy spaces. The choice of these areas will include criteria that stipulate no population resettlement through giving priority to state-owned lands. In the event that there is no choice but to opt for private lands, the project engages to ensure appropriate compensation measures through IGAs according to national rules and international standards.

P9- Protection of natural habitats

381. There are no potential direct risks to the protection of ecosystems and to the natural habitats through the project activities. Nevertheless, there is a possibility of indirect risks related to the Transhumance corridors for livestock development which will open up different migratory patterns which may affect the flora and the fauna as well as the natural habitats. Also, the presence of labor and construction equipment, if this is necessary for carrying out the works or activities planned by the project, could have a impact on the fauna and flora of certain intervention sites.

382. There may be a herd incursion in national parks and protected areas risk which will create tensions with farmers living around, protected area managers and other pastoralists.

383. Additionally, mobile herders may go in search of refuge and living resources through poaching, threatened wildlife species trade, illegal exploitation of other wildlife or minerals. Besides, the implementation of water points, solar-pumped boreholes and other activities that requires concrete actions on the ground can result in the vegetation and wildlife habitats provisional or definitive destruction in the implantation site.

384. So, to face up these risks, a close follow-up of the project activities implementation must be arranged including (i) monitor of the activities related to the protection and management of natural habitats implementation particularly the understanding/monitoring of the number and the size of the transhumant pastoralists herds, the grazing destinations (including protected areas) and the distribution of natural habitats types to provide information for decision-making, (ii) ensure the legal protection of natural habitats by reviewing policies and laws aimed at their protection with national authorities, (iii) develop ESIAs studies upon need especially for non-sustainable activities, and (iv) Sensitization sessions to local populations on good environmental practices and the protection of natural habitats.

P10- Biodiversity conservation

385. The protection of ecosystems and their biological diversity is an essential objective of project components 1, 2, 3 and 4 of the project. There are no potential direct risks to the protection of ecosystems and its biological diversity conservation through the project. It will rather provide opportunities to promote planning for biodiversity conservation activities, such as reforestation and capacity building to strengthen the efficient management of natural resources, including aquatic species, animals and forests.

386. Nevertheless, as part of the implementation of some activity, the work of releasing rights of way from the targeted sites may affect the flora and fauna. These are mainly tree cutting and loss of bird habitat and wildlife, which may represent a form of disturbance.

387. Besides, looking for their livelihood, mobile herders menace the biological diversity through poaching, threatened species trade and illegal wildlife exploitation and slaughter for bushmeat, ivory or pelts. They also may cause crops damage through herd incursion and savage pasture.

388. Thus, the project plans to carry out a follow-up and monitoring of the implementation of all activities related to the protection and management of ecosystems.

389. With regard to tree removal, compensatory reforestation will be executed where needed. Also, the cleaning of forest and pastoral areas for biological recovery and preservation of threatened animal and plant species. It is also intended to promote awareness sessions, capacity building and peer learning of the local

population to strengthen the effective management of natural resources, including aquatic species, animals and forests.

P11- Climate change

390. The project will increase the resilience of the ecosystems and the adaptation capacity of the local population. However, climate change vulnerability study has been conducted during the preparation of the Full Proposal. According to this study, the adverse effects of climate change are being felt moderately both on the natural ecosystems and on the livelihoods of communities along the WAP complex.

391. None of the proposed project activities has been identified as potential source of greenhouse gases. On the contrary, the project is dedicated to the mainstreaming of climate change into technical management documents such as Master Development Plan (MDP) and Development Management Plan (DMP) in addition to the adaptation plan of the WAP complex and the development plans of the riparian communes.

392. Additionally, the component 2 is dedicated to establish the early warning system to prevent natural disasters risks and impacts whereas through its component 3, the project aims at increasing the adaptive capacity of the local population and the resilience of ecosystems to climate change adverse effects. Component 3 activities will focus particularly on i) improving infrastructures for farmers, fishermen, and pastoralists, ii) ensuring sustainable management of silvopastoral and aquaculture, iii) promoting renewable energies and iv) establishing a revolving fund. Finally, the component 4 is devoted to information and stakeholder's capacity building on climate change.

393. Nevertheless, a potential change of the land use due to the field clearing to open the transhumance patterns (component 3) may generate the risk of the sequestration decrease. So, it is intended to promote reforestation to offset these lands.

P12- Pollution prevention and resource efficiency

394. The project will contribute to the energy efficiency through the introduction of the improved economic stoves and the solar panels. Additionally, it will enhance the efficient use of water through the small irrigation techniques and the water points' establishment. Moreover, projects activities advocate the prevention of air, water, and soil pollution by controlling bushfires through the EWS technology and monitoring the water quality through the component 3 that undertakes these activities more in detail. Finally, the project will create awareness, strengthen technical capacities and provide support on water management for users at different levels (component 4).

395. However, although the importance of its interventions, the project proposal has not been identified as huge energy demanding or big consumers of natural resources and therefore would require measures for their efficient use. Nevertheless, some sub-projects will generate waste related to the presence of the workers, construction engines, and equipment, etc. during the execution of the project different activities. There is also a potential risk of surface and groundwater contamination from release or spills of fuel and lubricants during fueling and maintenance of construction equipment in addition to the risk of air pollution by gas emissions from machinery during field work or consultants and various stakeholders' vehicles during workshops and field visits.

396. To mitigate these risks, it will be recommended to incite the use of good quality petroleum products that meet standards; E & S impact assessment studies for sub-projects; have authorizations of state entities in place to carry out activities in protected areas; proceed to waste management plans in the construction sites; and think to waste recycling / composting in the USPs.

P13- Public health

397. The project will not have a negative impact on public health. On the contrary, it will contribute to improving the sanitary conditions of communities by monitoring ecosystems, water, and soil quality, to prevent the population from natural disasters through the EWS and to improve their incomes for easier access to health facilities. It will as well reduce smoke out traditional cooking stoves by producing and processing improved economic ones such as described in the component 3. The project plans hence the construction and/or rehabilitation of 21 water points in the WAP complex.

398. Enhancing water distribution and quality, in particular, is crucial to improve public health and decrease water-related diseases such as Malaria and other diseases spread by insects and prevents death. Easy access to safe water will also help improve the lives of those living with HIV or AIDS that are more prone to common illnesses and diseases. The locations of priority water points are considered as unidentified sub-project activity. Therefore, it is planned, under component 3, to conduct technical studies for water point development and organize consultation workshops to validate the implementation sites of priority water points. Nevertheless, water-related diseases (such as Malaria) may increase simultaneously with the construction of these water points in addition to disease transmission. Additionally, the presence of workers at construction sites near the project beneficiary villages could increase the risk of spread of sexually transmitted diseases (STD). So the project will promote awareness sessions with populations and workers on the risk of Water-related diseases and STD. Additionally, there is a risk of disease transmission by the transhumant pastoralists and/or their herd. Thus, Veterinary support in order to prevent livestock and transhumant herd related disease transmission is crucial. Finally, a noise and odor nuisance caused during the construction phase is likely. So, it will be recommended to ensure the application of security measures by companies (Wear earmuffs, earplugs...) during working hours and limit the hours of exposure of workers.

P14- Physical and Cultural Heritage

399. The project will have no activity related to the destruction of physical and cultural heritage. Their protection/conservation will rather be encouraged by the project. Nevertheless, it is not excluded that some unidentified subprojects activity could have an effect on physical and cultural heritage. That's why, participatory workshops to identify areas of physical and cultural significance to prevent activities/ subprojects implementation are relevant.

P15 -Soil and land conservation

400. The project will promote the conservation of soil and land resources as detailed in the component 3, especially through the improvement of agricultural good practices such as reforestation, restoration and rehabilitation of degraded lands. Besides, component 4 undertakes activities that aims at building farmers and technicians' capacities in order to enhance environmental awareness and soil and land better management solutions.

401. Furthermore, livelihood diversification through the promotion of several IGA will help reduce farmers' pressure on forest soils. However, there is a risk related to the transhumant patterns development. Transhumant pastoralists are often driving large herd which intensify overgrazing and contribute to the idea of "pastoral invasion" which will result a direct crop, land and soil damage. There is also a risk of soil compaction by the machinery during construction or maintenance.

402. Thus, to face up to this risk, sustainable techniques such as agroforestry, among others, are to be boosted in order to restore damaged lands. It is also intended to promote awareness sessions with the local population to strengthen the effective management of soil and land. Finally, the project plans to carry out a follow-up and monitoring of the implementation of all activities related to the soil and lands conservation.

III. PART III: IMPLEMENTATION ARRANGEMENTS

A. Institutional arrangements

Implementing Entity

403. The ADAPT-WAP project will be implemented by the Sahara and Sahel Observatory (OSS) as Regional Implementing Entity for the Adaptation Fund (AF). As the three targeted countries (Benin, Burkina Faso and Niger) are members of the OSS, this will facilitate the exchange with the key national partners and enable the share of data and information among the executing entities. The OSS will provide guidance and ensure the financial management, the monitoring and the reporting.

404. As accredited entity to AF, OSS will receive the funds and channel them to the beneficiary countries through the regional executing entity. This entity will be responsible for the project management

Executing Entities

405. In order to achieve effectively its objective, the project will be executed by several entities at different level in the targeted areas of the WAP complex.

406. At the regional level: The four (04) years project will be executed by a **Regional Management Unit (RMU)** hosted by the OSS. Its composition will comply with the policies, procedures and terms & conditions of the OSS and AF. This Unit will take the lead of the project management and coordinate the execution with all the other stakeholders concerned by the project activities.

407. At the national level: Three **National Management Units (NMU)** will be put in place in consultation with the Ministries in charge of Environment of each beneficiary country. In addition to the national coordinators identified by the executing entities, the project proposes to hire for each country technical consultants to support the project execution. They will closely work with the five park managers of the WAP-complex.

408. In **Benin**, the project will be executed by the National Centre of Management of Fauna Reserves (CENAGREF), at the level of the two targeted areas in the country: W-Benin and Pendjari parks.

409. In Burkina Faso, the project will be executed by the General Directorate of Water and Forests (DGEF) for the W national Park and by National Office of Protected Areas (OFINAP) for the Arly Park.

410. In **Niger**, the execution will also be undertaken by the DGEF for the W national park.

411. At the local level: The project will be executed by park managers with the involvement of local populations. To achieve this participatory approach, the project will identify and involve women, youth, specialized peasant organizations and other vulnerable groups in the interventions. These various stakeholders will benefit from capacity building training in order to ensure the sustainability of the project's results.

412. **Three types of bodies will be set to ensure the coordination and execution of the project at the regional and national levels defined as follows:**

1) Regional Steering Committee (RSC) will be composed by the Technical Monitoring Committee (TMC), which brings together the general directors in charge of the protected areas, representatives from decentralized administrations of the WAP complex, representatives of local communities, the community-based organizations representatives. The private-sector operators, technical and financial partners and other concerned stakeholders who could contribute into the WAP Complex management will also be involved in the RSC. The RSC members may meet twice a year in ordinary sessions and if necessary, in extraordinary session. It will be chaired on a rotating basis by one of the General Directors of the administrations in charge of protected areas. The RSC will ensure the following services:

- Provide guidance for an effective project management;
- Approve the planning and annual budget allocation;
- Periodically evaluate the degree to which project results meet forecasts;

- Ensure that the proposed recommendations and new orientations are taken into account in the implementation;
- Approve the project technical and financial reports;
- Ensure the participation and support of target groups (vulnerable groups, public and private sectors, NGOs, park managers, riverside populations);
- Coordinate interventions by governments and non-governmental organizations and mediate co-management arrangements, potential conflicts, and multi-sectoral issues;
- Build consensus on critical aspects of the development and conservation of the WAP protected area complex.

2) Regional Management Unit (RMU) will coordinate the project activities. This unit will be hosted by the OSS and will be composed by:

Table 21: The Regional Management Unit component

Technical actor	Role
01 Regional Environmental Coordinator with expertise in Climate Change	Ensure day-to-day management of the project, supervise project team members, review execution of tasks and provide guidance and feedback Provide technical support and input to project planned activities
01 Assistant in charge of the monitoring-evaluation of the Project activities	Ensure that project activities are monitored effectively in terms of achievement of goals by compiling and analyzing data according to the project M&E plan
01 Technical Assistant	Provide technical support and input to project planned activities

413. The Regional Management Unit will work closely with the national management units to achieve the project approved activities and will have the following key services:

- Supervise and coordinate the project tasks in accordance with the approved project proposal;
- Engage all inputs in accordance with OSS and AF procedures;
- Supervise and support the National Management Units (NMUs) and project subcontractors;
- Coordinate the recruitment and select if needed the project staff;
- Prepare and review the project activities and financial plans as required by the OSS and AF;
- Supervise and ensure the submission in time of the differents Reports: Implementation Review, Annual Report, Technical and financial quarterly Reports, and other outputs requested by the OSS and AF;
- Prepare and spread the Project's communication materials and respond to the requests of the stakeholders involved;
- Ensure progress reporting to the Regional Steering Committee and the implementation of the guidelines resulting from SC meeting sessions;
- Supervise and ensure the exchange and sharing of experiences and lessons learned.

3) National Management Units (NMU): At the country level, a simple project management structure will be set and will be responsible for project execution. More specifically, each NMU will:

- Coordinate and ensure the execution of field activities at the project intervention sites;
- Ensure compliance with the OSS and AF rules and the project grant agreement;

- Facilitate communication and networking among key stakeholders in each country;
- Organize meetings and participate to regional coordination missions;
- Provide support to local stakeholders to achieve the project objectives.

414. Each NMU will be composed as follows: 01 National Coordinator, 01 Technical Consultant. The coordinator of this national management unit will be responsible for the project management (coordination, administrative and finacial aspects) and will be supported by a consultant who will be provide technical support for the local stakeholders. Both will work together to ensure the project implementation on the basis of feedback received from the regional coordination hosted by OSS and the supervisory protected areas management authority.

415. The NMU coordinator will be directly appointed and the consulltant hired through calls for applications. The selective process must involve both the body in charge of managing the protected areas and the OSS. ***The organizational structure for the project governance and implementation is illustrated in the Figure below.***

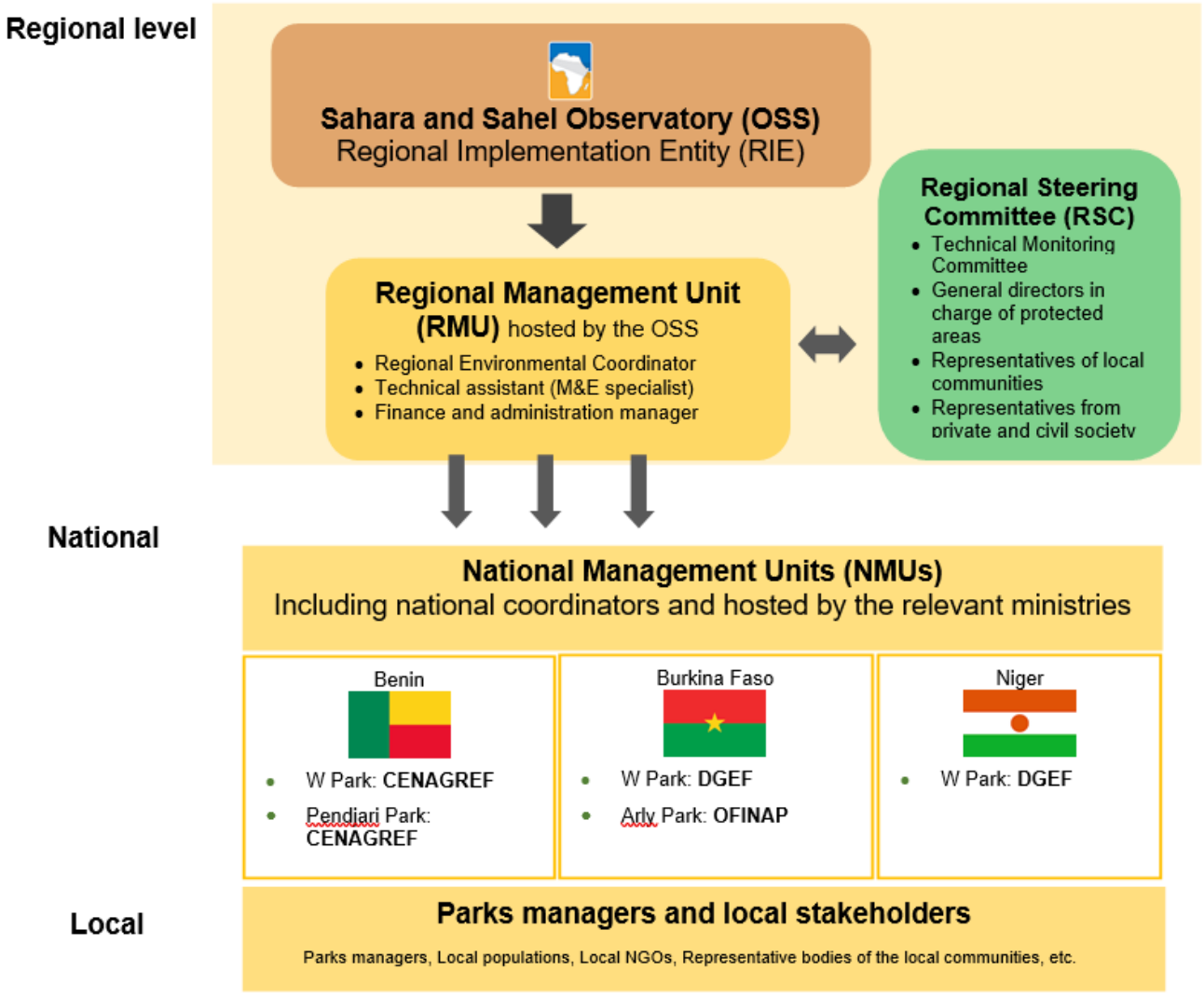


Figure 21 : Organizational structure for the project governance and implementation

B. Financial and risk management measures.

416. The ADAPT-WAP, as a regional project involving three different countries, could present both financial and project management risks during its implementation. In order to overcome these challenges, management measures are considered. Anticipated project risks are summarised by country in the table below:

Table 22 : Risks Managements Measures

Type of risks	*Identified Risks*	*Level* *High /Medium /Low*	*Risk Management Measures*
Financial	Heavy financial implementation procedure due to the geographical remoteness of the regional project coordination unit	***Medium***	Define and implement a quarterly funding mechanism for on-site project activities to support national local execution units.
	Conflicting interests among different stakeholders regarding access to and use of water and other natural resources	***Medium***	Organize consultation workshops for the validation of the various documents and products planned by the project activities
	Delay in project execution due to government bureaucracy and lengthy and inefficient procurement processes	Low	Plan properly (including developing a procurement plan)
			Negotiate with governments for the support that can facilitate implementation/execution.
	Lack of eligible project financial management	***Medium***	The project will have a clear separation of roles and will strengthen accountability and audit.
Project	Iniquity of project resources distribution	***Medium***	Follow a transparent and participatory process in selecting project beneficiaries using certain pre-agreed criteria. For example the definition of criteria and processes for selecting the beneficiaries who will be eligible for the revolving fund.
	Strong sectoral bias between different stakeholders	Low	Full participation of all stakeholders in the execution of the project
	Inadequate baseline/resource data potential,	***Medium***	Establish a baseline situation before/during implementation/execution. Efforts will be undertaken to acquire the appropriate data
	Low rate of technology uptake by communities,	Low	Promotion, demonstration, and training on new technologies and practices and training
	Politicization in the choice of target beneficiaries at the riverside communities level	***Medium***	Increase awareness among local actors and communities, work with available local structures and ensure active participation of community organizations in project execution,
	Participation and willingness to promote project initiatives by local communities is limited,	Low	Increase awareness at the local community level, work with available local bodies, ensure the active participation of community organizations in the execution of the project,
Institutional	Incompatibility between the complex and the administrative boundaries	Low	Promote management and development adapted to the complex. Involvement of local authorities could help to overcome the border issues
	Lack of collaboration between relevant technical institutions	Medium	Relevant institutions should be involved from the project design stage and should continue to participate in planning, execution, project review and reporting.
	Low political will for regional collaboration to establish a regional EWS	Low	The project will promote collaboration between the different decision-makers involved

Type of risks	Identified Risks	Level High /Medium /Low	Risk Management Measures
	Lack of ownership of the project outcomes by the beneficiary institutions	Low	The robust project management structure encourages transparency and stakeholder participation in project implementation preparation, reporting/communication, monitoring, and evaluation. This will create ownership and monitoring of project interventions.

C. Environmental and social risk management measures in line with the Environmental and Social Policy of the Adaptation Fund[8]

417. During the development of the Project full proposal a first and global environmental and social impacts and risks assessment has been developed according to the national standards (the three beneficiary countries). The table below describes potential impacts and risks related to the proposed project in accordance with the Environmental and Social Principles of the AF.

Table 23: Mitigation Measures Identified according to the AF principles

Checklist of environmental and social principles	Potential impacts and risks	Mitigation measures
Conformity with the law	Unidentified activities or sub-projects particularly Income Generating Activities (IGAs) undertaken in the component 3 may require a specific EIA depending on the size and the location of the implementation to comply with national standards and laws.	- Risk screening of unidentified activities; - E&S impact assessment; - Consultation process; - Environmental and social management plan (ESMP) establishment describing, for each unidentified activity risk of negative environmental and social impacts, the process, how, at which stage and by whom during project implementation these risks will be addressed; - Monitoring Indicators identification; - Evaluation and monitoring process; - Obtaining certificates of conformity.
Access and Equity	Project beneficiaries will be in general rural people (pastoralists and smallholder farmers) who have difficulties to access to the decision-making process, this may limit their opportunities to benefit from projects outcomes. There is a risk that all members of the beneficiary groups or community are not involved in the preparation and the implementation of their subprojects.	- Consultation workshops making sure of the different beneficiaries' involvement including men, women, youths, the socio professional groups (taken for ethnic groups) and those the most marginalized and vulnerable; - Priority criteria setting; - Sensitization session on the prioritization of project activities to the most vulnerable groups; - Close monitoring of the targeting of all project beneficiaries to assure equal access of men; women, youth and the most vulnerable; - Grievance mechanism.
	The possibility of aggravating the vulnerability of marginalized and vulnerable groups by the project exists in case the transhumance corridors to delimit and develop for the benefit of pastoralists are not previously validated by local communities or are not the official corridors of CEDEAO.	- Consultation workshops making sure of the different beneficiaries involvement including men, women, youth, the socio professional groups (taken for ethnic groups) and those the most vulnerable and marginalized; - Establishment of selection criteria for the transhumance patterns; - Grievance mechanism.

8 *E&S Management Plan is detailed within the ESIA in compliance with AF PES (Summary annexed to the present document)*

Marginalized and vulnerable groups	Insufficient knowledge and access/use of technological devices such as mobile phones or lack of good cellular connectivity specially required in component 2 on Early Warning System (drought, floods and fires) design and implementation.	To avoid the exclusion of marginalized and vulnerable communities in order to disseminate and broadcast the warning messages in case of natural disaster, local radio channels and traditional practices such as speakers, maps and sirens will be implemented to reach them.
	The component 3 will focus, among others, on improving livelihoods for farmers, fishermen and pastoralists contributing to improve the resilience of WAP ecosystems. Nevertheless, the transhumance corridors and some activities can affect the livelihoods of certain groups.	To offset this downfall of livelihood, the project will Instead - involve the local labor force in some activities implementation; -develop under the component 3 IGAs opportunities such as essential oils extraction, medicinal plants production for marketing; -establish a micro-financing mechanism establishment to ensure these populations resilience.
Human rights	The project activities do not generate risks related to human rights.	The project activities do not generate risks related to human rights so there are no mitigation measures to plan.
Gender Equity and Women's empowerment	The cultural and social norms of the project region lead to a greater role for women to question male dominance and claim their role in decision-making. So, there is a risk that women will not benefit equitably from the proposed adaptation measures and the capacity building interventions and gender equality in employment due to men leadership.	- - Ensure the presence of women and young people in workshops and trainings; - -Communication and sensitization of the population on the gender issue to ensure gender parity in income-generating activities; - Grievance mechanism.
Core Labor Rights	Risk of accidents and traffic disruption during the project preparation and implementation.	- Sensitize workers and populations to the risks related to the undertaken activities; - - Ensure the application of safety standards by companies (equipment, signs, training, etc.).
	Risk of late or unpaid salaries or remuneration non- compliant with the countries labor legislations and laws. Risk of Children's labor. Risk of Remuneration inequity between men and women.	- Salaries in line with regional practices and defined with national entities; - Close follow-up and monitoring of the worksites by the national executing entities including schedules, activities progress, respect of the labor and safety rights of workers and conformity with national labor codes.
Indigenous People	*In the project area, it is about local population and not indigenous.*	In the project area, it is about local population and not indigenous.
Involuntary Resettlement	The management of additional rest areas for transhumant will occupy spaces and may affect private lands or related activities.	The review process for unidentified sub-projects particularly rests areas for transhumant management will include criteria that stipulate no resettlements. The project will opt for state-owned lands and if needs be, compensation measures through IGAs will be arranged for used private lands owners.

Protection of natural habitats	Transhumance patterns clearing may affect the flora and fauna as well as the natural habitats. The presence of labor and construction equipment, if this is necessary for carrying out the works or activities planned by the project, could have an impact on the fauna and flora of certain intervention sites. The implementation of water points, solar-pumped boreholes can result in the vegetation and wildlife habitats destabilization in the implantation site. There is a possibility of indirect risks related to the Transhumance corridors which will open up different migratory patterns. There is a herds' incursion in protected areas risk which will create tensions with farmers living around, protected area managers and other pastoralists. Mobile herders may go in search of refuge and living resources through poaching, threatened wildlife species trade, illegal exploitation of other wildlife or minerals.	- Follow-up of the implementation of all activities related to the protection and management of ecosystems and natural habitats; - Establishment of E&S Impact Assessment Studies; - Policies and laws to protect natural habitats will be screened with the stakeholders to ensure that the critical habitats are legally protected; - Sensitization sessions to local populations on good environmental practices and the protection of natural habitats; - A follow-up of the project activities implementation will particularly include the monitoring of transhumant pastoralists' number and herd sizes, grazing destinations (including protected area) and distribution of habitat types in order to provide inputs for decision making, solving tensions and natural habitats protection.
Biodiversity conservation	Mobile herders menace the biological diversity through poaching, threatened species trade and illegal wildlife exploitation and slaughter for bushmeat, ivory or pelts. Crops damage through herds incursion and savage pasture. In the implementation of some activities, the work of releasing rights of way from the targeted sites may affect the flora and fauna. These are mainly tree cutting and loss of bird habitat and wildlife, which may represent a form of disturbance.	- Follow-up and monitor the implementation of all activities related to the protection and management of ecosystems; - Promote planning for activities of biodiversity conservation such as Compensatory reforestation; - Enclosures forest and pastoral areas for biological recovery and preservation of endangered plant and animal species; - Promote awareness sessions, capacity building and peer learning to strengthen the efficient management of natural resources, including aquatic species, animals and forests.
Climate change	A potential change of the land use due to the field clearing to open the transhumance patterns (component 3) may generate the risk of the sequestration decrease.	-Promote reforestation to offset the lands used for transhumance corridors.
Pollution prevention and resource efficiency	There is a potential risk of surface and groundwater contamination from release or spills of fuel and lubricants during fueling and maintenance of construction equipment; Generation of waste related to the presence of the workers, construction engines, and equipment, etc. during the execution of the project different activities. Air pollution by gas emissions from machinery during field work or consultants and various stakeholders' vehicles during workshops and field visits.	- E&S impact assessment studies for the sub-projects; - Authorization from incumbent state entities for carrying out activities in the protected areas; - Waste management plans for construction sites; - Recycling wastes/ recycling and composting could be an USP; - Incite to use a good quality fuel meeting the standards.
Public Health	The presence of workers at construction sites near the project beneficiary villages could increase the risk of spread of sexually transmitted diseases (STD).	-Promote awareness sessions with populations and workers on the risk of Water-related diseases and STD
	Risk of disease transmission by the transhumant pastoralists and/or their herd.	-Veterinary support in order to prevent livestock and transhumants herd related disease transmission.
	Noise and odor nuisance caused during the construction phase	- Ensure the application of security measures by companies (Wear earmuffs, earplugs,...) during working hours and limit the hours of exposure of workers.
Physical and Cultural Heritage	Possibility of physical heritage damage related to unidentified sub-projects.	Participatory workshops to identify areas of physical and cultural significance to prevent activities/ subprojects implementation and negative impacts.

Soil and land conservation	There is a minimal risk associated with the development of transhumance pathways. Pastoral invasion can be induced drived by trashumant herd which result a direct crop, land and soil damage. There is also a risk of soil compaction by the machinery during construction or maintenance.	-Promote the deteriorate lands restoration through sustainable techniques such as reforestation and agroforestry. This activity is essential to achieve one of the project objectives which is the preservation of the WAP complex Natural resources; - Raise the local population awareness to strengthen the effective management of soil and land; - A close follow-up and monitoring of the implementation of all activities related to the soil and land conservation.

418. The AF's Environmental and Social Policy classifies projects in three categories : A, B and C ; with i) Category A referring to projects that are "likely to have significant adverse environmental or social impacts" ; ii) Category B referring to projects whose impacts are "less adverse than Category A projects, site- specific, few if existing are irreversible and, in most cases, reversible or easily mitigated" and iii) Category C corresponding to projects "with no adverse environmental or social impacts".

419. According to the table (Section L Part II) on the Environmental and Social risk screening and the above table on Environmental and social risk management measures, ADAPT-WAP project proposal does not admit irreversible risks and most of the interventions will be easily mitigated. Therefore, the proposed project is classified as a Category B project.

420. The Project Environmental and Social Management Plan will be implemented by OSS as RIE and executed by PMU at a national and local levels to ensure that the appropriate risk mitigation actions will be undertaken.

Environmental and Social Impact Assessment and Risk Management for Unidentified Sub-Projects

421. The ESIA of the project activities has been established to ensure that the potential impacts are identified, their significance is assessed, and appropriate mitigation measures are proposed to minimize or eliminate such impacts during a fair and visible time frame with the consideration of the investment which has to be taken. Nevertheless, the project includes a number of activities that have not yet been identified to the stage where effective ESP risks identification is possible (so called unidentified sub-projects USPs). These USP are related mainly to the IGA including agricultural or related field activities such as agroforestry, fishing, livestock farming that will not generate major negative impacts.

422. Given this, additional environmental and social impact assessment for each sub-project will be required and ensured by the PMU. The screening system will ensure that each sub-project adheres to the environmental and social principles of the AF and of the OSS E&S Policies.

423. Furthermore, assessed sub-projects that may present significant environmental and social risks will not be implemented unless a comprehensive risk management plan is developed and where the impacts and risks are important, no sub-project or activity will be carried out without the approval of the relevant national authorities.

424. For each sub-project, ESIA will be carried out to predict and assess the potential environmental and social impacts and design appropriate mitigation, management and monitoring measures. The process will be in compliance with national standards, AF and OSS Policies and will include the following steps:

425. **Screening**: a high-level analysis to determine whether a full ESIA is necessary or not. It is an important tool for predicting and understanding potential sub-project/activity impacts, as it can help determine whether the sub-project/activity will be a significant issue for the project or not;

426. **Scoping**: If a full ESIA is required, scoping establishes the studies that will be required as part of the ESIA process including the identification of data availability and gaps. It determines the appropriate spatial and temporal scopes for the assessment and suggests suitable survey and research methodologies;

427. **Impact Prediction and Evaluation:** is the heart of the ESIA and involves analysing the impacts identified in the scoping to determine their nature, temporal and spatial scale, extent and effect. Impact analysis requires input from relevant experts, including ecologists, biologists, sociologists and economists. Once the potential impacts are fully understood, it is necessary to judge the significance of each impact, to determine whether it is acceptable, requires mitigation or is unacceptable. Consultations with local stakeholders is vital at this stage, and particular attention should be given to vulnerable and disadvantaged communities and risks arising from involuntary resettlement. Successfully identifying and addressing significant impacts at this stage can be key to obtaining both a formal and informal license to operate;

428. **Mitigation**: aims to eliminate or reduce negative sub-project/activity impacts through suggesting appropriate measures;

429. **Social and Environmental Management plan (SEMP) and monitoring**: Also called an Environmental Action Plan (EAP), it defines resources, roles and responsibilities required to manage sub-project/activity impacts and implement mitigation measures. The SEMP forms a link between the ESIA and the Social and Environmental Management System/entity. The central elements of a SEMP should include a detailed description of the activities planned to mitigate impacts, a time line and identification of resources to ensure the SEMP can be delivered, and a communication plan that indicates how progress in the implementation of the SEMP will be disclosed. The SEMP should also define monitoring requirements or indicators to determine whether mitigation is successful;

430. **Evaluation**: Also called The Environmental Impact Statement (EIS), is the physical report on the ESIA process and findings. The EIS should provide a clear review of potential impacts and how they have been/will be mitigated. The report often forms the basis of public consultation activities and is the document that is presented to regulatory authorities as the basis for decision making.

431. However, as part of AF quality assurance role, AF requires adherence to the ESP for Project activities implemented using funds channeled through AF accounts. So, all proposed Projects are required to be screened according to the 15 principles as given in the table below.

Table 24: Checklist for preliminary risk screening and project categorization according to the AF principles

Checklist of environmental and social principles of the AF	No additional assessment is required for conformity	Potential impacts and risks - additional assessment and management required for the conformity
Compliance with the law		
Access and Equity		
Marginalized and vulnerable groups		
Human rights		
Gender Equity and Women's empowerment		
Core Labour Rights		
Indigenous Peoples		
Involuntary Resettlement		
Protection of natural habitats		
Biodiversity conservation		
Climate change		
Pollution prevention and resource efficiency		
Public health		
Physical and Cultural Heritage		
Soil and land conservation		

432. Besides, OSS, as the project implementation entity, is also provided of its specific E&S policies describing principles and procedures for the environmental, social and gender impacts screening/assessment during the preparation and implementation of adaptation projects.

Environmental and Social Safeguard (OSS)

Environmental and Social Safeguard of ADAPT-WAP project is ensured through OSS policies and procedures which are based on the International Finance Corporation (IFC) Environmental and Social sustainability Framework. This ensures that potential risks and impacts are iteratively identified, mitigated and monitored throughout the life-cycle of the Project. The Environment and Social risk management is completed through two main stages:

1- Preliminary Risk Screening with respect to the ten Performance Standards (PS) prescribed in OSS E&S policy that all projects should comply with. This phase is implemented during project preparation and leads to a categorization of the project according to its risk level.

In compliance with OSS Environmental and Social policy, a preliminary risk screening was conducted from the earliest stages of ADAPT-WAP project preparation. Pre-screening of the concept note and early drafts of the project document using *OSS' procedure for risk and project categorization* helped to ensure that social and environmental sustainability issues are considered and integrated into the project' design.

2- On-going Risk Screening of the project interventions during the implementation phase. Activity-wise risk management is governed by OSS' risk management procedure which is in line with the internationally recognized standards, and more specifically the ISO 31000:2009, Risk management — Principles and guidelines.

In addition to the preliminary and overall risk screening conducted at the preparation phase, operational procedures will be implemented to ensure a continuous screening of all project activities and interventions for the identification of arising risks and impacts. If these impacts or risks are determined significant, activity-wise environmental and social assessment will be conducted which, in turn, will lead to the identification of activity' specific environmental and social management measures that need to be incorporated into the project. Identification, treatment and monitoring of identified risk and mitigation measures for ADAPT-WAP project will be managed using a Risk Register. The process will be governed by the *Risk Management Procedure of the AF and OSS.*

433. Moreover, in monitoring of the mitigation measures, corrective actions identified to manage activities with significant Environmental and social impact will be monitored using operational rules set out in the monitoring and review procedure of OSS. In this respect, OSS will monitor and review the implementation of corrective action plans which range from simple mitigation measures to detailed management plans with actions that can be measured quantitatively or qualitatively.

434. Then, once the ESIA is conducted, a detailed ESMP will be developed in each sub-project site and will include a mitigation and monitoring plans, institutional arrangements, with capacity building and associated costs. It will specify how, at what stage and by whom during project implementation for each sub-project risks of negative environmental and social impacts will be identified according to the 15 principles of the AF' ESP.

Institutional arrangements for ESIA

Implementing Entity

435. The E&S committee of the OSS, the Implementing Entity, will be responsible for ensuring the implementation of the ESMP and the application of the methodology described here above.

Besides, for the USPs, this committee will be in charge of deciding whether ESIA studies are necessary or not when risks happen and this according to its Environmental and Social principles as well as those of the AF. Additionally, National Environmental Authorities may be involved to deliver conformity certificates (if applicable) and/or just for seeking opinion and comments.

Finally, OSS will ensure the effective implementation of the mitigation measures identified in the ESMP during its supervision missions. Nevertheless, it could organize specific assignments to assess the complaints submitted by local communities.

Project Management Unit (PMU)

436. The regional monitoring of the project activities will be carried out by the PMU hosted by OSS. This Unit will be responsible for the supervision of the National Project Units activities related to monitoring the ESMP at local level. On a quarterly basis the PMU will gather the reports from the National Project Units, who will rely on a bottom up feedback system based also on community inputs. In order to ensure a relevant monitoring regular field visits to inspect and verify on the one hand the efficiency of the mitigation measures and on the other hand to check the extent of the foreseen impacts.

437. A yearly monitoring report will be developed and submitted to OSS as a RIE.

Project National Unit (PNU)

438. The PNU will be responsible for coordinating and monitoring environmental and social indicators. The PNU will be also in charge of analyzing data, managing local information systems and supervising the baseline establishment at project starting phase. As regards to the unidentified sub-projects the PNU will be responsible for conducting the ESIA according to the national standards and laws and will then work closely with local authorities to develop the relevant ESMPs for each intervention sites. Finally the PNU will prepare quarterly based reports and submit them to the PMU.

Local Communities

439. The ESIA monitoring will also include a community-based component. In fact, the project plans to carry out training and capacity building sessions for the benefit of local agents and communities, in data collection and monitoring

Grievance mechanism for the ADAPT-WAP Project:

Project description

440. During project preparation, consultations and studies were carried out to take into account the needs of local populations and to prevent environmental and social risks that could be linked to the implementation of the planned activities.

441. In order to prevent and manage potential grievances that may arise during and after its implementation, the ADAPT-WAP project will make available a grievance mechanism. This mechanism provides an access point for individuals, communities and other relevant stakeholders to submit complaints. It will also record and process all complaints relating to the project's activities, results or impacts.

442. The proposed mechanism is intended to be rapid, effective, participatory and accessible to all stakeholders, to prevent or resolve conflicts through negotiation, dialogue, joint investigation, etc. It will handle complaints related to the compliance of the project activities and impacts with environmental and social safeguards as well as fiduciary and legal aspects (grant agreements, contracts, etc.).

Mechanism objectives

443. This mechanism aims to provide individuals or communities affected or likely to be affected by ADAPT- WAP project activities with accessible, timely, effective and culturally appropriate opportunities to submit their grievances in accordance with the planned commitments. It will identify and propose fair and appropriate solutions in response to the complaints raised.

Principles

The various stakeholders in charge of the grievance management must rigorously respect the fundamental principles of the complaint mechanism described in the table below.

Principles	Implementing measure	Indicator
Security and confidentiality	• Protect the anonymity of complainants if necessary, • Ensure the confidentiality in the event of sensitive complaints, • Limit the number of people with access to sensitive information	No retaliation for denunciations
Accessibility and context	• Widely disseminate the mechanism to target groups, overcoming barriers as linguistic, geographical, intellectual and other… • Clearly explain the complaint procedures, • Diversify the possibilities for filing plaints, • Assist people with special access problems...	- Variety of sources of complaints - Rate of eligible complaints
Predictability	• Respond promptly to all complainants, • Present a clear process, with deadlines for each step,	- Average processing time - Response rate
Impartiality	• Ensure the impartiality of those involved in investigations • Ensure that no person with a direct interest in the outcome of the investigation is involved in the handling of the complaint concerned	- Challenge of members of the
Transparency	• Inform the parties concerned about the progress and results of the complaint processing	- C omplaint management team

Any person who has knowledge of abuse or who has been harmed in the implementation of ADAPT-WAP project activities must be able to file a complaint under this mechanism without being concerned about any reprisals.

Organization and Functioning of the Complaint Mechanism

444. The mechanism is being extended to all institutional stakeholders. The system will be closely linked to the OSS grievance mechanism, especially for the handling of major sensitive complaints. If necessary, complainants may also refer the matter to the Adaptation Fund.

Organizational framework

445. Complaint management will be integrated into ADAPT-WAP project activities. The tasks and responsibility of the project team are well defined. The management of the mechanism will be supported by OSS environmental and social committee, national experts from the concerned countries and from committed civil society/local communities' representatives, who will be available and trained to implement the mechanism.

Actors	Number/Composition	Role
Complaint Management Committee (CMC)	- OSS Environmental and Social Committee (4 members) - Regional Coordinator of ADAPT-WAP project - The CC adaptation and mitigation officer and the monitoring-evaluation officer of the Project activities	• Complaint handling • Proposal of responses and complaint resolution measures • Follow-up and supervision of the complaints

National Management Unit (NMU) ADAPT-WAP	- National Coordinators (1/ country) - Monitoring and evaluation officers (1/ country) - Other national stakeholders as required	• Receipt and registration of complaints Transmission of complaints from the database to CMC • Convening of the Complaint Management Team Provision of the necessary logistics for the CMC team • Mobilization of national Park's managers when necessary • Facilitation of contacts with local leaders to resolve grievances or conflicts.
Local complaint management units	- Local technical services, - Local authorities (mayors of municipalities and prefects) - Customary authorities (village chiefs, advisors...) at the project site level.	• Transmission of complaints from the database to the NMU • Receipt of complaints responses, • Handling of complaints at first instance (particularly minor and non-sensitive complaints)
Commission of Inquiry	As required, not to exceed 5 persons: 1 member of the OSS ESC, 1 national officer and 1 local service agent of the country concerned by the complaint	• Consideration of sensitive issues or issues requiring special expertise
Project field staff	Depending on the case, depending on the scope of its action	• Based on its proximity to the project site, it is called upon to manage non-sensitive complaints in delegation through dialogue and negotiation while informing the NMU
The beneficiaries	Two representatives of the site concerned	• Participation in necessary investigations and examinations, • Clarification for a better understanding of the facts, • Testimony

How it works

446. The proposed grievance mechanism for the ADAPT-WAP project will involve the different institutional levels concerned.

447. ***At the*** regional ***level***, the ADAPT-WAP project grievance mechanism will be coordinated by the OSS Environmental and Social Committee. As an implementing entity, the OSS will use its grievance mechanism to manage complaints that arises during the preparation, execution and after the project completion. Affected communities or other stakeholders who will be affected by the project may file complaints directly to the OSS or through the national project management unit. They may also be sent to the Secretariat of the Adaptation Fund, if necessary. The full addresses of the two organizations are listed below:

Sahara and Sahel Observatory Boulevard du Leader Yasser Arafat BP 31 Tunis Tunis Carthage 1080 Tunisia Tel: (+216) 71 206 633/634 Fax: (+216) 71 206 636 Email: doleances@oss.org.tn or boc@oss.org.tn	Adaptation Fund Board Board Secretariat Mail stop: MSN P-4-4-400 1818 H Street NW Washington DC 20433 USA Tel: 001-202-478-7347 Email: afbsec@adaptation-fund.org

448. ***At the*** national ***level***, the Project Management Unit (NMU) is the focal point for all project- related complaints. If the complaint is minor or not related to the project, it will be dealt with at the local or national level by the relevant competent services concerned, as stated in the table above. If it concerns the project, the NMU will

proceed to its registration and then refers it to the regional project management unit. In both cases, the complainant is kept informed of the progress of the appeal.

449. ***At the local*** level***,*** complaints can be addressed in different ways to local authorities (mayors, prefects...) or customary authorities (village councilor, village chief...). They will be received in different forms appropriate to the complainant's local context: local radio, telephone, criers, word of mouth, exchanges at markets... or messages to project management units during awareness workshops or supervision missions.

450. Project management units (regional and national) and park managers are committed to respond quickly and appropriately to the complaint. When the complaint cannot be handled at the local level, the NMU will support the complainants to fill in a complaint form to be submitted to the OSS Environmental & Social Committee. The NMU should advise complainants to provide comprehensive information to facilitate the assessment and handling of the complaint. A report is made and sent to the Complaint Management Committee (CMC), who registers the complaints and starts its processing.

Complaint Management Steps

451. The ADAPT-WAP grievance mechanism will go through 5 main stages, as follows:

➢ ***Filing a complaint:*** Anyone or communities affected by project activities can fill in their complaint or claim in several forms and in several ways. In accordance with the principle of accessibility and depending on the context, the method of filing complaints will be diversified.

i) *At the national or regional level,* complaints will be addressed directly to the OSS or to the adaptation fund via the contacts presented above and via social networks.

ii) *At the local level,* complaints can be addressed to local authorities (mayors, prefects, etc.) or customary authorities (village councilor, village chief, etc.), which will refer them to local technical services or local complaint management units. Complainants can also fill in their complaint directly with local complaint management units or NMUs. Contacts of local complaint management units and NMUs will be made public at the beginning of the project execution. The mechanism will use all possible means and channels (traditional and modern) to receive complaints or claims (anonymous or not). These will include, among others:

- Telephone call, the phone is widely spread in the WAP complex area,
- Word of mouth, crier, and exchanges in local markets,
- Broadcasting through local and community radio stations,
- Self-referral to the Complaints Management Committee during supervision missions,
- Facts noted during meetings or a field visit...
- Social networks (WhatsApp Imo,...), web page of the ADAPT-WAP project, the OSS website...
- Mail via complaint boxes in the localities concerned by the project.

➢ ***Receipt and registration of complaints:*** this is ensured by the NMUs which is responsible for receiving all complaints related to the project activities and impacts. Complaints received will be recorded upon receipt and the traceability procedure will be established. They are generally classified into 2 groups:

- Non-sensitive complaints related to the implementation process, including choices, methods, results achieved...;
- Sensitive complaints generally concern personal misconduct such as corruption, sexual abuse, discrimination...;

452. The NMUs will send an acknowledgment letter within a maximum of one week. In this letter, the recipient will be informed of the next steps and if necessary, he/she will be asked to provide clarifications or additional information for a better understanding of the problem.

➢ ***Complaint handling*****:** involves verifying the eligibility of the complaint to the mechanism and ensuring that the complaint is related to the project's activities or commitments. The aim will be to establish the link between the facts denounced and the project's activities and impacts. The eligibility assessment will also determine whether the case should be dealt with under the Project specific grievance mechanism or referred to other mechanisms (whistleblowing, etc.).

453. In the ***case of unfounded complaints*****,** due to a lack of necessary information or the result of rumors or malicious persons, which may harm the proper conduct of the project, it is essential to conduct the necessary

investigations to preserve the project reputation. This task is the responsibility of the national and the regional management units.

454. In the ***case of well-founded complaints,*** two kind of responses can be applied:

(i) direct response and action by the Complaints Management Committee to resolve the complaint.

(ii) broad and thorough audit is required, and joint investigations, dialogues, and negotiations could be conducted to reach a substantial resolution. This may involve extending the team to national and local services, as well as additional time. For sensitive cases, the CMC may use an investigation to reach an appropriate resolution based on expert advice.

455. Following the audit and investigations, a contextually appropriate explanatory letter is sent to the complainant. It should include the procedures to be followed by the NMUs to manage the complaint or propose the appropriate bodies to be contacted for cases that does not fall into the Project management unit's responsibilities.

456. If agreed with the complainant, the proposed responses are implemented by the Complaints Management Committee, the latter will monitor the whole process of the complaint treatments in all cases.

- ***Implementation of measures:*** if the CMC and the complainant agree to implement the proposed response, a plan will be developed involving all stakeholders. The CMC should document all discussions and choices available.
- ***Closing the grievance:*** The procedure will be closed if the mediation is satisfactory to the parties and leads to an agreement. It is necessary to track the number of complaints by the identity of the complainants, background, period, theme and final outcome. The satisfactory resolution and lessons learned should be documented.
- ***Publication of complaint result***: all well-founded complaints will be made publically available by different communication means. The publication will include the type of complaint, its origin and impact, the treatment procedure and its results, including the complainant level of satisfaction.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

Monitoring and evaluation arrangements and budgeted M&E plan

457. The Regional Management Unit will be responsible for monitoring and evaluation (M & E), including the organization of project evaluations, the approval of annual work plans and budget checking, the monitoring of project progress. The RMU will be in charge of identifying issues and proposing corrective actions that will facilitate the delivery of project's results in time and support coordination and networking with other related initiatives and institutions within the country and the region.

458. During implementation, the communication and coordination mechanisms in place will need to be taken care of to ensure that areas of common interest are addressed in a cost-effective manner.

459. The project will be monitored by the following (M&E) activities and its budget is provided in the chart below.

Table 25 : Budgeted M&E Plan

M&E Activity	Responsible Parties	Budget (USD)	Timeframe																Notes
			2019				2020				2021				2022				
			Quarters				Quarters				Quarters				Quarters				
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Initial studies to improve baseline, gender analyses, land rights analyses and environmental and social impact assessment	Regional executing entity	45,000																	
Design of a M&E System for the project including ESMP and monitoring outputs by project team	Monitoring &Evaluation expert	144,000																	Day to day
Field visits for measuring the project results for each target and reporting as well as gender	Monitoring&Evaluation expert/Communication specialist / Project manager and Ministries in charge of Environment	120,000																	Quarterly
Visits to field sites for joint review of status, project progress and reporting	Implementing Entity, Regional Project team and Ministries in charge of Environment	40,000																	Yearly
Mid-term evaluation and reporting	M&E Experts & Project manager	20,000																	At the end of the first two years
Technical Final evaluation and reporting	M & Experts & Project manager	20,000																	At least two months before the project closure
Audit/Final evaluation	Regional executing entity	15,000																	After the end of the project
Final Project Audit	OSS	20,000																	At least two months before the project closure
Total M&E costs		**424,000**																	

Project Launch

460. A project kick-off workshop will take place during the first two months after the start of the project with those who are involved in the project organization structure. The kick-off workshop is crucial to strengthen ownership of project's goals, results and set up the first year's annual work plan.

461. The kick-off workshop will address a number of key issues, including:

- Help all partners to fully understand and appropriate the project. Detail the roles, support services and complementary responsibilities between OSS and project's staff. Discuss roles, functions, and responsibilities within the project's decision-making structures, including reports, communication, and conflicts resolution. The terms of reference for the project staff will, if necessary, be discussed again;
- Finalize the first annual work plan, review and agree on indicators, objectives and their checking means, and recheck assumptions and risks;
- Provide a detailed overview of reports, monitoring, and evaluation (M&E);
- Discuss financial reports procedures, obligations and annual audit procedures.

462. A kick-off workshop report is a key reference document and should be prepared and shared with participants to formalize all the agreements and plans agreed upon during this meeting.

During the project implementation phase

463. A monitoring and evaluation system of the ADAPT-WAP project is managed by the Regional Management Unit hosted by OSS. It is structured among orientation and decision-making actors and the operational and execution actors.

Table 26: Project monitoring and evaluation entities

Actors	Roles and responsibilities
Regional Steering Committee	- Review and validation of annual work and budget plans; - Supervision, coordination, and decision-making related to the implementation of the program and the annual work plan and budget, - Review and validation of annual progress reports; - Monitoring of the recommendations' implementation.
OSS	- Review and approval of annual work plan & budget; - Review and approval of annual progress and completion reports; - Monitoring of the recommendations' implementation - Orientation and/or management decision-making
Regional Management Unit at OSS	- Development of the project's operations plan and the annual work plan and budget; - Follow-up of the project's operations plan and the annual work plan and budget execution; - Development of data collection, treatment, analysis and dissemination tools; - Coordination of collection, treatment, analysis and dissemination of data and information; - Monitoring&Evaluation activities follow-up and specific studies supervision; - Preparation and consolidation of quarterly activity reports, annual progress reports, and project completion report; - Dissemination of project evaluation and monitoring reports - Evaluation of terms of reference for project evaluation missions; - Implementation of decisions and corrective actions
National Management Unit	- Participation in the validation of the ADAPT-WAP project annual work plan and budget; - Monitoring of the project implementation in and around the WAP component and annual work and budget plans; - Gathering, treatment, analysis and management of project data; Monitoring and specific studies activities supervision; - Preparation and transmission to the Regional Unit of Management of quarterly activity reports, annual progress reports of the project - Contribution to the diffusion of project's monitoring and evaluation reports - Implementation of recommendations and decisions

464. **Planning:** Operational planning is based on the logical framework and allows the preparation of the operational plan that covers all the project's activities over its four (4) years duration. Based on this multi-annual operating plan, an annual work plan and budget are drawn up each year. It represents the prediction of activities and financial resources to be implemented during the year in order to achieve the expected results of the project. The annual work plan and budget (AWPB) is prepared by the Regional Management Unit in collaboration with the National Project Management Units. Once developed, it is submitted to the steering committee for review and consideration. The AWBP validated by the steering committee is submitted to the OSS Non-Objection FA at most one week after the steering committee's meeting.

465. **Tools and monitoring procedure:** The main elements to be monitored are: means, activities, results, and impacts. The monitoring is carried out by both the Regional Coordination Unit and National Management Unit with the support of the operational responsible partners. The data collected by each partner on the main elements above will be used for the preparation of various reports. Those annexed reports of these data will be consolidated by the regional unit. The following chart presents the follow-up tools.

Table 27: Monitoring Procedure and tools

N°	Type of monitoring	Purpose of the monitoring	Responsible
1	Monitoring of means	Monitoring of financial, human and material resources.	Administrative and financial responsible
2	Monitoring of activities	The Monitoring of activities consists of: - comparing the planned activities with the activities carried out; - identifying the key actors involved; - highlight the gaps in achievement; - explain the differences in achievement (favorable or unfavorable causes); - suggest corrective measures necessary for decision-making	Assistant in charge of monitoring and evaluation of Project's activities

466. **Mid-term of the project's cycle**: The mid-term review will identify progress made toward the achievement of the results and will determine the correction of the course if necessary. It will focus on the effectiveness, efficiency, and timeliness of project implementation; will focus on issues requiring decisions and actions; and will present the first lessons learned from designing the project, its implementation, and management.

467. The results of this review will be considered as recommendations for better implementation during the last two years of the project's duration. The organization, terms of reference and timetable for the mid-term review will be decided after consultation between the project parties. The terms of reference for this mid-term evaluation will be prepared by OSS, based on the guidance of the Regional Coordination Unit.

468. **Project Final Review:** An independent final evaluation will take place three months before the last meeting of the Steering Committee and will be undertaken in accordance with OSS and the AF regulations. The final evaluation will focus on the delivery of project's results as originally planned (and reviewed after the mid-term review, if such a review has occurred). The final evaluation will focus on the project impacts and sustainability of results, including the contribution to the capacity development and the achievement of global environmental benefits/objectives. The terms of reference for this evaluation will be prepared by the OSS based on the guidance of the Regional Coordination Unit. The results of the final evaluation should be presented during the project closure workshop and should also provide recommendations for a future project.

469. **Final report:** During the last three months, the project's team will prepare the project final report. This comprehensive report summarizes the results obtained (objectives, products, axes), the lessons learned, the challenges encountered and the areas where the results may not have been achieved. The project final report will be presented during the project's closure workshop and will also prepare recommendations for further steps that may need to be taken to ensure the sustainability and replicability of project's results.

470. **Learning and Knowledge Sharing:** The results of the project will be disseminated within and beyond the project area through existing information sharing networks and forums.The project will identify and participate, as relevant and appropriate, in scientific, political and/or other networks that may be useful to the project if lessons are learned. The project will identify, analyze and share lessons learned that could be beneficial in the design and implementation of similar projects in the future.

E. Results framework for the project including milestones, targets and indicators.

Table 28: Project Results framework

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
Objective: strengthen the resilience of ecosystems and improve populations' livelihoods within the WAP Complex as far as climate change is concerned through the establishment of a Multi-Risk Early Warning System and the implementation of concrete adaptation measures	Resilience improvement degree of ecosystem and population as far as CC is concerned	The resilience of the population and the ecosystems of the WAP complex is low	50% of WAP complex vulnerable ecosystems are more resilient	- Scientific assessment report of resilience, Study, and Investigation - Report, Disaster monitoring Report, - Report on Improving the living Condition of the Target Population	Regional level collaboration is not disrupted
	Number of strategic reference documents (MDP, DMP, commune development plans) integrate CC issues	CC dimension is not taken into consideration in MDP, DMP and CDP	Number of of guides and addendums/appendixes are developed and annexed: - 1 for MDP - 3 for DMP - 19 for CDP		The political will of regional collaboration manifested by the States about their commitments
	Number of MREWS developed	Disasters are not managed in a suitable way	01 Early Warning System is deployed in the WAP complex and its neighbouring localities		Favourable context to constructive exchanges at a country level about risks early warning of and disasters
	Rates of households/households that have benefited from activities that improve their standard of living	The living conditions of the population are unfavourable	At least 60% of the target population has an improved living condition		Politicization in the choice of the target beneficiaries in the localities
Component 1: Integration of Climate Change Aspects (MRMREWS) into the management of WAP Complex					
Results 1.1 The climate dimension and its risks are integrated into the existing master development plan and the development and management plans of the complex.	- Development and validation of CC integration guides for WAP Complex Management documents (Master Development Plan MDP, Development and Management Plans DMPs) and the communal development plans	CC dimension is not taken into consideration in MDP, DMP and communal development plans	The MDP, DMP and communal development plans integrate the issues and elements of CC	Study Report, Integration Tools, Workshop Report	Regional Collaboration is not disrupted by unexpected events

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
Output 1.1.1: The regional adaptation action plan and the methodological guide for CC incorporation are developed	- Development of an adaptation plan of WAP complex to CC - Guide for the Integration of CC for the MDP and the DMP - Setting up an operational stakeholder platform	Absence of an adaptation plan of WAP complex	At the end of the first year: - 01 CC adaptation plan for WAP complex is carried out and adopted - 01 Methodology Guide validated - At least 3 regional workshops - 01 Functional stakeholder platform available by the end of the third year	- Validation report of the Adaptation plan - Validation report of the technical annexes - Workshop report	Regulatory and decentralization legislation in the countries are favorable to CDPs
Output 1.1.2 The technical annexes integrating the CC into Master Development Plan (MDP), the Development and Management Plans (DMPs) of the WAP Complex and the communal development plans (CDPs) of the communes bordering the WAP are elaborated	- Number of technical annexes integrating CC, for MDP and DMP, - Number of reviewed communal development plans - Updated Geographic Information System	Lack of CC integration tools, the current GIS is not functional and not updated.	At the end of the second year : - 01 technical annex integrating CC of the MDP is available - 03 technical annexes integrating CC to the DMP blocks Arly-Pendjari and W are available - 19 technical annexes integrating CC to communes development plans - The WAP complex Geographic Information System is updated - 03 regional workshops	Validation report of the annexes, GIS is functional and validated	Political will of regional collaboration demonstrated by States for a tool of integration of CC in the MDP, DMP and the CDPs
Component 2: Design and implementation of a multi-hazard early warning system (drought, floods, and fires)					
Result 2.1: Multi Risk Early Warning System is used by beneficiaries to manage emergencies	- Number of functional MREWS about climatic risks on the WAP complex and its surroundings; - Number of beneficiaries/users / MREWS - Contingency plan developed and validated	Absence of MREWS on the WAP complex;	- 01 MREWS is installed and functional; - 01 Contingency plan validated - At least 50% of riparian populations are aware and informed of MREWS	MREWS Monitoring report, Activity report	States' willingness for regional collaboration in regional MREWS.

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
Output 2.1.1: MREWS is designed and validated	- Development and validation of preliminary technical studies - Design and development of MREWS technical and institutional prototype - Number of Workshops	WAP Complex management units does not have a coordination mechanism dedicated to disasters situation	At the end of the first year of the project : - Preliminary studies (hydrometeorology, flood risk prediction, drought risk, warning thresholds, etc.) are developed and adopted - 01 MREWS prototype is designed and validated - 02 regional workshops	Study reports Study and MREWS validation reports, Workshop report	Delay in project implementation due to government red tape
Output 2.1.2: MREWS is functional and deployed	- Number of weather stations and number of hydrostatic stations remote transmitted, - Number of computers, number of GPS, - Number of dissemination kit - Number of premises of the management units are rehabilitated - Number of national and regional management units formalized - Number of training session on the MREWS - Number of management units members trained on MREWS	No functional disaster monitoring system Absence of management and supervision unit in the WAP complex	At the end of the first semester of the second year of the project: - 20 weather stations and 10 remote hydrological stations are acquired, - 10 computers, 20 GPS, and 01 servers are acquired, 10 Software - 05 dissemination kit (beacons, flags, sirens, signalling, speakers, telephone, local radio ...) made available to the managers of the 5 parks *by the end of the project* - At least 3 premises of the management units are rehabilitated - 01 MREWS unit and 03 antennas are set up, -*By the end of the project*, at least 04 meeting are organized per country - 01 regional and 03 national training sessions on MREWS *by the end of the third year* - All Management members / MREWS units are trained, *by the end of the third year* - At least one information or awareness session on safety	MREWS Unit Installation Report, Training Report, Activity Report, minute of rehabilitation of management units premises	States' willingness for regional collaboration in regional MREWS.

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
			standards for each premises rehabilitated		
Output 2.1.3: Contingency plans for disasters are put in place	- Number of contingency plans - Number of training on contingency plan - Number of staff trained on contingency plan - Number of completed white/test operations - % of equipment necessary for the contingency response acquired	Absence of contingency response plan for CC disasters in the WAP complex	At the end of the 2nd semester of the second year: - 01 regional contingency plan is developed and adopted. At the end of the 1st semester of the 3rd year: - At least 2 training sessions for the benefit of the different users are organized each year during the project implementation from the second year - All staff involved in contingency plan trained - 03 white operations are organized - 100% of the equipment needed for the contingency response is acquired by the end of the project	- Contingency plan documents, - Reports/acts of the training sessions Equipment installed Activity Report Validation Report	Institutional and regulatory design is set up for the 3 countries and are favourable to a regional contingency response plans with national specificities
Component 3 :Improving the resilience of ecosystems and the livelihoods of populations and users through the implementation of concrete adaptation actions					
Result 3.1 Resilience of populations and ecosystems is improved through suitable adaptation measures	- Number of adaptation measures, - Number of communes covered, - Number of beneficiaries	WAP adaptation measures are not implemented	- At least 02 adaptation measures - 19 communes take profit of adaptation measures -80% of the population is informed (40% are women)	Activity reports, study report	Protected areas managers remain favourable to the regional management approach of concrete adaptation actions to CC

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
Output 3.1.1: Transhumance corridors for livestock are developed and rest areas created with the involvement of the local labour	- Number of dialogue meetings - Number of km of corridors materialized and marked around the WAP - Number of drinking water points and grazing areas - Ha of pasture areas at previously water points. - Percentage of local population involved	The corridors exist but not materialized, a lack of infrastructure and specific arrangements of the corridors. A lack of local population involvement (labour force)	- At least 10 dialogue meetings organized during the first year - At least 80 km of corridors materialized and marked around the WAP complex per year starting from the 2nd year, - 08 watering places are built by the end of the project - 50 ha of pasture areas created at each water point completed - 80 % of the staff are local population - At least one information or awareness session on safety standards for each watering places built and for persons involved in the corridors works	Meetings reports Study report, Reception documents of works,	Regional collaboration is not disrupted by unexpected cross-border disputes Land conflicts and conflicts between livestock groups and special interest groups (farmer, park managers) can hinder the achievement of project results; Low involvement of relevant stakeholder groups (eg Traditional Authorities, City Hall, Community Livestock Groups, NGOs)
Output 3.1.2: Water points are set up / rehabilitated in the complex with the involvement of the local labour	- Number of dialogue workshops - Number of water points arranged - Percentage of local population involved	Number of existing water points is insufficient and the existing water points are not all arranged,	- During the first year, 10 dialogue meetings organized to validated the geographical coordinates of the priority water points selected in the WAP complex (2 RBP, 12 W / Benin, 2 W Niger, 3 W BF, 2 PNA) - By the end of the project, the 21 water points are managed and equipped (pumps, solar panels ...) - At least one information or awareness session on safety standards for each watering places and grazing areas built is organized - 80 % of the staff are local population	Meetings reports Report of technical development studies Works reports	The managers of the protected areas remain favourable to the regional management approach of water points
Output 3.1.3: The tracks in the protected areas are maintained with the involvement of the local	- Number of workshops -Number of linear km of track maintained in each	Existing tracks at WAP level: W / Benin 800 km, W / Burkina 825 km W / Niger: 825 km are degraded	- 01 regional workshop during the first year - At 12 trainings/demonstration on	Activity report, study report, plans of plots developed and	The participation of women and youth may not be active because of the

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
population or the co-management structures	park - Number of training sessions on the tracks rehabilitation -- Percentage of local population involved		tracks rehabilitation are organized by the end of the project - At least one information or awareness session on safety standards for each 200 km tracked - By the end of the project, tracks /country: W / Benin 800 km, W / Burkina 825 km, W / Niger: 825 km of - 80 % of the staff are local population (40 % women)	validated, acts of population training (labor) Payment list of beneficiaries, pictures	social considerations that prevent them from contributing.
Output 3.1.4: Agroforestry and small irrigation are applied	- Number of training sessions - Number of people trained by the technique - Number of plants - Ha of reforestation - Number of promoters	Agroforestry techniques, small-scale irrigation, and assisted regeneration are not well adopted by residents of the WAP complex.	- By the end of the second semester of the second year at least 06 training sessions are organized and about 100 farmers and 90 women farmers are trained and followed up on agroforestry techniques - 10 000 agroforestry plants are available per year/country. - 100 ha year/country for agroforestry techniques, - By the end of the 3rd year at least 10 market garden groups in the riparian villages are equipped	Training report of beneficiaries, Small Irrigation Equipment, Activity Reports, Study Report	The regulation concerning the peripheral zones that are in the DMPs applied
Output 3.1.5: Activities for sustainable fishing for the benefit of the riparian villages	- Number of trained and equipped female fishmongers, - Number of fish and aquaculture promoters supported - Number of fishermen group trained - Number of fish ponds - Number of docks created	Traditional fishermen and wholesalers exist but are not trained and equipped	- 20 members of 05 groups of women fishmongers and processors trained and equipped with equipment by the end of the second year; - At least 05 fishing groups are trained in fishing and fish farming techniques during the first year; - 05 fish ponds are realized - 05 dosks are created	Beneficiaries training report, Report of fishing equipment reception, Activity reports,	Social and economic context favours the reconversion action of traditional fishermen

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
			- At least one information or awareness session on safety standards for each fish pond management works implemented		
Output 3.1.6: Wooded and pastoral areas are improved and reforested	- Number of workshops -Number of hectares of pastoral areas delimited, - Number of training sessions on natural assisted regeneration -Number of ha developed for assisted regeneration - Number of hectares of wooded area, - Percentage of local population involved	Pasture areas are undeveloped and woodlands are abandoned bordering the WAP complex	- At least 10 workshops organized during the first year; - 3 training sessions on natural assisted regeneration - 200 ha/country of pasture land developed by the end of the project; - 200 ha/country of growing area for assisted regeneration by the end of the project; - 400 ha/country of multiple purpose plantation land produced and maintained by the end of the project; - 80% of staff are local population (40 % women);	Activity reports, study report, Mapping of managed pasture areas, training of the population (labour),	Low involvement of relevant stakeholder groups Land conflicts and conflicts between herder groups and special interest groups (farmer, park managers) can hinder the achievement of project results
Outcome 3.2: Population resilience to CC is strengthened and their standard of living is improved through income generating activities	- Number of jobs created, - Number of communes involved	Income Generating Activities (IGA) are not backed up	- 19 riparian communes have taken profit from at least three sectors of IGA. - At least 500 jobs are created	Workshop Report, Training reports Activity Report	Social and economic context promotes action at the local level

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
Output 3.2.1: Revolving funds put in place to diversify income sources	- Development of the revolving fund mechanism with an operational Manual - Number of training/information and awareness workshops	Lack of financial mechanisms for the population of the WAP complex as far as IGA are concerned	- By the end of the 2nd semester of the first year, the revolving fund operational manual and its procedure are available - At least 3 training/information workshops are organized in the first year,	Training sessions acts Workshop Report, Activity Report	Mobilization within the given timeframe of technical and financial resources to ensure the availability of Revolving funds
Output 3.2.2: Income generating activities are supported	- Number of sessions/ beneficiaries trained on IGAs (organic farming, breeding, beekeeping, NTFPs, improved stoves ...) - Number of endowed beneficiaries (including women, young people, etc.) with wood saving equipment, breeding nuclei, beekeeping, oil extraction, - Number of techniques disseminated - Number of women or youth groups supported for pharmacopeia development and the extraction of the oil from aromatic and medicinal plants - Number of groups of fishermen and groups fish farmers equipped - Number of multifunctional platforms set up - Number of nature shops constructed	The sources of the population's income are not diversified IGAs exist but not oriented to the resilience of the population	- At least 12 training sessions on the different IGAs are organized by the end of the project (600 persons including 50% women) - At least 19 women and 19 young members of farmers' groups trained for organic farming, by the end of the project; - 3 techniques are disseminated by the end of the 3rd year over the 19 communes: - A model of attic storage rack exists - An improved stoves model exists - 1 craftsman/commune is trained (improved stoves model and attic support model) / year (76 persons) - By the end of the fourth year: at least 70% of the households of the riparian villages have adopted the model of improved stoves. - At least 19 vulnerable women per riparian commune benefited from breeding nuclei (goats, sheep, and poultry) per year;	Manual of the operationalization of the IGA, the modules/reports of the training, the acts/certificate of reception of the beneficiaries, The monitoring reports of the NGO / structure in charge of monitoring, Provisional / final acceptance documents for shops,	Political and legislative context promotes civil society action

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
			- At the end of the 3rd year: at least 05 multifunctional platforms installed for the benefit of 05 groups of women transforming NTFPs; - 20 kits of apicultural equipment acquired for the benefit of beekeepers' promoters in the third year of the project /country - At the end of the project: at least 05 groups of women or youth groups are supported for pharmacopeia development and the extraction of the oil from aromatic and medicinal plants - At the end of the project: at least 05 groups of fishermen and 05 groups fish farmers are equipped - 01 nature shop constructed in each country by the end of the 3rd year - At least one information or awareness session on safety standards for each nature shops constructed		
component 4: Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex					
Results 4.1: Stakeholders are mobilized and sensitized through appropriate communication and capacity building	Percentage of concerned groups mobilized and sensitized	Existing Communication tools are not oriented to climate change	- At least 70 % of the concerned groups are mobilized and sensitized - At least 50% are women	Documents, training Activity report	The political will for regional collaboration manifested by PA management actors for climate change issues
Output 4.1.1: Practitioners, technicians and decision makers on the technical aspects of the project are sensitized and trained on environmental issues	- Number of training modules finalized - Number of organized training sessions - Number of practitioners, technicians, and decision-	Actors around the WAP complex are not sensitized enough and trained on climate change issues.	-At least 5 specific training modules are developed and adopted at the end of the first year of the project, -At least 3 training sessions are organized per year -At least 40 persons per year/country are trained from the	Module of validation Report Training report Workshops report	

Objectives/Outcomes/ Outputs	Indicators	Reference status	Target	Verification source	Risk and Assumption
	makers trained, - Number of information workshops, - Number of organized exchange trips		second year -At least 06 information workshops are intended to decision makers -At least 50 decision makers per country (Minister, Parliamentarian, Mayor, Director General, etc..) are trained from the third year - An exchange trip/year organized from the 2nd year (3 trips) - At least 50% of participants are vulnerable persons (young and women)		
Output 4.1.2: Populations are informed and sensitized	- Number of awareness materials designed and disseminated, - Number of awareness sessions by theme, - Number of environmental education module, - Number of educational sessions on climate change, adaptation and risks management and disasters - Number of schoolchildren/women who received training or environmental education sessions	No information, education and communication strategy for behaviour change is available around WAP	- At the end of the 2nd semester of the first year, a communication strategy and action plan are developed and at least 500 leaflets, 300 posters, 1 documentary, 15 flyers and 05 local radio spots are set up; - At least 2 information awareness sessions/park /year organized from 2nd year (30 sessions) - By the end of the project 38 educational sessions on climate change, adaptation and risks management and disasters are organized - By the end of the project at least 1900 schoolchildren are trained (100 pupils per commune) - At least 50% of participants are vulnerable persons (young and women)	Training reports, awareness raising report, communication Report, Workshop Report, Awareness report, activity report	No major disturbance adversely affects the socio-economic equilibrium

F. Project alignment with the Results Framework of the Adaptation Fund

Table 29 : Alignment with the AF results Framework

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
The ADAPT-WAP project aims to strengthen the resilience of ecosystems and to improve populations' livelihoods in the WAP Complex through the establishment of a multirisk early warning system and the implementation of concrete adaptation measures.	Degree of improvement of populations' resilience to climate change	Outcome 1: Reduced exposure to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	**9 710 000,00**
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 3.2. Percentage of targeted population applying appropriate adaptation responses	
		Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1. Responsiveness of development sector services to evolving needs from changing and variable climate 4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	
	Percentage of strategic reference development plans integrating Climate change aspects	Outcome 7: Improved policies and regulations that promote and enforce resilience measures	7. Climate change priorities are integrated into national development strategy	**190 000,00**
	Number of disasters/damage controlled	Outcome 1: Reduced exposure to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	
		Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5. Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress	
	Percentage of households with improved livelihoods	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure access to livelihood assets 6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods	
Outcome 1.1 Climate dimension and risks and contingency plan are integrated into the development master plan and complex management plans of the complex	Climate Change Integration Guide is validated (No.)	Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No. of policies introduced or adjusted to address climate change risks (by sector)	**170 000,00**
	Climate Change Integration Addendum is included into the development master plan and complex management plans (No.)		7.2. No. of targeted development strategies with incorporated climate change priorities enforced	

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Outcome 2.1 Early warning system is applied and handled by beneficiaries to manage emergencies	An Early Warning System is designed and validated	Output 1.1: Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	**220 000,00**
	No of EWS functional and deployed		1.2 No. of early warning systems (by scale) and no. of beneficiaries covered	**1 210 000,00**
	No. of MREWS users through the contingency plans for disasters	Output 1.2: Targeted population groups covered by adequate risk reduction systems	1.2.1. Percentage of target population covered by adequate risk-reduction systems	**870 000,00**
Outcome 3.1 Resilience of populations and ecosystems is improved through concrete adaptation measures	No. of adaptation measures applied	Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	**2 110 000,00**
	No. of adaptation measures applied	Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	**2 240 000,00**
	……		5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	
Outcome 3.2: populations resilience to CC is strengthened and their standard of living is improved through income generation activities	No. of newly created jobs through the revolving fund	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	**90 000,00**
	No. of beneficiary villages through the income generating activities		6.2.1. Type of income sources for households generated under climate change scenario	**1.710.000,00**
Outcome 4.1 Stakeholders are mobilized and sensitized through suitable communication and capacity building	No. of communication and sensitization tools available for the different stakeholders	Output 2: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	**420 000,00**
			2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector, and scale)	
	No. of communication and sensitization tools available for populations	Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1 No. of news outlets in the local press and media that have covered the topic	**480 000,00**

G. Project detailed budget

Table 30:Project Detailed Budget

Project components	Outcomes	Outputs	Activities	Budget notes	Budget ($ US)	Benin		Burkina		Niger	Regional
						W_Benin	Pendjari	Arly	W_BF	W_Niger	
Component 1: Integration of Climate Change Aspects (MREWS) into the management of WAP Complex	Outcome 1.1 The climate dimension and its risks are integrated into the Master Development Plan as well as the management plans of the complex.	Output 1.1.1 The regional adaptation action plan and the methodolgical guide for CC incorporation are developed	Activity 1.1.1.1: Develop a climate change adaptation plan for the WAP complex.	Consultancy	20,000	-	-	-	-	-	20,000
			Activity 1.1.1.2: Organize a regional workshop to validate the CC adaptation plan of the WAP complex.	Workshop and travel	20,000	-	-	-	-	-	20,000
			Activity 1.1.1.3: Develop the methodology for integrating the climate change adaptation issue in the Master Development Plan (MDP) and the Development and Management Plans (DMPs) of the WAP Complex Protected Areas (Methodological Guide).	Consultancy/Editing	20,000	-	-	-	-	-	20,000
			Activity 1.1.1.4: Organize a workshop to validate the methodological guide.	Workshop and travel	20,000	-	-	-	-	-	20,000
			Activity 1.1.1.5: Setting up an operational stakeholder platform to facilitate dialogue between decision-makers on climate change adaptation integration into the management measures of the WAP complex.	Consultancy	30,000	-	-	-	-	-	30,000
			Activity 1.1.1.6: Organize a workshop to validate the operational stakeholder platform,	Workshop and travel	20,000	-	-	-	-	-	20,000
		Output 1.1.2 The technical annexes integrating the CC into Master Development Plan (MDP), the Development and Management Plans (DMPs) of the WAP Complex and the communal development plans (CDPs) of the communes bordering the WAP are elaborated	Activity 1.1.2.1: Develop a technical annex integrating climate change into the Master Development Plan Development (MDP) and Development Management Plans (DMP) of the WAP complex.	Consultancy/Editing	20,000	-	-	-	-	-	20,000

			Activity 1.1.2.2: Organize two regional workshops to validate the technical annex of the MDP and the technical annexes of the DMP of the blocks Arly-Pendjari and W.	2 Workshops and travel	40,000	-	-	-	-	-	40,000
			Activity 1.1.2.3: Develop technical annexes integrating climate change into the communal development plans of the communes bordering the WAP complex.	19 Consultancies	100,000	25,000	25,000	20,000	10,000	20,000	-
			Activity 1.1.2.4: Organize national workshops to validate the climate change adaptation technical annexes of the development plans of the communes bordering the WAP complex.	9 Workshops and travel	30,000	6,000	6,000	6,000	6,000	6,000	-
			Activity 1.1.2.5: Update the Geographic Information System of the WAP complex.	Consultancy	20,000						20,000
			Activity 1.1.2.6: Organize a regional workshop to validate the updated GIS of the WAP complex.	Workshop and travel	20,000						20,000
Sub Total 1					**360,000**	**31,000**	**31,000**	**26,000**	**16,000**	**26,000**	**230,000**
Component 2: Component 2: Design and implementation of a multi-risk early warning system (drought, floods, and fires)	Outcome 2.1 The multi-risk early warning system system is used by beneficiaries to manage emergencies	Output 2.1.1 The MREWS is designed and validated	Activity 2.1.1.1: Carry out preliminary studies for MREWS implementation (from hazard identification and risk assessment to MREWS design leading to alerts).	Consultancy	120,000						120,000
			Activity 2.1.1.2: Design an MREWS prototype at technical and institutional levels.	Consultancy	60,000	-	-	-	-	-	60,000
			Activity 2.1.1.3: Organize two regional workshops to validate the studies and the MREWS prototype.	2 Workshops and travel	40,000	-	-	-	-	-	40,000
		Output 2.1.2 MREWS is functional and deployed	Activity 2.1.2.1: Acquire and install monitoring equipment (weather stations, limnigraphs, sensors, piezometers...)	Equipment and consultancy	450,000	-	-	-	-	-	450,000
			Activity 2.1.2.2: Acquire computer equipment (servers, processing units, software, GPS ...)	Equipment	200,000	-	-	-	-	-	200,000

			Activity 2.1.2.3: Acquire tools and materials to disseminate warning messages to the population (beacons, flags, sirens, signaling, speakers, telephone, local radio ...)	Equipment	300,000	-	-	-	-	-	300,000
			Activity 2.1.2.4: Rehabilitate/build rooms for the benefit of the management unit (including MREWS antennas)	Building	90,000	-	-	-	-	-	90,000
			Activity 2.1.2.5: Formalize the national and regional management units (including MREWS antennas) in the three countries	4 Workshops and travel	30,000	-	-	-	-	-	30,000
			Activity 2.1.2.6: Organize national meetings of MREWS management units	12 meetings and travel	30,000	10,000	-	-	10,000	10,000	
			Activity 2.1.2.7: Organize regional and national training sessions on the MREWS (concerning the use of the MREWS, data processing, elaboration of indicator, MON, including setting up of community relays ...)	4 Workshop and travel	60,000	10,000	-	-	10,000	10,000	30,000
			Activity 2.1.2.8: Produce and distribute alert messages (bulletin, maps, radio message synthesis, SMS, digital media)	Consultancy/Editing	50,000		-	-	-	-	50,000
		Output 2.1.3 Emergency plans for disasters are put in place	Activity 2.1.3.1: Develop an emergency response plan for CC disasters at the three-country level.	Consultancy/Editing	60,000	20,000	-	-	20,000	20,000	
			Activity 2.1.3.2. Organize training sessions on the use of the intervention plan for the benefit of the different actors involved in the three countries	9 workshop and travel	30,000	10,000	-	-	10,000	10,000	
			Activity 2.1.3.3. Acquire equipment for disaster management (3 fire-fighting machines/pickup, bicycles, motorcycles, canoe, inflatable canoes...)	Equipment	600,000	200,000	-	-	200,000	200,000	

			Activity 2.1.3.4: Implement three (3) blank operations	Consultancy and budget for 3 operations on the field	180,000	60,000			60,000	60,000	
Subtotal 2					2,300,000	310,000	-	-	310,000	310,000	1,370,000
Component 3: Improving Resilience of ecosystems and the livelihoods of population and users through the implementation of concrete adaptation actions	**Outcome 3.1 The resilience of populations and ecosystems is improved through concrete adaptation measures**	**Output 3.1.1 Transhumance corridors for livestock are developed and rest areas created with the involvement of the local labor force**	Activity 3.1.1.1: Organize dialogue meetings and validation of the transhumance corridors selected in the communes/villages crossed.	10 meetings and travel	30,000	10,000	5,000	5,000	5,000	5,000	
			Activity 3.1.1.2: Carry out transhumance corridors development studies.	consultancy	90,000	25,000	15,000	15,000	20,000	15,000	
			Activity 3.1.1.3: Carry out materialization and marking work on the transhumance corridors in and around the WAP complex.	Works/ consultancy to realize 240 Km	300,000	100,000	50,000	50,000	50,000	50,000	
			Activity 3.1.1.4: Construct watering places and pasture areas at previously completed water points.	Works/ Consultancy to realize 08 watering place and 400 ha of pasture areas	450,000	148,000	40,000	60,000	90,000	112,000	
		Output 3.1.2 Water points are developed/rehabilitated in the complex with the involvement of the local workforce	Activity 3.1.2.1: Organize dialogue meetings to validate the locations of the priority water points (21 water points)	08 meetings and travel	30,000	10,000	5,000	5,000	5,000	5,000	
			Activity3.1.2.2: Conduct technical studies for water point development	consultancy	90,000	30,000	-	20,000	20,000	20,000	
			Activity 3.1.2.3: Carry out the development and equipment work (pumps, solar panels, ponds, etc.).	Works, equipment for 21 water points	500,000	309,530	-	47,630	71,420	71,420	
		Output 3.1.3 Tracks of the WAP complex are maintained with the involvement of the local population and the structures of joint management by HIL	Activity 3.1.3.1: Organize a regional technical workshop for the validation of the tracks to be maintained in the complex	Workshop and travel	20,000	-	-	-	-	-	20,000
			Activity 3.1.3.2: Identify and train actors on the tracks rehabilitation	Consultancy and 3 workshops	30,000	10,000		10,000		10,000	

			Activity 3.1.3.3: Rehabilitate tracks by the HIL method.	Works, building to rehabilitate 2450 Km	420,000	170,000	-	50,000	100,000	100,000	
		Output 3.1.4 Agroforestry and small irrigation techniques are applied	Activity 3.1.4.1: Implement training sessions for farmers from riparian villages of the WAP complex on agroforestry techniques and small irrigation	Consultancy, travel, 9 workshops	90,000	23,700	18,900	9,600	18,900	18,900	
			Activity 3.1.4.2: Acquire agro-forestry plants and make them available to volunteer farmers	Acquisition of 120,000 plants	80,000	22,500	10,000	10,000	22,500	15,000	
			Activity 3.1.4.3: Acquire and grant small irrigation equipment to market gardening groups	Equipment, works	400,000	100,000	75,000	75,000	75,000	75,000	
		Output 3.1.5 Activities for sustainable fisheries for the benefit of the riparian villages	Activity 3.1.5.1: Identify and train women fishmongers and fish processors in the use of new tools produced by the population	Consultancy and 03 trainings	30,000	10,000	-	10,000	-	10,000	
			Activity 3.1.5.2: Equip women fishmongers and processors with fish products (produced by the population)	Equipment	90,000	30,000	-	30,000	-	30,000	
			Activity 3.1.5.3: Identify and train fishermen group members in improving fishing and fish farming techniques	Consultancy and 03 trainings	30,000	10,000	-	10,000	-	10,000	
			Activity 3.1.5.4: Conduct technical studies for the management of fish breeding sites	consultancy	20,000	-	-	-	-	-	20,000
			3.1.5.5: Implement fish pond development works and docks	Works to realize 05 fich ponds and 5 docks	450,000	150,000	-	150,000	-	150,000	
		Output 3.1.6 Wooded and pastoral areas are improved and reforested	Activity 3.1.6.1: Organize national validation workshops of areas to be reforested and grazing areas to be delimited and restored	10 workshops and travel	60,000	15,000	10,000	10,000	10,000	15,000	
			Activity 3.1.6.2: Conduct development studies of grazing areas	consultancy	60,000	20,000	10,000	10,000	10,000	10,000	

			Activity 3.1.6.3: Implement delimitation and development of grazing areas	Works to realize 600 ha of pasture areas	600,000	200,000	100,000	100,000	100,000	100,000	
			Activity 3.1.6.4: Organize training sessions on reforestation and assisted natural regeneration	Consultancy and 09 trainings	60,000	20,000	10,000	10,000	10,000	10,000	
			Activité 3.1.6.5: Implement reforestation and assisted natural regeneration activities for riparian villages	Works: 600 ha assisted regeneration 1200 ha of plantation	420,000	130,000	50,000	50,000	100,000	90,000	
	Outcome 3.2 The population livelihoods are diversified and improved	**Output 3.2.1 Revolving funds put in place to diversify sources of income**	Activity 3.2.1.1: Elaborate the mechanisms and procedures for accessing revolving funds for the diversification of IGAs	consultancy	30,000	-	-	-	-	-	30,000
			Activity 3.2.1.2: Organize information information/training on revolving funds for young people, women, and men	03 Workshop/training and travel	30,000	10,000	5,000	5,000	5,000	5,000	
			Activity 3.2.1.3: Develop an Operational Manual for IGAs	Consultancy and workshop	30,000	10,000	5,000	5,000	5,000	5,000	
		Output 3.2.2 Income-generating activities are supported	Activity 3.2.2.1: Identify and train the beneficiaries on the different IGAs (agriculture, organic farming, breeding, beekeeping, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic holders etc.)	Consultancy and 12 trainings	120,000	31,580	25,260	12,640	25,260	25,260	
			Activity 3.2.2.2: Manufacture and disseminate wood saving equipment and techniques (improved stoves for salt production, processing of fish products and attic holders for food products, etc.)	Works, manufacturing	300,000	90,000	60,000	30,000	60,000	60,000	
			Activity 3.2.2.3: Acquire and grant to vulnerable women some small ruminants (goat, sheep, etc.) and poultry for breeding	Provision to buy small ruminants	300,000	90,000	60,000	30,000	60,000	60,000	

			Activity 3.2.2.4: Support groups of women processors through multifunctional platforms for processing non-timber forest products (NTFP: Shea, Baobab, Moringa, Nere, Tamarind, Balanites, Gum Arabic etc.)	Works and provision of equipment	270,000	75,000	50,000	25,000	60,000	60,000	
			Activity 3.2.2.5: Identify and equip beekeeper promoters in setting up beekeeping sites in riverside villages.	Consultancy and 12 trainings	120,000	31,580	25,260	12,640	25,260	25,260	
			Activity 3.2.2.6: Support women's or youth groups for pharmacopeia development and the extraction of the oil from aromatic and medicinal plants	Works and provision of equipment	240,000	63,160	50,520	25,280	50,520	50,520	
			Activity 3.2.2.7: Equip fishermen and fish farmers that live in the localities bordering the WAP	Equipment	240,000	63,160	50,520	25,280	50,520	50,520	
			Activity 3.2.2.8: Build "nature shops" for the exhibition and sale of local and artisanal products at the park entrances	03 buildings	120,000	31,580	25,260	12,640	25,260	25,260	
Subtotal 3					**6,150,000**	**2,039,790**	**755,720**	**920,710**	**1,074,640**	**1,289,140**	**70,000**
Component 4: Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex	**Outcome 4.1 The actors involved are mobilized and sensitized through appropriate communication and capacity building**	**Output 4.1.1 Practitioners, technicians, and decision-makers on the technical aspects of the project are sensitized and trained on environmental issues**	Activity 4.1.1.1: Develop training modules specific to CC and MREWS adaptation	Consultancy to develop at least 05 training modules	60,000	-	-	-	-	-	60,000
			Activity 4.1.1.2. Organize thematic training sessions for practitioners, technicians and agricultural extension workers	12 training and travel	120,000	40,000	-	-	40,000	40,000	
			Activity 4.1.1.3.Organize targeted outreach and information sessions for decision makers in the three countries (simplified training modules)	06 workshops and travel	90,000	30,000	-	-	30,000	30,000	
			Activity 4.1.1.4.Organize three trips / exchange visits, capacity building for park management units on adaptation and MREWS	Travel, DSA	150,000	-	-	-	-	-	150,000

		Output 4.1.2 Populations are informed and sensitized	Activity 4.1.2.1: Design of a communication strategy and action plan and development of public awareness materials (leaflets, posters, flyers, summaries, documentary, local radio spots, telephony application ...)	Consultancy and editing	120,000	-	-	-	-	-	120,000
			Activity 4.1.2.2: Organize sensitization and information days for the population on adaptation to CC and MREWS in the 19 neighboring communes	30 workshops and travel	150,000	45,000	30,000	15,000	30,000	30,000	
			Activity 4.1.2.3: Design education modules on climate change, adaptation and risks management and disasters to schoolchildren	Consultancy/Editing	60,000	-	-	-	-	-	60,000
			Activity 4.1.2.4: Organize educational sessions on climate change, adaptation and risks management and disasters inherent to it, for schoolchildren in the 19 neighboring communes	19 sessions	150,000	45,000	30,000	15,000	30,000	30,000	
Subtotal component 4					**900,000**	**160,000**	**60,000**	**30,000**	**130,000**	**130,000**	**390,000**
Subtotal of all components					**9,710,000**	**2,540,790**	**846,720**	**976,710**	**1,530,640**	**1,755,140**	**2,060,000**
Execution costs (management unit)											
Organizing launching workshops for communities, local authorities and other stakeholders to increase knowledge about the project interventions during the inception phase				Workshop and travel	30,000						30,000
Project Coordination & Management fees				Salaries and management fees	544,000	72,000		72,000		72,000	328,000
Operating costs for regional and national entities				Travel, DSA, printing	164,450	10,000		10,000		10,000	134,450
Equipment				equipment	25,000	5,000		5,000		5,000	10,000
Audit/Final evaluation				consultancy	15,000						15,000
Monitoring outputs by Project Team				consultancy	144,000						144,000
S/Total					**922,450**	**87,000**	**-**	**87,000**	**-**	**87,000**	**661,450**
Total Project Cost					**10,632,450**	**2,627,790**	**846,720**	**1,063,710**	**1,530,640**	**1,842,140**	**2,721,450**

Implementation costs (implementation unit)								
Implementation and Coordination Management Fees : Project coordination costs: planning, daily management, and implementation, equipment, equipment and consumables, salaries and fees of experts in charge of the project, etc..	Salaries and management fees	410,000						
Assessment, supervision and travel expenses for monitoring : Costs of supervision missions, participation in steering committee meetings, mid-term and final evaluation and participation in workshops.	Travel, DSA, consultancies	200,000						
Financial management, accounting, administrative follow-up and financial audit : Financial management monitoring fees in line with the requirements of the Adaptation Fund, financial reports, procurement procedures, accounting, audits, etc.Bank charges related to banking transactions and transfers of funds	Consultancies, management fees	293,750						
S/Total (Implementation)		**903,750**	-	-	-	-	-	-
GRANT AMOUNT		**11,536,200**	**2,627,790**	**846,720**	**1,063,710**	**1,530,640**	**1,842,140**	**2,721,450**

H. Disbursement schedule with time-bound milestones

Table 31 : Disbursement schedule with time bound milestone

Project components	Outcomes	Outputs	Activities	Budget ($ US)	Year 1	Year 2	Year 3	Year 4
Component 1: Integration of Climate Change Aspects (MREWS) into the management of WAP Complex	Outcome 1.1 The climate dimension and its risks are integrated into the Master Development Plan as well as the management plans of the complex.	Output 1.1.1 The regional adaptation action plan and the methodolgical guide for CC incorporation are developed	Activity 1.1.1.1: Develop a climate change adaptation plan for the WAP complex.	20,000	20,000			
			Activity 1.1.1.2: Organize a regional workshop to validate the CC adaptation plan of the WAP complex.	20,000	20,000			
			Activity 1.1.1.3: Develop the methodology for integrating the climate change adaptation issue in the Master Development Plan (MDP) and the Development and Management Plans (DMPs) of the WAP Complex Protected Areas (Methodological Guide).	20,000	20,000			
			Activity 1.1.1.4: Organize a workshop to validate the methodological guide.	20,000	20,000			
			Activity 1.1.1.5: Setting up an operational stakeholder platform to facilitate dialogue between decision-makers on climate change adaptation integration into the management measures of the WAP complex.	30,000			30,000	
			Activity 1.1.1.6: Organize a workshop to validate the operational stakeholder platform,	20,000			20,000	
		Output 1.1.2 The technical annexes integrating the CC into Master Development Plan (MDP), the Development and Management Plans (DMPs) of the WAP Complex and the communal development plans	Activity 1.1.2.1: Develop a technical annex integrating climate change into the Master Development Plan Development (MDP) and Development Management Plans (DMP) of the WAP complex.	20,000		20,000		
			Activity 1.1.2.2: Organize two regional workshops to validate the technical annex of the MDP and the technical annexes of the DMP of the blocks Arly-Pendjari and W.	40,000		40,000		

		(CDPs) of the communes bordering the WAP are elaborated	Activity 1.1.2.3: Develop technical annexes integrating climate change into the communal development plans of the communes bordering the WAP complex.	100,000		100,000		
			Activity 1.1.2.4: Organize national workshops to validate the climate change adaptation technical annexes of the development plans of the communes bordering the WAP complex.	30,000		30,000		
			Activity 1.1.2.5: Update the Geographic Information System of the WAP complex.	20,000		20,000		
			Activity 1.1.2.6: Organize a regional workshop to validate the updated GIS of the WAP complex.	20,000		20,000		
Subtotal 1				**360,000**	**80,000**	**230,000**	**50,000**	**0**
Component 2: Design and implementation of a multi-risk early warning system (drought, floods, and fires)	Outcome 2.1 The multi-risk early warning system system is used by beneficiaries to manage emergencies	Output 2.1.1 The MREWS is designed and validated	Activity 2.1.1.1: Carry out preliminary studies for MREWS implementation (from hazard identification and risk assessment to MREWS design leading to alerts).	120,000	120,000			
			Activity 2.1.1.2: Design an MREWS prototype at technical and institutional levels.	60,000	60,000			
			Activity 2.1.1.3: Organize two regional workshops to validate the studies and the MREWS prototype.	40,000	40,000			
		Output 2.1.2 MREWS is functional and deployed	Activity 2.1.2.1: Acquire and install monitoring equipment (weather stations, limnigraphs, sensors, piezometers...)	450,000		450,000		
			Activity 2.1.2.2: Acquire computer equipment (servers, processing units, software, GPS ...)	200,000		200,000		
			Activity 2.1.2.3: Acquire tools and materials to disseminate warning messages to the population (beacons, flags, sirens, signaling, speakers, telephone, local radio ...)	300,000		150,000	100,000	50,000

			Activity 2.1.2.4: Rehabilitate/build rooms for the benefit of the management unit (including MREWS antennas)	90,000		90,000		
			Activity 2.1.2.5: Formalize the national and regional management units (including MREWS antennas) in the three countries	30,000	30,000			
			Activity 2.1.2.6: Organize national meetings of MREWS management units	30,000		15,000	10,000	5,000
			Activity 2.1.2.7: Organize regional and national training sessions on the MREWS (concerning the use of the MREWS, data processing, elaboration of indicator, MON, including setting up of community relays ...)	60,000		30,000	30,000	
			Activity 2.1.2.8: Produce and distribute alert messages (bulletin, maps, radio message synthesis, SMS, digital media)	50,000		10,000	25,000	15,000
		Output 2.1.3 Emergency plans for disasters are put in place	Activity 2.1.3.1: Develop an emergency response plan for CC disasters at the three-country level.	60,000		60,000		
			Activity 2.1.3.2. Organize training sessions on the use of the contingency plan for the benefit of the different actors involved in the three countries	30,000			15,000	15,000
			Activity 2.1.3.3. Acquire equipment for disaster management (3 fire-fighting machines, bicycles, motorcycles, canoe, inflatable canoes...)	600,000		100,000	400,000	100,000
			Activity 2.1.3.4: Implement three (3) blank operations	180,000			120,000	60,000
Subtotal 2				2,300,000	250,000	1,105,000	700,000	245,000
Component 3: Improving the resilience of ecosystems and livelihoods of population and users through the implementation of	Outcome 3.1 The resilience of populations and ecosystems is improved through concrete	Output 3.1.1 Transhumance corridors for livestock are developed and rest areas created with the involvement of the local labor force	Activity 3.1.1.1: Organize dialogue meetings and validation of the transhumance corridors selected in the communes/villages crossed.	30,000	30,000			
			Activity 3.1.1.2: Carry out transhumance corridors development studies.	90,000	90,000			

concrete adaptation actions	adaptation measures		Activity 3.1.1.3: Carry out materialization and marking work on the transhumance corridors in and around the WAP complex.	300,000		50,000	150,000	100,000
			Activity 3.1.1.4: Construct watering places and pasture areas at previously completed water points.	450,000		100,000	200,000	150,000
		Output 3.1.2 Water points are developed/rehabilitated in the complex with the involvement of the local workforce	Activity 3.1.2.1: Organize dialogue workshops to validate the locations of the priority water points (21 water points)	30,000	30,000			
			Activity 3.1.2.2: Conduct technical studies for water point development	90,000	90,000			
			Activity 3.1.2.3: Carry out the development and equipment work (pumps, solar panels, ponds, etc.).	500,000		100,000	300,000	100,000
		Output 3.1.3 Tracks of the WAP complex are maintained with the involvement of the local population and the structures of joint management by HIL	Activity 3.1.3.1: Organize a regional technical workshop for the validation of the tracks to be maintained in the complex	20,000	20,000			
			Activity 3.1.3.2: Identify and train actors on the tracks rehabilitation	30,000	30,000			
			Activity 3.1.3.3: Rehabilitate tracks by the HIL method.	420,000		100,000	180,000	140,000
		Output 3.1.4 Agroforestry and small irrigation techniques are applied	Activity 3.1.4.1: Implement training sessions for farmers from riparian villages of the WAP complex on agroforestry techniques and small irrigation	90,000	45,000	45,000		
			Activity 3.1.4.2: Acquire agro-forestry plants and make them available to volunteer farmers	80,000	10,000	30,000	30,000	10,000
			Activity 3.1.4.3: Acquire and grant small irrigation equipment to market gardening groups	400,000		100,000	300,000	
		Output 3.1.5 Activities for sustainable fisheries for the benefit	Activity 3.1.5.1: Identify and train women fishmongers and fish processors in the use of new tools produced by the population	30,000	30,000			

		of the riparian villages	Activity 3.1.5.2: Equip women fishmongers and processors with fish products (produced by the population)	90,000		90,000		
			Activity 3.1.5.3: Identify and train fishermen group members in improving fishing and fish farming techniques	30,000	30,000			
			Activity 3.1.5.4: Conduct technical studies for the management of fish breeding sites	20,000	20,000			
			Activity 3.1.5.5: Implement fish pond development works and docks	450,000		150,000	200,000	100,000
		Output 3.1.6 Wooded and pastoral areas are improved and reforested	Activity 3.1.6.1: Organize national validation workshops of areas to be reforested and grazing areas to be delimited and restored	60,000	60,000			
			Activity 3.1.6.2: Conduct development studies of grazing areas	60,000	60,000			
			Activity 3.1.6.3: Implement delimitation and development of grazing areas	600,000		200,000	300,000	100,000
			Activity 3.1.6.4: Organize training sessions on reforestation and assisted natural regeneration	60,000	60,000			
			Activité 3.1.6.5: Implement reforestation and assisted natural regeneration activities for riparian villages	420,000		100,000	180,000	140,000
	Outcome 3.2 The population livelihoods are diversified and improved	Output 3.2.1 Revoloving funds put in place to diversify sources of income	Activity 3.2.1.1: Elaborate the mechanisms and procedures for accessing revolving funds for the diversification of IGAs	30,000	30,000			
			Activity 3.2.1.2: Organize information/training workshops on revolving funds for young people, women, and men	30,000	30,000			
			Activity 3.2.1.3: Develop an Operational Manual for IGAs	30,000	30,000			

		Output 3.2.2 Income generating activities are supported	Activity 3.2.2.1: Identify and train the beneficiaries on the different IGAs (agriculture, organic farming, breeding, beekeeping, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic holders etc.)	120,000	30,000	40,000	30,000	20,000
			Activity 3.2.2.2: Manufacture and disseminate wood saving equipment and techniques (improved stoves for salt production, processing of fish products and attic holders for food products, etc.)	300,000	50,000	50,000	200,000	
			Activity 3.2.2.3: Acquire and grant to vulnerable women some small ruminants (goat, sheep, etc.) and poultry for breeding	300,000			150,000	150,000
			Activity 3.2.2.4: Support groups of women processors through multifunctional platforms for processing non-timber forest products (NTFP: Shea, Baobab, Moringa, Nere, Tamarind, Balanites, Gum Arabic etc.)	270,000		100,000	170,000	
			Activity 3.2.2.5: Identify and equip beekeeper promoters in setting up beekeeping sites in riverside villages.	120,000		40,000	80,000	
			Activity 3.2.2.6: Support women's or youth groups for pharmacopeia development and the extraction of the oil from aromatic and medicinal plants	240,000			100,000	140,000
			Activity 3.2.2.7: Equip fishermen and fish farmers that live in the localities bordering the WAP	240,000			100,000	140,000
			Activity 3.2.2.8: Build "nature shops" for the exhibition and sale of local and artisanal products at the park entrances	120,000			120,000	
Subtotal 3				**6,150,000**	**775,000**	**1,295,000**	**2,790,000**	**1,290,000**
Component 4: Awareness, communication and	Outcome 4.1 The actors involved are	Output 4.1.1 Practitioners, technicians, and	Activity 4.1.1.1: Develop training modules specific to CC and MREWS adaptation	60,000	60,000			

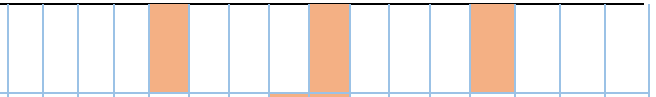
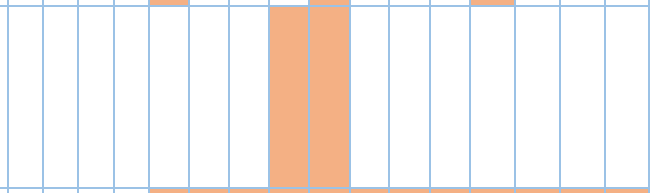
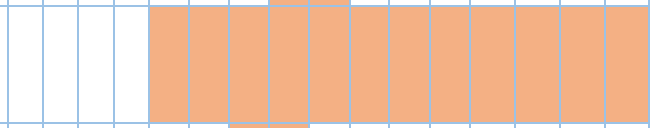
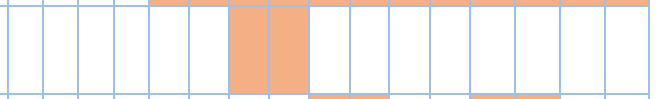
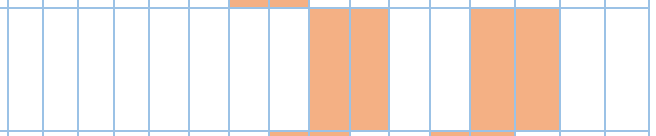
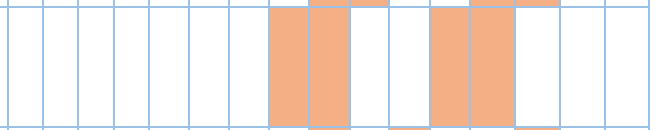
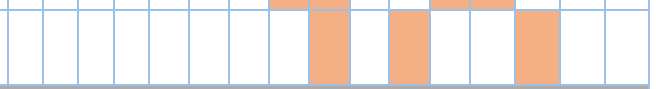
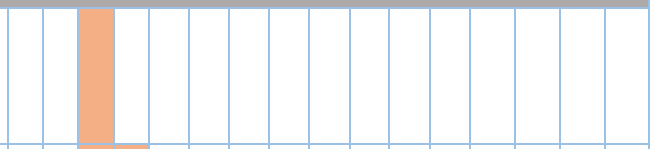
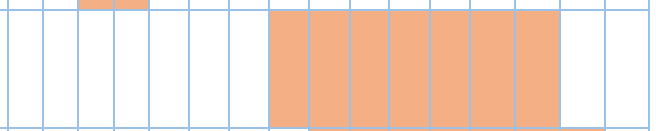
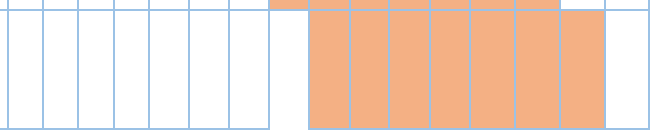
capacity building for concerted, integrated and sustainable management of the WAP Complex	mobilized and sensitized through appropriate communication and capacity building	decision-makers on the technical aspects of the project are sensitized and trained on environmental issues	Activity 4.1.1.2. Organize thematic training sessions for practitioners, technicians and agricultural extension workers	120,000		40,000	40,000	40,000
			Activity 4.1.1.3.Organize targeted outreach and information sessions for decision makers in the three countries (simplified training modules)	90,000			30,000	60,000
			Activity 4.1.1.4.Organize three trips / exchange visits, capacity building for park management units on adaptation and MREWS	150,000		50,000	50,000	50,000
		Output 4.1.2 Populations are informed and sensitized	Activity 4.1.2.1: Design of a communication strategy and action plan and development of public awareness materials (leaflets, posters, flyers, summaries, documentary, local radio spots, telephony application ...)	120,000	10,000	60,000	40,000	10,000
			Activity 4.1.2.2: Organize sensitization and information days for the population on adaptation to CC and MREWS in the 19 neighboring communes	150,000		50,000	50,000	50,000
			Activity 4.1.2.3: Design education modules on climate change, adaptation and risks management and disasters to schoolchildren	60,000	60,000			
			Activity 4.1.2.4: Organize educational sessions on climate change, adaptation and risks management and disasters inherent to it, for schoolchildren in the 19 neighboring communes	150,000		50,000	50,000	50,000
Subtotal component 4				**900,000**	**130,000**	**250,000**	**260,000**	**260,000**
Subtotal of all components				**9,710,000**	**1,235,000**	**2,880,000**	**3,800,000**	**1,795,000**
Execution costs (PMU)								
Organizing launching workshops for communities, local authorities and other stakeholders to increase knowledge about the project interventions during the inception phase				30,000	30,000			
Project Coordination & Management fees				544,000	136,000	136,000	136,000	136,000
Operating costs for regional and national entities				164,450	24,450	50,000	35,000	55,000

Equipment	25,000	25,000			
Audit/Final evaluation	15,000				15,000
Monitoring outputs by Project Team	144,000	36,000	36,000	36,000	36,000
S/Total	**922,450**	**251,450**	**222,000**	**207,000**	**242,000**
Total project Cost	**10,632,450**	**1,486,450**	**3,102,000**	**4,007,000**	**2,037,000**
Implementation costs (RMU)					
Implementation and Coordination Management Fees: Project coordination costs: planning, daily management, and implementation, equipment, equipment and consumables, salaries and fees of experts in charge of the project, etc.	410,000	110,000	100,000	100,000	100,000
Assessment, supervision and travel expenses for monitoring: Costs of supervision missions, participation in steering committee meetings, mid-term and final evaluation and participation in workshops.	200,000	30,000	70,000	30,000	70,000
Financial management, accounting, administrative follow-up and financial audit: Financial management monitoring fees in line with the requirements of the Adaptation Fund, financial reports, procurement procedures, accounting, audits, etc.Bank charges related to banking transactions and transfers of funds	293,750	70,000	80,000	70,000	73,750
S/Total	**903,750**	**210,000**	**250,000**	**200,000**	**243,750**
GRANT AMOUNT	**11,536,200**	**1,696,450**	**3,352,000**	**4,207,000**	**2,280,750**

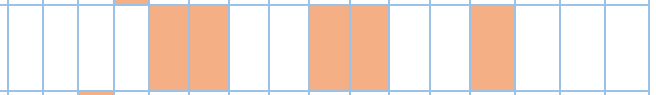
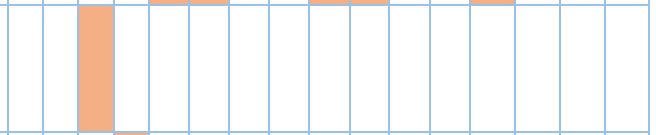
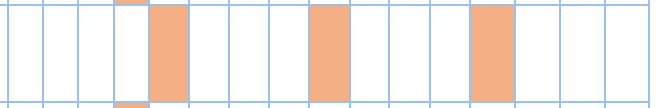
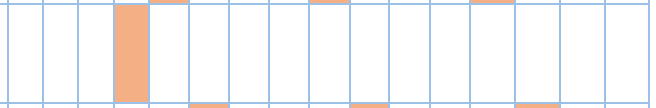
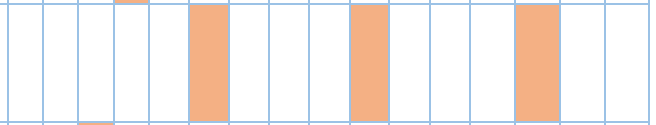
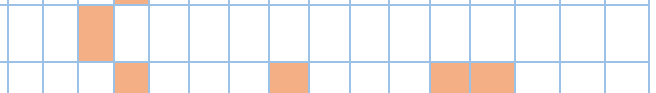
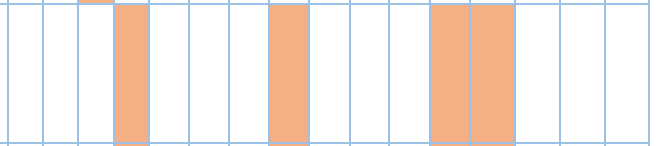
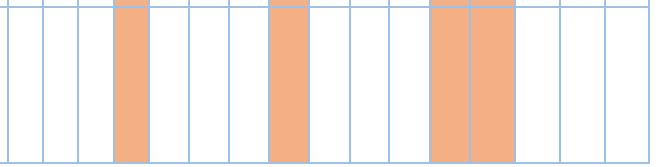
Table 32 : Activities Chronogram

Project components	Outcomes	Outputs	Activities	Year 1				Year 2				Year 3				Year 4			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Component 1: Integration of Climate Change Aspects (MREWS) into the management of WAP Complex	Outcome 1.1 The climate dimension and its risks are integrated into the Master Development Plan as well as the management plans of the complex.	Output 1.1.1 The regional adaptation action plan and the methodolgical guide for CC incorporation are developed	Activity 1.1.1.1: Develop a climate change adaptation plan for the WAP complex.																
			Activity 1.1.1.2: Organize a regional workshop to validate the CC adaptation plan of the WAP complex.																
			Activity 1.1.1.3: Develop the methodology for integrating the climate change adaptation issue in the Master Development Plan (MDP) and the Development and Management Plans (DMPs) of the WAP Complex Protected Areas (Methodological Guide).																
			Activity 1.1.1.4: Organize a workshop to validate the methodological guide.																
			Activity 1.1.1.5: Setting up an operational stakeholder platform to facilitate dialogue between decision-makers on climate change adaptation integration into the management measures of the WAP complex.																
			Activity 1.1.1.6: Organize a workshop to validate the operational stakeholder platform,																
		Output 1.1.2 The technical annexes integrating the CC into Master Development Plan (MDP), the Development and Management Plans (DMPs) of the WAP Complex and the communal development plans (CDPs) of the communes bordering the WAP are elaborated	Activity 1.1.2.1: Develop a technical annex integrating climate change into the Master Development Plan Development (MDP) and Development Management Plans (DMP) of the WAP complex.																
			Activity 1.1.2.2: Organize two regional workshops to validate the technical annex of the MDP and the technical annexes of the DMP of the blocks Arly-Pendjari and W.																
			Activity 1.1.2.3: Develop technical annexes integrating climate change into the communal development plans of the communes bordering the WAP complex.																

			Activity 1.1.2.4: Organize national workshops to validate the climate change adaptation technical annexes of the development plans of the communes bordering the WAP complex.	
			Activity 1.1.2.5: Update the Geographic Information System of the WAP complex.	
			Activity 1.1.2.6: Organize a regional workshop to validate the updated GIS of the WAP complex.	
Component 2: Design and implementation of a multi-risk early warning system (drought, floods, and fires)	Outcome 2.1 The multi-risk early warning system system is used by beneficiaries to manage emergencies	Output 2.1.1 The MREWS is designed and validated	Activity 2.1.1.1: Carry out preliminary studies for MREWS implementation (from hazard identification and risk assessment to MREWS design leading to alerts).	
			Activity 2.1.1.2: Design an MREWS prototype at technical and institutional levels.	
			Activity 2.1.1.3: Organize two regional workshops to validate the studies and the MREWS prototype.	
		Output 2.1.2 MREWS is functional and deployed	Activity 2.1.2.1: Acquire and install monitoring equipment (weather stations, limnigraphs, sensors, piezometers...)	
			Activity 2.1.2.2: Acquire computer equipment (servers, processing units, software, GPS ...)	
			Activity 2.1.2.3: Acquire tools and materials to disseminate warning messages to the population (beacons, flags, sirens, signaling, speakers, telephone, local radio ...)	
			Activity 2.1.2.4: Rehabilitate/build rooms for the benefit of the management unit (including MREWS antennas)	
			Activity 2.1.2.5: Formalize the national and regional management units (including MREWS antennas) in the three countries	

			Activity 2.1.2.6: Organize national meetings of MREWS management units	
			Activity 2.1.2.7: Organize regional and national training sessions on the MREWS (concerning the use of the MREWS, data processing, elaboration of indicator, MON, including setting up of community relays ...)	
			Activity 2.1.2.8: Produce and distribute alert messages (bulletin, maps, radio message synthesis, SMS, digital media)	
		Output 2.1.3 Emergency plans for disasters are put in place	Activity 2.1.3.1: Develop an emergency response plan for CC disasters at the three-country level.	
			Activity 2.1.3.2. Organize training sessions on the use of the contingency plan for the benefit of the different actors involved in the three countries	
			Activity 2.1.3.3. Acquire equipment for disaster management (3 fire-fighting machines, bicycles, motorcycles, canoe, inflatable canoes...)	
			Activity 2.1.3.4: Implement three (3) blank operations	
Component 3 Improving the resilience of ecosystems and livelihoods of population and users through the implementation of concrete adaptation actions	Outcome 3.1 The resilience of populations and ecosystems is improved through concrete adaptation measures	Output 3.1.1 Transhumance corridors for livestock are developed and rest areas created with the involvement of the local labor force	Activity 3.1.1.1: Organize dialogue meetings and validation of the transhumance corridors selected in the communes/villages crossed.	
			Activity 3.1.1.2: Carry out transhumance corridors development studies.	
			Activity 3.1.1.3: Carry out materialization and marking work on the transhumance corridors in and around the WAP complex.	
			Activity 3.1.1.4: Construct watering places and pasture areas at previously completed water points.	

		Output 3.1.2 Water points are developed/rehabilitated in the complex with the involvement of the local workforce	Activity 3.1.2.1: Organize dialogue workshops to validate the locations of the priority water points (21 water points)																		
			Activity 3.1.2.2: Conduct technical studies for water point development																		
			Activity 3.1.2.3: Carry out the development and equipment work (pumps, solar panels, ponds, etc.).																		
		Output 3.1.3 Tracks of the WAP complex are maintained with the involvement of the local population and the structures of joint management by HIL	Activity 3.1.3.1: Organize a regional technical workshop for the validation of the tracks to be maintained in the complex																		
			Activity 3.1.3.2: Identify and train actors on the tracks rehabilitation																		
			Activity 3.1.3.3: Rehabilitate tracks by the HIL method.																		
		Output 3.1.4 Agroforestry and small irrigation techniques are applied	Activity 3.1.4.1: Implement training sessions for farmers from riparian villages of the WAP complex on agroforestry techniques and small irrigation																		
			Activity 3.1.4.2: Acquire agro-forestry plants and make them available to volunteer farmers																		
			Activity 3.1.4.3: Acquire and grant small irrigation equipment to market gardening groups																		
		Output 3.1.5 Activities for sustainable fisheries for the benefit of the riparian villages	Activity 3.1.5.1: Identify and train women fishmongers and fish processors in the use of new tools produced by the population																		
			Activity 3.1.5.2: Equip women fishmongers and processors with fish products (produced by the population)																		
			Activity 3.1.5.3: Identify and train fishermen group members in improving fishing and fish farming techniques																		

			Activity 3.1.5.4: Conduct technical studies for the management of fish breeding sites	
			Activity 3.1.5.5: Implement fish pond development works and docks	
		Output 3.1.6 Wooded and pastoral areas are improved and reforested	Activity 3.1.6.1: Organize national validation workshops of areas to be reforested and grazing areas to be delimited and restored	
			Activity 3.1.6.2: Conduct development studies of grazing areas	
			Activity 3.1.6.3: Implement delimitation and development of grazing areas	
			Activity 3.1.6.4: Organize training sessions on reforestation and assisted natural regeneration	
			Activité 3.1.6.5: Implement reforestation and assisted natural regeneration activities for riparian villages	
	Outcome 3.2 The population livelihoods are diversified and improved	Output 3.2.1 Revoloving funds put in place to diversify sources of income	Activity 3.2.1.1: Elaborate the mechanisms and procedures for accessing revolving funds for the diversification of IGAs	
			Activity 3.2.1.2: Organize information/training workshops on revolving funds for young people, women, and men	
			Activity 3.2.1.3: Develop an Operational Manual for IGAs	
		Output 3.2.2 Income generating activities are supported	Activity 3.2.2.1: Identify and train the beneficiaries on the different IGAs (agriculture, organic farming, breeding, beekeeping, distillation, a collection of NTFPs as well as the manufacture of improved stoves and attic holders etc.)	
			Activity 3.2.2.2: Manufacture and disseminate wood saving equipment and techniques (improved stoves for salt production, processing of fish products and attic holders for food products, etc.)	

			Activity 3.2.2.3: Acquire and grant to vulnerable women some small ruminants (goat, sheep, etc.) and poultry for breeding																		
			Activity 3.2.2.4: Support groups of women processors through multifunctional platforms for processing non-timber forest products (NTFP: Shea, Baobab, Moringa, Nere, Tamarind, Balanites, Gum Arabic etc.)																		
			Activity 3.2.2.5: Identify and equip beekeeper promoters in setting up beekeeping sites in riverside villages.																		
			Activity 3.2.2.6: Support women's or youth groups for pharmacopeia development and the extraction of the oil from aromatic and medicinal plants																		
			Activity 3.2.2.7: Equip fishermen and fish farmers that live in the localities bordering the WAP																		
			Activity 3.2.2.8: Build "nature shops" for the exhibition and sale of local and artisanal products at the park entrances																		
Component 4: Awareness, communication and capacity building for concerted, integrated and sustainable management of the WAP Complex	Outcome 4.1 The actors involved are mobilized and sensitized through appropriate communication and capacity building	Output 4.1.1 Practitioners, technicians, and decision-makers on the technical aspects of the project are sensitized and trained on environmental issues	Activity 4.1.1.1: Develop training modules specific to CC and MREWS adaptation																		
			Activity 4.1.1.2. Organize thematic training sessions for practitioners, technicians and agricultural extension workers																		
			Activity 4.1.1.3.Organize targeted outreach and information sessions for decision makers in the three countries (simplified training modules)																		
			Activity 4.1.1.4.Organize three trips / exchange visits, capacity building for park management units on adaptation and MREWS																		
		Output 4.1.2 Populations are informed and sensitized	Activity 4.1.2.1: Design of a communication strategy and action plan and development of public awareness materials (leaflets, posters, flyers, summaries, documentary, local radio spots, telephony application ...)																		
			Activity 4.1.2.2: Organize sensitization and information days for the population on adaptation to CC and MREWS in the 19 neighboring communes																		

			Activity 4.1.2.3: Design education modules on climate change, adaptation and risks management and disasters to schoolchildren																		
			Activity 4.1.2.4: Organize educational sessions on climate change, adaptation and risks management and disasters inherent to it, for schoolchildren in the 19 neighboring communes																		

IV. PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[10]:

Mr Ambroise KAFANDO *General Director for Cooperation* *Ministry of Economy and Finance (BURKINA FASO)*	**Date***: 30 November 2018*
Mr Euloge LIMA *Direction Générale de l'environnement* *Ministère en charge de l'environnement (BENIN)*	**Date***: 21 December 2018*
Dr. Kamayé MAÂZOU *Executive Secretary of the national Council of Environment for a Sustainable Development (NIGER)*	**Date***: 31 December 2018*

Implementing Entity Certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (NAPA, ECOPAS, PAPE and PAGAP) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Mr. Khatim KHERRAZ – Executive Secretary of the Sahara and Sahel Observatory (OSS)	
Date: ***07 January 2019***	Tel. and email: (+216) 71 206 633; boc@oss.org.tn
Project Contact Person: Mr. Nabil BEN KHATRA	
Tel. And Email: (+216) 71 206 633; nabil.benkhatra@oss.org.tn	

6. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

BURKINA FASO

Unité – Progrès - Justice

Ministère de l'Economie, des Finances et du Développement

Direction Générale de la Coopération

ADAPTATION FUND

Letter of Endorsement by Government

Ouagadougou, 30 NOV 2018

To : The Adaptation Fund Board
C/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for ADAPT-WAP project: Integration of climate change adaptation and mitigation measures in the concerted management of the WAP transboundary complex.

In my capacity as designated authority for the Adaptation Fund in Burkina Faso, I confirm that the above regional project proposal is in accordance with the government's national and regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Burkina Faso.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Sahara and Sahel Observatory (OSS) and executed by "la Direction des Eaux et des Forêts du Ministère de l'Environnement, de l'Economie Verte et du Changement Climatique" of Burkina Faso.

Sincerely,

Ministère de l'Economie, des Finances et du Développement
Direction Générale de la Coopération
Le Directeur Général
D.G.COOP

Mr. Ambroise KAFANDO
Adaptation Fund National Designated Authority
03 BP 7067 Ouagadougou 03
Tel: +226 25 31 25 50/+226 70 41 98 41
Email: ambkafando@gmail.com

ADAPTATION FUND

MINISTERE DU CADRE DE VIE
ET DU DEVELOPPEMENT DURABL
REPUBLIQUE DU BENIN

01 BP 3502 - 01 BP 3621
Cotonou
Tél. : + 229 21 31 80 45
dgec_mcvdd@cadredevie.bj

N°015/AND/MCVDD/SA

Letter of Endorsement by Government of Benin

Cotonou, 21th December 2018

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for ADAPT-WAP project: Integration of climate change adaptation and mitigation measures in the concerted management of the WAP transboundary complex.

In my capacity as designated authority for the Adaptation Fund in Benin, I confirm that the above regional project proposal is in accordance with the government's national and regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the **country.**

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Sahara and Sahel Observatory (OSS) and executed by "Centre National de Gestion des Réserves de Faunes (CENAGREF)" of Benin.

Sincerely,

Mr. Euloge Lima

Autorité Nationale Désignée du Fonds pour l'Adaptation
Le Directeur
(AND FA)

Designated Authority for Adaptation Fund
Direction Générale de l'Environnement
Ministère en charge de l'Environnement

ADAPTATION FUND

REPUBLIQUE DU NIGER

Fraternité – Travail – Progrès

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CABINET DU PREMIER MINISTRE

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CONSEIL NATIONAL DE L'ENVIRONNEMENT POUR UN DEVELOPPEMENT DURABLE
SECRETARIAT EXECUTIF

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31/12/18

Letter of Endorsement by Government

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for ADAPT-WAP project: Integration of climate change adaptation and mitigation measures in the concerted management of the WAP transboundary complex.

In my capacity as designated authority for the Adaptation Fund in Republic of Niger, I confirm that the above regional project proposal is in accordance with the government's national and regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Niger.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Sahara and Sahel Observatory (OSS) and executed by la Direction Générale des Eaux et Forêts (DGEF) et le Centre National de Suivi Environnemental et Ecologique (CNSEE) in relation with other key national institutions like Conseil National de l'Environnement pour un Développement Durable.

Sincerely,

Dr. Kamayé Maâzou
Designated Authority for Adaptation Fund

Executive Secretary of the National Council
of Environment for a Sustainable Development

REPUBLIQUE DU NIGER
CNEDD
SECRETAIRE EXECUTIF
Cabinet du Premier Ministre

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ANNEXES

ANNEX 1: Environmental and Social Impact Assessment Report
ANNEX 2 : Approval letters for the ESIA report
ANNEXE 3: Consent letters delivered by local communities

ANNEXE 1

Compliance of the OSS E&S standards with the AF Principles

Environmental and Social Impact Assessment and Risk Management for Unidentified Sub-Projects

As presented above, the project is submitted to a request for funding from the AF. Among the requirements, it is important to emphasize compliance with its 15 E&S policy. These principles cover aspects related to natural resources, environment, and social aspects are presented as follows:

- Principle 1: Compliance with the law
- Principle 2: Access and equity
- Principle 3: Marginalized and Vulnerable Groups
- Principle 4: Human rights
- Principle 5: Gender Equality and Women's Empowerment
- Principle 6: Fundamental Rights of Work
- Principle 7: Indigenous Peoples
- Principle 8: Involuntary resettlement
- Principle 9: Protection of natural habitats
- Principle 10: Conservation of biodiversity
- Principle 11: Climate change
- Principle 12: Pollution Prevention and Resource Efficiency
- Principle 13: Public health
- Principle 14: Physical and cultural heritage
- Principle 15: Conservation of land and soil

Thus, all components of the project have been thoroughly reviewed for compliance with these policies.

Besides, OSS, as the project implemenation entity, has its own E&S policies 10 in number as given below:

- PS1: Conformity with the law
- PS2: Labour and working condition
- PS3: Resource efficiency and pollution prevention
- PS4: Community health, safety and security
- PS5: Land acquisition and involuntary resettlement
- PS6: Biodiversity Conservation and sustainable management of living natural resources
- PS7: Indigenous peoples
- PS8: Cultural heritage
- PS9: Gender Equity and Women’s Empowerment Both women and men
- PS10: Access and Equity and protection of Human Rights

Consequently, in the project implementation, both E&S policies of the OSS and the AF must be taken into consiedartion.

In fact, OSS’ E&S policies are in line with the AF ones and those of global funds in general. They are in accordance with the Adaptation Fund’s E&S Safeguard Policy as given in the table below.

ANNEXE 2: Approval letters for the ESIA report

REPUBLIQUE DU NIGER

FRATERNITE – TRAVAIL - PROGRES

MINISTERE DE L'ENVIRONNEMENT, DE LA SALUBRITE URBAINE ET DU DEVELOPPEMENT DURABLE

Niamey, le 23 AVR 2018

N° 0 0 4 3 2 9 /MESU/DD/SG/BEEEI/DPDR

Le Ministre

à

Monsieur le Directeur du Centre National de Surveillance Ecologique et Environnementale (CNSE).
Niamey.

Objet : rapport provisoire d'Etude d'Impact Environnemental et Social du projet d'intégration des mesures d'adaptation au changement climatique dans la gestion concertée des Parcs de l'Entente du complexe transfrontalier de l'observatoire du Sahara et du Sahel (OSS).

Réf : V/L N°000015/CNSE du 12 avril 2018.

J'accuse réception de votre lettre ci-dessus référencée, me transmettant pour observations le rapport cité en objet.

Après analyse dudit rapport, je vous informe qu'il est recevable, sous réserve de la prise en compte des observations ci-jointes.

Aussi, je vous demande de bien vouloir instruire vos services compétents à prendre attache avec le Bureau d'Évaluation Environnementale et des Études d'Impact (BÉEÉI) pour la suite de la procédure.

P.J :
- Comme indiqué

ALMOUSTAPHA GARBA

MINISTRE

General Director of BUNEE
National Environmental
Assessment Bureau
(*Bureau National des Evaluations Environnementales*)
03 P.O. Box: 7044
Ouagadougou 03– Burkina Faso

Ref. Letter: 18-00166
8th April 2018

Direction Générale des Eaux et Forêts (DGEF)
National Executing Entity
for the Regional Project Adapt WAP
Ouagadougou – Burkina Faso

Subject: **Review of the Environmental and Social Impact Study (ESIS) for the ADAPT-WAP Project: Integration of Climate Change Adaptation Measures in the Concerted Management of the WAP Transboundary Complex**

The review of the Environmental and Social Impact Study (ESIS) for the above-named Project has been finalized. The provided document is aligned and meets requirements as defined in the related terms of reference.

In conclusion, the Environmental and Social Impact Study has been granted full approval for its content by the National Environmental Assessment Bureau to be considered during the execution of the proposed Project.

I look forward to our continued collaboration.

Tidjani ZOUGOURI
DG of BUNEE

Bureau National des Evaluations Environnementales * B.F * Le Directeur Général

Cc : *Observatoire du Sahara et du Sahel (OSS) – Tunis*
Office National des Aires Protégées (OFINAP) – Burkina Faso
Direction de la Faune et des Ressources Cynégétiques (DFRC) -Burkina Faso

ANNEXE 3: Consent letters delivered by local communities

(Ville, Pays)..Tamou.....

Le..25/12/2018

OBJET : ATTESTATION DE CONSENTEMENT

Je soussigné Monsieur/Mme..Yacouba Diallo.....en ma qualité de représentant(e) de la population de la (tribu/le village/communauté....) ..Tamou.....qui relève administrativement de..Commune Tamou.....au...Niger.... (Pays) et qui se situe dans la zone du complexe WAP (Parcs W, Arly, Pendjari), viens par la présente exprimer la non objection et la satisfaction de mon (tribu/village/communauté...)...Village.....pour la mise en œuvre du Projet mené par l'Observatoire du Sahara et du Sahel (OSS) et le Fond d'Adaptation intitulé « ***Intégration des mesures d'adaptation au changement climatique dans la gestion concertée des parcs de l'entente du complexe transfrontalier WAP*** ». En tant que populations locales de la zone du WAP, nous avons participé aux différentes rencontres et avons pris connaissances des impacts éventuels et mesures d'atténuation que nous endossons.

La présente attestation est élaborée pour servir d'endossement et d'engagement de la ..population.....que je représente en vue de faciliter et accompagner la réalisation du projet.

Fait pour servir et valoir ce que de droit.

Signature

(Ville, Pays).Moli Haoussa.

Le.24/12/18

OBJET : ATTESTATION DE CONSENTEMENT

Je soussigné Monsieur/Mme Oumarou Seybou....en ma qualité de représentant(e) de la population de la (tribu/le village/communauté....) Moli Haoussa.....qui relève administrativement de la Commune de Tamou.....au Niger..... (Pays) et qui se situe dans la zone du complexe WAP (Parcs W, Arly, Pendjari), viens par la présente exprimer la non objection et la satisfaction de mon (tribu/village/communauté...).Village.....pour la mise en œuvre du Projet mené par l'Observatoire du Sahara et du Sahel (OSS) et le Fond d'Adaptation intitulé « ***Intégration des mesures d'adaptation au changement climatique dans la gestion concertée des parcs de l'entente du complexe transfrontalier WAP*** ». En tant que populations locales de la zone du WAP, nous avons participé aux différentes rencontres et avons pris connaissances des impacts éventuels et mesures d'atténuation que nous endossons.

La présente attestation est élaborée pour servir d'endossement et d'engagement de la population.....que je représente en vue de faciliter et accompagner la réalisation du projet.

Fait pour servir et valoir ce que de droit.

Signature

REGION DE TILLABERY
Le Chef de Village
Oumarou Saïbou
VILLAGE DE MOLI HAOUSSA

Burkina Faso

LOGOBOU le 12 DECEMBRE 2018

OBJET : ATTESTATION DE CONSENTEMENT

Je soussigné Monsieur/~~Mme~~ COMBARI Hambila en ma qualité de Deuxième Adjoint au Maire

Représentant(e) de la population de la commune de LOGOBOU qui relève de la Province de la TAPOA, Région de L'EST au Burkina Faso et qui se situe dans la zone du complexe WAP (Parcs W, Arly, Pendjari), viens par la présente exprimer la non objection et la satisfaction de ma commune de LOGOBOU pour la mise en œuvre du Projet mené par l'Observatoire du Sahara et du Sahel (OSS) et le Fond d'Adaptation intitulé « ***Intégration des mesures d'adaptation au changement climatique dans la gestion concertée des parcs de l'entente du complexe transfrontalier WAP*** ». En tant que populations locales de la zone du WAP, nous avons participé aux différentes rencontres et avons pris connaissances des impacts éventuels et mesures d'atténuation que nous endossons.

La présente attestation est élaborée pour servir d'endossement et d'engagement de la commune que je représente en vue de faciliter et accompagner la réalisation du projet.

Fait pour servir et valoir ce que de droit.

Nom et Prenon(s) COMBARI Hambila

Cachet et Signature

Commune Rurale de Logobou
2ème Adjt au Maire
Province de la Tapoa

Burkina Faso

Tansarga le 10 décembre 2018

OBJET : ATTESTATION DE CONSENTEMENT

Je soussigné Monsieur/Mme.....Henri DUALI..... en ma qualité de.....Premier adjoint au Maire de la Commune de Tansarga.....
Représentant(e) de la population de la commune de Tansarga..... qui relève de..de la province de la Tapoa (Région de l'Est).....au Burkina Faso et qui se situe dans la zone du complexe WAP (Parcs W, Arly, Pendjari), viens par la présente exprimer la non objection et la satisfaction de ma commune.....Tansarga..... pour la mise en œuvre du Projet mené par l'Observatoire du Sahara et du Sahel (OSS) et le Fond d'Adaptation intitulé « ***Intégration des mesures d'adaptation au changement climatique dans la gestion concertée des parcs de l'entente du complexe transfrontalier WAP*** ». En tant que populations locales de la zone du WAP, nous avons participé aux différentes rencontres et avons pris connaissances des impacts éventuels et mesures d'atténuation que nous endossons.

La présente attestation est élaborée pour servir d'endossement et d'engagement de la commune que je représente en vue de faciliter et accompagner la réalisation du projet.

Fait pour servir et valoir ce que de droit.

Nom et Prenon(s).....DUALI Henri.....

Cachet et Signature

COMMUNE DE TANSARGA * PROVINCE DE LA TAPOA * Le 1er Adjoint au Maire

RÉPUBLIQUE DU BÉNIN
FRATERNITÉ JUSTICE TRAVAIL
****

ASSOCIATION DES COMMUNES RIVERAINES AU PARC W
****

ATTESTATION DE CONSENTEMENT

Je soussigné **TAMOU Bio Sarako**, Président de l'Association des Communes Riveraines au Parc W, représentant les populations des communes de **Kandi, Banikoara, Karimama** et **Kèrou** au Bénin et situées dans la zone du complexe WAP (Parcs W, Arly, Pendjari), viens par la présente exprimer la non objection et la satisfaction de nos communes pour la mise en œuvre du Projet mené par l'**Observatoire du Sahara et du Sahel** (OSS) et le Fond d'Adaptation intitulé « ***Intégration des mesures d'adaptation au changement climatique dans la gestion concertée des parcs de l'entente du complexe transfrontalier WAP*** ».

En tant que populations locales de la zone du WAP, nous avons participé aux différentes rencontres et avons pris connaissances des impacts éventuels et mesures d'atténuation que nous endossons.

La présente attestation est élaborée pour servir d'endossement et d'engagement de l'association des communes riveraines du parc W Bénin, que je représente en vue de faciliter et accompagner la réalisation du projet.

La présente attestation de consentement a été établie pour servir et valoir ce que de droit.

Fait à Banikoara le 11 décembre 2018.

Le Président

Bio Sarako TAMOU