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Factors Fostering Gender Inequality in Fighting Against Climate Change in Benin

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Résumé
La présente étude porte sur les facteurs d'inégalités sociales dans la lutte contre les effets des changements climatiques au Bénin.
L'approche méthodologique adoptée dans le cadre de cette étude porte essentiellement sur l'Approche CVCA (Climate Vulnerability and Capacity Analysis / d'Analyse de la Vulnérabilité et de la Capacité d'adaptation aux changements climatiques). Pour réaliser cette étude, un échantillon de mille sept cent quatre-vingt-quatorze (1794) personnes, soit cinq cent trente-huit (538) hommes, contre mille deux cent cinquante-six (1256) femmes a été constitué et consulté sur la période de juin 2019 à mai 2022. Les focus groups ont été organisés et les neuf (09) outils de l'approche CVCA ont servi d'outils de collecte de données au cours de la période. Ces outils ont été implémentés avec les communautés des Communes de Ouidah, Athiémè, Ajda-Ouèrè, Ouinhi, Glazoué, Savè, Djougou et Ouaké. Le dépouillement et l'analyse des données ont été effectués grâce aux logiciels Excel.
L'analyse des résultats révèle que plusieurs facteurs liés aux risques et catastrophes, accentuent les inégalités entre les hommes et les femmes dans les Communes cibles. Outre les femmes, il existe également d'autres groupes vulnérables comme les personnes âgées et les personnes handicapées qui ont été prises en compte dans le cadre de la présente étude. Ces facteurs concernent entre autres : le faible contrôle des ressources du milieu par les femmes (30 % des femmes contre 70 % pour les hommes), la surcharge de travail pour les femmes (1,5 à 2 fois de plus que celle des hommes), la faible participation des femmes au prise de décision au sein des femmes (45 %), l'absence de mesures répondant aux besoins des femmes dans les planifications locales et nationales et le faible appui des institutions dans les domaines touchant à la femme. L'association de ces différents facteurs réduit donc le pouvoir d'action des femmes et les met dans une situation de vulnérabilité face aux effets pervers des risques climatiques dans les communes cibles.
Il importe donc de prendre en considération la différence de nature entre ces demandes dans le cas d'une politique d'adaptation aux changements climatiques et de gestion des catastrophes.
***Mots Clés** : ressources, risques et catastrophes, inégalités sociales, contrôle et accès, pouvoir d'action*

Abstract
This study emphases on social inequalities factors in the light of fighting against the effects of climate change in Benin.
The methodological approach is mainly the CVCA Approach (Climate Vulnerability and Capacity Analysis). Thus, a sample of one thousand seven hundred and ninety-four (1794) people, i.e. five hundred thirty-eight (538) men, against one thousand two hundred and fifty-six (1256) women was established and consulted over the period from June 2019 to May 2022. Focus groups were organized and the nine (09) tools of the CVCA approach served as data collection tools during the period. These tools were implemented with the communities of the municipalities of Ouidah, Athiémè, Ajda-Ouèrè, Ouinhi, Glazoué, Savè, Djougou and Ouaké. The data were analysed using Excel software
The results reveals that several factors related to risks and disasters accentuate inequalities between men and women in the target municipalities. In addition to women, there are also other vulnerable groups such as the elderly and the disabled that were considered in this study. These factors include: women's poor control of local resources (30% of women against 70% for men), women's excessive workload (1.5 to 2 times than that of men) , women's low participation in decision-making (45%), the lack of measures to meet women's needs in local and national planning, and the poor support of institutions in areas affecting women. The combination of these factors reduces women's power to act and makes them vulnerable to the adverse effects of climate risks in the target municipalities.

It is therefore crucial to the different nature of these demands in the case of climate change adaptation and disaster management policy.

***Keywords**: resources, risks and disasters, social inequalities, control and access, empowerment*

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I. Introduction

Benin is strongly affected by climate change. Indeed, climate change is expressed through worsening rainfall, rising temperatures and violent winds, which have enormous consequences on producers' living conditions and the agricultural activities they practice (Aho, 2019, p. 87). Thus, in West Africa, and specifically in Benin, rainfall variability is one of the factors that condition agricultural development (Adam and Boko, 1993). However, since independence, all successive governments in Benin have recognized the importance of agricultural sector in the national economy (Vignigbé, 2002, p. 49).

The situation is chiefly difficult for women, especially rural and peri-urban ones with limited resources, who suffer more from the aftershocks and impacts of climate change than men. Besides women, there are also other vulnerable groups such as the elderly and the disabled. Thus, rural and peri-urban women appear to be the most vulnerable to the effects of climate change and disasters. However, they have technical capacities whose judicious exploitation leads to the economic and social development growth. This project is part of this logic for socially equitable development planning and measures that improve women capacity and vulnerable groups to mitigate and adapt to the impacts of climate change. It is crucial to consider the different nature of these demands in case of climate change adaptation and disaster management policy.

Awareness of the issues related to climate change and disaster management has led to the development and adoption of several policies, strategies and response programmes by Benin. However, initiatives to take account of women's needs in adaptation policies remain shy, slow and inconsistent (WEDO, 2008, p. 87; FAO, 2008, p. 2; UN and OXFAM, 2009, p. 4). Likewise, in adaptation policy documents, there is a marginalisation of considerations for these groups and a lack of tools and capacity to systematically integrate their needs. These particular social groups benefit from no specific measures in these documents. This leads to serious inequalities in access to resources.

Hence, rural and peri-urban women seem to be the most exposed to the effects of climate change and disasters. However, they have technical capacities whose judicious exploitation will contribute to the economic and social development growth.

The Municipalities of Ouidah, Athiémè, Ajda-Ouèrè, Ouinhi, Glazoué, Savè, Djougou and Ouaké are susceptible to the effects of climate change and disasters. The effects of climate variability create impacts in vulnerable communities and increase the vulnerability of poor communities.

Benin is located in West Africa in the tropical zone between equator and the Tropic of Cancer (between parallels 6°30' and 12°30' north latitude and meridians 1° and 30°40' east longitude). It covers an area of 114,763 km2 and is bounded by:

- to the north by the Republic of Niger over 277 km with 120 km bounded by the River Niger;
- in the northwest by Burkina Faso (386 km) ;
- to the west by Togo (651 km);
- à l'est par le Nigeria (809 km) ;
- and to the south by the Atlantic Ocean (121 km).

From north to south, it extends over 700 km; the width varies from 125 km (along the coast) to 325 km (at the Tanguiéta-Ségbana latitude). Figure 1 shows the geographical location of Benin.

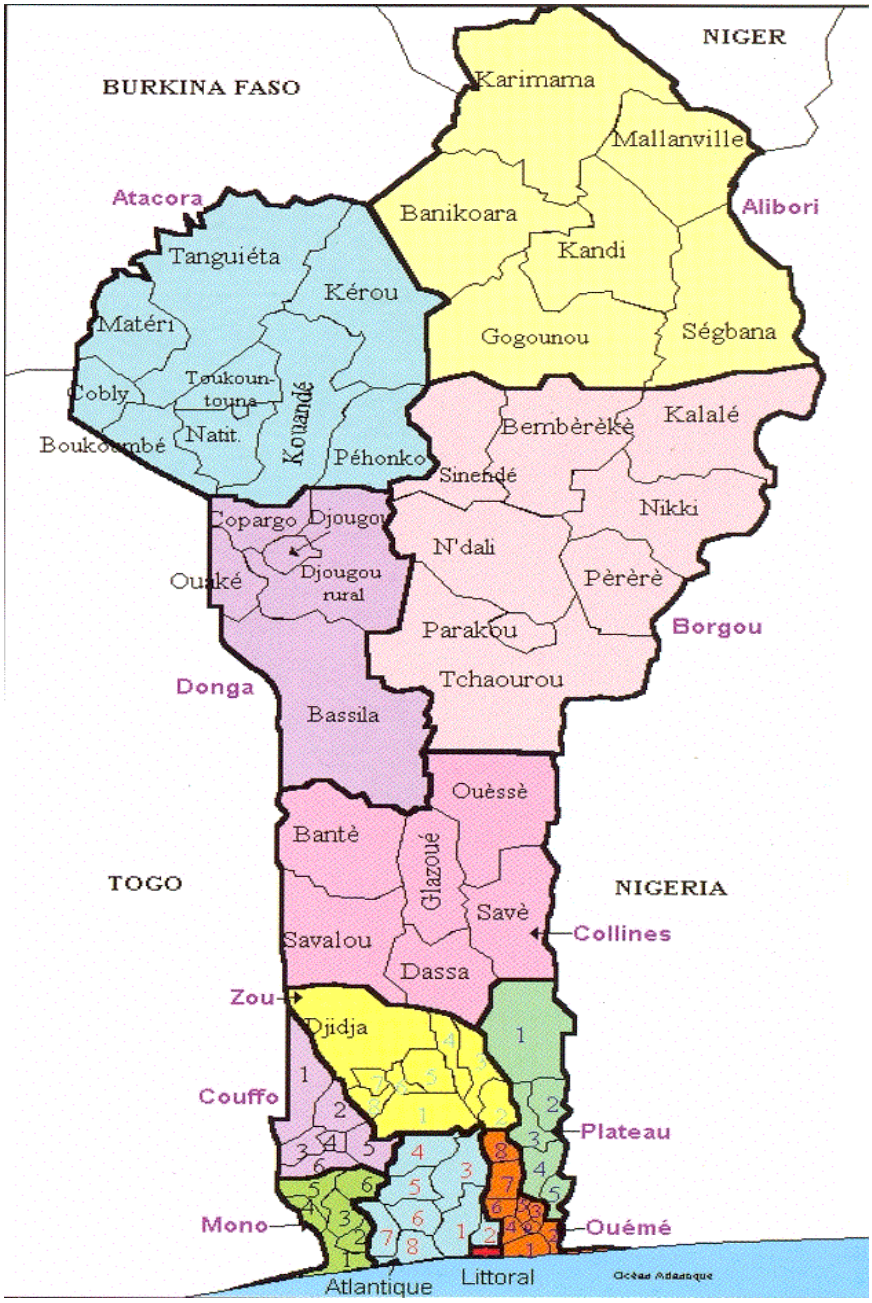

Figure 1 : Geographical location of Benin.

Benin has a somewhat rugged terrain and includes:

- a low, sandy coastal region bordered by lagoons;
- a shelf of ferruginous clay;
- a silico-clay shelf with some undergrowth;
- in the north-west, the Atacora massif (800 meters) ;
- to the north-east, the very fertile silico-clay plains of Niger.

Benin has two (02) different climates:

- In the south, an equatorial climate with high humidity. Alternating dry seasons (November to March and mid-July to mid-September) and rainy seasons (April to mid-July and mid-September to October);
- In the centre and north, a tropical climate. A dry season from November to April and a rainy season from June to September;
- The harmattan, a hot, dry wind from Sahara, blows across the country during the dry season.

Several rivers cross the country. The Benin Basin of the Niger River, which includes Mékrou (480 km), Alibori (427 km), Sota (254 km) and Pendjari rivers. The Volta Basin includes Pendjari (420 km) and Perma. The Mono-Couffo basin includes Couffo: a 190 km long river (including 170 km in Benin), flows into Ahémé

lagoon, which in turn flows into the Atlantic Ocean, and the Mono: with its 500 km, it serves as a border between Benin and Togo on its lower course and then flows into the Atlantic Ocean. The Ouémé Basin: 608 km long, flows into the Nokoué lagoon and uses the Lagos and Cotonou channels to communicate with Atlantic Ocean. There are also several bodies of water in the south, namely Lake Nokoué: 138 km2, Lake Ahémé: 78 km2 and Porto-Novo lagoon: 35 km2.

Three (03) types of vegetation characterize Benin. These are the wooded savannah in the Sudanese North regions, the savannah in the Centre with species such as mahogany, Iroko and Samba and the forest in the South and Middle Benin. As for the fauna, there are two (02) national parks in the North, Pendjari park: 275,000 ha and "W" park: 502,000 ha. Elephants, buffaloes, hippos, lions, cheetahs, caimans, antelopes, birds, monkeys, reptiles, leopards, insects, etc. can be found there.

II. Methodological Approach

This is a multi-stakeholder approach that involves mostly women participation (more than 2/3) and other vulnerable groups including elderly and disabled people in all co-learning and co-innovation processes and joint understanding of the system, analysis and mutual learning, planning, implementation and evaluation will be adopted while relying on the Gender Sensitive Climate Vulnerability Analysis and Capacity Analysis (GCVCA) tools suggested by CARE (2014, p. 22, CARE Climate Change, 2019, p. 18).

The GCVCA provides a framework for analyzing vulnerability and capacity to adapt to climate change and build disaster resilience at the community level, focusing on social and mainly gender dynamics based on the experience of applying the approach in Mozambique. It is designed to help lead a process that stimulates analysis and dialogue on climate change, the conditions and vulnerabilities of different socio-economic groups, with a particular focus on gender dynamics.

It consists of a general assembly organization gathering forty people per group made up of men and women. Data collection was carried out in mixed focus (men and women) on the basis of the nine (09) CVCA tools. These nine tools include Hazard Mapping, Timeline, Seasonal Calendar, Typical Day, Household Decision, Impact Chain, Vulnerability Matrix, Venn Diagram and Adaptation Options. Indeed, as the project team benefited from the support of a Gender Expert, complementary tools were proposed regardless of the number of tools and steps required in the CVCA approach. These tools complemented the first CVCA tool, the Hazard Mapping, and relate respectively to the resource profile, the influence factor profile and the activity profile. All these tools (twelve (12) in total) were implemented with the beneficiary communities of the eight (08) target municipalities of the project: Ouidah, Athiémè, Adja-Ouèrè, Ouinhi, Glazoué, Savè, Djougou and Ouaké. Thus, the latest CVCA tool identified adaptation and resilience building options and assessed opportunities and barriers for their implementation in the project's beneficiary municipalities. The proposed adaptation strategies/options should therefore promote the diversification of women's activities and instil the notion of saving in them in order to be able to cope with the various climate shocks. This will make them more resilient to the effects of climate change in their locality. A feasibility table was developed for each adaptation strategy identified following the identification of adaptation strategies. Subsequently, a gender analysis of each identified strategy was carried out taking into account two parameters including actors and factors. Actors include: Women, men, the household and community. Factors include: time, work, resources, and social relationship. The options were then prioritized at the level of each municipality benefiting from the project. All these actions/information were synthesized in the Community Adaptation Action Plans (CAPA) which were validated at the level of the eight (08) beneficiary municipalities of the project in front of the communal authorities, members of associations and structures prevailing on the issues of Climate, Gender and Sustainable Development.

These adaptation options are those that will be combined with the National Adaptation Plan because they are collected from the grassroots communities and reflect the real adaptation needs of rural women at the scale of the project's beneficiary municipalities. Indeed, the ultimate goal of the project is to ensure that the real needs identified among rural women are effectively taken into account in planning documents at the national level (mainly in the framework of the NAP revision).

The sample selected for this study includes one thousand, seven hundred and ninety-four (1794) people, i.e. five hundred and thirty-eight (538) men, against one thousand two hundred and fifty-six (1256) women who were consulted during the study period. The focus groups were organized and the nine (09) tools of the CVCA approach (except the three complementary tools to CVCA tool 1) were used to collect data from the beneficiary communities over the period. Table I shows the breakdown of beneficiaries by gender in the eight project beneficiary municipalities.

Table I : Number of beneficiaries per municipality and gender

MUNICIPALITIES	WORKFORCE		
	Men	Women	TOTAL
OUIDAH	80	198	**278**
ATHIEME	40	193	**233**
ADJA-OUERE	37	142	**179**
OUINHI	40	104	**144**
GLAZOUE	95	201	**296**
SAVE	80	123	**203**
DJOUGOU	75	151	**226**
OUAKE	91	144	**235**
TOTAL	**538**	**1256**	**1794**

***Source** : CREDEL ONG/Projet DERRIC, 2021*

Thus, the CVCA tools approach were implemented with one thousand seven hundred and ninety-four (1794) people in the eight (08) targeted municipalities.

III. Results

Gender is a social construct that describes what it means to be a man or a woman, a boy or a girl, in a given society. It implies specific roles, status and expectations within a household, community or culture (CCRP, 2019). Despite advances in women's rights and awareness of gender equality, women continue to be perceived as 'minor' compared to men and as such are subject to their domination. However, it is crucial to stress that the Beninese government has undertaken significant legal reforms in favour of women; the popularization of these texts remains a challenge for their application.

3.1. Hazard mapping

This tool helps to identify the main livelihood strategies, the resources that support them and their key geographical locations and important areas for livelihoods. In addition to determining the allocated resources, the control and access to these resources by men, women, children and the elderly are reviewed. Access and control are two concepts that are vital in understanding gender in relation to resource use. Access to resources refers to the use/exploitation of the resource or benefit, while control indicates who has the ultimate decision-making power over that resource or the benefit derived from the exploitation of that resource. This ultimate decision-making power also concerns the eventual sale of the resource.

3.1.1. Important livelihood resources identified in the community

All the resources identified are land, arable land, lowlands, forests, sacred forests, rivers, streams, dwellings, plantations, water resources (pumps, boreholes, water towers, wells, SONEB station), roads (RNIE, tracks), schools (nursery and primary) churches (evangelical, catholic, celestial), mosques, general education colleges, public squares, microfinance structures, markets, health centers, district offices, convents, livestock sites (poultry, cattle, pigs, goats, etc.), sports fields), sports fields, beekeeping sites, and storage facilities for agricultural products. Each of these resources plays crucial roles for men, women and others.

The land resource allows the construction of houses and the setting up of the population and socio-community infrastructures. Cultivable land is the main resource for the production of several agricultural crops on which rural and urban populations depend. The lowlands are important for market gardening and rice cultivation. The forests are intended for hunting and for collecting forest products such as dead wood for cooking, and for collecting plant species such as bark, medicinal leaves and fruits. Trees in these forests are also cut for charcoal production. The sacred forests are the convents of some endogenous cults like 'ORO' which also allow forest conservation. The rivers and streams are used for fishing by men and for some household chores by women such as washing clothes, washing up and fetching water for cooking. Water resources (pumps, boreholes, water towers, wells, SONEB station) are water supply sources for women and children. Roads (RNIE, tracks) allow access from one locality to another, the movement and transport of agricultural products from the fields to the house and to the markets. Schools (nursery and primary) and general education colleges provide education for children. Micro-finance structures grant loans for men to start up activities related to agricultural production and to strengthen trade for women. Markets are places of exchange for buyers and sellers of different products (agricultural products, cosmetics, clothing, etc.). Health centers enable the first and sometimes definitive care of patients living in the locality. The presence of health centers in some villages reduces the distances to be covered before having access to hospitals in the commune areas. Pregnant women are easily consulted and their pregnancies are periodically monitored. Livestock (poultry, cattle, pigs, goats, etc.) is an activity developed by the population to support primary activities such as agricultural production. Some people practice only livestock rearing.

3.1.2. Access and control over environmental resources

Figure 2 shows the actors controlling and accessing resources in the project's beneficiary municipalities.

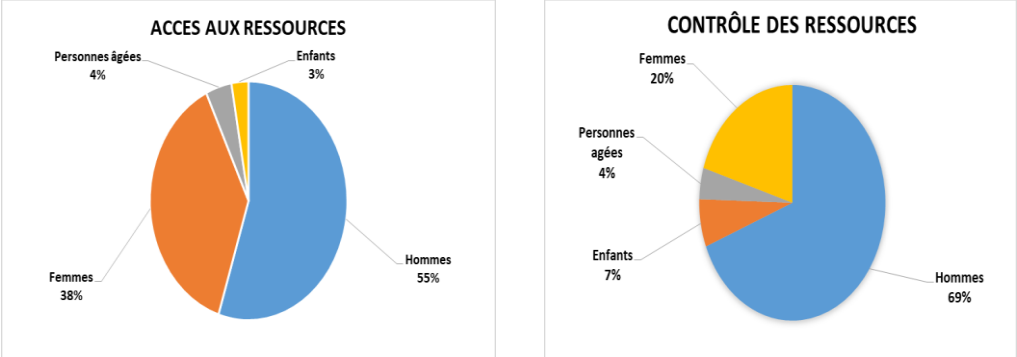

Figure 2 : Control and access to resources in the municipality

Figure 1 reveals that 69% of resources are controlled by men in the project's beneficiary municipalities while they exploit 55%. This stipulates that men control more resources than women in these municipalities. Some resources are controlled by men but exploited by women. This is the case of the lowlands which are controlled by men, but which are mainly exploited by women for market gardening and rice. On the women's side, they have control over only 20% of the municipality's resources and exploit 38%. This shows that women have control over few resources in the communes, but they exploit them more than they control. In fact, the resources over which women have control revolve around hydraulic infrastructures (water supply resources, hydraulic and sanitary infrastructures), agricultural fields, lowlands (for market gardening and rice cultivation, which are activities much more exercised by them). They provide more education for children than men. They devote themselves more to reproductive activities unlike men who develop more productive activities. As for children, they have access to only 3% of the resources available in the municipalities. These are only nursery and primary schools, general education colleges and leisure centers such as sports and football pitches. They have no control over these resources.

3.2. Timeline

Access to information on the spatio-temporal dynamics of climatic, socio-economic and socio-community infrastructure events is a key indicator for understanding past events and new measures to be taken in order to provide adequate solutions to future events. The significant climatic events that occur in each beneficiary municipality have been listed by year in chronological order. The intensities of each of these events were listed and the strategies adopted in the meantime to overcome these difficulties were also discussed by the members of the beneficiary groups during the learning sessions. Elders in each village were invited to assist all the sessions so as to have data on the major historical events in the locality. This chronology makes it possible to highlight the different events, the recurrence of these events and the changes observed over time. The timeline tool (the second tool in the CVCA approach) was used to make a chronology of the events experienced. This tool provides an overview of main events in the community and allows the analysis of trends and changes due to hazards based on community perceptions. The creation of the timeline provides a general overview of the succession of climatic events and the development of socio-community infrastructure. In other words, this tool allows for the analysis of hazard trends and changes based on community perceptions. Photo 1 shows the timeline for the village of Tévèdji in the municipality of Ouinhi.

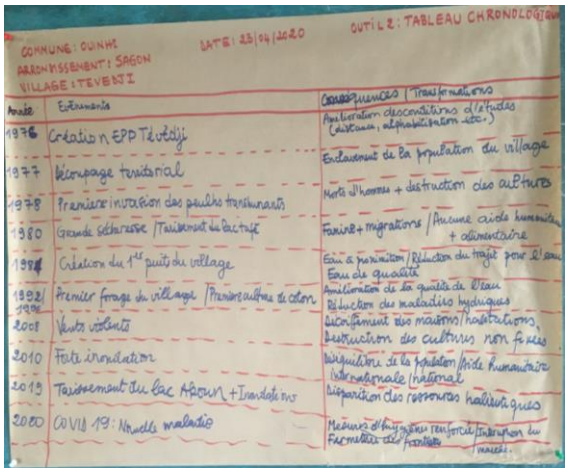

Photo 1 : Timeline of the village of Tévèdji
Prise de vue : Projet DERICC-Benin/CREDEL ONG, Mai 2020

The timeline tool in the municipality of Ouinhi made it possible to list three categories of events: climatic, social-economic and health events. The climatic events are represented by: floods, drought and violent winds.

Flooding in the municipality of Ouinhi is caused by heavy rainfall, which uplifts Ouémé River. The most severe flooding years are: 1961, 1992, 1999, 2010, 2018. When this hazard occurs, crop fields are invaded, granaries are affected, foodstuffs are lost in the fields.

Diseases such as malaria, cholera and typhoid fever appear. Loss of human life is recorded through drowning, especially among children. Pregnant women find it difficult to reach health centers for childbirth. Drinking water is contaminated at times. Animal resources are dying. Houses are destroyed. Granaries do not resist and food products, mainly maize, are lost. To cope with this hazard, the populations of these municipalities use strategies. Men with relatives and friends on non-flooded land move to them. Others own land that has not been flooded and settle their families there (women, children, elderly and disabled people).

Men go to do other activities such as motorbike taxi in the cities. The younger ones go to look for wood which they sell in return to ensure their daily meals. International humanitarian aid was noticed during the 2010 floods, which brought relief to the people of the municipality.

Drought impacts flora (natural or cultivated) and fauna (wild or farmed). This hazard has a negative effect on food crops. A seasonal delay is marked by the scarcity or absence of rain. The direct consequence is poor crop yields. The major drought years recorded in the municipality are: 1993, 2001 and 2017.

Strong winds are recurrent during March, April, September and October. This hazard causes damage like the dislodging of houses, destruction of crops including maize, and removal of topsoil. The strong winds years in the municipality are: 2006, 2010, 2016, 2018 and 2020. To cope with the hazard, the people of this municipality resort to reforestation.

The social-economic events are materialized by school creation, the creation of boreholes, the introduction of crops such as palm, rice, the construction of hospitals and other capital infrastructures for the municipality.

There is also the phenomenon of transhumance among the events. Two main periods were identified for transhumance, the first begins in March and ends in August. The second period from November and ends in February.

Flood devastates the crops in the first season and in the second, the transhumant Peulhs arrive and devastate the crops in December. These transhumant Peulhs are armed and not only destroy crops but also cause loss of life in the municipality. They sometimes rape the wives of farmers in the municipality which often leads to major conflicts between all stakeholders. The exceptional flooding years are: 2007, 2010 and 2016.

There is also no shortage of fires in the municipality. Fires cause destroy houses, palm groves and granaries, as well as loss of life. The milestone years are 1975, 1982, 2012, 2016 and 2020.

3.3. Seasonal schedule

Several activities are developed by producers in the project's beneficiary municipalities. This distribution of activities throughout the year was made possible by the seasonal schedule, which is one of the CVCA approach tools. It allows the identification of the main livelihoods throughout the year and provides a basis for discussion of the seasonal changes observed by the communities. The main results are presented for all

the project's beneficiary municipalities. Figures 3 and 4 show the evolution of monthly seasonal patterns in the municipalities of southern, central and northern Benin respectively.

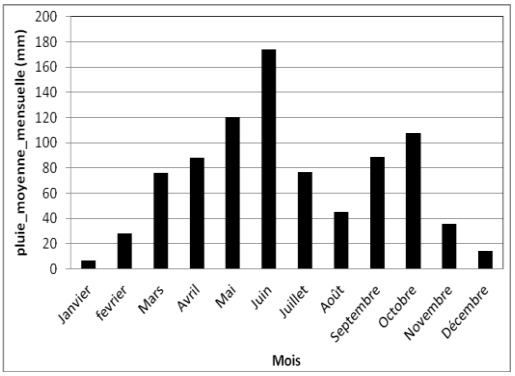

Figure 3 : Rainfall regime for Southern municipalities of Benin

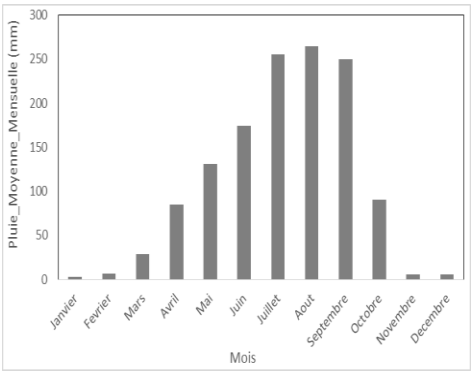

Figure 4 : Rainfall regime for Center and Northern municipalities of Benin

***Source** : Météo-Bénin et CREDEL ONG, 2020*

Figure 3 shows that the rainfall regime is bimodal for the southern municipalities with four (04) different seasons. These are:

- a long dry season from mid-November to mid-March;
- a long rainy season from mid-March to mid-July;
- a short dry season from mid-July to mid-September;
- a short rainy season from mid-September to mid-November.

Precipitation is mainly recorded between March and July, with a maximum in June, and between August and November, with a maximum in October. On average, it is spread over 80 to 120 days.

Figure 4, on the other hand, shows that the rainfall regime is unimodal with rain starting in April and peaking in August, then gradually decreasing until October. The dry season lasts five months (November to March) in the basin. August and September are generally the wettest and the most favourable months for agriculture in the study area. This rainfall distribution has been strongly disrupted in recent years due to climate change. This disruption is reflected in changes in rainfall or the number of rainy days from one year to another.

The activities carried out by the populations of the beneficiary municipalities are spread through these different seasons throughout the national territory. According to the beneficiary municipalities in southern Benin, the activities developed during these seasons mainly concern agricultural production (maize, beans, groundnuts, manioc, watermelon, tomatoes, chilli peppers, onions) which is mainly carried out by men. Fishing (fish and shrimp) is carried out from June to April by men. The processing of palm nuts and cassava into gari/tapioca/agbéli is also carried out from March to October by women. Salt production (December to June), developed by women, is carried out during dry spells to facilitate salt extraction. Fish trading, which is the transformation of fresh fish into dried or smoked fish, is carried out by women and young girls from April to July (period of abundance of fish and shrimps). Farming is done all year round and is a common activity in the community. However, there has been an evolution in activities over time. Indeed, the activity of processing coconuts is almost non-existent. This is due to the presence of tourists in southern Benin. Thus, the coconuts are no longer left on the trees to be processed by women. They are picked early and sold (water and coconut pulp). On the other hand, modernization has entered the activities practiced by men and women. Several semi-modern equipments (extractor, mill, motorized boat) are made available to the populations to reduce the drudgery/difficulty observed in the course of the activities. This empowers women and increases their resilience to climate change.

In the northern municipalities, these activities concern agricultural production, processing, market gardening, conservation, breeding and marketing. There is also processing of apples and cashew nuts (December to April) and soya beans into cheese or ships. As far as agriculture is concerned, only men are involved (especially in the northern municipalities predominantly Muslim). Only the processing and trading activities are carried out by women. Trade is therefore based on material to be sold at the market and therefore throughout the year. Market gardening is done all year round with a slowdown during rainy season due to the abundance of water which hinders crops' ripeness. Thus, any adaptation strategy in the agricultural field in northern municipalities should be geared more towards men, and for women, more towards processing activities, trade and market gardening. Livestock breeding and trade are also developed throughout the year. Women, on the other hand, are involved in domestic livestock rearing.

Indeed, women's vulnerability is greater during critical periods. Apart from their daily tasks, they also help their husbands to supplement the existing workforce. Women's working hours increase considerably during these periods (sowing, crop maintenance).Table II summarizes the current strategies in the beneficiary municipalities.

Table II : Inventory of current strategies.

RISKS	IMPACTS	CURRENT MEASURES
Flood	Field flooding	Early harvest
		Traditional drain systems
		Outflow to other cities
		Crops in non-flood areas
	House destruction	House reconstruction
		Relocation to the sites developed by the town hall
	Loss of pets	Change in activities
		Livestock reconstitution
	Increase in waterborne and episodic diseases (Chlildren)	Child protection and curative care
Strong winds	Crop destruction	Staking
		Early harvest
	House destruction	House reconstruction
Drought	Crop destruction	Hand watering
		Irrigation with motor pumps
		Construction of water reservoirs
	Hard access to drinking water	The use of water disinfectants (aquatab, bleach)
		Use of Mono river water
	Loss of animals	Reconstruction du cheptel
	Transhumance	Rural exodus
		Change in activities
	Decline in fruit tree yields	Business diversification
	Household fires	Reconstruction des maisons
Heavy rainfall	Field flooding	Récolte anticipée
		Exode rural
		Crops in non-flood-prone areas
		Water draining system
	Increase in waterborne and episodic diseases (children)	Child protection and curative care
	Runway degradation	Development of rural tracks

***Source** : CREDEL ONG/Projet DERRIC, 2021*

The different strategies implemented by rural communities to deal with different risks do not take equal account of men and women. The latters' workload increases during hazards. They receive no support from men and have no choice but to bear the risks and adapt them as best they can. Their low purchasing power does not allow them to acquire adequate equipment and materials for production and processing during periods of drought or heavy rainfall. Photo 2 shows the seasonal schedule in the village of Bariénou in the commune of Djougou.

Photo 2 : Seasonal schedule made in Bariénou village (commune of Djougou)
***Shooting** : Projet DERICC-Benin/CREDEL ONG, August 2020*

3.4. Standard day

Within a household, several activities are carried out along the day that affect man and woman differently. These different activities are part of the development and well-being of the household. The typical

day is a CVCA approach tool that makes it possible to identify the main tasks or activities performed by man and woman in the household during the day. The learning sessions with the beneficiary groups made it possible to collect the different tasks performed by women and men in the household during a day. The main results are presented for all the municipalities benefiting from the project. Figures 5 and 6 show the inequalities in workload between men and women in the household during the normal day and the day with shock respectively.

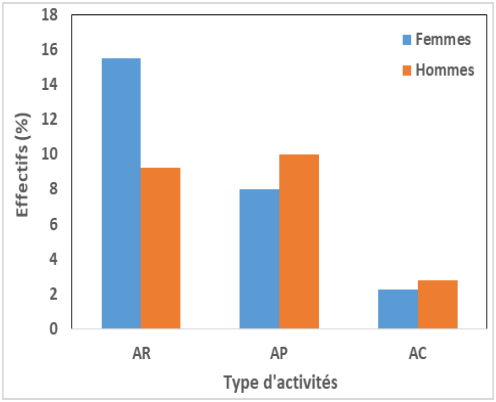

Figure 5 : Typical day

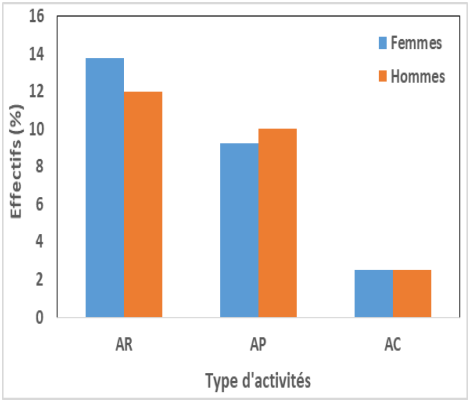

Figure 6 : Typical day of activities in case of shock

Legend :
AR : Reproductive Activities
AP : Productive Activities
AC : Community Activities

Figures 4 and 5 show that men and women occupy themselves differently in a day. However, the daily workload of women is greater than that of men. Also, both men and women are involved in all three types of activities (productive, reproductive and community). In fact, women are more involved in reproductive activities which take up most of their day, either on a typical day or in the event of a shock. Thus, their rest and leisure time is devoted to reproductive activities. They therefore do not have the time to invest more in community activities. Some men are only involved in reproductive activities during times of shock. Others find it difficult to help their wives in times of shock because they consider themselves to be the head of the household. For the latter, reproductive tasks are the sole preserve of women. "A man does not cook, so why did he take a woman?" are the words of some men during the learning sessions. This creates an overload of work women who have no choice but to submit to the demands of the household. This creates frustration for women whose well-being is affected. This leads to a deterioration in the stability and harmony of the household, creating discomfort among household members. This overload work also prevents women from devoting time to their personal development and growth by learning new ways of dealing with current problems.

Productive activities are the prerogative of men in all the beneficiary municipalities. Thus, the similarity observed in the case of a day with a shock, for all productive activities for both sexes, can be explained by the fact that in the case of a shock (e.g. flooding), women will first look after men's fields before going to look after their own fields. Their workload, therefore, becomes reduced and more complicated in the event of a climatic shock. Moreover, in the event of a shock, the workload of both sexes becomes greater because they have to increase their efforts to respond promptly to the effects of climate shock. However, man has more responsibility in the event of a climate shock. As for community work, a balance is being created in all the beneficiary municipalities because men are gradually understanding that allowing women to engage in this type of activity makes them more self-confident and enables them to develop income-generating activities. Thus, in insecurity times, men devote part of the day to their household security and upkeep their children, which discharges women. Also during periods of crisis, mainly conflicts related to transhumance, men devote themselves to community tasks (village security). Table III presents a summary of the results of the typical day tool for all the beneficiary municipalities on a normal day and on a day of climatic shock.

Table III : Summary of the results obtained for a normal day and a day with shock

Typical day			
	AR	**AP**	**AC**
Women	13h30'	8h15’	2h15'
Men	8h30'	13h	2h30’

Typical day with shock			
	AR	**AP**	**AC**
Women	14h15'	8h15'	1h30'
Men	12h	9h30’	2h30'

***Source** : Projet DERICC-Benin/CREDEL ONG, september 2020*

Table III reveals that women wake up early and go to bed late, tired to attend to their marital duties. Men, on the other hand, are more involved in activities related to productive work (agriculture, livestock breeding, market gardening) that allow them to maintain their families and also trade in small ruminants. Photo 3 shows a typical day's learning session with the tool in the village of Bariénou (Commune of Djougou).

Photo 3 : A typical day (normal and with shock) in the village of Bariénou (commune de Djougou)
Shooting : Projet DERICC-Benin/CREDEL ONG, september 2020

3.5. Important decisions within the household

The tool called "Decisions within the household" is one of the tools in the CVCA approach that explores gender differences in decision-making power within the household. It encourages discussion on the benefits of joint decision-making. The household decision tool allows us to see how much responsibility each person has for making the most important decisions in the household and has helped to better understand the decision-making process in households in the beneficiary municipalities. Figure 7 shows the proportions of actors (men, women and both jointly) who make different decisions in the beneficiary municipalities.

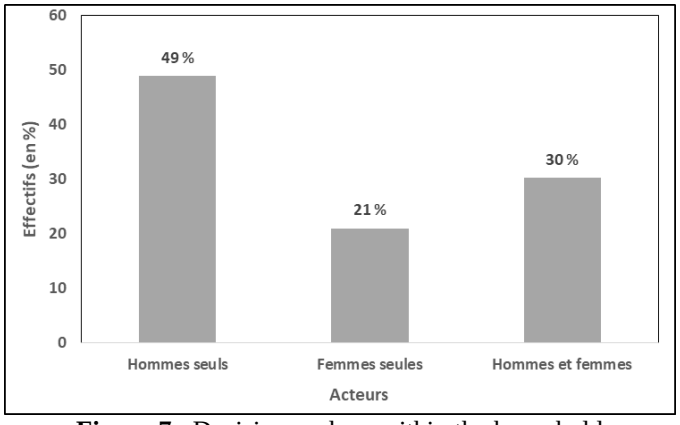

Figure 7 : Decision-makers within the household
***Source**: Projet DERICC-Benin/CREDEL ONG, november 2020*

Figure 7 shows that the majority of decisions (49%) are made by men only in the beneficiary municipalities. Then comes the decisions taken jointly by men and women (30%) and those taken by women alone (21%). Men decisions include investing in a new activity/equipment, selling an asset, evacuating in the event of a disaster, deciding when a woman can conceive or not, deciding which crop to sow and the area to be sown, buying a plot of land, building a house, managing income from the sale of farm products, taking a new wife, repairing the roof, buying a television set and decisions related to cultural rites (ceremonies). Decisions

taken jointly concern the household welfare and children education. These include children's health, schooling and marriage, the sale of agricultural assets, when a woman can conceive or not, which seed to grow, care of children/elderly people, and whether to send children to school. Women decisions include investing in a new activity/equipment, trips to visit relatives or friends, participating in tontine, household chores, choosing food, housekeeping, child and household care, child rearing, participation in community activities. However, it should be noted that there is a peculiarity among Muslim women that they must talk to their husbands about any decisions they want to make. Woman does not take any decision alone without consulting her husband. All her decisions are usually accompanied by the permission of her husband. Without this permission, disputes arise and in serious cases divorce because: 'in the Muslim religion, a married woman must always inform her husband of her actions and every slightest movements she makes'.

Decisions taken in the event of a shock concern whether to continue or not with children's schooling and the various productive activities carried out within the household. In the event of climatic hazards, only man is responsible for the instantly decision to be taken. The wife has no choice but to follow the husband's order. Only the man decides whether to evacuate on foot. In the case of a strong wind, only the man decides to rebuild the house after the wind has passed. It is thus to be retained that woman is not involved in decision-making in the event of hazards. On the other hand, in the case of a climatic hazard where it is the man alone who has already taken the decision and it failed, in case of the appearance of a new climatic hazard and in case where the decisions taken by women alone or by men alone are impacted by these climatic shocks, both consult each other for the decision making. They are obliged to listen to each other so that they no longer have to suffer failures. They have no choice but to come together to decide what decisions to make in the event of shocks for the well-being of the family. The climate shock situation also increases the vulnerability of men and more women/older people. This reduces the power relations established by the man over the woman. This forces them to agree on every decision to be made. Table IV presents a summary of the information gathered during the learning sessions with this tool.

Table IV : Synthesis of the information collected during the learning sessions for the decision within the household

	Total of decisions taken	**AP**	**AR**	**AC**
Men only	**21**	11	7	3
Women olny	**9**	3	5	1
Men and Women	**13**	4	8	1
Total	**43**			

***Source** : Projet DERICC-Benin/CREDEL ONG, november 2020*

Table IV reveals that :

- only men make the decision on all three types of activities;
- only women make decisions mainly for reproductive activities and to some extent for productive activities;
- joint decisions are taken mainly for reproductive activities and to a lesser extent also for productive activities.

The results reveal that men make more decisions than women in the household. Women are also involved in most decision-making within the household. The decisions that are taken by men are those that are to their advantage. Those that are taken jointly have the advantage of better orientation of ideas and good management of the results of the joint decision making. These are decisions that benefit the household and ensure a better education for the children.

Furthermore, it also appears that all decisions taken by women without the agreement of their husbands have negative impacts on them (e.g. a woman decides to take up a new activity without the agreement of her husband. This activity will not bear fruit and the woman will end up losing her income). For men, they remain the heads of the household and all decisions outside the household chores should be made by them or both jointly, but with more responsibility given to the man. For men, age, religion, education and ethnicity are important factors that community members consider in decision-making. For men, the man remains the head of the family and this is explained by the following statement: 'I married the woman and not the other way around. Therefore, I have full authority over all decisions that are to be made for the well-being of my family. Equitable decision-making reflects the ability of men and women to make decisions in their own households about anticipating, absorbing or adapting to climate shocks and stresses. It would be more beneficial for men and women to make decisions jointly as this reduces the risk of failure when one member undertakes an innovation.

It also allows woman to feel loved, valued and involved in important household decisions. As a result, harmony and mutual support are established between household members, which should lead to the well-being of the latter. This will require continuous advocacy for change. Photo 4 shows a learning session with the decision tool within the household in the village of Gomè (Commune of Glazoué).

Photo 4 : Decision within the household carried out in the village of Gomè (Commune de Glazoué)
Shooting *: Projet DERICC-Benin/CREDEL ONG, september 2020*

3.6. Impact Chain

Climate shocks/hazards significantly affect people's livelihood resources and activities. The Impact Chain Tool allows the direct and indirect effects of climate shocks/hazards on livelihoods to be assessed and provides a basis for discussions on strategies to respond to these effects. Photo 5 shows the impact chain carried out in the villages of Founga (Commune of Djougou) and Kawado (Commune of Ouaké).

Photo 5 : Impact chain carried out in the villages of Founga (Commune of Djougou) (a) and Kawado (Commune of Ouaké)
Shooting : Projet DERICC-Benin/CREDEL ONG, june 2021

Several hazards/shocks affect the beneficiary municipalities. Figure 8 shows the main shocks/hazards impacting community livelihoods in the project's beneficiary municipalities

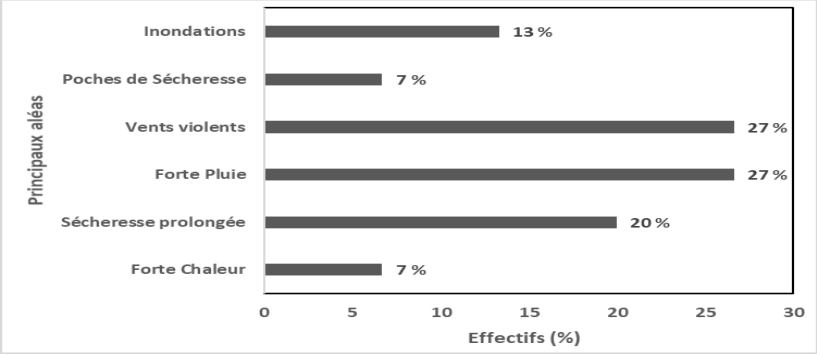

Figure 8 : Main shocks/disasters affecting communities in project beneficiary municipalities

Figure 8 shows that the major shocks/flows that impact the livelihoods of beneficiary municipalities are strong winds, heavy rain and persistent drought. Flooding is a consequence of heavy rainfall in a locality, so it comes

fourth after the first three shocks/hazards. Thus, each of the climate shocks/disasters impacts directly or indirectly the livelihoods of the beneficiary communities (mainly women and men).

Thus, heavy rains or heavy downpours are manifested by heavy precipitation that causes several damages in predominantly agricultural localities and localities close to the bed of streams and bodies of water. They affect crops when rainfall is high, destruction of mud houses and a significant impact on roads and markets. They cause the loss and destruction of crops through the flooding of fields bordering watercourses (case of the municipalities of Glazoué, Savè, Athiémè, Ouidah and Ouinhi), the degradation of roads, soil erosion, the collapse of houses, and the overflow of watercourses.

Floods are both of rainfall and fluvial origin. In fact, pluvial floods are caused by the fact that the very first rain water, at the beginning of the main rainy season, infiltrates very quickly and favours the water table growth. The non-infiltrated part of the water runs off into low-lying areas such as swamps, marshes and stagnates there. Rainfall floods occur more during the main rainy season and affect a great number of villages. Their extent varies from year to another and depends on the intensity of rainfall observed. As for runoff, it is function of the amount of rainfall. It focuses on a few flow lines or scatters according to the terrain. On the other hand, fluvial flooding is mainly due to the flooding of Ouémé or Mono/Couffo rivers observed each year in September. Thus, the water proliferation in the rivers occurs when the rainwater from the great rainy season in the north descends into the latter (Ouémé), thanks to the Zou River and its tributaries, but also thanks to the evacuation channels which flow there. These floods are caused by the floodwaters of the Ouémé River and are repetitive every year with great magnitude, varying from one year to another. The same phenomenon rises in the Mono/Couffo river. The height reached by these waters varies according to the place. All these victims were forced to face enormous difficulties in moving around and, above all, in their state of health and survival. Generally speaking, flooding from rivers and rainfall is the main concern of the populations of the municipalities of Athiémè, Glazoué, Savè and Ouinhi during the rainy season. This is because these floods have social, health and environmental impacts on the population.

Drought is caused by water deficit and high temperatures. When there is insufficient rainfall, water reserves are not recharged normally to maintain hydrological balance. It manifests itself in the drying up of low-lying areas, watercourses, often wetlands, and the heating up of the soil. The consequences of the latter are crop destruction, locust invasion, crop losses and reduced yields. They lead to water shortages and dehydration of herds (caused by the early drying up of water points), the emaciation of animals due to the loss of fodder (this has a greater impact on men as they are more involved in the livestock activity), sometimes leading to their death. This sometimes leads to famine and deterioration of water quality. The population develops some strategies to minimize the effects caused by drought owing to these situations. These include the introduction of short-cycle seeds in the agricultural calendar, the use of motor pumps for market gardening by women, the production of charcoal by men, and the cultivation of short-cycle seeds in wetlands (lowlands). Thus, the hard access to drinking water points during this period makes it more difficult for women to fetch water, which lengthens their working day. In addition, the water shortage will increase women's workload (especially domestic work), cause various diseases (diarrhoea, stomach ache, typhoid fever, dysentery and various infections, especially in children) due to the consumption of water of poor quality, and slow down the activities related to petty trade practiced by women in the beneficiary municipalities and which provide them with income.

Other women resort to petty trading to balance the needs of the household. Today, people wait for the first rainfall before starting agricultural production and use herbicides instead of hoes for weeding. For market gardening, artificial water reservoirs are built on sites to allow women market gardeners to carry out their activities until the water reservoir dries up. People have experienced long pockets of drought in recent years, which significantly reduces the availability of water for households and crops. It brakes activities requiring water (market gardening, processing of palm nuts into oil) and makes it difficult to collect water for various uses (drinking, household maintenance, fields). Indeed, women's vulnerability is greater during critical periods. Apart from their daily tasks, they also help their husbands to supplement the existing workforce. Women's workload increases considerably during these periods. During critical periods, several men choose to migrate to other localities or towns to work in subsistence jobs (motorbike taxi, labourers), leaving the burden of the farm and the house to the woman, and only return at the end of the critical period. However, the responses provided by the institutions in charge of crisis management are not often focused on women’s needs.

Strong winds destroy homes, schools, places of worship and trees. They are often followed by a drop in temperature making children more vulnerable to bacteria and microbes, and leading women to be extra protective of their offspring. They also devastate crops in the fields thus creating a loss of yield for men. They lead the population to build houses with permanent materials and good pillars to prevent the consequences of this hazard. Violent winds occur during rainy weather and/or drought. They mainly affect precarious dwellings in all the beneficiary municipalities. They are recurrent during March, April, September and October. This hazard causes damage such as the dislodging of dwellings, the crops destruction, especially maize, and the removal of topsoil. To cope with the hazard, the populations of the commune resort to reforestation and the

construction of houses in permanent materials which requires a lot of effort and makes many people resign because they do not have the necessary means to do so. This exposes them to the effects of the hazard

3.7. Vulnerability matrix

Several activities carried out by men and women are affected by climate shocks/hazards. The vulnerability matrix is the seventh tool in the CVCA approach which assesses the level of impact of climate shocks/hazards on local resources and activities. The aim of this tool is to identify key resources and the shocks/hazards that threaten them. It also make it possible to analyze the level of impact of shocks/hazards and climate change on key resources. Figure 9 shows the main shocks/hazards affecting the resources and activities of the project's beneficiary municipalities. The main results are presented for all the project's beneficiary municipalities.

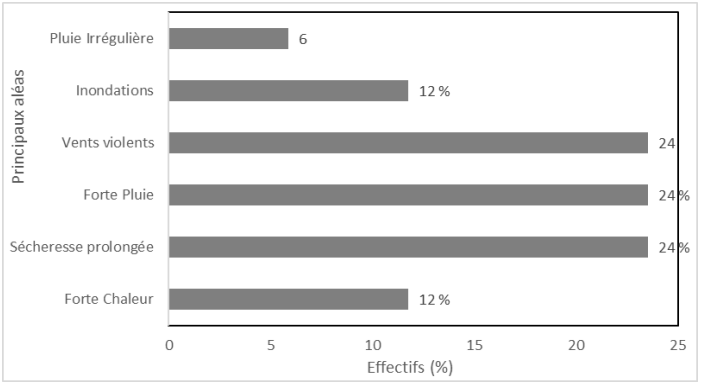

Figure 9 : Main shocks/disasters affecting the resources and activities of beneficiary municipalities

Figure 9 reveals that erratic rainfall, flooding, strong winds, heavy rains, long drought and high heat are the main shocks/disasters that affect the livelihood resources and activities of beneficiary municipalities. The most important shocks/disasters are high winds, heavy rains and long droughts, which occur in almost all the beneficiary municipalities.

These shocks/disasters affect resources such as agricultural land, crops, forests, plantations, waterways and water bodies, lowlands, livestock, housing, school infrastructure, road infrastructure, health infrastructure, market infrastructure, places of worship, water points and shops, mainly in the beneficiary municipalities. As a result, agricultural land, crops and lowlands are being disrupted by both lengthy drought and heavy rains.

Indeed, lengthy drought prevents the plowing of fields, market gardening and destroys arable land, shallow areas, plantations, rivers, water bodies, houses, road infrastructures, all crops, and therefore blocks women's activities, in this case market gardening, the processing of agricultural products and small businesses. It also impacts children's health in the beneficiary municipalities.

Heavy rainfall leads to the destruction of houses, institutions, school infrastructure, water infrastructure and places of worship, which are resources that provide social welfare, health and security to the population. It also destroys crops in the fields and sometimes prevents the exploitation of certain crop areas that are often flooded. It also destroys arable land, lowlands, plantations, road infrastructure, etc. These resources are crucial in the beneficiary municipalities as they not only provide financial income to men and women, but also enable communities to earn income for their well-being.

Strong winds are responsible for the destruction of crops (maize, rice, etc.) in the fields and the destruction of houses (roofs, churches, schools, etc.). They carry away, tear up and break everything in their path. They pose a real threat to grazing areas, carrying away and/or sanding up straw, which has a negative impact on animals.

On the other hand, floods affect schools which are forced to close their doors during this period, thus affecting school results in various exams (case in municipalities of Athiémè, Ouidah, Ouinhi, Savè and Glazoué, which are close to rivers (Mono, Couffo and Ouémé in particular)). Communities also suffer losses in their livestock due to the overflow of rivers. Houses and plantations are also affected by this overflow of water. All this creates upheaval in the daily life of the communities. Photo 6 shows the vulnerability matrix in the village of Ogoupatè (commune of Adja-Ouèrè).

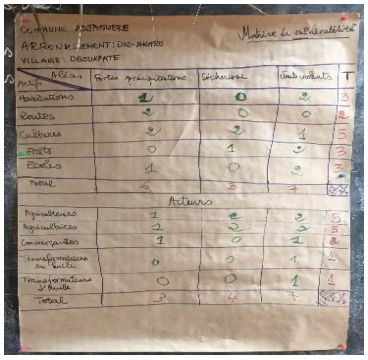

Photo 6 : Impact chain carried out in the village of Ogoupatè (commune of Adja-Ouèrè)
***Shooting** : Projet DERICC-Benin/CREDEL ONG, June 2021*

3.8. Venn diagram

Several institutions intervene in the beneficiary municipalities in the event of climate shocks/disasters in order to assist communities affected by the effects of these different shocks/disasters. Venn diagram, the eighth tool in the CVCA, provides an overview of institutions that can hinder or increase resilience. The aim is to identify the institutions that support the project's beneficiary municipalities in general and mainly when they are affected by climate shocks and disasters. The implementation of this tool within the beneficiary communities allows the identification of internal and external institutions that interact with the beneficiary communities in the event of climate shocks/disasters.

The organisations/institutions that interact with the beneficiary communities internally are the Village Council (VC), Parents' Associations (PTA), the Management Committee of the District Health Centre (COGEA), the Health Centre, the School District (SC), the Village Development Association (VDA), the village men's, women's and mixed groups, the AVEC: Village Savings and Credit Association, the Community Relays, the Social Promotion Centre (CPS), etc.

The organisations/institutions that interact externally with the beneficiary communities include: UNICEF ; Care Bénin ; Borne Fonden ; SNV ; CLCAM ; PADME, CREP, CEPEC, Béni-Biz, Promic-ONG, Eden-Bénin, PAFURIZ, UNIRIZ, PAEFFER, PIASAIA, INRAB, ProCard, CEBEDES, CRS, Enabel, EPC, PAPVIRE, ACCES, PAFIR, PSDCC, Centre Songhaï, PAGEFOM, COFORMO, GPAD, HUNGER-Project, UNICEF, PADME ; PADAM, PADAC, ACMA2, Bénin-Cajou, GIZ/ProAgri, ONG Rapidel, OMS, BETHESA, etc. Figure 10 shows the areas of intervention of the organisations/institutions in the beneficiary municipalities.

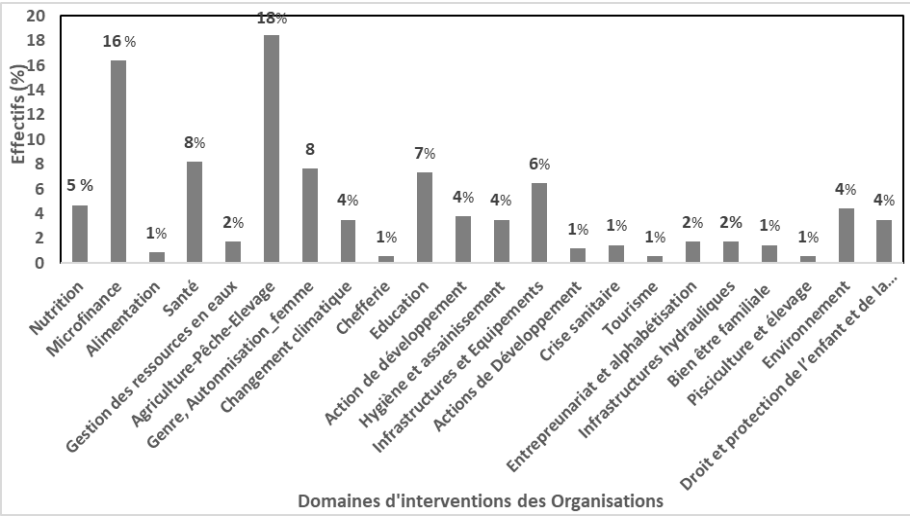

Figure 10 : Areas of intervention of organisations/institutions that interact with the beneficiary municipalities
***Source**: Projet DERICC-Benin/CREDEL ONG, june 2021*

Figure 10 reveals that the interventions of the organizations/institutions that interact with the beneficiary communities are mainly focused on agriculture (oil palm, cotton, rice and maize), fishing, livestock, microfinance (SFD (Devolved Financial Services), AVEC, micro-credits, PADME, CLACAM, CAVECA, CREP, CPEC, BETHESA, CARE-Benin (FaFaWa)). Interventions are also directed at health (hygiene,

nutrition), gender and women's empowerment, education, the setting up of infrastructure (shops, schools, drying areas, development of lowlands and water reservoirs) and equipment (drying machine, winnowing machine, husking machine, etc.), nutrition (WFP), and the promotion of women's rights), nutrition (WFP and Aids and Actions, etc.), climate change, development actions, hygiene and environmental sanitation, the rights and protection of women and children.

Several structures are involved in the field of gender and women's empowerment (CPS, IFMA ONG, DERICC, etc.). These are one-off or ongoing interventions that enable women to assert themselves through the development of income-generating activities. These structures raise awareness about gender-based violence and respect for the rights of women and children. Thus, after cross-referencing the institutions identified by the community with those available in the directory of NGOs, programs and projects in the municipality of Djougou, only the DERICC BENIN project intervenes in the field of gender and climate change in the municipalities of Djougou and Ouaké.

With regard to the intervention of organizations/institutions in the beneficiary municipalities, it was found that men find it easier to access microfinance and agricultural institutions as they have the largest areas of agricultural land, but also reliable guarantees (sales agreement, ADC, etc.) allowing them to access loans from these institutions. They also easily benefit from the assistance provided by institutions that provide technical support and donations of equipments in the field of agriculture because they have a low daily workload. They are thus able to respond promptly and effectively to capacity building sessions, training, donations and legacies, etc.

Women and children have greater access to social institutions (defense of children's and women's rights, education, social welfare, nutrition and health) because of their status as mothers and housewives. They also have easy access to institutions that provide technical and material support for the processing of food products. Few of them manage to access loans from microfinance institutions because they do not have the necessary collateral. They therefore turn to their husbands who take out loans with these institutions. However, some of them blackmail these women, especially when they see that their wives are empowering themselves. This becomes a burden that they have to get rid of. To overcome this state of affairs, women organize themselves into groups to make tontines/savings that enable them to make small loans in order to start an income-generating activity to ensure their financial autonomy. Young people, on the other hand, have more access to entrepreneurial, cultural and literacy structures. Photo 7 shows a learning session with Venn diagram tool in the village of Djègbamè (Commune of Ouidah).

Photo 7 : Venn diagram made in the village of Djègbamè (Commune of Ouidah)

***Shooting** : Projet DERICC-Benin/CREDEL ONG, june 2021*

3.9. Options d'adaptation

The last tool (Adaptation Option) of the CVCA approach was the subject of the main activities carried out during the fifth semester. These activities consisted of the organization of facilitation sessions with members of the project's beneficiary groups. Photo 8 shows the development of the Adaptation Options tool in the villages of Kpèloudè and Tchaladè (Commune of Ouaké).

Photo 8 : Adaptation options carried out in the villages of Kpèloudè (a) and Tchaladè (municipality of Ouaké)
Shooting : Projet DERICC-Benin/CREDEL ONG, december 2021

Climate change has become a reality facing all living things today. It affects both men and women, children, natural and physical resources. Women are the most affected by climate change in terms of their attachment to natural and physical resources and their low adaptive capacity. The Adaptation Options tool helps to define adaptation options to the effects of the risks identified in each municipality. It identifies options for adapting and increasing the resilience of the groups concerned and assesses the opportunities and constraints for their implementation in the field. This tool also synthesizes the eight tools already implemented with the project's beneficiary communities and reported on in the previous technical documents. All the adaptation measures/options collected were compiled in the PACAs developed at the level of the eight project's beneficiary communes. Indeed, women's vulnerability is greater during critical periods. Apart from their daily tasks, they also help their husbands to supplement the existing workforce. Women's workload increases significantly during these periods, which match with major agricultural activities (sowing, crop maintenance). Several strategies are therefore developed by the communities to cope with climate risks. Particular emphasis was therefore placed in the development of the tool on the priority options developed by women to make them more resilient to the effects of climate risks in their locality. The PACAs therefore summarize the different options selected in the eight beneficiary communes of the project.

3.10. Development and validation of the PACAs of the eight municipalities benefiting from the project

Community Adaptation Action Plans were developed following the implementation of the last tool (Adaptation Options) of the CVCA approach. Indeed, the implementation of the 9 tools (Hazard Mapping, Timeline, Seasonal Calendar, Typical Day, Household Decision, Impact Chain, Vulnerability Matrix, Venn Diagram and Adaptation Options) of the CVCA approach in the eight beneficiary municipalities of the project resulted in the development of Community Adaptation Action Plans for these municipalities.

Indeed, Community Adaptation Action Plans are decision support tools to help vulnerable communities adapt to climate change. They are also decision support tools that will help vulnerable communities to improve their resilience to climate change. The aim of the PACAs is therefore to identify community-based actions so as to increase the resilience of vulnerable groups to climate change. Their aim is to inform and improve national and communal planning documents (the adaptation plan, the annual and communal contingency plans, the 5th generation Communal Development Plan to be developed in 2022). They also serve as an advocacy tool to raise funds for the implementation of the identified adaptation options.

IV. Discussion

This study, based on the use of the CVCA approach which has already been implemented by CARE (2014), is an approach for analyzing vulnerabilities and adaptive capacities to climate change, aimed at supporting community-based adaptation, resilience and gender equality (ICIMD, 2009, p. 8; Jeans et al., 2016, p. 32).

It is an approach that has already been implemented in India, Indonesia, Thailand, Vietnam, Niger, Tanzania, Kenya, Ghana and Mozambique (CARE, 2019, p. 4 and CARE and WWF, 2017, p. 12). This is the first time this approach has been used in Benin and the results corroborate those obtained in the implementation of this approach in other countries mentioned above (CARE, 2012, p. 36; CARE, 2013, p. 5 and CARE, 2014, p. 19).

The first version of this approach was available in 2007, and an updated version with tools and guidance to refine the analysis of gender dynamics was released in 2017 (CARE and WWF, 2017, p. 12).

In addition, ecosystem-based adaptation and landscape approaches are gaining momentum. The CVCA process aims to collect and then analyze data on the vulnerabilities and capacities of target communities. This is

then intended to facilitate the identification of measures to increase community resilience to climate change at the community level and beyond. Data collection will first involve secondary data collection and then the use of participatory research tools to bring together local perspectives and traditional knowledge. Both types of data collected are then consolidated and analyzed through reflective questions to explore key issues that influence people's vulnerability to climate change and their resilience capacities at a given time (CARE, 2016, p.5; Reid, 2016, p.5 and IISD and UNDP, 2018, p.23).

V. Conclusion

The communities (men and women) with whom the CVCA tools have been implemented in the beneficiary municipalities have sufficient natural and human resources to carry out agricultural activities. However, women have very little access to and control over these resources.

These different data will lead to the elaboration of the Community Adaptation Action Plan (CAAP), which are documents developed with the grassroots communities to allow a real concern of their needs. The Action Plan that emerges from the CVCA will be an advocacy tool to raise funding for the implementation of adaptation options. The specificity of this action plan is that it presents gender-specific adaptation strategies to promote gender resilience to climate change. Improving the resilience of vulnerable communities cannot be the sole responsibility of a single actor. Needs are listed in several categories including: advocacy training; capacity building; and financial support.

To achieve the goals set by PACA, it will be necessary for both private and public institutions working in the municipality to work together so as to achieve the goal of improving the resilience of communities to climate change, with a view to social inclusion and gender equality.

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