

The Worst Natural Event and Disaster Preventive and Preparedness Measures in Northern Cameroon Regions and in Few Neighboring Nigerian Government States

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ABSTRACT

The paper describes the 2012's flood disaster as the worst natural event occurred in Cameroon more than 60 years back. The paper also presents all the government projects or engagement for preparedness, preventive measures in view to reduce forthcoming flood calamity events in the country. The Far North and North regions being the most affected are the sites of observation. Though Cameroon experienced flood events since ninety's, the 2012's flood events was said to be the worst in the country. The estimated number of flood-displaced people reached 88,640 and affected 168 schools with 62,344 children in the both regions. In the neighboring country (Nigeria) the flood caused huge damages, out of the 36 states in Nigeria, 32 were affected with six states namely Taraba, Benue, Kogi, Anambra, Rivers and Bayelsa being the worst knock. The sites of study are the North and Far North regions. Discussion, interviews and observation with the affected persons and areas carried out in 2012, 2013, and 2014 constituted the primary source of data. While the secondary data were obtained from the divisional and sub-divisional officers, traditional heads, the internet, international organizations officials and private journals, the radio and television heeding and viewing. The work's result show that the main causes of the occurred tremendous events include, irregular and poor management of existing water infrastructures by the water personnel's, the none respect of the government instruction for construction code (permitting buildings in the swamp areas, risky and on the national domain). Other factors such as climate change, deforestation with poor town planning contributed to worsen the negative flood effects. None exhaustive emergency funds received include 7,771,554 cfa from Cameroon, 299,707,000 cfa from DREF, 150,000 euro from Italy, 54 billiards cfa from Breton woods, from UNICEF and its partners 16,052,009.18 cfa. In order to protect the population and the irrigated rice areas along the river, dykes were constructed between 1950 and 1970 on both margins of the Logone River to control the floods of the river. The works continued until 1979 and were completed on the Cameroon side with the construction of the Maga Storage Dam and 20 km of dykes controlling the overflow of the dam. While with Nigerian government an agreement was signed in 1980 for construction of a buffer dam in Nigeria side to control the release of excess water, from Lagdo, unfortunately the said agreement was not respected by the Nigeria till date and no proper management of the Maga dam structure took place in Cameroon till the 2012's calamity occurred. So Preparedness and preventive effort are put in place including, the World Bank \$108 million for projects. Reports from the Cameroon and Nigeria concern that intend to enter into a Memorandum of Understanding with respect to the River Benue basin. The only significant flood control structure in the River Benue basin is the Lagdo Dam. This dam has a substantial hydroelectric power potential of about 700 MW, has an installed capacity of 84 MW and only one turbine (21 MW) presently is in use. A bilateral meeting (Cameroon and Nigeria) at the electric power sector in Cameroon is planned to understand why the existing installed capacity at Lagdo Dam is under-utilized and why the overall potential for hydropower at Lagdo Dam is not considered to supply the sub-region in Central Africa for the future. For individuals, designed miscellaneous prerequisites for natural risk reduction are provided.

Keywords: Flood events; Natural disaster; Preparedness and preventive measures; North and far North regions-Cameroon

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INTRODUCTION

According to the United Nations' World Food Program the Northern and Eastern regions of Cameroon have the highest share of households considered food insecure. The North, which is characterized by an agro-ecological Sahelian climate, has experienced recurrent shocks in the last years, including droughts in 2004 and 2009, floods in 2009 and 2012, and a cholera outbreak in 2010 and 2011. More than 60% of households are vulnerable to food insecurity in the North and Far North. Flooding is considered to be a natural hazard for which precautions or awareness has the greatest thinking to reduce the disastrous loss effects [1]. However floods that happening after frequent heavy rainfalls could not result in higher fatalities (worst disasters effects) can be minimized or avoided particularly those caused by human activities such as when forests are cut or burned down, water from rainfall flows down on barren land and produces mudslides carrying all along [2]. Flooding are exacerbated by increased amount of impervious surface or by natural hazards, wild fires or deforestation which reduces the supply of vegetation that can absorb rainfall. For since to recent years, floods have been an annual occurrence worldwide (Europe, America, Africa and Asia etc). Climate change and global warming are other causative factors of flooding [3-5].

As other developing countries in Africa, Cameroon experienced flood events since ninety's. From 1906 to 1965 annual rainfall fluctuated from year to year. In Douala for instance, average of 3,000 mm of rain per year has been standardized. But from 1989 the average increased from 3,200 mm to 3,800 mm in 2010, before falling to 3,080 mm in 2014, reported by the National Department of Meteorology (NDM). Between 1998 and 2006, 4,200 people were affected by flooding in Cameroon declared the Centre for Research on the Epidemiology of Disasters' Emergency Events Database (EM-DAT). More than 10,000 people in 2008 and 25,000 persons died in 2010 and close to 52,000 in 2012 in Douala. The flood disaster submerged over 60,000 hectares of land and forcing thousands of people to flee for safety more than 2,000 people lost their homes to flooding in the same region Douala.

On August 2015, the damage was enormous when heavy rains hit the North West region in the neighborhoods of (Mulang, Foncha and Ntasin) in Bamenda II and III Subdivisions. The floods that flooded the mainly marshy areas buried and carried away goats, poultry, destroyed documents and household equipment (regional CRTV news). However the regional head authority said that the affected neighborhoods were forbidden for habitation but the population growth of metropolitan in headquarters pushed individuals to settle here and there, claiming that they have building permits to show. After the flooding events, the North West's Government Delegate City Councils blamed the victims for occupying risky areas after quit notices and gave queries to those land officers who delivered fake building permits. Since the landslides happened in 2009 in Bamenda, inhabitants of risky areas were served quit notices with some institutional supports to relocate them. The capital city quarters of Yaounde including (central post junction, Mokolo, Tsinga elobi, Nkolbisson, Koabang, Carrefour Tsimi etc.) areas cause not only deaths, structural damages, wide spread inconvenience, but

also increased rates of water-borne diseases such as cholera and dysentery according to the Health Minister, and he precised that there were more than 250 deaths from cholera in 2012 following urban floods in the country.

In Northern Cameroon the 2012 disaster was being called the worst flooding in Cameroon more than 60 years back (EM-DAT).

Following heavy rains and flooding in late August and September 2012, flood emergencies were declared in the North and Far North regions of Cameroon. The estimated number of flood-displaced people reached 88,640 (50,824 people in the North and 37,816 in the Far North region). The floodwaters have submerged areas like Benoue, Faro, Louti and Mayo. Homes, crops and barns have been destroyed and herds of livestock killed. Heavy rainfall that has lasted nearly a month has fractured the Lagdo Dam, causing the Benue River to flood nearby villages. At least 30 people had been killed and 120,000 displaced in north eastern of Nigeria in Adamawa state after water was released from the Lagdo Dam. In August 2014, Bibemi Subdivision, 64 kilometers from the city of Garoua (capital of the North Region) has been experiencing heavy rainfall (about 180 mm) has caused severe flooding in more than 10 villages of the Subdivision, leaving extensive damage and loss of life.

Many of these villages including Sabongari, Oura-Kar 1 and 2, Bando Botare and Baksa were swept away by floodwaters, with houses and farms destroyed, animals killed or washed away and nearly 923 families (about 4,500 people), whose homes were completely destroyed and 53 others whose homes were partially destroyed and rendered uninhabitable. About 1380 homeless people live with host families and in public buildings. Some of them are exposed to harsh weather, respiratory and dirty water-related diseases. Therefore flood emergencies were declared in the two northern regions (North and Far North). The negative effects of floods can reduce economic growth, agriculture and ecologic system productivity. How these negative effects may worsen due to both climate change and socioeconomic development in vulnerable developing countries.

MATERIALS AND METHODS

The main sources of data:

- Eye view and snapping photos with the personal electronic camera and interviewing the corresponding victims on the field.
- NGOs, National Officials Authorities and Cameroon Radio and Television (CRTV), the traditional chiefs of the villages were the active actors as shown in Table 1.
- The collected data were assembled and analyzed and written in a proper way
- Comments, suggestions from researchers and from NGS were made available (official journals in French and English) to National and traditional authorities and population to prevents such fatal events as shown in Figures 1-3.

Aid agencies like Plan International Cameroon and the United Nations Population Fund were concerned about the potential spread of infectious diseases such as cholera and malaria among as shown in Figure 4, and rebased under the tents erected to house them.

Table 1: Summary of the above major floods occurrence and disaster effects around the world.

| Geo-localization | Causes | Period | Disaster -effects | | Intervention /solution |
|--------------------|-------------------|--------|-------------------|---|------------------------|
| | | | Dead | Others | |
| Japan | Rivers flow | 1887 | 2 M | Famine | Dyke building |
| China | Dykes break | 1642 | 300 T | Famine | Breaking dykes |
| China | Rivers flow | 1931 | 4 M | 88 km ² destr, 80 T homeless | Dyke building |
| Japan | River flow | 1938 | 1 M | Farms destroyed | Dyke building |
| China | 62 Dams collapsed | 1975 | 230 T | Famine | Dykes are destroyed |
| Netherland/England | Great storm | 1999 | 100 T | Farm destroyed, homeless | Dykes building |
| England | Dyke break | 1987 | 80 T | Homeless, materials | Dam building |
| America | Hurricanes | 1900 | 8 T | Homeless and bridges broken | Dyke construction |
| America | Dam break | 1928 | 4.5 T | Homeless, materials destroyed | Dyke construction |
| Mississippi | Dam break | 1993 | | 20 Billions damages cost | Dyke construction |
| India | Storm | 2014 | 500 | Homeless, famine | Dyke construction |
| India | Indian-Ocean flow | 2004 | 250 T | Homeless, farms destroyed | Dyke building |
| Colarado | Flood areas | 1976 | 144 | Homeless, farms destroyed | Dyke construction |



Figure 1: Flooded areas in the North Region at Lagdo (80 km from Garoua). **Note:** Cameroon Red Cross.



Figure 2: River Taraba and River Benue joining at Jibu in Plateau State in Nigeria. **Note:** Akintola Omigbodun.



Figure 3: A submerged village in Kogi state in Nigeria. **Note:** Afolabi Sotunde.



Figure 4: The 3,000 Flood victims under tents for health treatment. **Note:** UNICEF/MINEDUB.

RESULTS

The Lagdo environment villages are totally submerged as shown in Figure 1 while the Figure 2 is the Rivers Katsina Ala, Donga and Taraba drain a part of the western region of Cameroon and an area in Nigeria south of the River Benue.

A village as shown in Figure 3 is submerged by floodwaters at the foot of the Murtala Mohammed Bridge in Lokoja, in Nigeria's Kogi state after the release of water from the Lagdo dam in Northern Cameroon in September 2012.

The 3,000 flood victims are hosted under tents for health treatment while the Figure 5 is the Training of Trainers on Disaster Risk Reduction Local and international NGO partners (Care International, Plan Cameroon, ADRA, CODAS-Caritas, and Foundation Bethlehem) on the construction or rehabilitation of water points and latrines in IDPs sites. A seasonal peak of malaria not seen earlier in Cameroon was recorded between August and October 2013 in the Far North. In children under-five, the suspects malaria cases rose from 10,223 suspects cases in August

2012 to 12,132 suspects cases in August 2013 and emergency materials have been given to Cameroon.

The Figure 6 is the ceremony handing over emergency materials to the victims (materials for education, nutrition, health and wash materials) to the Minister of Health, Secretary of State for Health donated by Ambassador of Japan at Yaounde on October 2013.

The Figure 7 is the image of the flooded roads and quarters in the central economic city DOUALA. The citizen struggle and pass through to go to work and markets

As immediate responses to the event; the personnel's of the Government Delegation for Douala Urban Community drain throughout, and demolishes slums in the swamp areas for water evacuation as shown in Figure 8; 4225 families were affected and homeless in Wouri Douala (Littoral Region) and the Delegation for Douala Urban community has given 48 hours to the inhabitants of Makèpè-Missokè to leave the area for subsequent destruction of buildings following minor floods, the government released 185 million into Douala's Urban Development for Emergency Rehabilitation and construction of infrastructure.



Figure 5: Training of trainers on disaster risk reduction. **Note:** UNICEF/MINEDUB.



Figure 6: Handing over emergency materials. **Note:** UNICEF Cameroon.



Figure 7: Roads are flooded and the citizen pass through to go to work and markets.



Figure 8: The government announced campaigns to clean gutters in Douala city 2015.

DISCUSSION

As with the rest of the Sahel sub regions, since 1970s the region of Lake Chad, of which the flood plain forms part, has been suffering a persistent drought. The Logone River follows the deficit sequence in the rainfall since that year. The reduction of the floods follows the same trend, as a consequence, a reduction of the volume of the overflows or even absence during dry years. In order to protect the population and the irrigated rice areas along the Logone River, Cameroon constructed dykes (alongside the dam SEMRY II between 1950 and 1970) on both margins of the Logone River so as to control the floods of the river.

Studies undertaken in the 1990s have shown that the absences of floods recorded in the plain area are a result of the combined effects of the drought situation during the last 30 years and of the flood protection works. This has resulted in a reduction of the flooded surfaces in the order of 60%, as well as in the retention in the dam of the water highly loaded with limestone and other minerals, which plays a very important role regarding the fertility of plain soils.

All this has had a negative effect on the survival of the population

in this region, where the flooded lands are very much used for the agriculture and grazing activities, while fishing depends on the duration and extension of the floods. The induced losses are in general very difficult to compensate by the advantages of the irrigation systems, where the performances are very often very mediocre.

These activities continued until 1979, when they were completed on the Cameroon side with the construction of the Maga storage Dam and the last 20 km of dykes. As a result of these, the hydrological system of the flood plain was profoundly altered; taking into account that these works were constructed during the period of persistent drought, these works accentuated even more the reduction of the flood volumes.

At the same time, the capability of sustaining the wildlife has considerably been reduced in the different national parks of the region.

In view of the seriousness of the situation, a number of studies were undertaken at the beginning of the 1990s to assess the possibility of re-instating the flooding process of the plain without affecting the irrigation systems. The first results have shown that the reopening of one of the main effluents of the Logone, closed

in 1979, can now lead to a re-establishment of the flooding dynamics and to the restoration of the floods in a very important part of the plain.

Finally, the influence of the climate change during the last decades on the "impoverishment" of the water resources in the whole Chad Basin does not leave any doubt. In addition, the combined effect of this climatic situation. The irrigation projects in Cameroon and Nigeria have caused a spectacular reduction of the level and surface of the Lake Chad. Of a surface of 23,000 km² and an average depth of 5.2 meters in 1962, it has gone down to 3,000 km² and 3.6 meters in 1985. The Cameroon's government only cannot realize the multitude of works and therefore is assisted by the usual national and international partners.

For many years, the government has called for better regulation of the construction code, as well as to improve the maintenance of the river banks and city drainage systems. Enforcement however is weak and the maintenance irregular in the flood areas. The Japanese government will donate equipment to facilitate the recording of quality meteorological data which is needed to prevent flood disasters.

According to Cameroon UNICEF, in 2012 the situation has worsened in the Far North region by the rupture of the Maga dyke which has caused water from the dam to flood Doreissou, Begué, Palam, Dougui and Tekele villages [6]. The Cameroon Communication Minister described the flooding as "a great calamity that has never occurred in recent years in Cameroon," and he called for urgent action to save lives, livestock and property. Dana FM, a local radio Station, said the death levy will grow as bodies are collected and identified and there is no sign of the flood easing. Areas around the district of Logone and Chari Department along the northern border with Chad are flooding bringing the estimated persons affected to be 37,816 in the Far North region. The North and Far North regions are affected by the Sahel crisis with more than 5.9 million people living in those regions. The flood effects coupled with population suffering food insecurity above 15% in the two regions where 160,128 with acute malnutrition (UNICEF).

The floods that hit the both regions disturbed the academic year of thousands of children of the sub divisions of the Maga in the Far North and Lagdo in the North. The events began one week before the start of the new school year and prevent the children from starting school as planned in September of each year. Additional flooding three months after the school resuming increased the number of flood affected schools to 168 with 157 in Far-North and 11 in North impacting 62,344 children to resume. As food supplies are running low and the tents are inadequate for the thousands of displaced flood victims, so serious concerns were about malnutrition, drinking water and diseases spreading.

These families live under very precarious conditions because their farms have been destroyed and crops and small livestock and poultry washed away.

The floods have been further aggravated by a cholera outbreak in the same affected localities. According to State media, twenty-two cholera cases and one fatality have already been recorded. Steps have to, therefore, be taken urgently to prevent the situation from deteriorating any further, not only for the victims, but also for the entire population of that locality. The agricultural and fishing activities were disturbed since many cultivated areas have been flooded, livestock has been lost and fishing areas in the Logone river has become inaccessible, leaving farmers, cattle breeders and

fishers vulnerable and leading to shortage of food.

Access to safe drinking water has become very difficult. Hygienic conditions have also deteriorated as latrines have been washed away, leading to open defecation, thereby causing contamination of the water sources and possible spread of water related diseases.

The flood situation is likely to deteriorate as it is still early in the rainy season and efforts of local authorities to repair the ruptured part of the dam have failed.

The United Nations team working in Cameroon, on August 2012 discovered that the numbers of displaced and homeless people in both regions are great. Furthermore, population movement, overcrowding in the IDP in camp areas with poor water and sanitation systems may worsen the existing cholera outbreak and cause spread of other diseases. A quick response to the imminent crisis is therefore declared by the UN team.

The target group for the proposed intervention has been identified for 1,000 families (400 in the North and 600 in the Far North) currently living in school classrooms. These families have lost their houses and all possessions, and besides the urgent need for shelter, they have also expressed the need for non-food items such as mats, blankets, mosquito nets and soap in order to prevent respiratory diseases, malaria etc. Families have also expressed the need for kitchen kits (as cooking utensils were washed away), jerry cans for collection and storage of drinking water and hygiene kits for women of childbearing age. The 1,000 displaced families (600 in the Far North and 400 in the North) will need 2,500 mats (1 mat for 2 persons), 2,500 blankets (1 blanket for 2 people), 2,500 mosquito nets (1 net for 2 persons), 10,000 pieces of soap of 200 g (1 piece of soap per person/month for two (2) months), 1,000 kitchen kits (1 kit per family), 1,000 gallons (1 gallon per family) and 1,000 jerry cans (1 Jerry can per family), 2,500 hygiene kits, (1 kit per female).

"In the absence of adequate town planning and an adapted drainage system, heavy and prolonged rains will be very catastrophic," said the, chief of service at the Ministry of Environment and Protection of Nature's weather monitoring unit. In the same idea, the National Climate Simulations (NCS) declared that the average annual rainfall in Cameroon could increase as much as 35 percent between 2010 and 2050, and temperatures could go up at least to two degrees Celsius. Despite warnings by authorities and the 2004 town planning law that prohibits construction on unsuitable lands for habitation, many buildings in Douala and in Yaounde and in all metropolis zones nationwide are still built in flood zones (risky areas). People build in risk areas because of their prime locations with fake building permits and can pass over the law as usual (NGC). The U.N Environmental Experts (FAO) in 2015 pointed out that Cameroon still has no measures in place to deal with flooding matters, as the rainy season begins; cholera still poses a big risk for the country. They have been calling for the government to act in view to reduce the damages from Cameroon's increasingly weather disparity as climate change seem to be linked to flood events.

In this view, this research work in its first part aims at describing the major flood events occurred in the country and the second part looks at what preparedness or awareness measures that the government and communities have put in place in view of reducing flood calamities affecting communities, properties, natural resources including (soil, infrastructures, vegetation and water). The following paragraph examines the general major causes of floods and how the negative effects could be reduced

or avoided.

Flood origins and disasters

Flooding has always been a part human history. In recent times, climate change and global warming is another causative factor of flooding [3]. According to United Nations UN report in 1998, 23 million people were affected as a result of flooding in Xian, China where three thousand people lost their lives and about one million people lost their homes. In 1996, the monsoon floods in India and Bangladesh affected more than five million people where three millions homeless and five thousand died.

Flooding can be caused by heavy rainfall or when rivers and oceans overflow their banks due to high tides, thereby submerging land areas. It takes place when lakes, ponds, river beds, soil and vegetation cannot absorb all the water, making excess water run off the land in volumes that cannot be carried within stream channels or retained in lakes, natural ponds or man-made reservoirs. Flooding can be exacerbated by increased amount of impervious surface or by natural hazards, wild fires or deforestation which reduces the supply of vegetation that can absorb rainfall. Deforestation occurs around the world, though tropical rainforests are particularly targeted (NASA) predicts that if current deforestation levels proceed, the world's rainforests may be completely in 100 years. According to (GRID-Arendal), an United Nations Environment Program declared that, "Countries with significant deforestation include Brazil, Indonesia, Thailand, the Democratic Republic of Congo , other parts of Africa, and parts of Eastern Europe will be the most flooded zones. The country with the most deforestation activity is Indonesia since the last century; it has lost at least 15.79 million hectares of forest land, according to US University of Maryland and the World Resource Institute.

How floods can occur

Appropriate flood control measures can help flood waves to disperse without causing serious damage. And the flood risk needs to be considered in the designation of land for industrial or residential and for appropriate varieties of crops areas. The flood plain (Far North) is an area that covers parts of Chad and that of Cameroon and is potential for population.

The flood plain of Logone and its periphery zones were populated since centuries ago by a multitude of ethnic and cultural communities. They lived initially from the exploitation of the natural resources production (fisheries, livestock, and agriculture) both during the floods and after the recession of the waters. In addition, nomad peasants come from the different countries of the region to have their cattle graze on the plain during the dry season. The population directly concerned by this ecosystem could be estimated at present by some 700,000 inhabitants [7]. A large extension of the plain (8,000 km²) is periodically flooded by the overflows of the Logone River. The natural hydrological flooding process happens in three steps: at the beginning of the rainy season (May to July) when the clays which form the essential part of the soils in the plain swell and become impervious. If rains are abundant they fill the wetlands and produce the first inundation in the lower parts of the plain. Then the runoff coming from the Mandara mountains, highly loaded with limestone, come immediately after to wrap up the operation. The overflows of the Logone, which contribute the largest volume of the water, normally start at the beginning of September. Thus, water with a depth of 0.7 to 1.2 meters will cover the plain during 3 to 4 months [8]. When the dry season

starts, a part of the floodwater returns to the river, but a large part is also lost by evaporation and the rest flows into the Chad Lake.

Reinforcing and re-equipping the over 300 meteorological centers throughout the country, many of which were not functional for lack of finances to replace obsolete equipment, said Cameroon's minister of water and energy in 2015 [9-11].

Constraints and disparities

Constraints and disparities in Cameroon's economic growth, especially between the semi- arid northern areas and the rest of the country, are driven by the climate risks. Cameroon lacks comprehensive information system, such as hydro-meteorological services, to sustainably manage its water resources and rainfall variability and faces an inadequate institutional framework as well as insufficient and deteriorated infrastructure.

Cameroon's vulnerability to extreme climate events may further increase according to different climate change projections. The mean annual temperature is projected to increase by 1.0 to 2.91°C by the 2060s, and 1.5 to 4.7°C by the 2090s. According to Sector and Institutional Context 9, agriculture contributes more than half of Cameroon's non-oil export revenues and employs almost 60% of the economically active population [11-14].

Agricultural development can play an important role to accelerate growth and reduce poverty, notably in the semi-arid north of the country.

Developing the agriculture sector would also contribute to greater food security and significant job creation, and could contribute to reducing the nation's dependency on volatile and diminishing oil revenues. Notably the agricultural sector is highly vulnerable to the potential climate change related impacts.

An evaluation of approximately 15 climate change scenarios in Cameroon estimated that net revenues in the agricultural sector could rise by US\$ 2.9 billion, if future climates are mild and wet, but could fall to US\$ 12.6 billion, if they are hot and dry (World Bank). Agricultural development thus features prominently in the Government's 2009-2019 growth and employment strategy (DSCE). Particularly, the second pillar of the DSCE highlights the importance of economic diversification with a strong focus on agricultural development as the key income generating activity and the main source for future economic growth and poverty alleviation in rural areas. In this view the SEMRY (Société d'Expansion et Modernisation de Riziculture de Yagoua) has been established. Cameroon ranks as one of the countries in the world most vulnerable to multiple hazards, according to the World Bank's Natural Disaster Hotspot Analysis, an estimated 42% of the population at risk of multiple hazards (World Bank). Cameroon is challenged to tackle its climate variability and related disparities of growth by its limited infrastructure, legal framework and information systems. Although the country as a whole is well endowed with abundant fresh water resources, Cameroon's climate is marked by highly variable rain-fall. Its weather-sensitive economic sectors from agriculture to water resources management are highly vulnerable to weather and climate related shocks. It will be important to sensitize the community about natural disaster risk reduction [15-17].

Miscellaneous safety measures for flood disaster-risks reduction

Natural risks might be getting bigger, but public and private sector decision makers can do more to prevent catastrophic damage before it happens. The United Nations Office for Disaster Risk

Reduction can evaluate baseline risk conditions and monitor progress of risk reduction activities. Sharing the Analyzer's easily accessible data with public and private sector decision makers will immediately raise their awareness about current and future river-flood risks. Armed with the right information, decision makers can then prioritize risk reduction and climate adaptation projects, and implement the most viable, cost-efficient options. To protect the tens of millions of people at risk from river floods and coastal storm surges, tools like the Global Flood Analyzer that help decision makers in international relief organizations, reinsurance companies, multinational companies, and many others build advanced protection systems to protect people and infrastructure [18].

No allow construction of permanent buildings and infrastructure within the 'flood zone' of rivers everywhere. Why not change planning/building control to only allow building of structures that can withstand the large flood events (such as elevated, platform style building) that will happen as a result of both 'normal climate and human induced climate change and global warming. Establishing 'buffer zones' of areas where permanent building is not allowed [19]. This buffer zone could be determined with analysis and modeling of local hydrology and precipitation data. This is what 'Planning and Development' should be all about. London is protected from flooding by the Thames Barrier, a construction that moves up and stops water from getting in to London when it reaches a certain height. During flood period, some actions should take place, they include;

To help people who suffer from flooding, special boats can pick up people who are trapped on roofs or on the upper floors of buildings. Shelters are set up for people who are left homeless.

HDR Hydro-Meteorological Services has to be contracted by the Urban Drainage and Flood Control Districts (UDFCD) to survey and objectively to ALERT (Automated Local Evaluation in Real Time) within its Flood Detection Network (FDN).

The FDN information is utilized for many purposes that include weather prediction, flood detection, water supply, wildfire suppression, and past weather reconstruction. The FDN, especially the weather stations are instrumental within the UDFCD's Flash Flood Prediction Program in assisting the Private Meteorological Service (PMS) with basin specific Quantitative Precipitation Forecasts (QPF). The QPF that is produced is used to prompt internal alerts of flooding threats to the emergency preparedness.

Assist people in returning to their home and communities as quickly as possible, but not so soon that it is dangerous. Warn returnees of the risks of injuries and health problems in rebuilding from flood damage.

Ensure flood victims have fair and easy access to information on relief and recovery services and assistance which may be available.

Provide advice and training to flood victims on ways to quickly rebuild in ways which will reduce future damage from floods.

Provide appropriate assistance to the elderly and other disadvantaged groups (the ill, orphans, disabled) who need additional assistance to recovery from the flooding [20].

Draw lessons from the impact of the floods and enhance measure to prevent or mitigate these impacts in the future. Some materials should be provided by family members or head of the family they include;

At least a 3-day supply potable water; one gallon per person per day, at least a 3-day supply of nonperishable food, easy-to-prepare,

or dried fruits, ground nuts, etc. Flashlight, battery-powered or hand-crank radio with extra batteries is important, first aid kit medications (7-day supply) and medical items, extra batteries, glasses, contact lenses, syringes, cane and baby supplies (bottles, formula, baby food, diapers), favorite supplies (band, leash, ID, food, carrier, bowl).

Copies of personal documents (medication list and pertinent medical information, deed/lease to home, birth certificates, insurance policies), Cell phone with chargers, Family and emergency contact information, Extra cash, Emergency blanket, Map(s) of the area, Tools/supplies for securing your home, Extra set of car keys and house keys, Extra clothing, hat and sturdy shoes, Rain gear, Insect repellent and sunscreen, Camera for photos of damage

Return home only when officials have declared the area safe. Before entering your home, look outside for loose power lines, damaged gas lines, foundation cracks or other damage, Parts of your home may be collapsed or damaged. Approach entrances carefully, see if porch roofs and overhangs have all their supports. Watch out for wild animals, especially poisonous snakes that may have come into your home with the floodwater. If you smell natural or propane gas or hear a hissing noise, leave immediately and call the fire department. If power lines are down outside your home, do not step in puddles or standing water. Keep children and pets away from hazardous sites and floodwater [21].

Materials such as cleaning products, paint, batteries and contaminated fuel and damaged fuel containers are hazardous.

Check with local authorities for assistance with disposal to avoid risk, during cleanup, wear protective clothing, including rubber gloves and rubber boots. Make sure your food and water are safe.

Discard items that have come in contact with floodwater, including canned goods, water bottles, plastic utensils and baby bottle nipples, when in doubt, throw it out!, do not use water that could be contaminated to wash dishes, brush teeth, prepare food, wash hands, make ice or make baby formula.

CONCLUSION

The paper has described the 2012's flooding as the worst natural hazard happened in Cameroon more than sixty years back and it informs us that Cameroon experienced flood events since ninety's. From 1906 to 1965 annual rainfall fluctuated from year to year. In fact floods that happening after frequent heavy rainfalls could not result in higher fatalities if proper precautions or greatest thinking take place. Unfortunately no adequate attention has been given to manage the water infrastructures. Following heavy rains and the breakdown of Maga and Lagdo dams irrigated rice areas, in 2012, water submerged the periphery zones and affected people, houses, crops and the ecology in the two northern regions of the country and few neighboring Nigerian government states. Flood emergencies were declared in the North and Far North regions of Cameroon. The estimated number of flood-displaced people reached 88,640. The flood affected more than 168 schools. Following the flood events emergencies took place in health, education, nutrition and resettlement of the displaced persons. The Cameroon government and its partners responded promptly for help though up to date some victims are not settled and suffer from malnutrition. Preparedness and preventive measures or projects took place since 1950, 1970. Because of an inadequate management of the infrastructure by water officers or authorities in charged, the worst of 2012

occurred. For preventive and preparedness, many projects are scheduled such as the re-equipping of the 300 meteorological centers throughout the country, the World Bank approved a \$108 million grant to support efforts to rehabilitate embankments, dams and irrigation systems and improve disaster preparedness in that area. To reduce the high poverty levels, its vulnerability to natural disasters and climate shocks, including frequent droughts and floods the World Bank fund will provide food security and economic development in Northern Cameroon. Cameroon and Nigeria should use satellites to monitor weather and climate patterns and longer-term trends.

Services responsible for the management of flood-related problems and of water resources in particular are; the Ministries of the Environment and Forests and of Mines, Water and Energy, which deal with institutional aspects and the management of the water resources; the Ministry of Agriculture, which is responsible for issues related to water and agriculture; the Ministry of Higher Education and the Ministry of Scientific and Technical Research, which have to do with research. For natural hazard risk reduction miscellaneous actions have been listed for the community (dumping of solid wastes in drainage and water channels as well as construction of houses on the channels as major causes of flooding and urged local communities to sensitize the people to desist from such habits).

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CONFLICT OF INTERESTS

Cameroon and Nigeria have resolved to cooperate on building new flood-control structures, sharing weather information and relocating people from flood-prone areas in an effort to avoid further losses. They have engaged in a united effort through a Memorandum of Understanding (MoU) established by a joint team of water management experts from both countries to take measures to forestall (prevent) the flood calamities. With regard to the Lagdo hydro-electric dam, a stronger framework is put in place to share information on water release from the dam. The two countries agreed to share information on rainfall and how to manage excess water without leading to flood disasters. The need for the Nigerian side to build a corresponding structure, or dam, to regulate the flow of water on the River Benue was also emphasized. The agreement also entailed that before releasing water from the Lagdo dam, Cameroun authorities will give early warning so far to enable Nigeria putting in place proactive measures to prevent destruction of lives and properties.

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